UNITED STATES INTERNATIONAL TRADE COMMISSION

SYNTHETIC ORGANIC CHEMICALS

United States Production and Sales, 1973

ITC Publication 728

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UNDER THE PROVISIONS OF
SECTION 332 OF THE TARIFF
ACT OF 1930, AS AMENDED

U.S. GOVERNMENT PRINTING OFFICE
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ITC Publication 728

UNITED STATES INTERNATIONAL TRADE COMMISSION

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C O N T E N T S

INTRODUCTION

This is the fifty-seventh 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. It is authorized under the provisions of section 332 of the Tariff Act of 1930, as amended. 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 1973 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

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.

Combined production of all synthetic organic chemicals, tars, tar crudes, and crude products from petroleum and natural gas in 1973 was 286,092 million pounds--an increase of 7.4 percent over the output in 1972 (see table 1). Sales of these materials in 1973, which totaled 164,312 million pounds valued at $19,260 million, were 8.9 percent larger than in 1972 in terms of quantity and 20.2 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 1973, production of all synthetic organic chemicals, including cyclic intermediates and finished chemical products, totaled 179,717 million pounds, or 9.4 percent more than the output in 1972. Production increased in 1973 compared to 1972 for all subgroups of products except one. Among the groups with large volumes of production, elastomers (synthetic rubbers) (5,990 million pounds) lead with an increase of 21.9 percent and plastics and resins materials (30,251 million pounds) followed with an increase of 16.7 percent. Other groups in the large volume production category increased as follows: Pesticides and related products (1,289 million pounds) and rubber processing chemicals (401 million pounds) both rose by 11 percent, and plasticizers and miscellaneous chemicals increased by slightly less than 10 percent. Medicinal chemicals (234 million pounds), fell 0.3 percent below the 1972 production level.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS: U.S. PRODUCTION AND SALES, 1972 AND 1973

Chemical	Production			Sales					
				Quantity			Value		
	1972	1973	Increase or decrease (-), 1973 over 1972[1]	1972	1973	Increase or decrease (-), 1973 over 1972[1]	1972	1973	Increase or decrease (-), 1973 over 1972[1]
	Million pounds	*Million pounds*	*Percent*	*Million pounds*	*Million pounds*	*Percent*	*Million dollars*	*Million dollars*	*Percent*
Grand total[2]	266,419	286,092	7.4	150,818	164,312	8.9	16,028	19,260	20.2
Tar	7,472	7,325	-2.0	3,409	3,363	-1.3	40	42	5.0
Tar crudes[3]	7,937	7,802	-1.7	5,304	5,151	-2.9	126	128	2.3
Crude products from petroleum and natural gas	86,792	91,250	5.1	47,900	49,625	3.6	1,177	1,451	23.3
Synthetic organic chemicals, total[2]	164,218	179,717	9.4	94,205	106,173	12.7	14,686	17,638	20.1
Cyclic intermediates	34,967	35,863	2.6	16,196	17,915	10.6	1,434	1,899	32.4
Dyes	263	284	7.9	255	266	4.6	480	519	8.1
Organic pigments	66	69	5.3	53	61	15.5	149	182	22.0
Medicinal chemicals	234	234	-0.3	163	179	9.8	490	582	18.8
Flavor and perfume materials	110	117	5.9	104	108	4.2	88	108	22.7
Plastics and resin materials	25,921	30,251	16.7	22,946	27,018	17.7	4,258	5,347	25.6
Rubber-processing chemicals	361	401	11.1	280	312	11.3	178	199	12.3
Elastomers (synthetic rubbers)	4,914	5,990	21.9	4,136	5,159	24.7	1,095	1,297	18.5
Plasticizers	1,708	1,873	9.7	1,637	1,708	4.3	291	341	17.5
Surface-active agents	4,039	4,372	8.3	2,258	2,580	14.3	451	532	18.0
Pesticides and related products	1,158	1,289	11.3	1,022	1,199	17.3	1,092	1,344	23.1
Miscellaneous chemicals	90,476	98,974	9.4	45,155	49,667	10.0	4,680	5,287	13.0

[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.

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 1973 was 179,717 million pounds or 9.4 percent more than the output of 164,218 million pounds reported for 1972 and 71.6 percent more than the output of 104,711 million pounds reported for 1967 (see table 2). Sales of synthetic organic chemicals in 1973 amounted to 106,173 million pounds, valued at $17,638 million, compared with 94,205 million pounds, valued at $14,686 million in 1972 and 55,177 million pounds, valued at $10,438 million in 1967. Production of all cyclic products (intermediates and finished products combined) in 1973 totaled 57,513 million pounds or 7.2 percent more than the 53,637 million pounds reported for 1972 and 71.8 percent more than the 33,479 million pounds reported for 1967. Production of all acyclic products in 1973 totaled 122,204 million pounds, or 10.5 percent more than the 110,580 million pounds reported for 1972 and 71.6 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, 1972, AND 1973

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

Chemical	1967[1]	1972	1973	Increase, or decrease (-)	
				1973 over 1967	1973 over 1972
				Percent	*Percent*
Organic chemicals, cyclic and acyclic, grand total:					
Production	104,711,357	164,217,690	179,717,077	71.6	9.4
Sales	55,176,823	94,205,254	106,173,335	92.4	12.7
Sales value	10,438,453	14,685,582	17,638,472	69.0	20.1
Cyclic, total:					
Production	33,479,469	53,637,371	57,512,673	71.8	7.2
Sales	19,328,628	31,082,064	35,389,938	83.1	13.9
Sales value	4,610,293	6,516,824	7,885,278	71.0	21.0
Acyclic, total:					
Production	71,231,888	110,580,319	122,204,404	71.6	10.5
Sales	35,848,195	63,123,190	70,783,397	97.5	12.1
Sales value	5,828,160	8,168,758	9,753,194	67.3	19.4
1. Cyclic Intermediates					
Production	20,793,132	34,967,181	35,863,052	72.5	2.6
Sales	9,461,180	16,195,641	17,915,149	89.4	10.6
Sales value	1,000,359	1,433,855	1,898,756	89.8	32.4
2. Dyes					
Production	206,240	263,304	284,226	37.8	7.9
Sales	198,592	254,536	266,199	34.0	4.6
Sales value	332,049	479,688	518,621	56.2	8.1
3. Organic Pigments					
Production	53,322	65,897	69,395	30.1	5.3
Sales	42,867	53,215	61,464	43.4	15.5
Sales value	108,354	149,343	182,166	68.1	22.0
4. Medicinal Chemicals					
Cyclic:					
Production	110,129	132,586	134,065	21.7	1.1
Sales	70,120	81,082	87,129	24.3	7.5
Sales value	348,873	433,259	510,677	46.4	17.9
Acyclic:					
Production	69,941	101,747	99,518	42.3	-2.2
Sales	56,804	82,128	92,049	62.0	12.1
Sales value	36,402	56,878	71,675	96.9	26.0

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1972, AND 1973--CONTINUED

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

Chemical	1967[1]	1972	1973	Increase, or decrease (-)	
				1973 over 1967	1973 over 1972
				Percent	*Percent*
5. Flavor and Perfume Materials					
Cyclic:					
Production	57,978	51,868	52,928	-8.7	2.0
Sales	47,285	48,212	45,553	-3.7	-5.5
Sales value	52,866	54,168	66,150	25.1	22.1
Acyclic:					
Production	53,558	58,605	64,072	19.6	9.3
Sales	49,311	55,780	62,774	27.3	12.5
Sales value	40,495	34,234	42,339	4.6	23.7
6. Plastics and Resin Materials					
Cyclic:					
Production	5,033,497	8,946,[illegible]7	9,903,150	96.7	10.7
Sales	4,224,121	7,807,933	8,813,959	108.7	12.9
Sales value	1,036,940	1,715,579	2,179,687	110.2	27.1
Acyclic:					
Production	8,759,452	16,973,665	20,347,467	132.3	19.9
Sales	7,753,242	15,138,142	18,204,270	134.8	20.3
Sales value	1,635,690	2,542,861	3,167,741	93.7	24.6
7. Rubber-Processing Chemicals					
Cyclic:					
Production	220,139	309,930	338,368	53.7	9.2
Sales	169,970	240,044	263,833	55.2	9.9
Sales value	116,318	157,944	175,825	51.2	11.3
Acyclic:					
Production	43,994	51,091	62,557	42.2	22.4
Sales	30,878	40,199	48,136	55.9	19.7
Sales value	15,477	19,705	23,664	52.9	20.1
8. Elastomers (Synthetic Rubbers)					
Cyclic:					
Production	2,297,637	2,705,599	3,517,739	53.1	30.0
Sales	1,940,099	2,177,303	3,018,006	55.6	38.6
Sales value	439,580	470,549	571,902	30.1	21.5
Acyclic:					
Production	1,524,908	2,208,360	2,472,272	62.1	12.0
Sales	1,321,945	1,958,960	2,141,245	62.0	9.3
Sales value	434,657	624,257	725,535	66.9	16.2
9. Plasticizers					
Cyclic:					
Production	929,871	1,301,955	1,502,160	61.5	15.4
Sales	865,084	1,273,191	1,389,714	60.6	9.2
Sales value	167,827	180,051	233,556	39.2	29.7
Acyclic:					
Production	332,908	406,358	371,223	11.5	-8.6
Sales	296,767	364,306	318,699	7.4	-12.5
Sales value	93,142	110,513	107,829	15.8	-2.4

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1972, AND 1973--CONTINUED

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

Chemical	1967[1]	1972	1973	Increase, or decrease (-)	
				1973 over 1967	1973 over 1972
				Percent	*Percent*
10. Surface-Active Agents					
Cyclic:[2]					
Production	1,418,444	1,641,552	1,872,378	32.0	14.1
Sales	852,238	1,053,240	1,368,796	60.6	30.0
Sales value	95,810	129,792	161,829	68.9	24.7
Acyclic:					
Production	2,060,851	2,397,235	2,500,038	21.3	4.3
Sales	897,786	1,204,306	1,210,868	34.9	.5
Sales value	220,877	320,976	370,011	67.5	15.3
11. Pesticides and Related Products					
Cyclic:					
Production	823,158	839,360	750,829	-8.8	-10.5
Sales	681,532	719,707	681,344	([3])	-5.3
Sales value	627,742	889,613	862,753	37.4	-3.0
Acyclic:					
Production	226,505	318,338	538,123	137.6	69.0
Sales	215,831	301,858	517,224	139.6	71.3
Sales value	159,301	202,095	480,828	201.8	137.9
12. Miscellaneous Chemicals					
Cyclic:					
Production	1,535,922	2,411,142	3,224,383	109.9	33.7
Sales	775,540	1,177,960	1,478,792	90.7	25.5
Sales value	283,575	422,983	523,356	84.6	23.7
Acyclic:					
Production	58,159,771	88,064,920	95,749,134	64.6	8.7
Sales	25,225,631	43,977,511	48,188,132	91.0	9.6
Sales value	3,192,119	4,257,239	4,763,572	49.2	11.9

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

[2] Includes ligninsulfonates.

[3] Less than 0.05 percent.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1973 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	191	Rubber-processing chemicals	30
Dyes	42	Elastomers (synthetic rubbers)	41
Organic pigments	32	Plasticizers	55
Medicinal chemicals	96	Surface-active	185
Flavor and perfume materials	48	Pesticides and related products	81
Plastics and resin materials	230	Miscellaneous chemicals	304

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 tars. Petroleum asphalts are not usually considered to be raw materials for chemicals.

The quantity of tar produced in the United States in 1973 was almost entirely coal tar which amounted to 732 million gallons (see table 1[1]). Production in 1973 was 2 percent less than the 747 million gallons of coal tar produced in 1972. Sales of coal tar in 1973 amounted to 336 million gallons, valued at $42 million, compared with 341 million gallons, valued at $40 million, in 1972. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1972 or 1973; production of these tars in 1968 amounted to 21 million gallons, according to trade publications.

Consumption of tar in 1973 amounted to an estimated 721 million gallons, of which 77 percent was consumed in distillation. Estimates of tar used by the producers as fuel amounted to 140 million gallons; a lesser amount, 3.0 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 operators[2] in 1973 amounted to 1,453 million gallons--16.1 percent more than the

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[1] See also table 2 of this section which lists the products in table 1 and identifies the manufacturers by code. These codes are given in table 3.

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

1252 million gallons reported for 1972. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum refiners in 1973 amounted to 719 million gallons, valued at $207 million, compared with 679 million gallons, valued at $138 million, in 1972. In 1973 the output of toluene[2] (including material produced for use in blending in aviation fuel) amounted to 958 million gallons--4.6 percent more than the 916 million gallons reported for 1972. Sales of toluene in 1973 were 513 million gallons, valued at $115 million, compared with 546 million gallons, valued at $92 million, in 1972. The output of xylene[2] in 1973 (including that produced for blending in motor fuels) was 785 million gallons, compared with 739 million gallons in 1972. Over 99 percent of the 785 million gallons of xylene produced in 1973 was obtained from petroleum sources.

Production (or sales) figures on crude naphthalene from coal-tar oils in 1973, could not be published without disclosing the operations of individual companies. Production of petroleum-derived naphthalene in 1973 amounted to 240 million pounds, compared with 231 million pounds in 1972. In 1973 the output of creosote oil for wood preservation was 111 million gallons (100 percent creosote basis), compared with 139 million gallons in 1972. Production figures on road tar for 1973 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 $962 million in 1973, compared with $698 million in 1972. 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 $128 million in 1973, compared with $126 million in 1972.

Data for 1973 tar crudes were supplied by 12 companies and company divisions.

See footnote 2 on page 1.

TABLE 1.--TAR AND TAR CRUDES: U.S. PRODUCTION AND SALES, 1973

[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 or sales were reported and identifies the manufacturers reporting to the U.S. International Trade Commission]

Product	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value[1]
				1,000 dollars	
Tar:[2] Coke-oven operators	1,000 gal	732,455	336,342	41,705	$0.124
Crude light oil:[3] Coke-oven operators	1,000 gal	226,109	93,819	13,183	.141
Intermediate light oil: Coke-oven operators	1,000 gal	5,118	1,029	100	.097
Light-oil distillates:					
Benzene, specification and industrial grades, total[3 4]	1,000 gal	1,453,261	719,343	206,752	.287
Coke-oven operators	1,000 gal	85,876	76,823	20,504	.267
Petroleum refiners	1,000 gal	1,367,385	642,520	186,248	.290
Toluene, all grades, total[3 4]	1,000 gal	958,195	512,803	115,176	.225
Coke-oven operators	1,000 gal	14,496	14,127	3,160	.224
Petroleum refiners	1,000 gal	943,699	498,676	112,016	.225
Xylene, all grades[3 4]	1,000 gal	785,132	564,452	116,759	.207
Coke-oven operators	1,000 gal	3,104	3,040	689	.227
Petroleum refiners	1,000 gal	782,028	561,412	116,070	.207
Solvent naphtha:[3] Coke-oven operators	1,000 gal	2,806	2,514	513	.204
Crude tar-acid oils[3] Coke-oven operators	1,000 gal	7,065	7,027	1,199	.171
Creosote oil (Dead Oil) (tar distillers and coke-oven operators) (100% creosote basis), total[5]	1,000 gal	110,612	86,572	20,192	...
Distillate as such (100% creosote basis)	1,000 gal	87,679	65,050	13,232	.204
Creosote content of coal tar solution (100% creosote basis)[6]	1,000 gal	22,933	21,522	[6] 6,960	(6)
All other distillates, total	1,000 gal	139,759	75,326	13,485	.179
Coke-oven operators, total	1,000 gal	7,219	5,721	979	.171
From light oil	1,000 gal	4,297	3,005	777	.259
Other[7]	1,000 gal	2,922	2,716	202	.075
Tar distillers[8]	1,000 gal	132,540	69,605	11,527	.166
Tar, refined, for uses other than road tar	1,000 gal	14,741	13,248	3,702	.280
Pitch of tar (tar distillers and coke-oven operators), total	1,000 tons	1,386	1,001	50,845	50.794
Soft (water softening point less than 100° F.): Coke-oven operators	1,000 tons	218	13	527	40.539
Other[9]	1,000 tons	1,168	988	50,318	50.929

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

[2] Includes only data for coal tar reported to the Division of Fossil Fuels, U.S. Bureau of Mines. Data on U.S. production of water-gas tar and oil-gas tar are not collected by the 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, toluene, and xylene by tar distillers decreased in 1973, compared with 1972. 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.

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 1973, production of coal-tar solution containing creosote (100% solution basis) amounted to 38,388 thousand gallons; sales were 36,167 thousand gallons, valued at 6,960 thousand dollars, with a unit value of $0.193 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 1973 amounted to over $4.5 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 Fossil Fuels, 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, 1972 AND 1973

(In thousands of gallons)

Product	1972	1973
PRODUCTION		
Coal tar from coke-oven byproduct plants, total[1]	747,186	732,455
CONSUMPTION		
Total	715,823	(E) 720,773
Tar consumed by distillation, total	592,507	(E) 577,773
Coal tar distilled or topped by coke-oven operators[1]	273,388	(E) 250,000
Coal tar and water-gas tar distilled by tar distillers[2]	319,119	327,773
Tar consumed by the producers chiefly as fuel[1]	119,030	(E) 140,000
Coal tar consumed at coke-oven plants in miscellaneous uses[1]	4,286	(E) 3,000

[1] Reported to the Division of Fossil Fuels, U.S. Bureau of Mines. Consumption of tar by the producers in 1973 has been estimated by the U.S. International Trade Commission. Statistics on actual consumption of these items are published by the 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.

TABLE 1B.--TAR AND TAR CRUDES: SUMMARY OF U.S. PRODUCTION OF SPECIFIED PRODUCTS 1967, 1972, AND 1973

[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]	1972	1973	Increase, or decrease (-)	
					1973 over 1967	1973 over 1972
					Percent	*Percent*
Tar[2]	1,000 gal--	780,334	747,186	732,455	-6.1	-2.0
Benzene:[3]						
Coke-oven operators	1,000 gal--	90,642	79,849	85,876	-5.3	7.5
Petroleum refiners	1,000 gal--	878,704	1,172,593	1,367,385	55.6	16.6
Total	1,000 gal--	969,346	1,252,442	1,453,261	49.9	16.0
Toluene:[3]						
Coke-oven operators	1,000 gal--	19,357	14,571	14,496	-25.1	-0.5
Petroleum refiners	1,000 gal--	[4] 624,454	[4] 901,301	[4] 943,699	51.1	4.7
Total	1,000 gal--	643,811	915,872	958,195	48.8	4.6
Xylene:[3]						
Coke-oven operators	1,000 gal--	5,488	3,351	3,104	-43.4	-7.4
Petroleum refiners	1,000 gal--	[4] 449,349	[4] 735,981	[4] 782,028	74.0	6.3
Total	1,000 gal--	454,837	739,332	785,132	72.6	6.2
Naphthalene:						
Crude[5]	1,000 lb---	520,991	410,075	[6]	...	...
Petroleum naphthalene, all grades	1,000 lb---	376,679	230,643	240,486	-36.2	4.3
Total	1,000 lb---	897,670	640,718	...	...	...
Creosote oil (Dead oil):[7]						
Distillate as such (100% creosote basis)	1,000 gal--	108,832	114,095	87,679	-19.4	-23.2
Creosote content of coal tar solution (100% creosote basis)	1,000 gal--	17,402	25,213	22,933	31.8	-9.0
Total	1,000 gal--	126,234	139,308	110,610	-12.4	-20.6

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

[2] Includes only data for coal tar reported to the Division of Fossil Fuels, 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 1973, 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 perserving.

TABLE 2.--TAR CRUDES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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 Fossil Fuels, 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	NEV, PAI.
All other light-oil distillates	KPT, PAI.
Pyridine crude bases[1]	KPT.
Naphthalene, crude, solidifying at:[1]	
Less than 74° C	COP, KPT.
74° C. to less than 79° C:	
74° C. to less than 76° C	KPT.
76° C. to less than 79° C	ASC.
Methylnaphthalene	KPT.
*Crude tar-acid oils:[1]	
Tar-acid content 5% to less than 24%	KPT.
Tar-acid content 24% to 50%	ASC.
Cresylic acid, crude	KPT.
*Creosote oil (Dead oil):[1]	
*Distillate as such	ASC, CBT, COP, HUS, KPT, RIL, WTC.
*Creosote in coal tar solution	ASC, KPT, RIL, WTC.
*All other distillate products[1]	ASC, KPT, PAI, WTC.
Tar, road	ASC, KPT RIL.
Tar for other uses:	
Crude	KPT, RIL.
*Refined[1]	ASC, KPT, RIL.
*Pitch of tar:[1]	
*Soft (Water softening point less than 110° F.)	ASC, CBT, KPT.
Medium (water softening point 110° F. to 160° F.)	ASC, COP, KPT, RIL.
Hard (water softening point above 160° F.)	ASC, HUS, KPT, RIL, WTC.
Pitch emulsion	JEN.

[1] Does not include manufacturers' identification codes for producers who report to the Division of Fossil Fuels, U.S. Bureau of Mines. Those producers are listed in the U.S. Bureau of Mines Mineral Industry Survey, September 23, 1974, entitled "Coke Producers in the U.S. in 1973".

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1973

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 1973 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.		
COP	Coopers Creek Chemical Corp.		
HUS	Husky Industries, Inc.	NEV	Neville Chemical Co.
JEN	Jennison-Wright Corp.	PAI	Pennsylvania Industrial Chemical Corp.
KPP	Arco/Polymers, Inc.	RIL	Reilly Tar & Chemical Corp.
		WTC	Witco Chemical Co., 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

Crude products that are derived from petroleum and natural gas[1] 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 91,250 million pounds in 1973, or 5.1 percent more than the 86,792 million pounds reported for 1972 (table 1).[2] The larger output in 1973 is accounted for chiefly by increased production of ethylene, propylene and benzene. Sales of crude chemicals from petroleum in 1973 amounted to 49,625 million pounds, valued at $1,451 million, compared with 47,900 million pounds, valued at $1,177 million, in 1972.

The output of aromatic and naphthenic products from petroleum amounted to 24,774 million pounds in 1973 compared with 23,753 million pounds in 1972. Sales amounted to $458 million in 1973, and $351 million in 1972. The output of 1° and 2° benzene from petroleum in 1973 (10,009 million pounds) was 15.7 percent more than the 8,654 million pounds produced in 1972.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 66,475 million pounds in 1973, compared with 63,039 million pounds in 1972. Sales of these products were valued at $993 million in 1973 compared with $825 million in 1972. Production of ethylene was 22,329 million pounds in 1973--7.1 percent more than the 20,852 million pounds produced in 1972. The output of 1,3-butadiene in 1973 (3,644 million pounds) was the largest on record.

Data for 1973 crude products from petroleum and natural gas for chemical conversion was supplied by 74 companies and company divisions.

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

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

TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1973

[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 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	91,249,511	49,624,589	1,450,922	$0.029
AROMATICS AND NAPHTHENES[2]				
Total	24,774,479	14,447,985	458,393	.032
Benzene (1° and 2°)	10,009,258	4,703,246	186,248	.040
Naphthalene, all grades	240,486	158,036	7,884	.050
Naphthenic acid	101,729	27,150	2,003	.074
Toluene, all grades, total	6,804,071	3,595,454	112,016	.031
Nitration grade, 1°	5,082,149	2,640,944	83,269	.032
Pure commercial grade, 2°	338,964	...	...	...
Solvent grade, 90%	144,387	...	...	...
All other	1,238,571	954,510	28,747	.030
Xylenes, mixed, total	5,945,413	4,266,731	116,070	.027
3° grade	994,065	659,662	23,470	.037
5° grade	1,061,279	944,460	26,389	.028
All other[3]	3,888,069	2,682,609	66,211	.025
All other aromatics and naphthenes[4]	1,675,522	1,697,368	34,172	.020
ALIPHATIC HYDROCARBONS				
Total	66,475,032	35,176,604	992,529	.028
C_2 hydrocarbons, total	28,103,945	...	...	...
Acetylene[5]	289,755	...	...	...
Ethane	5,484,728	4,580,659	47,610	.010
Ethylene	22,329,465	6,832,783	226,305	.033
C_3 hydrocarbons, total	18,952,121	11,929,503	242,230	.020
Propane	9,068,048	7,568,522	120,883	.016
Propylene[6]	9,884,073	4,360,981	121,347	.028
C_4 hydrocarbons, total	10,970,124	6,580,274	288,914	.044
1,3-Butadiene, grade for rubbers (elastomers)	3,643,541	2,416,505	196,552	.081
Butadiene and butylene fractions	535,174	450,294	12,310	.027
n-Butane	2,802,139	1,082,577	14,731	.014
1-Butene and 2-butene mixtures[7]	839,010	572,017	16,556	.029
Isobutane	1,092,032	288,458	5,288	.018
Isobutylene	771,056	496,683	14,390	.029
All other[8]	1,287,172	1,273,745	29,087	.023
C_5 hydrocarbons, total	1,270,282	804,542	28,518	.035
Isoprene (2-Methyl-1,3-butadiene)	366,818	131,847	5,368	.063
Pentenes, mixed	420,782	...	...	...
All other[9]	482,682	672,695	19,950	.030

See footnotes at end of table.

TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
ALIPHATIC HYDROCARBONS--Continued				
All other aliphatic hydrocarbons, derivatives, and mixtures, total	7,178,557	4,448,843	159,152	$0.036
Alpha olefins, total	414,835	555,248	24,797	.070
Molecular weight ranges, C_6-C_7	52,077	39,693	1,752	.044
All other[10]	362,758	515,555	23,045	.073
Heptenes, mixed	116,846	77,327	2,565	.033
Hexanes and other C_6 hydrocarbons	386,542	357,334	12,368	.035
Nonene (Tripropylene)	450,811	300,882	11,004	.037
n-Paraffins, total	1,002,845	660,585	22,895	.035
Carbon chain length, C_9-C_{15}	250,590	241,343	5,443	.023
Other	752,255	419,242	17,452	.042
Polybutene[11]	227,507	...	...	...
Tetrapropylene	278,298	120,818	4,257	.035
Hydrocarbon derivatives[12]	71,483	63,808	8,878	.139
All other[13]	4,229,390	2,512,841	72,388	.029

[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 related 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 1 B of the report "Tar and Tar Crudes, 1973."

[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, and mixed olefins.

[9] Includes data for isopentane, pentenes, and C_5 hydrocarbon mixtures.

[10] Includes data for the following molecular weight ranges: C_8-C_{10}; C_{11}-C_{15}; C_{12}-C_{14}; C_{15}-C_{20}; and C_{16}-C_{30}.

[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 1973 compared to 1972 is due to a decrease in production of most of the items grouped here in both years. In addition, several items were produced in quantities too low to be reported by the companies for 1973.

[13] Includes data for di-isobutylene, methane-ethane-ethylene mixture, heptane, methane, octanes, mixtures of C_2 and C_3 hydrocarbons and of other hydrocarbons, and sales of acetylene 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, 1973

[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°----------	ACU, AMO, APF, APR, ASH, ATR, CCP CSD, CSO, CSP, EKX, ENJ, GOC, GRS, HES, MOC, MON, PLC, PPR, SHC, SHO, SKO, SM, SNT, SOG, SUN, TOC, TX, UCC, UOC, x.
*Benzene, 2°----------	CPI, DOW, SOC.
Cresylic acid, crude----------	PRD.
*Naphthalene, all grades----------	ASH, COL, MON, SUN, TID.
*Naphthenic acids:	
Acid number lower than 150----------	ATR, SUN, TX.
Acid number 150-199----------	ATR, PRD, SOC, SUN.
Acid number 200-224----------	ATR, PRD, SOC.
Sodium carbolate and phenate, crude----------	ATR.
*Toluene:	
*Nitration grade, 1°----------	APF, ASH, ATR, CCP, CSD, CSP, ENJ, GOC, GRS, HES, MOC, MON, PLC, PPR, SHC, SHO, SNT, SOG, SUN, TOC, TX, UCC, UOC.
*Pure commercial grade, 2°----------	ATR, CPI, DOW, ENJ, MON, UCC.
*Solvent grade, 90%----------	ACC, FG, SKO.
All other----------	ATR, CCP, CPI, ELP, GOC, GRS, PLC, SHO, SM, SOC.
*Xylenes, mixed:	
Aviation grade----------	CSO.
*3° grade----------	APF, CSD, MOC, PPR, SHO, SUN, UOC.
*5° grade----------	ASH, ATR, GOC, HES, SOG.
All other----------	AMO, CCP, CPI, CSD, CSP, ENJ, HCR, MON, PPR, SHC, SNT, SOC, STY, SUN, TOC, UCC.
All other aromatics, naphthenes, distillates and solvents----------	ACC, ACU, ATR, CBN, CPX, DUP, EKX, ENJ, FG, GOC, JCC, MOC, MON, NWP, OMC, PLC, PRD, PUE, SHC, SOC, SOG, TX, UCC.
ALIPHATIC HYDROCARBONS	
C_1 hydrocarbon: Methane----------	MON, NWP.
*C_2 hydrocarbons:	
*Acetylene----------	DOW, MNO, RH, UCC.
*Ethane----------	ACU, ATR, DOW, ENJ, MON, OMC, PAN, PLC, PUE, SM, TX, USI.
*Ethylene----------	ACU, ATR, BAS, BFG, CBN, CO, CPX, DOW, DUP, EKX, ELP, ENJ, FRO, GOC, JCC, KPP, MON, NWP, OMC, PLC, PUE, SHC, SM, SNO, UCC, USI.
C_2 and C_3 hydrocarbons, mixed----------	ATR, CO, CSO.
*C_3 hydrocarbons:	
*Propane----------	AMO, ASH, ATR, CCP, COR, CPI, CSD, CSO, CSP, ENJ, GRS, MOC, OMC, PAN, PLC, PUE, SHO, SM, SNT, SOG, SUN, TX, UOC, USI.
*Propylene----------	ACC, ACU, AMO, ASH, ATR, BFG, CBN, CPX, CSO, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, MOC, MON, NWP, PLC, PUE, SHC, SHO, SIO, SM, SOG, SUN, TX, UCC.
*C_4 hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)----------	ATR, BFG, CPY, DOW, ELP, ENJ, FRS, MON, PLC, PTT, PUE, SBI, SHC, SM, TID, TUS, UCC.
*Butadiene and butylene fractions----------	ACU, ATR, CO, CPX, DOW, EKX, GOC, GYR, KPP NWP, SHO, UCC.
*n-Butane----------	ATR, BFG, COR, CSP, OMC, PAN, PLC, SHO, SM, SNT, SUN, USI.
1-Butene----------	GOC, PLC, PTT.
2-Butene----------	MON, PLC.

TABLE 2.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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, TX.
*Isobutane	ATR, BFG, CSP, ELP, OMC, PAN, PLC, SHO, SUN, USI.
*Isobutylene	ENJ, OCC, PTT, SHC, SHO.
All other	APR, ATR, BFG, CBN, ENJ, JCC, MON, PLC, PUE, SM.
*C_5 hydrocarbons:	
Isopentane (2-Methylbutane)	PAN, PLC.
*Isoprene (2-Methyl-1,3-butadiene)	BFG, ENJ, GYR, MON, SHC, x.
n-Pentane	APR, PLC.
*Pentenes, mixed	GYR, MON, TX.
All other	CBN, MON, PLC, SHC, UCC.
*C_6 hydrocarbons:	
*Hexane	APR, ENJ, PLC, SOG, UOC.
Neohexane (2,2-Dimethylbutane)	PLC.
All other	HMY, PLC, SWC.
C_7 hydrocarbons:	
n-Heptane	EKX, PLC, SOG.
*Heptenes, mixed	AIP, ENJ, GOC, SOI, TID.
All other	ENJ, HCR, UOC.
C_8 hydrocarbons:	
Diisobutylene (Diisobutene)	BFG, PTT, TX.
n-Octane	SOG.
All other	ENJ, HMY, PLC.
Hydrocarbons, C_9 and above:	
*Nonene (Tripropylene)	AIP, AMO, ATR, CSD, ENJ, PLC, SUN, UOC.
*Polybutene	ACC, CSD, SOC.
*Tetrapropylene	ATR, CO, ENJ, SOC, SUN, TX, UOC.
Triisobutylene	TX, x.
All other	ACC, ATR, CO, CPI, ENJ, HMY, KPP, 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_8	SOG.
*C_9-C_{15}	BFG, HCR, SOG.
C_{12}-C_{14}	ENJ, SOG, UCC.
C_{16}-C_{26}	CO.
All other	CO, ENJ, PUE, UCC.
*Hydrocarbon derivatives:	
1-Butanethiol	PLC.
tert-Butyl-mercaptan (2-Methyl-2-propanethiol)	PAS.
Cyclohexyl mercaptan	PAS.
Di-tert-butyl disulfide	PLC.
Ethyl mercaptan (Ethanethiol)	PAS.
n-Hexadecyl mercaptan	PAS.
Isopropyl mercaptan	PAS.
Methyl mercaptan (Methanethiol)	ACC, DOW, PAS.
tert-Nonyl mercaptan	PAS.
n-Octyl mercaptan	PLC.
n-Propyl mercaptan (1-Propanethiol)	PAS, PLC.
All other	PAS, PLC.
Mixtures, not elsewhere classified	GYR, MON.

TABLE 3.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: DIRECTORY OF MANUFACTURERS, 1973

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 1973 are listed below in the order of their identification codes as used in table 2]

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

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 it may be packaged and sold as a moth repellent or as a deodorant. In 1973 about 50 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 1973--35,863 million pounds--was the largest on record, and was 2.6 percent larger than the output of 34,967 million pounds reported for 1972. The larger output of cyclic intermediates in 1973 reflects the increased demand by the chemical products industries, particularly those industries that produce plastics materials, dyes, pigments, and plasticizers. Sales of cyclic intermediates in 1973 were 17,915 million pounds, valued at $1,899 million, compared with 16,196 million pounds, valued at $1,434 million, in 1972.

Production of styrene in 1973 was 5,975 million pounds, or 0.6 percent more than the 5,941 million pounds produced in 1972. Output of ethylbenzene was 5,688 million pounds, a small increase over the 5,676 million pounds produced in 1972. Other intermediates whose production exceeded 1 billion pounds in 1973 were cumene (2,665 million pounds), dimethyl terephthalate (2,564 million pounds), p-xylene (2,326 million pounds), phenol (2,276 million pounds), cyclohexane (2,123 million pounds), o-xylene (1,068 million pounds) and phthalic anhydride (1,023 million pounds). Other large volume intermediates produced in 1973 were isocyanates (871 million pounds), cyclohexanone (638 million pounds), straight-chain alkylbenzenes (498 million pounds), 2,4(and 2,6)-dinitrotoluenes (471 million pounds), aniline (458 million pounds), monochlorobenzene (397 million pounds), Bisphenol A (320 million pounds) and nitrobenzene (309 million pounds). The above 17 chemicals accounted for 83 percent of the total output of intermediates in 1973. Production of 12 of the above chemicals increased in 1973 compared with 1972. The output of five, however, decreased in 1973 from that in 1972, as follows: nitrobenzene (44 percent), cyclohexanone (18 percent), cyclohexane (8 percent), alkylbenzenes (5 percent), and monochlorobenzene (2 percent).

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1973

[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 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	35,863,052	17,915,149	1,898,756	$0.11
Acetanilide, tech	3,967	420	131	.31
Acetophenone, tech	2,246	1,752	491	.28
Alkylbenzenes[2]	498,241	455,680	49,021	.11
1-Aminoanthraquinone and salt	599	...	...	...
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid	23	...	...	...
1-Amino-2-bromo-4-hydroxyanthraquinone	869	...	...	...
1-Amino-2,4-dibromoanthraquinone	1,194	...	...	...
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt	28	...	...	...
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide	16	...	...	...
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	1,140	...	...	...
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	245	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid	541	...	...	...
Aniline (Aniline oil)	457,643	255,883	22,406	.09
Anilinomethanesulfonic acid and salt	565	...	...	...
o-Anisidine	2,027	...	...	...
o-Anisidinomethanesulfonic acid	745	...	...	...
Benzaldehyde, tech	...	4,863	1,709	.35
7H-Benz[de]anthracen-7-one (Benzanthrone)	1,086	...	...	...
Benzoic acid, tech	...	28,130	3,273	.12
2-Benzothiazolethiol, sodium salt	11,944	5,849	2,225	.38
[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione	179	...	...	...
Biphenyl	77,928	34,075	3,208	.09
1,4-Bis[1-anthraquinonylamino]anthraquinone	66	...	...	...
3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)	100	...	...	...
2-Bromo-4,6-dinitroaniline	944	...	...	...
Chlorobenzene, mono	397,481	125,735	8,237	.07
4-Chloro-3-nitrobenzenesulfonamide	743	...		...
Cresols, total[3]	115,436	127,025	24,654	.19
o-Cresol	24,741	24,053	3,367	.14
(m,p)-Cresol	31,377	...	...	...
All other[4]	59,318	102,972	21,287	.21
Cresylic acid, refined[3]	57,524	64,819	9,122	.14
Cumene	2,665,408	1,400,824	52,510	.04
Cyclohexane	2,122,598	1,984,664	89,680	.05
Cyclohexanone	638,156	45,937	6,607	.14
1,4-Diaminoanthraquinone	82	...	...	...
1,4-Diamino-2,3-dihydroanthraquinone	890	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid	8,371	...	...	...
o-Dichlorobenzene	66,035	67,055	8,659	.13
p-Dichlorobenzene	62,743	69,398	6,436	.09
Dicyclopentadiene (includes cyclopentadiene)	96,430	70,142	3,142	.04
N,N-Diethylaniline	2,774	2,380	1,223	.51

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracene-sulfonic acid	32	...	...	...
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt)	810	...	...	...
1,4-Dihydroxyanthraquinone (Quinizarin)	2,142	297	330	$1.10
1,8-Dihydroxyanthraquinone (Chrysazin)	155	...	...	...
16,17-Dihydroxyvioланthrone (Dihydroxydibenzanthrone)	167	...	...	...
p-(Dimethylamino)benzaldehyde	16	...	...	...
N,N-Dimethylaniline	15,689	10,093	2,083	.21
N,N-Dimethylbenzylamine	148	101	148	1.47
2,2-Dimethyl-1,1'-bianthraquinone	68	...	...	...
2,4(and 2,6)-Dinitrotoluene	471,237	...	...	...
Diphenylamine	34,655	18,146	4,479	.25
N-Ethylaniline, refined	1,911	1,176	517	.44
2-(N-Ethylanilino)ethanol	205	...	...	...
Ethylbenzene[2]	5,687,594	415,094	20,873	.05
N-Ethyl-N-phenylbenzylamine	727	...	...	...
3-(N-Ethyl-m-toluidino)propionitrile	93	104	140	1.35
Hydroquinone, tech	17,897	12,630	10,348	.82
6-Hydroxy-2-naphthalenesulfonic acid, and sodium salt	571	...	...	...
Isocyanic acid derivatives, total	871,163	720,938	220,715	.31
Polymethylene polyphenylisocyanate	282,262	223,468	59,536	.27
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)	505,975	438,219	126,261	.29
Other isocyanic acid derivatives	82,926	59,251	34,918	.59
4,4'-Isopropylidenediphenol (Bisphenol A)	319,737	115,703	18,637	.16
Isoviolanthrone	22	...	...	...
Leuco quinizarin (1,4,9,10-Anthratetrol)	126	...	...	...
Melamine	118,637	83,472	14,551	.17
Metanilic acid (m-Aminobenzenesulfonic acid)	1,403	...	...	...
3-(N-Methylanilino)propionitrile	233	46	62	1.34
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)	1,164	...	...	...
4,4'-Methylenedianiline	...	2,068	981	.47
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	48	42	61	1.45
α-Methylstyrene	52,451	36,503	2,206	.06
Nitrobenzene	308,667	...	...	...
5-Nitro-o-toluenesulfonic acid [SO_3H=1]	7,955	...	...	...
5-Nitro-o-toluidine [NH_2=1]	353	312	420	1.35
Nonylphenol	109,026	48,183	6,206	.13
1[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthraquinone	220	...	...	...
Phenol, total[3]	2,275,790	1,312,284	100,508	.08
Natural, from coal tar and petroleum	34,595	23,283	1,887	.08
Synthetic, total	2,241,195	1,289,001	98,621	.08
From cumene	2,016,424	...	...	...
Other synthetic	224,771	1,289,001	98,621	.08
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochloride	462	...	...	...
Phthalic anhydride	1,022,556	641,146	61,326	.10
Picolines[3]	6,118	3,355	1,767	.53

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Piperidine	731	...	...	...
Propiophenone	585	...	...	...
Salicylaldehyde	4,790	3,744	3,907	$1.04
Salicylic acid, tech	41,507	14,004	5,661	.40
Styrene, all grades	5,975,299	2,839,476	199,141	.07
Terephthalic acid, dimethyl ester	2,563,593	1,311,592	165,875	.13
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	108	...	...	...
3,3'-Thiobis[7H-benz[de]anthracen-7-one]	24	...	...	...
Toluene-2,4-diamine (4-m-Tolylenediamine)	192,995	...	...	...
4-(o-Tolyazo)-o-toluidine (C.I. Solvent Yellow 3)	453	...	...	...
2,2'-(m-Tolylimino)diethanol	159	163	158	.97
1,2,4-Trichlorobenzene	28,268	26,198	3,607	.14
1,3,3-Trimethyl-$\Delta^{2,\alpha}$-indolineacetaldehyde	357	...	...	...
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea)	259	...	...	...
Violanthrone (Dibenzanthrone)	507	...	...	...
o-Xylene	1,067,872	774,929	37,998	.05
p-Xylene	2,325,775	1,569,340	100,635	.06
All other cyclic intermediates	5,033,515	3,209,379	622,682	.19

[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 Fossil Fuels, U.S. Bureau of Mines and for tar and petroleum refineries and other producers, reported to the 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.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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 tahle 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.
α-Acetamido-p-toluenesulfonamide	SDW.
2,2'-[(5-Acetamido-2-ethoxyphenyl)imino] diethanol	TCH.
2,2'-[(5-Acetamido-2-methoxyphenyl)imino] diethanol	TCH.
*Acetanilide, tech	CTN, EKT, MRK, SAL.
Acetanilide, N.F.	SAL.
Acetic acid, phenyl ester	UCC.
Acetoacetanilide	FMP, HST.
o-Acetoacetanisidide	FMP, HST.
Acetoacet-2,5-dimethoxy-4-chloroanilide	FMP.
o-Acetoacetotoluidide	FMP, HST.
2',4'-Acetoacetoxylidide	HST.
1'-Acetonaphthone	GIV.
Acetone phenylhydrazone	DUP.
*Acetophenone, tech	ACP, CLK, SKO, UCC.
p-Acetotoluidide	EK.
p-Acetylaminophenol	PD.
p-Acetylbenzenesulfonamide	LIL.
p-Acetylbenzenesulfonic acid, sodium salt	LIL.
p-Acetylbenzenesulfonylurethane	LIL.
N-Acetylsulfanilyl chloride	ACY, CTN, MRK, SAL.
Acyloin	ARA.
*Alkylbenzenes:	
Dodecylbenzene (including tridecylbenzene):	
*Straight chain	APF, BRP, CO, MON, UCC, WTC.
Other	CO, SOC, UCC.
Alkylpyridines, mixed	UCC.
α-dl-5-Allyl-6-imino-1-methyl-5-(1-methyl-2-pentynyl) barbituric acid.	LIL.
α-dl-5-Allyl-5-(1-methyl-2-pentynyl)-1-methylbarbituric acid.	LIL.
3'-Aminoacetanilide	AC, DUP, GAF, TRC.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	GAF, TRC.
2'-Aminoacetophenone	EK.
3'-Aminoacetophenone	CTN, SDH.
4'-Aminoacetophenone	EK.
5'-Amino-2-(p-aminoanilino)benzenesulfonic acid	TRC, YAW.
1-Amino-4-(4-amino-3-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid.	TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	TRC.
3-Amino-p-anisanilide	PCW.
*1-Aminoanthraquinone and salt	AC, ACY, MAY, SDC, TRC.
2-Aminoanthraquinone and salt	ACY, GAF, TRC.
5(and 8)-Amino-1-anthraquinonesulfonic acid	TRC.
N-(4-Amino-1-anthraquinonyl)anthranilic acid	GAF.
N-(5-Amino-1-anthraquinonyl)anthranilic acid	DUP.
4-Aminoantipyrine hydrochloride	EK.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9).	ACY.
p-Aminobenzamide	SDH.
1-Amino-4-benzamidoanthraquinone	ACY, MAY, TRC.
1-Amino-5-benzamidoanthraquinone	TRC.
*7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid.	GAF, TRC, VPC.
3'-Aminobenzanilide	x.
3'-Aminobenzanilide-4-sulfonic acid	TRC.
2-Amino-p-benzenedisulfonic acid [SO_3H=1]	DUP.
o-Aminobenzenethiol	ASH, FMT.
4-Aminobenzenethiosulfonic acid, sodium salt	SDC.
p-Aminobenzoic acid, tech	PD.
4-Aminobenzophenone	DUP.
2-Amino-6-benzothiazolecarboxylic acid	DUP.
2-(m-Aminobenzoyl)-o-acetanisidide	GAF.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
N-(4-Amino-3-bromo-1-anthraquinonyl)-p-toluidine sulfonic acid.	TRC.
*1-Amino-2-bromo-4-hydroxyanthraquinone	AC, DUP, HN, VPC.
1-Amino-2-bromo-4-p-toluidinoanthraquinone	ACS, TRC.
7-Aminocephalosporanic acid	LIL.
1-Amino-5-chloroanthraquinone	ACY, 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.
5-Amino-2-chlorobenzotrifluoride	SW.
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.
1-(2-Amino-5-chlorophenyl)-1-phenylmethylenimine	ABB.
3-Amino-6-chloropyridazine	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1]	ACY, HSC.
6-Amino-4-chloro-m-toluenesulfonic acid [SO_3H=1]	DUP, HSC.
2-Amino-p-cresol	TRC.
*1-Amino-2,4-dibromoanthraquinone	AC, DUP, HN, TRC, VPC.
1-Amino-2,4-dichloroanthraquinone	TRC.
2-Amino-4,6-dichloro-5-cresol	EA.
4'-Amino-2',5'-diethoxybenzanilide	ALL.
*1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt.	AC, GAF, x.
5-Amino-4,5'-dihydroxy-3,4'-[(2-methoxy-5-methyl-p-phenylene)bis(azo)]-di-2,7-naphthalenedisulfonic acid, 5'-benzenesulfonate.	TRC.
2-Amino-4-(α,α-dimethylbenzyl)phenol	TRC.
3-Amino-9-ethylcarbazole	SDC.
3-Amino-α-ethylhydrocinnamic acid	SDA.
4-Amino-N-ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine phosphate.	WAY.
4-Amino-N-ethyl-N-(β-methylsulfonamidoethyl)-m-toluidine, sesquisulfate monohydrate.	WAY.
p-Amino-N-ethyl-N-1-naphthylbenzamide	GAF.
N-Aminohexaethyleneimine	EMP.
2-Amino-3-hydroxyanthraquinone	GAF.
5-Amino-4-hydroxy-m-benzenedisulfonic acid	TRC.
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.
6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt.	TRC.
7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt.	HN, TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid.	TRC.
3-Amino-2-mercaptobenzoic acid	x.
4-Amino-3-(β-methanesulfonamidoethyl)-N,N-diethylaniline hydrochloride.	EKT.
*N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide.	AC, DUP, GAF.
5-Amino-6-methoxy-2-naphthalenesulfonic acid	TRC.
*m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	DUP, HN, TRC.
4-[(4-Amino-5-methoxy-o-tolyl)azo]-4-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
3-[(4-Amino-5-methoxy-o-tolyl)azo]-1,5-naphthalenedisulfonic acid.	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedisulfonic acid.	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
4'-(4''-Amino-2''-methylphenylazo)-7-phenylazonaphthalene-1,3-disulfonic acid, disodium salt.	ACS.
2-Amino-5-methylpyridine	RIL.
2-Amino-6-methylpyridine	RIL.
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-thiodiazol-2-yl) thiomethyl]-3-cephem-4-carboxylic acid.	LIL.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione	DUP.
6-Aminonaphth[2,3-c]acridan-5,8,14-trione	GAF.
2-Amino-1,5-naphthalenedisulfonic acid	ACY, SDH.
3-Amino-1,5-naphthalenedisulfonic acid (C acid)	TRC.
6-Amino-1,3-naphthalenedisulfonic acid (Amino 1 acid)	HN, TRC.
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	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	ACY, 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	DUP, TRC.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)	ACS.
8-Amino-2-naphthol	TRC.
2-(4-Amino-1-naphthylazo)-4-(1,1,3,3-tetramethylbutyl) phenol.	GAF.
2-Amino-4-nitroacetanilide	SDC.
2-Amino-5-nitrobenzenesulfonic acid [SO_3H=1]	TRC.
2-Amino-1-(p-nitrophenyl)-1,3-propanediol	FD.
*4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	ACS, GAF, HN, TRC.
2-Amino-5-nitrothiazole	PCW.
3'-Aminooxanilic acid	TRC.
4'-Aminooxanilic acid	DUP.
5-Amino-2-[(2-oxo-5-benzimidazolinyl)amino]benzenesulfonic acid.	NOR.
6-Aminopenicillanic acid	ALD, TRD.
o-Aminophenol	TRC.
p-Aminophenol	MAL.
2-(p-Aminophenoxy)ethanol hydrochloride	GAF.
m-[(p-Aminophenyl)azo]benzenesulfonic acid	TRC.
*p-[(p-Aminophenyl)azo]benzenesulfonic acid	ACS, 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'-Aminopropiophenone	EK.
2-Aminopyridine	NEP, RIL.
4-Aminopyridine	RIL.
2-Aminopyrimidine	ACY.
5-Aminosalicylic acid	TRC.
N-(4-Amino-3-sulfo-1-anthraquinonyl)anthranilic acid	GAF.
2-Amino-4-(1,1,3,3-tetramethylbutyl)phenol	GAF.
2-Aminothiazole	MRK.
3-Amino-p-toluamide	SDH.
α-Amino-p-toluenesulfonamide	SDW.
4-Amino-m-toluenesulfonic acid [SO_3H=1]	ACY, DUP.
6-Amino-m-toluenesulfonic acid [SO_3H=1]	DUP.
5-Amino-o-toluenesulfonic acid [SO_3H=1]	HSC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
5-Amino-2-p-toluidinobenzenesulfonic acid	TRC.
m-(4-Amino-3-tolylazo)benzenesulfonic acid	TRC.
3-[(4-Amino-o-tolyl)azo]-1,5-naphthalenedisulfonic acid	TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
2-Amino-3,5-xylenesulfonic acid [SO_3H=1]	DUP.
3-Amino-4,6-xylenesulfonic acid	WJ.
5-Amino-2,4-xylenesulfonic acid	DUP.
*Aniline (Aniline oil)	ACY, DUP, FST, MAL, MOB, RUC, USR.
Aniline hydrochloride	ACY, EK.
2'-Anilino-6-diethylamino-3-methylfluoran	x.
2-Anilinoethanol	TCH.
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid).	TRC.
*Anilinomethanesulfonic acid and salt	ACS, ACY, DUP, TRC, VPC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	DUP, EK, SDC.
p-Anilinophenol	SDC.
3-Anilinopropionitrile	TCH.
o-Anisaldehyde	ASL.
o-Anisic acid	BJL.
*o-Anisidine	AC, DUP, x.
p-Anisidine	DUP, MON.
*o-Anisidinomethanesulfonic acid	AC, DUP, GAF, TRC, VPC.
m-Anisil	DUP.
Anisoin	DUP.
Anisole, tech	CTN, DUP, GIV.
3-(o-Anisylazo)benzenesulfonic acid, sodium salt	ACS.
Anthracene	EK.
Anthranilic acid (o-Aminobenzoic acid)[1]	DUP, SW.
Anthra[1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)	GAF, TRC.
Anthraquinone, 100%	TRC.
1,1'-[1,5(and 1,8)-Anthraquinonylenediamino]bis-naphth[2,3-c]acridan-5,8,14-trione.	DUP.
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	GAF, DUP, TRC.
N,N'-(1,5-Anthraquinonylene)dioxamic acid	SW.
4',4'''-Azobis[4-biphenylcarboxylic acid]	DUP.
Barbituric acid, sodium derivative	ABB.
*Benzaldehyde, tech	BPC, HN, MNR, UOP, VEL.
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, GAF, MAY, SDC, TRC.
m-Benzenedisulfonic acid	KPT, UPF.
Benzenesulfinic acid, sodium salt	EK.
Benzenesulfonamide	NES.
Benzenesulfonic acid	NES, UPF.
Benzenesulfonyl chloride	ALD, NES, USR.
1,2,4,5-Benzenetetracarboxylic-1,2,:4,5-dianhydride	DUP, PCR.
1,2,4-Benzenetricarboxylic acid, 1,2-anhydride (Trimellitic anhydride).	ACC.
Benzhydrol (Diphenylmethanol)	PD, UOP.
Benzidine base	ACS.
Benzidine hydrochloride and sulfate	LAK.
Benzilic acid, methyl ester	LEM.
*Benzoic acid, tech[1]	HN, KLM, PFZ, VEL.
Benzoic acid, butyl ester	SYL.
Benzoin	BPC.
Benzoinisobutyl ether	BPC.
α-Benzoin oxime	RSA.
Benzonitrile	VEL.
2-Benzothiazolethiol	USR.
*2-Benzothiazolethiol sodium salt	ACY, GYR, USR, x.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Benzoquinonedioxime	SDC.
1H-Benzotriazole	SW.
2H-3,1-Benzoxazine-2,4(1H)-dione	SW.
o-Benzoylbenzoic acid	ACY, GAF.
Benzoyl chloride	HK, GAF, VEL.
N-Benzylacetamide	SDW.
Benzylamine	ARS, MLS.
4-(Benzylamino)-6-chloro-m-benzenedisulfonic acid	ABB.
p-(Benzylamino)phenol	EK.
4-Benzyl-6-chloro-3-keto-7-sulfamyl-1,2,4-benzylthiadiazine-1,1-dioxide.	ABB.
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	DUP.
3-Benzyl-1,2,3,4,5,6-hexahydro-8-hydroxy-cis-6,11-dimethyl-2,6-methano-3-benzazocine hydrobromide.	SDW.
6-Benzylidineaminopenicillanic acid, tertiary octylamine salt.	TRD.
4,4'-Benzylidenedi-o-toluidine	ACY.
Benzylidene phthalide	LIL.
p-(Benzyloxy)phenol	EK.
1-Benzyl-4-phenylisonipecotic acid	SDW.
1-Benzyl-4-phenylisonipecotonitrile	SDW.
Benzyltrimethylammonium chloride	MLS.
Benzyltrimethylammonium hydroxide	MLS.
Benzyltrimethylammonium methoxide	MLS.
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione (Pyrazoleanthrone yellow).	DUP, GAF, 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.
2,2'-Biquinoline	EK.
3'-[Bis(2-acetoxyethyl)amino]-p-acetoanisidide	TCH.
Bis(p-aminocyclohexyl)methane	DUP.
Bis(2-aminophenyl)disulfide	SDC.
*1,4-Bis[1-anthraquinonylamino]anthraquinone	ACY, GAF, MAY, TRC.
1,4-Bis[1-anthraquinonylamino]anthraquinone and 1,4-Bis[5-chloro-1-anthraquinonylamino]anthraquinone (mixed).	TRC.
2,6-Bis(p-azidobenzylidene)-4-methylcyclohexanone	WAY.
α^2,α^6-Bis[5-tert-butyl-6-hydroxy-m-tolyl]mesitol	ACY.
4,4'-Bis[diethylamino]benzhydrol,2,6-naphthalenedisulfonate.	GAF.
4,4'-Bis[diethylamino]benzhydrol salt, 2,7-naphthalenedisulfonic acid, mixture.	TRC.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)	DSC, SDH.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalenedisulfonic acid, leuco form.	TRC.
4,4'-Bis[dimethylamino]benzhydrol (Michler's hydrol)	SDH.
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)	DSC, DUP, SDH.
3,3'-Bis[3',3'-(1'-ethyl-2'-methyl)indolyl]phthalide	x.
3'-[Bis(2-hydroxyethyl)amino]acetanilide	GAF.
5-[Bis(2-hydroxyethyl)amino]-2,2'-chloro-4-nitrophenylazobenzanilide.	DUP.
3'-[Bis(2-hydroxyethyl)amino]methanesulfoanilide, diacetate ester.	DUP.
4,4'-Bis[(p-hydroxyphenyl)azo]-2,2'-stibenedisulfonic acid (C.I. Direct Yellow 4).	TRC.
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-Bromoacetophenone	EK.
p-Bromoaniline	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemica[illegible]	Manufacturers' identification codes (according to list in table 3)
[illegible]	[illegible]PC.
3-[illegible]-7H-[illegible][de]anthracen-7-one (3-Bromobenzanthrone)	ACY, DUP, GAF, MAY, TRC.
[illegible]nzene, mono	DOW.
[illegible]-Bromobenzhydrol	PD.
-Br[illegible]benzoic acid	PD.
4-Bromobenzophenone	PD.
[illegible]romochlorobenzene	DOW.
-[illegible]romo-5-chlorobenzo[illegible]olone	SW.
-[illegible]romo-6-chloro-4-nitroaniline	AC, SDC.
-[illegible]o-[illegible],[illegible]-dinitroaniline	AC, HST, SDC, [illegible].
[illegible]-2-[illegible]-4,4,[illegible],5-tetramethyl-[illegible] [illegible]	[illegible].
[illegible]-[illegible]romo-4-(methylamino)anth[illegible]	AC, B[illegible].
[illegible]omethyl[illegible]thi[illegible]phen[illegible]	SDW.
[illegible]omonaphthalene	EF, [illegible]SA.
[illegible]	GAF.
[illegible] p-nitrotoluene [illegible]	BPC.
[illegible]phenol	EF.
[illegible]p-[illegible]phenyl[illegible]acetonitrile	PPC.
[illegible]-1-phth[illegible]	PD.
[illegible]	PPC, EK.
[illegible]-1,[illegible],[illegible]-tri[illegible]	DUP.
[illegible]utox[illegible]phen[illegible]l	ABB.
[illegible]	DUP.
[illegible]	DUP.
[illegible]Butylanilino[illegible]propionitrile	SYL.
-Butylanilino[illegible]propionitrile	TCH.
[illegible]rt-Butylanthraquin[illegible]	DUP.
[illegible]rt-Butylben[illegible]	GIV.
[illegible]-Butylbenzene	EF, PLC.
[illegible]utylbenzene	PLC.
-Butylbenzene	EF, PLC, UOP.
tert-But[illegible]	SHC.
-(p-tert-Butylbenzoyl)benzoic acid	DUP.
-tert-Butyl-p-cresol	ACY.
-tert-Butyl-m-cresol	FPT, PIT, PRD.
-[illegible]utyl[illegible]cyclopentadienyl[illegible]cyclopentadiene[illegible] n-Butyl[illegible]rocene).	ABA.
[illegible]rt-But[illegible]-[illegible],6'-dimethyl[illegible]	GIV.
[illegible]dimethyl[illegible]cresol	RH.
[illegible]-Butyl-4-ethylphenol	ACY.
[illegible]hydroquinone	[illegible].
[illegible]utyl-4-methoxymetanilamide	ALL.
tert-Butyl-5-methylanisole	GIV.
-[illegible]c-Butylphenol	TNA.
-[illegible]-Butylphenol	DOW.
tert-Butylphenol	TNA.
tert-Butylphenol	DOW, PRD, SCN, UCC.
[illegible]utylphenols, mixed	DOW, SCN.
[illegible]ert-Butyltoluene	GIV, SHC.
tert-Butyl-1,2,3-trimethylbenzene	GIV.
tert-[illegible]-m-xylene	GIV.
[illegible]-tert-Butyl-2,4-xylenol	PIT.
d-10-Camphorsulfonic acid	OTC.
Camphosulfonic acid	KF.
[illegible]arbazole, refined	SDC.
[illegible]'-Carbonylbis[phthalic anhydride]	PCR.
-[illegible]arboxyfluorescein	EK.
[illegible]arboxyphenyl)thio]ethylmercury	LIL.
[illegible]rene	GIV.
Chloroacetoacetanilide	HST.
Chloroacetophenone	EK.
[illegible]loroacetophenone	EK.
[illegible]loroacetophenone	LIL.
[illegible]	DUP.
[illegible]	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
m-Chloroaniline	DUP, GAF.
o-Chloroaniline	DUP, MON.
p-Chloroaniline	DUP, MON.
2-(m-Chloroanilino)diethanol	SYL.
3-(o-Chloroanilino)propionitrile	DUP, TCH.
5-Chloro-o-anisidine [NH_2=1] (4-Chloro-o-anisidine [OCH_3=1]).	ALL.
5-Chloro-o-anisidine hydrochloride	ALL, GAF.
1-Chloroanthraquinone	ACY, MAY, TEC.
2-Chloroanthraquinone	ACY.
o-Chlorobenzaldehyde	HN.
p-Chlorobenzaldehyde	HN.
o-Chlorobenzamide	PD.
4-(p-Chlorobenzamido)anthraquinone-1,2-acridone	GAF.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)	ACY, TRC.
*Chlorobenzene, mono	ACS, DOW, DVC, HE, MON, MTO, PPG, SCC.
p-Chlorobenzenesulfinic acid	TRC.
p-Chlorobenzenesulfonic acid	MTR.
o-Chlorobenzoic acid	HN.
2-Chlorobenzoxazole	EK.
5-Chloro-2-benzoxazolinone	SW.
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.
4-Chloro-m-cresol	FER.
Chlorocyclohexane	ACY.
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'-dimethoxyacetoacetanilide	PCW.
5-Chloro-2,4-dimethoxyaniline	PCW.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	SDC.
3-Chloro-4,6-dinitrobenzenesulfonic acid	TRC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt.	x.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	DOP.
5-Chloro-2,4-disulfamylaniline	MRF.
4-[(2-Chloroethyl)ethylamino]-o-tolualdehyde	GAF.
p-[(2-Chloroethyl)methylamino]benzaldehyde	ACS, GAF.
Chloroformic acid, benzyl ester	CTN.
Chloroformic acid, phenyl ester	CTN.
7-Chloro-4-hydroxyquinidine hydrochloride	PD.
3-Chloro-4-hydroxyquinoline-3,4-carbonic acid	SDH.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide	TRC.
4-Chlorometanilic acid	ACS, DUP.
6-Chlorometanilic acid	AC, ACS.
2-Chloro-6-methoxy-4-methylphenol	EK.
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.
2-Chloro-5-(N-methylsulfamoyl)sulfanilamide	ABB.
5-Chloro-2-(N-methylsulfonyl)-4-sulfamyl-N-benzylaniline	ABB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Chloronaphthalenes	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-nitrobenzenesulfinic acid	TRC.
*4-Chloro-3-nitrobenzenesulfonamide	AC, DUP, GAF, ICC, TRC.
4-Chloro-3-nitrobenzenesulfonanilide	TRC.
2-Chloro-5-nitrobenzenesulfonic acid	ACS, TRC.
2-Chloro-5-nitrobenzenesulfonic acid, sodium salt	DUP.
4-Chloro-3-nitrobenzenesulfonic acid	ACS.
4-Chloro-3-nitrobenzenesulfonyl chloride	AC, SDC.
2-Chloro-4-nitrobenzoic acid	RSA, SAL.
2-Chloro-5-nitrobenzoic acid	TRC.
4-Chloro-2-nitrophenol	SW.
2-Chloro-5-nitrophenyl methyl sulfone	TRC.
4-Chloro-3-nitrophenyl methyl sulfone	TRC.
2-Chloro-4-nitrotoluene	DUP.
2-Chloro-6-nitrotoluene	DUP.
4-Chloro-2-nitrotoluene	DUP.
4-Chloro-3-nitrotoluene	BUC.
o-Chlorophenol	DOW, MON.
p-Chlorophenol	DOW, MON.
2-Chlorophenothiazine	SK.
(p-Chlorophenyl)acetonitrile	OPC, UOP.
4-Chloro-α-phenyl-o-cresol	MON.
4-Chloro-o-phenylenediamine	FMT.
(o-Chlorophenyl)hydrazine	GAF.
2,2'-[(m-Chlorophenyl)imino]diethanol	TCH.
2,2'-[(m-Chlorophenyl)imino]diethanol, diacetate ester	SDC.
3-(o-Chlorophenyl)-5-methyl-4-isoxazole carboxylic acid chloride.	ARS.
1-(o-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	HST.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	HST.
p-Chlorophenyl methyl sulfone	TRC.
1-(o-Chlorophenyl)-2-nitroethanol	LIL.
1-[4-(p-Chlorophenyl)-3-phenyl-2-butenyl] pyrrolidine hydrobromide.	LIL.
2-Chloro-4-phenylphenol	DOW.
4-Chlorophthalic acid	SW.
3-Chloropropenylbenzene (Cinnamyl chloride)	SDW.
1-(3-Chloropropyl)-4-methylpiperazine	SK.
7-Chloro-4-quinolinol	SDW.
4-Chlororesorcinol	AC, GAF.
5-Chlorosalicylaldehyde	EK.
Chlorostyrene, mono	DOW.
2-Chloro-5-sulfamoylbenzoic acid	TRC.
p-Chlorothiophenol	SFA.
m-Chlorotoluene	HK, MN.
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.
5-Chloro-o-toluidine hydrochloride [NH_2=1]	SDM.
N-[(5-Chloro-o-tolyl)azo]sarcosine	ALL.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one	HST.
[(4-Chloro-o-tolyl)thio]acetic acid	GAF.
p-Chloro-α,α,α-trifluorotoluene	HK.
Chlorotriphenylmethane	EK.
α-Chloro-o-xylene	BPC.
α-Chloro-p-xylene	BPC.
2-Chloro-p-xylene	DUP.
4-Chloro-3,5-xylenol	FER.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cholesteryl nonanoate	EK.
Cholestyrimine resin	MRK.
Cholic acid	WIL.
Cinnamic acid	BPC.
Cinnamoyl chloride	UOP, x.
*Cresols:[2]	
m-Cresol	KPT.
*o-Cresol:	
From coal tar	KPT.
From petroleum	MER, PRD, SW.
p-Cresol	SW.
Cresols, mixed:[2]	
*(m,p)-Cresol:	
From coal tar	KPT.
From petroleum	MER, NPC, PRD.
(o,m,p)-Cresol:	
From coal tar	KPT.
From petroleum	NPC.
Other	PIT.
*Cresylic acid, refined:[3]	
From coal tar	KPT.
From petroleum	MER, NPC, PRD.
*Cumene	ASH, CLK, CSP, DOW, GOC, MOC, MON, SHC, SKO, SNT, SOC, TX, UCC.
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	ACS, DUP, GAF.
*Cyclohexane	ASH, CCP, CSD, EXJ, GOC, GRS, PLC, PPR, SWC, TX, UOC.
1,2-Cyclohexanedicarboxylic anhydride	ACS.
1,3-Cyclohexanedione	PD.
Cyclohexanol	ACP, CNP, DUP, MON.
*Cyclohexanone	ACP, CEL, CNP, DRC, DUP, MON.
Cyclohexanone oxime	CNP.
Cyclohexene	EK, PLC, USR.
3-Cyclohexene-1-carboxaldehyde-1,2,3,6-tetrahydrol-benzaldehyde.	UCC.
4-Cyclohexene-1,2-dicarboximide	SEC.
4-Cyclohexene-1,2-dicarboxylic anhydride	PTT.
Cyclohexene oxide	USR.
β-(1-Cyclohexenyl)ethylamine	x.
Cyclohexylamine	ABB, RBC, VGC.
Cyclohexyl-2-propanone	GIV.
N-Cyclohexyltaurine, sodium salt	GAF.
Cyclopentadienyliron	ARA.
Cyclopentamine base	LIL.
Cyclopentanol	LIL.
Cyclopentene	ARA.
(2-Cyclopenten-1-yl)-2-propanone	LIL.
p-Cymene	HN, HPC.
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-triiodobenzoic acid	SDW.
3'-[Di-(2-Acetoxyethyl)amino]-p-acetophenetidide	TRC.
N^2,N^2-Diallylmelamine	ACY.
Diallylchlorendate	SAR.
*1,4-Diaminoanthraquinone	DUP, SDC, TRC.
1,5-Diaminoanthraquinone	TRC.
1,5(and 1,8)-Diaminoanthraquinone	TRC.
2,6-Diaminoanthraquinone	AC, TRC.
3,3'-Diaminobenzanilide	TRC.
2,4-Diaminobenzenesulfonic acid [SO_3H=1]	DUP, TRC.
2,5-Diaminobenzenesulfonic acid [SO_3H=1]	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
[illegible]-2,2'-[illegible]disulfonic acid	ACY.
1,4-Diamino-2,3-dichloroanthraquinone	CMG, DUP, [illegible].
1,4-Diamino-2,3-dihydroanthraquinone	[illegible], ACY, DUP, GAF, HSH, ICC, MAY, TRC.
[illegible]-9,10-dihydro-1,5-[illegible]-2,6-anthracenedisulfonic acid	[illegible].
1,4-[illegible]-9,10-dihydro-[illegible]-2-carboxamide	[illegible].
1,5-Diamino-4,8-dihydroxyanthraquinone	[illegible].
2,4-Diamino-6-phenyl-s-triazine	[illegible], [illegible]EL.
2,6-Diaminopyridine	[illegible], KIL.
4,4'-Diamino-2,2'-stilbenedisulfonic acid	[illegible], [illegible], GAF, SDH, [illegible].
3,5-Diamino-2,4,6-triiodobenzoic acid	[illegible].
[illegible]-dianhydroglucitol	ICI.
2,5-Dianilinoterephthalic acid	[illegible], [illegible].
Diaryl guanidine	DUP.
1,5-Dibenzamidoanthraquinone	TRC.
[illegible],11-Dibenzamido-16H-dinaphtho[2,3-[illegible]]carbazole-5,10,15,17-tetrone.	ICI.
[illegible]-Dibenzamido-1,1'-[illegible]dianthraquinone	ACY, GAF, [illegible].
Dibenzothiophene	EK.
1,5-Dibenzoylnaphthalene	GAF, TRC.
[illegible]-(N,N-Dibenzyl)amino-4-acetamidoanisole	SDC.
Dibenzylazodicarboxylate	WTL.
N,N'-Dibenzylethylenediamine	WYT.
N,N'-Dibenzylethylenediamine diacetate	WYT.
[illegible]-Dibenzylidenetoluene-[illegible]-diamine	SDH.
[illegible]	SDW.
[illegible]	[illegible].
[illegible]	[illegible], [illegible], [illegible], [illegible].
[illegible]	[illegible].
[illegible]nitroaniline	[illegible].
[illegible]nitrotoluene	[illegible].
[illegible]	[illegible].
[illegible] trifluoro[illegible]	[illegible].
[illegible]benzene (DBI)	ALL.
[illegible]-4-morpholinobenzene[illegible] sulfate	ALL.
[illegible]	ARA.
[illegible]-tert-butyl-4-[illegible]phenol	GAF.
[illegible]-tert-butylphenol	DUP, P[illegible].
[illegible]aniline	[illegible].
[illegible]aniline	DUP, MON.
[illegible]chloroaniline and hydrochloride [illegible]	BUC, DU[illegible].
3-(2,4-Dichloroanilino)-1-(2,4,6-trichlorophenyl)-2-pyrazolin-5-one.	EK.
1,5-Dichloroanthraquinone	TRC.
1,8-Dichloroanthraquinone	AC.
2,6-Dichlorobenzal chloride	DUP.
Dichlorobenzanthrone	ACY.
[illegible]chlorobenzene	ACS, DOW, MON, PPG, SCC, SVT.
[illegible] and p-dichlorobenzene	[illegible].
[illegible]benzene	ACS, DOW, DVC, MON, PPG, SCC, SVT.
4,6-Dichloro-[illegible]-benzenedisulfonamide	ABB.
4,6-Dichloro-[illegible]-benzenedisulfonyl chloride	ABB.
3,3'-Dichlorobenzidine base and salts	ACS, CWN, LAK, UPJ.
[illegible]benzil	MTO.
2,4-Dichlorobenzoic acid	HN.
2,4-Dichlorobenzoyl chloride	HN.
Dichlorobenzyl chloride	BPC.
4,4'-[illegible]-dichlorobenzylidene)di-2,6-xylidine	DUP.
[illegible]-3,5-dinitro-[illegible]-trifluorotoluene	GAF.
[illegible]-dichloro-[illegible]-dicyanobenzoquinone	ARA.
Dichlorodiphenylsilane	DCC, UCC.
[illegible]-Dichlorofluorescein	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes according to list in table 7
2-(5,8-Dichloro-1-hydroxy-2-naphthylazo)-1-phenol-4-sulfonamide	TPC.
5,14-Dichloroisoviolanthrone	[illegible]
Di(chloromethyl)diphenyl oxide	PEC.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl benzene-sulfonic acid.	ACY, HST, TPC.
Dichloromethylphenylsilane	[illegible]
2,6-Dichloro-4-nitroaniline	[illegible], SP.
1,2-Dichloro-4-nitrobenzene	[illegible], MON.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	[illegible]
2,4-Dichlorophenol	[illegible], MON.
3-(2',6'-Dichlorophenyl)-5-methyl-isoxazole-4-carbonyl chloride.	[illegible]
3,6-Dichloropyridazine	[illegible]
4,7-Dichloroquinoline	[illegible], SDA.
2,5-Dichlorosulfanilic acid [SO_3H=1]	DUP.
2,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
p,α-Dichlorotoluene	[illegible]
α,α-Dichlorotoluene (Benzal chloride)	[illegible]
Dicyclohexylamine	[illegible]
N,N'-3-Dicyclohexyl-2-thiourea	[illegible]
*Dicyclopentadiene (includes cyclopentadiene)	[illegible]
Dicyclopentadiene dioxide	[illegible]
Didodecylbenzene	[illegible]
p-Diethoxybenzene	[illegible]
3-Diethylaminoacetanilide	[illegible]
p-(Diethylamino)benzaldehyde	[illegible]
p-(Diethylamino)benzenediazonium chloride, zinc chloride salt.	[illegible]
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	[illegible]
α-[(2-Diethylamino)ethyl]-α-phenylcyclohexaneacetonitrile, hydrochloride.	[illegible]
7'-Diethylamino-4-methylcoumarin	[illegible]
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)	[illegible]
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole	[illegible]
3-(Diethylamino)propiophenone	[illegible]
4-(Diethylamino)-o-tolualdehyde	[illegible]
*N,N-Diethylaniline	[illegible], SDA.
N,N-Diethyl-m-anisidine	[illegible]
Diethylbenzene	[illegible]
N,N-Diethylcyclohexylamine	[illegible]
1,1-Diethyl-3-(m-hydroxyphenyl)urea	[illegible]
N,N-Diethylmetanilic acid	[illegible]
N^1,N^1-Diethyl-4-methoxymetanilamide	[illegible]
N,N-Diethyl-6-methoxy-m-phenylenediamine	DUP.
N,N-Diethyl-5-nitro-o-anisidine [NH_2=1]	DUP.
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.
Difurfurylidinepentaerythritol	SPI.
10,11-Dihydro-5H-dibenzo[a,d]cycloheptene-5-one	LII.
2,3-Dihydro-1,4-dihydroxyanthraquinone	[illegible]
*9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracene-sulfonic acid (2-Quinizarinsulfonic acid).	[illegible], PSN, PAT.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid	[illegible]
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt.	[illegible]
9,10-Dihydro-9,10-dioxo-1,5(and 1,8')-anthracene-disulfonic acid and salt.	[illegible]
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, potassium salt.	[illegible]
9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt.	[illegible]

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt).	AC, ACY, MAY, TRC.
10,11-Dihydro-5-[3-(methylaminopropyl)]-5H-dibenzo[a,d]-cycloheptene-5-ol.	LIL.
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.
*1,4-Dihydroxyanthraquinone (Quinizarin)----------	AC, ACS, DUP, GAF, HSH, ICC, MAY, TRC.
1,5-Dihydroxyanthraquinone (Anthrarufin)----------	GAF, TRC.
1,5(and 1,8)-Dihydroxyanthraquinone----------	ACY, TRC.
*1,8-Dihydroxyanthraquinone (Chrysazin)----------	CMG, GAF, TRC.
2,6-Dihydroxyanthraquinone (Anthraflavic acid)----------	GAF, TRC.
2,4-Dihydroxybenzaldehyde----------	EK.
2,5-Dihydroxybenzenesulfonic acid, potassium salt--------	EK.
2,5-Dihydroxybenzoic acid----------	ARS.
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, GAF, TRC.
3,4-Dihydroxy-(a-isopropylamino)acetophenone hydro-chloride.	SDW.
2,5-Dihydroxybenzenesulfonic acid, potassium salt--------	NES.
6,7-Dihydroxy-2-naphthalenesulfonic acid----------	IDC.
4,5-Dihydroxy-3-(p-sulfophenylazo)-2,7-naphthalene-disulfonic acid, trisodium salt.	EK.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)----	ACY, DUP, MAY.
m-Diiodobenzene----------	EK.
Diisopropylbenzene----------	DOW.
m-Diisopropylbenzene----------	GYR.
2',5'-Dimethoxyacetoacetanilide----------	HST.
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.
3,3'-Dimethoxybenzidine hydrochloride----------	CWN.
2,6-Dimethoxybenzoic acid----------	ARS.
2,6-Dimethoxybenzoyl chloride----------	X.
N,N'-[(3,3'-Dimethoxy-4,4'-biphenylylene)bis(azo)]bis [N-methyltaurine].	GAF.
2,5-Dimethoxy-6-methyl-6-nitrostyrene----------	X.
2,5-Dimethoxy-a-methylphenethylamine----------	X.
N-(3,4-Dimethoxy-a-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----------	DUP, GAF, TRC.
p-Dimethylaminobenzenediazonium chloride, zinc chloride salt.	HST.
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-methylquinaldinium methyl sulfate------	EK.
2-[[2-(Dimethylamino)ethyl]-2-thenylamine]-pyridine------	ABB.
m-(Dimethylamino)phenol----------	ACY.
11-[3-(Dimethylamino)propyl]-11-hydroxy-dibenz(b,e) oxedin.	SK.
6-Dimethlyaminoquinaldine----------	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*N,N-Dimethylaniline	ACS, ACY, DSC, DUP, x.
7,12-Dimethylbenz[a]anthracene	EK.
3,3'-Dimethylbenzidine hydrochloride	CWN, EK.
*N,N-Dimethylbenzylamine	ARS, MLS, RH, SW.
α,α-Dimethylbenzyl hydroperoxide	CLK, USS.
4-(α,α-Dimethylbenzyl)-2-phenylazophenol	TRC.
*2,2'-Dimethyl-1,1'-bianthraquinone	ACY, DUP, TRC.
N,N-Dimethylcyclohexylamine	ABB, DUP, EKT, 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.
N,N-Dimethyl-1-naphthylamine	EK.
N,N-Dimethyl-p-nitrosoaniline	ACY, EK.
6,6-Dimethyl-2-norpinene-2-ethanol	RDA.
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-Dimethyl-o-toluidine	RSA.
N,N-Dimethyl-p-toluidine	EK, RSA.
2,4-Dinitroacetanilide	SDC.
2,4-Dinitroaniline	AC, SDC.
p-(2,4-Dinitroanilino)phenol	GAF.
1,5(and 1,8)-Dinitroanthraquinone	AC, TRC.
N,N'-(2,4-Dinitro-1,5-anthraquinonylene)dioxamic acid	TRC.
3,3'-Dinitrobenzanilide	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.
Dinitrocaprylphenol	RH.
2,4-Dinitrocumene	DUP.
1-(3,5-Dinitro-2-hydroxphenylazo)-2-hydroxynaphthalene	TRC.
2,6-Dinitro-4-isopropylphenol	x.
2,4-Dinitrophenol, tech	SDC.
3,5-Dinitrosalicylic acid	EK.
4,4'-Dinitrostilbene-2,2'disulfonic acid	CGY, DUP, GAF, HN, SDH, TRC.
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-amylphenoxyacetyl chloride	EK.
1,5-Diphenoxyanthraquinone	VPC.
Diphenylacetic acid	ARA.
Diphenylacetonitrile, tech	ASH.
*Diphenylamine	ACY, DUP, ORO, RUC, USR.
2,8-Diphenylanthra[2,1-d:6,5-d']bisthiazole-6,12-dione	GAF.
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.
2,4-Disulfonyl-5-chloro(N-benzyl)aniline	ABB.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4,4'-Dithiodianiline	SDC.
2,2'-Dithiodibenzoic acid	LIL, SW.
1,4-Di-p-toluidinoanthraquinone	GAF, TRC.
2,5-Di-p-toluidinoterephthalic acid	x, x.
p-Ditolylmercapto-2,5-diethoxybenzenediazonium chloride, zinc chloride salt.	HST.
Divinylbenzene	DOW, FG.
Dodecylbenzene. (See Alkylbenzenes.)	
Dodecylbenzyl chloride	BPC.
Dodecylmethylbenzyl chloride	RH.
p-Dodecylphenol	GAF, MON, x.
1,2-Epoxy-3-phenoxypropane	DUP.
p-Ethoxybenzaldehyde	EK.
o-Ethoxybenzoic acid	ACY.
N-(p-Ethoxybenzylidene)-p-butylaniline	EK.
4-Ethoxy-3-methoxybenzaldehyde	LIL.
4-Ethoxy-3-methoxybenzyl alcohol	LIL.
1-(4-Ethoxy-3-methoxybenzyl)-6,7-dimethoxy-3-methyl-isoquinidine (Dioxyline base).	LIL.
(4-Ethoxy-3-methoxyphenyl)acetic acid	LIL.
2-Ethoxy-1-naphthoyl chloride	WYT.
4-Ethoxy-o-phenylenediamine	TRC.
N^1-(6-Ethoxy-3-pyridazinyl)sulfanilamide	ACY.
3-(Ethylamino)-p-cresol	DUP.
β-Ethyl-N-(β-aminoethyl)-m-toluidine	WAY.
3-(Ethylamino)-p-toluenesulfonic acid [SO_3H=1]	DUP.
*N-Ethylaniline, refined	ACS, ACY, DUP.
*2-(N-Ethylanilino)ethanol	DUP, EKT, SYL, TCH.
[2-(N-Ethylanilino)ethyl]trimethylammonium chloride	DUP.
3-(N-Ethylanilino)propionitrile	SYL, TCH.
α-(N-Ethylanilino)-m-toluenesulfonic acid	GAF, SDH.
α-(N-Ethylanilino)-p-toluenesulfonic acid	ACS, TRC.
*Ethylbenzene	ATR, CSD, DOW, ENJ, EG, KPP, MCB, MON, SKC, SNT, SOG, STY, TOC, UCC.
Ethylbenzyl chloride	BPC.
2-(N-Ethyl-N-β-cyanoethyl)-4-acetaminoanisole	SDC.
N-Ethylcyclohexylamine	AFB.
3,3'-Ethylenedioxydiphenol	ISC.
3-Ethyl-2-[5-(3-ethyl-2-benzothiazolinylidene)-1,3-pentadienyl]-benzothiazolium iodide.	EK.
2-[N-Ethyl-p-[(6-methoxy-2-benzothiazolyl)azo]anilino]-ethanol.	TRC.
N-Ethyl-N-(2-methylsulfonamidoethyl)-m-toluidine	WAY.
N-Ethyl-1-naphthylamine	DUP.
9-Ethyl-3-nitrocarbazole	SDC.
α-Ethyl-3-nitrocinnamic acid	SDW.
Ethylphenylmalonic acid, diethylester	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	EK.
N-Ethyl-m-toluidine	DUP.
N-Ethyl-o-toluidine	DUP.
2-(N-Ethyl-m-toluidino)ethanol	TCH.
*3-(N-Ethyl-m-toluidino)propionitrile	DUP, GAF, SYL, TCH.
α-(N-Ethyl-m-toluidino)-m-toluenesulfonic acid	ACS, GAF.
1-Ethynyl-1-cyclohexanol	EKT.
o-Fluorobenzoic acid	FIN.
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-Sulfobenzaldehyde)	SDH.
Furan	PLC, QKO.
Furfuryl alcohol	QKO.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Furfurylamine	MLS.
N-Glycolylarsanilic acid, sodium salt	SDW.
Glyoxanilide-2-oxime	DUP.
Hexabromobenzene	MCH, NES.
Hexabromobiphenyl	MCH.
Hexachlorobenzene	DVC.
Hexachlorocyclopentadiene	HK, VEL.
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 (Hexahydroazepine)	CEL.
Hippuric acid	BPC.
p-Hydrazinobenzenesulfonic acid	GAF, STG, WJ.
Hydrazobenzene	LAK.
*Hydroquinone, tech	CRS, DA, EKT, GYR.
3'-Hydroxyacetophenone	CTN, SPH.
6'-Hydroxy-m-acetotoluidide	TRC.
p-Hydroxybenzaldehyde	DOW.
p-Hydroxybenzenesulfonic acid	PPD, UPF.
p-Hydroxybenzoic acid	HN.
3'-Hydroxy-2-(N-benzyl-N-methylamino)acetophenone hydrochloride.	SDW.
4-Hydroxycoumarin	ARP.
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, X.
N-(β-Hydroxyethyl)-2,4-dihydroxybenzamide	IDC.
N-(β-Hydroxyethyl)-2,5-dihydroxybenzamide	ARS.
N-(β-Hydroxyethyl)-3,5-dihydroxybenzamide	IDC.
N-β-Hydroxyethyl-3-hydroxy-2-naphthamide	IDC.
6'-Hydroxy-5'-[(2-hydroxy-5-nitrophenyl)azo]-m-aceto-toluidide.	TRC.
N-[7-Hydroxy-8-[(2-hydroxy-5-nitrophenyl)azo]-1-naphthyl]acetamide.	TRC.
7-Hydroxy-8-[(4'-[(p-hydroxyphenyl)azo]-3,3'-dimethyl-4-biphenylyl)azo]-1,3-naphthalenedisulfonic acid.	TRC.
4-Hydroxyacetanilide	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, ICC, TRC.
4-Hydroxy-N^1-methylmetanilamide	TRC.
5-Hydroxymethyl-2-norbornene	ARS.
N-(Hydroxymethyl)phthalimide	ACY.
3-Hydroxy-N-(3-N-morpholinopropyl)-2-naphthamide	IDC.
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.
4-Hydroxy-2-naphthalenesulfonamide	GAF.
4-Hydroxy-1-naphthalenesulfonic acid	DUP.
5-Hydroxy-1-naphthalenesulfonic acid	TRC.
8-Hydroxy-1-naphthalenesulfonic acid	VPC.
*6-Hydroxy-2-naphthalenesulfonic acid, and sodium salt	ACY, TMS, TRC, WJ.
1-Hydroxy-2-naphthoic acid, methyl ester	X.
3-Hydroxy-2-naphthoic acid (B.O.N.)	PCW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
N-(7-Hydroxy-1-naphthyl)acetamide	GAF, TRC.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-naphthol-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-naphthol	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.
11α-Hydroxyprogesterone	UPJ.
N-Hydroxysuccinimide	EK.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide inner salt.	ACY.
1-Hydroxy-4-p-toluidinoanthraquinone	GAF.
2-Imidazolidinone	VAL.
2-Imidazolidinone modifications	RH.
1,1'-Iminobis[4-aminoanthraquinone]	ACY, GAF, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]	ACY.
1,1'-Iminobis[5-benzamidoanthraquinone]	GAF, TRC.
7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]	GAF.
1,1'-Iminobis[4-nitroanthraquinone]	ACY, TRC.
1,1'-Iminodianthraquinone (1,1'-Dianthrimide)	ACY, GAF.
Indole-2,3-dione	DUP, TRC.
Indophenol, sodium salt	EK.
Isobutylbenzene	PLC, TNA.
*Isocyanic acid derivatives:	
Bitolylene diisocyanate (TODI)	CWN, UPJ.
p-Chlorophenyl isocyanate	MOB.
Dianisidine diisocyanate (DADI)	UPJ.
Diphenylmethane-4,4'-diisocyanate (MDI)	ACS, MOB, UPJ.
Phenylisocyanate	MOB, UPJ.
Polyisocyanates (complex)	MOB.
*Polymethylene polyphenylisocyanate	JCC, MOB, RUC, UPJ.
Toluene 2,4-diisocyanate	DUP, MOB.
Toluene 2,4- and 2,6-diisocyanate (65/35 mixture)	DUP, MOB.
*Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)	ACS, BAS, DUP, GNT, MOB, OMC, RUC, UCC.
p-Toluenesulfonyl isocyanate	CWN.
Other	MOB, x, x
Isonicotinonitrile	RIL.
2-Isonitrosoacetanilide	TRC.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	ACC, ATR.
Isophthalic acid, diallyl ester	FMP.
Isophthalic acid, dimethyl ester	MTR.
Isophthalic acid, diphenyl ester	BJL.
Isophthalonitrile	SW.
Isophthaloyl chloride	DUP.
N-Isopropylaniline	USR.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromobisphenol A).	DOW.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene,α,α'-diol)	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)	DOW, GE, SHC, UCC.
4,4'-Isopropylidenediphenol, ethoxylated	ICI.
4,4'-Isopropylidenediphenol, propoxylated	ICI.
o-Isopropylphenol	PRD, TNA.
Isopropylphenols, mixed	FMP, KPT.
4-Isopropyl-m-phenylenediamine	DUP.
*Isoviolanthrone (Isodibenzanthrone)	GAF, MAY, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)	AC, EKT, HN, HSH, ICC, TRC.
2,4-Lutidine	KPT.
3,4-Lutidine	UCC.
Malonanilide	PCW.
Mandelonitrile	KF.
*Melamine	ACP, ACY, MLC, PPC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Mentha-1,4(8)-diene	GIV.
dl-p-Mentha-1,8-diene (Limonene)	ARZ, HN, HPC, NCI.
p-Menth-1-ene	GIV.
o-Mercaptobenzoic acid (Thiosalicylic acid)	AMB, LIL.
*Metanilic acid (m-Aminobenzenesulfonic acid)	ACY, DUP, TRC.
N-(p-Methoxybenzylidene)-p-butylaniline	EK.
6-Methoxymetanilic acid	GAF.
4'-Methoxy-2-(p-methoxyphenyl)acetophenone	CTN.
Methoxymethyldiphenyl oxide	BPC.
N-(2-Methoxy-1-naphthyl)acetamide	TRC.
(p-Methoxyphenyl)acetic acid	UOP.
m-Methoxyphenyl isocyanate	EK.
6-Methoxyquinoline	DUP.
1-(Methylamino)anthraquinone	AC, ACY.
1-(Methylamino)-4-p-toluidinoanthraquinone	BDO, GAF.
N-Methylaniline	ACY, DUP.
2-(N-Methylanilino)ethanol	TCH.
*3-(N-Methylanilino)propionitrile	DUP, SYL, TCH.
5-Methyl-o-anisidine [NH_2=1]	SW.
5-Methyl-o-anisidinesulfonic acid	ACS.
m-Methylanisole	GIV.
N-Methylanthranilic acid	GIV.
2-Methylanthraquinone	ACY.
3-Methylbenzo[f]quinoline	ACY.
2-Methylbenzothiazole	FMT.
N-Methylbenzylamine	ABB, MLS, SDW.
N-Methyl-N-carboxyanthranilic anhydride	SW.
3-Methylcholanthrene	EK.
Methylcyclohexane	PLC.
4-Methylcyclohexanone	EK.
Methylcyclopentadiene	ENJ.
N-Methyldicyclohexylamine	ABB.
4-Methyl-α,α-diphenyl-1-piperazineethanol, dihydrochloride.	ABB.
N-Methyleneaniline	PCW.
5,5'-Methylenebis[anthranilic acid, dimethyl ester]	SW.
4,4'-Methylenebis[2-chloroaniline]	DUP.
4,4'-Methylenebis[N,N-diethylaniline]	ACY, GAF, 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-nonyl-p-cresol)	ACY.
4,4'-Methylenediamine salt complex	DUP.
*4,4'-Methylenedianiline	ACS, DOW, MOB, RUC.
1,2-Methylenedioxybenzene	PD.
1,2-Methylenedioxy-4-nitrobenzene	PD.
5,5'-Methylenedisalicylic acid	HN.
Methylhydroquinone	EKT.
2-Methylindole	TRC.
2-Methylindole-3-carboxaldehyde	GAF.
Methyl mandelate	CTN.
6-Methyl-2-(2-methyl-6-quinolyl)-7-henzothiazolesulfonic acid.	DUP.
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	VPC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	TRC.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	ACY, GAF, TRC.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO_3H=1].	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2-Methyl-5-phenylbenzoxazole	[illegible]
1-Methyl-1-phenylhydrazine	[illegible]
1-Methyl-4-phenylisonipecotic acid	SDW.
4-Methyl-1-phenyl-3-pyrazolidinone	[illegible]
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	[illegible], DUP, GAF, SDH, [illegible].
4-Methyl-1-piperazine acetic acid, methyl ester	[illegible]
3-(α-Methylpiperidino)propanol	[illegible]
3-Methyl-2-pyrazolin-5-one	[illegible]
1-Methylpyrrole	DUP.
*α-Methylstyrene	ACP, CLK, DOW, GP, [illegible], UCC, USS.
ar-Methylstyrene (Vinyltoluene)	DOW, FC.
2-(Methylsulfonyl)-4-nitroaniline	TRC.
3-Methylthiophene	SDW.
3-Methyl-1-p-tolyl-2-pyrazolin-5-one	HST.
16-α-Methyltriene carbethoxylate	SCH.
Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	KPT.
1,4-Naphthalenediol	EK.
2,7-Naphthalenedisulfonic acid	TRC.
1-Naphthalenesulfonic acid	TRC.
2-Naphthalenesulfonic acid	ACY, EK, HN.
1-Naphthalenesulfonic acid, sodium salt	TRC.
2-Naphthalenesulfonic acid, sodium salt	ACY.
2-Naphthalenesulfonyl chloride	DUP.
1,4,5,8-Naphthalenetetracarboxylic acid	TRC.
Naphthalimide	ACS.
1-Naphthol (α-Naphthol)	UCC.
2-Naphthol, tech. (β-Naphthol)[1]	ACY.
p-Naphtholbenzein	EK.
1-Naphthol-2-sulfonic acid, potassium salt	EK.
1,2-Naphthoquinone-4-sulfonic acid, sodium salt	EK.
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	TRC.
2-(2H-Naphth[1,2-d]triazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol.	x.
1-Naphthylamine (α-Naphthylamine)	DUP.
2-(1-Naphthylamino)ethanol	TCH.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	SDC.
(2-Naphthylthio)acetic acid	ACY.
Nicotinonitrile (3-Cyanopyridine)	NEP, RIL.
3'-Nitroacetanilide	GAF, TRC.
4'-Nitroacetanilide	GAF, TRC.
2'-Nitro-p-acetanisidide	DUP.
4'-Nitro-o-acetanisidide	DUP.
3'-Nitroacetophenone	CTN, SDH.
4'-Nitro-4-amino-3-methoxyazobenzene	SDC.
m-Nitroaniline	x.
o-Nitroaniline	MON.
p-Nitroaniline	AC, MON.
2-Nitro-p-anisidine [NH_2=1]	DUP.
4-Nitro-o-anisidine [NH_2=1]	DUP.
5-Nitro-o-anisidine [NH_2=1]	BUC.
o-Nitroanisole	DUP, x.
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.
m-Nitrobenzenesulfonic acid	ACY, DUP.
m-Nitrobenzenesulfonic acid, sodium salt	GAF, MON, MRA, SAL.
p-Nitrobenzenesulfonyl chloride	EK.
m-Nitrobenzoic acid	SAL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
o-Nitrobenzoic acid	SAL.
p-Nitrobenzoic acid	DUP.
m-Nitrobenzoic acid, sodium salt	SAL.
2-(m-Nitrobenzoyl)-o-acetanisidide	GAF.
p-Nitrobenzoyl azide	EK.
m-Nitrobenzoyl chloride	ARS.
4-(p-Nitrobenzyl)pyridine	EK.
4'-Nitro-4-biphenylcarboxylic acid	DUP.
4-Nitro-sec-butylbenzene	WAY.
2-Nitro-p-cresol	SW.
2-Nitro-p-cymene	EK.
Nitrodiphenylamine	ACY, MON.
5-Nitro-2-furanmethanediol, diacetate	NOR.
5-Nitroisophthalic acid	MAL.
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.
p-Nitrophenethyl alcohol	PCW.
o-Nitrophenol	MON.
p-Nitrophenol	DUP, MON.
4'-(p-Nitrophenyl)acetophenone	ASH, DUP.
4-[(p-Nitrophenyl)azo]-o-anisidine	AC.
2-(o-Nitrophenylazo)-p-cresol (OH=1)	TRC.
2-(o-Nitrophenylazo)-4,6-di-tert-amylphenol (OH=1)	TRC.
2-Nitro-p-phenylenediamine	WAY.
4-Nitro-o-phenylenediamine	FMT.
(p-Nitrophenyl)hydrazine	EK.
2,2'-[(m-Nitrophenyl)imino]diethanol	DUP.
p-Nitrophenyl isocyanate	LK.
2-(p-Nitrophenyl)-2H-naphthol[1,2-d]triazole-6,8-disulfonic acid.	TRC.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.	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.	WAY.
1-Nitroso-2-naphthol	EK.
p-Nitrosophenol	ACY, SDC.
β-Nitrostyrene	CWS.
4-Nitro-4'-(5-sulfo-2H-naphtho[1,2-d]triazol-2-yl)-2,2'-stilbenedisulfonic acid.	TRC.
3-Nitro-p-toluamide	SDH.
m-Nitrotoluene	DUP, FST.
o-Nitrotoluene	DUP, FST.
p-Nitrotoluene	DUP, FST.
Nitrotoluene mixtures	DUP, FST, HN.
p-Nitrotoluenesulfonic acid	CGY.
*5-Nitro-o-toluenesulfonic acid [SO_3H=1]	ACY, DUP, GAF, SDH.
2-Nitro-m-toluic acid	SAL.
3-Nitro-p-toluic acid, methyl ester	SDH.
*5-Nitro-o-toluidine [NH_2=1]	BUC, PCW, SDH.
2-Nitro-p-toluidine [NH_2=1]	SW.
5-Nitro-2-p-toluidinobenzenesulfonic acid	TRC.
16-Nitroviolanthrone	ICI.
4-Nitro-m-xylene	DUP.
*Nonylphenol	GAF, JCC, MON, RH, UCC.
Oxalacetic acid, diethylester, (p-sulfophenyl)-hydrazone.	TRC.
Oxanilide	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthraquinone.	ACY, DUP, GAF, 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.
4,4'-Oxydianiline	x.
Pentabromochlorocyclohexane	DOW.
Pentachloropyridine	DOW.
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.
Phenethylamine	MLS.
α-Phenethylamine	MLS.
Phenethylamine sulfate	MLS.
o-Phenethylbenzoic acid	LIL.
m-Phenetidine	EK.
o-Phenetidine	MON.
p-Phenetidine	MON.
*Phenol:	
*Natural:	
*From coal tar:[2]	
39°C., m.p.	KPT, PRO.
All other	KPT.
*From petroleum	MER, NPC, SW.
*Synthetic:	
By caustic fusion: U.S.P	MAL, RCI.
From chlorobenzene by liquid-phase hydrolysis:	
U.S.P	DOW.
*From cumene by oxidation: U.S.P	ACP, CLK, DOW, GP, MON, SHC, SKO, SOC, UCC, USS.
Other	KLM.
Phenolsulfonaphthalein, sodium salt	EK.
Phenolsulfonic acid, lithium salt	SAL.
Phenoxyacetic acid, sodium salt	BPC, LIL.
3-Phenoxyacetophenone	LIL.
2-(Phenoxymethyl)benzoic acid	SK.
1-(3-Phenoxyphenyl)ethanol	LIL.
2-Phenoxypropionyl chloride	ARS.
Phenylacetic acid (α-Toluic acid)	BPC, GIV, MAL.
Phenylacetic acid, ethyl ester, tech	BPC, MAL.
Phenylacetic acid, methyl ester	BPC.
Phenylacetic acid, potassium salt	BPC, OPC.
Phenylacetic acid, sodium salt	OPC.
Phenylacetonitrile (α-Tolunitrile)	BPC, SDW, UOP.
4'-Phenylacetophenone	DUP.
Phenylacetyl chloride	BJL.
N-Phenylanthranilic acid	SDW.
2-Phenylanthra[2,3-d]oxazole-5,10-dione	GAF.
Phenylarsine oxide	EK.
*p-Phenylazoaniline (C. I. Solvent Yellow 1) and hydrochloride.	ACS, ACY, DUP.
4-(Phenylazo)diphenylamine	EK.
4-(Phenylazo)-1-naphthylamine	DUP.
Phenyl-p-benzoquinone	EK.
4-Phenyl-3-buten-2-one	SDW.
Phenyl chloroformate	EK.
α-Phenyl-o-cresol	RBC.
1-Phenylcyclopentane-1-carboxylic acid	SK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
m-Phenylenediamine	DUP, GAF.
o-Phenylenediamine	DUP, EK, SW, TRC.
p-Phenylenediamine	DUP, SDC.
p-Phenylenediamine dihydrochloride	EK.
d-Phenylephrine base	SDW.
dl-Phenylephrine	SDW.
l-Phenylethanol	UCC.
Phenyl ether (Diphenyl oxide)	DOW.
d(-)-Phenylglycine	OTC.
d(-)-2-Phenylglycine	BKL, KF, x.
dl-2-Phenylglycine (racemic)	KF, OTC.
N-Phenylglycine	EK.
N-Phenylglycine, sodium and potassium salts	ACS.
Phenylglycol ethers	UCC.
d(-)-2-Phenylglycylchloride hydrochloride	KF, OTC, x.
S-Phenylhydantoin	ABB.
Phenylhydrazine hydrochloride	EK.
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanolamine)	EKT, TCH.
2,2'-[(Phenyl)imino]diethanol, diacetate ester	SDC.
3,3'-[(Phenyl)imino]dipropionitrile	DUP.
Phenylmalonic acid, diethyl ester	BFC.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride	ARS.
Phenyl-α-naphthylamine	UCC.
N-Phenyl-2-naphthylamine	DUP.
o-Phenylphenol	DOW, RCI.
p-Phenylphenol	DOW.
o-Phenylphenol, alkylated	SYL.
o-Phenylphenol, chlorinated	DOW.
o-Phenylphenol, sodium salt	DOW.
N-Phenyl-p-phenylenediamine	USR.
Phenylphosphinic acid	x.
Phenylphosphonothioic dichloride	SFA.
Phenylphosphorous dichloride	SFA.
1-Phenylpiperazine	RSA.
1-Phenyl-1,2-propanedione, 2-oxime	NEP, ORT, PD.
Phenyl-2-propanone	ORT.
1-Phenyl-3-pyrazolidinone	EK.
dl-Phenylsuccinic acid	PD.
1-Phenyl-2-thiourea	EK.
1-Phenyl-1,3,8-triazaspiro(4-S)decan-4-one	ALD.
Phenylundecanoic acid	EK.
Phloroglucinol	MRT.
Phthalaldehyde	EK.
1(2H)-Phthalazinone	x.
Phthalic acid	EK, SW.
Phthalic acid, diallyl ester	FMP.
*Phthalic anhydride	ACP, BAS, ENJ, KPT, MON, PTO, RCI, SOC, STP, UCC, USS.
Phthalide	ACS, FMT.
Phthalimide	DUP, SW.
Phthalimide, potassium salt	EK.
[Phthalocyaninato(2-)]copper	GAF.
Phthalocyaninetetrasulfonyl chloride-copper derivative	DUP.
Phthaloyl chloride (Phthalyl chloride)	DUP, MON.
*Picolines:[2]	
*2-Picoline (α-Picoline)	KPT, NEP, RIL, UCC.
3-Picoline (β-Picoline)	NEP, RIL.
4-Picoline (γ-Picoline)	RIL, UCC.
Picoline (3,4-mixture)	KPT.
Picolinic acid, ethyl ester	NEP.
Picolinonitrile (2-Cyanopyridine)	NEP.
3-Picolylamine	RIL.
Picric acid (Trinitrophenol)	SDC.
2-Pipecoline	LIL.
*Piperidine	ABB, DUP, RIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3-Piperidinopropiophenone hydrochloride	ACY, MRK, SDW.
Polychlorobenzene	DOW.
Polychlorobiphenyl	MON.
Polyethylbenzene	UCC.
Potassium cyclohexanebutyrate	EK.
Potassium phthalamide	PD.
Primuline base	DUP.
Propargylbenzene sulfonate	ABB.
*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.
3-Pyridinemethanol	RIL.
Pyridinium bromide perbromide	ARA.
2(1H)-Pyridone	FMT.
2-Pyrimidinol	CGY.
Pyrrolidine	DUP.
2-Pyrrolidinone	GAF.
3-(1-Pyrrolidinyl)propriophenone hydrochloride	LIL.
Quinaldine	ACY.
Quinoline:	
1° and 2° Quinoline	KPT.
Quinoline (synthetic)	EK.
Other grades	KPT.
2,4-Quinolinediol	PCW.
Quinophthalone (Quinoline yellow base)	ACS.
Resorcinol, tech[1]	KPT.
Resorcinol, monoacetate (non-medicinal grade)[1]	AC.
β-Resorcylic acid	KPT.
*Salicylaldehyde	DOW, 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.
*Styrene, all grades	ACC, CSD, DOW, ELP, FG, GOC, KPP, MCB, MON, SHC, SKC, SNT, UCC.
5-Sulfamoylanthranilic acid	TRC.
Sulfanilamide, tech	SAL.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	ACY, DUP, SAL.
o-Sulfobenzoic acid, cyclic anhydride	EK.
5-Sulfoisophthalic acid, 1,3-dimethyl ester	x.
5-Sulfoisophthalic acid, lithium salt	PCW.
5-Sulfoisophthalic acid, sodium salt	PCW.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)	UPF.
4-Sulfophthalic acid	CWN, HSC.
Terephthalic acid	ACC, DUP, EKT, SM.
*Terephthalic acid, dimethyl ester	ACC, DUP, EKT, HPC.
Terephthaloyl chloride	DUP.
Terephthaloyldiacetic acid, diethyl ester	PCW.
Terphenyl (Phenylbipheny1)	MON.
3,3',4,4'-Tetraaminobenzophenone	BJL.
[4,4',4'',4'''-Tetraaminophthalocyaninato(2)]copper	SDC.
3',3'',5'5''-Tetrabromophenolphthalein, ethyl ester	EK.
Tetrabromophthalic anhydride	MCH.
1,4,5,8-Tetrachloroanthraquinone	DUP.
1,2,4,5-Tetrachlorobenzene	DOW, HK.
1,2,4,5-Tetrachloro-3-nitrobenzene	SDH.
Tetrachloroviolanthrone	GAF.
Tetrahydrofuran	DUP, QKO.
Tetrahydrofurfuryl methacrylate	SAR.
1,2,3,4-Tetrahydroquinoxaline	DUP.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	GAF, HN, TRC.
1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone (Pentanthrimide).	GAF.
N,N,3,5-Tetramethylaniline	EK.
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 dihydrochloride.	EK.
*3,3'-Thiobis[7H-benz[de]anthracen-7-one]	GAF, MAY, TRC.
2,2'-Thiobis[5-nitrobenzenesulfonic acid]	GAF.
4,4'-Thiodianiline	ACY.
6,6'-Thiodimetanilic acid	ACS, GAF.
2-Thiopheneacetic acid	BPC.
2-Thiopheneacetonitrile	BPC.
2-Thiopheneacetyl chloride	LIL.
2-Thiophenecarboxaldehyde	ABB.
Thiophenol	SFA.
sym-Thymol	GIV, KPT.
*Toluene-2,4-diamine (4-m-Tolylenediamine)	ACS, ACY, DUP, OMC, RUC, UCC.
Toluene-2,4-disulfonic acid	GAF.
p-Toluenesulfinic acid, sodium salt	EK, NES.
p-Toluenesulfonamide	MON.
o(and p)-Toluenesulfonic acid	EK, 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, SM.
o-Toluic acid	BPC.
m-Toluidine	DUP.
o-Toluidine	DUP, FST.
p-Toluidine	AC, DUP.
o-Toluidine hydrochloride	ACY.
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)	ACS, ACY, ALL, DUP, GAF, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride	GAF.
1-p-Tolyldodecane	X.
*2,2'-(m-Tolylimino)diethanol	EKT, SYL, TCH.
2,2'-(o-Tolylimino)diethanol	TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester	SDC.
Tolyltriazole	SW.
N,N,N-Tribenzylamine	MLS.
3,4',5-Tribromosalicylanilide	PCW, SW.
1,2,3(and 1,2,4)-Trichlorobenzene	DVC, SCC.
*1,2,4-Trichlorobenzene	DOW, HK, SCC, SVT.
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.
α,2,4-Trichlorotoluene	HN.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	CGY, NIL.
1,3,5-Triethylbenzene	DUP.
α,α,α-Trifluorotoluene	HK.
1,2,4-Trihydroxyanthraquinone	GAF.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Trimellitic anhydride, acid chloride	ARS.
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-$\Delta^{2,3}$-indolineacetaldehyde	ACS, DUP, GAF, TRC.
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)	DUP, GAF.
N,α,α-Trimethylphenethylamine	ARA.
Trimethylphenylammonium chloride	x.
Trimethylphenylammonium iodide	TRC.
2,4,6-Trimethylpyridine	KPT.
2,4,6-Trinitrobenzenesulfonic acid	EK.
2,4,7-Trinitrofluoren-9-one	x.
Triphenylamine	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.
*7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea).	ACS, GAF, TRC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	GIV, SLV.
p-Vinylbenzenesulfonic acid, sodium salt	DUP.
2-Vinylcyclohexene	UCC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine	RIL.
4-Vinylpyridine	RIL.
*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, SHO, SNT, SOC, TOC.
*p-Xylene	ACC, ATR, CSO, ENJ, HCR, PPR, SHC, SHO, SNT, SOC, SOG, TOC.
2,4-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	ACS, DUP.
4-(2,5-Xylylazo)-o-toluidine	ACY.
All other cyclic intermediates	ABB, ACC, ACS, ALD, ALL, BJL, BKL, BPC, CTN, DUP, EK, FMP, GAF, GIV, HSC, HST, ICI, KF, KPT, LIL, MRK, NEP, NES, PAS, PCW, PD, PRD, RH, SAR, SDC, SDW, SK, SW, TCH, TKL, TRD, UCC, UOP, VAL, WYT, 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 1973, September 23, 1974.*

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of cyclic intermediates to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ABB	Abbott Laboratories
AC	American Color & Chemical Corp.
ACC	Amoco Chemical Corp.
ACP	Allied Chemical Corp.: Plastics Division
ACS	Specialty Chemicals Division
ACY	American Cyanamid Co.
AIP	Air Products & Chemicals, Inc.
ALD	Aldrich Chemical Co., Inc.
ALL	Alliance Chemical, Inc.
AMB	American Bio-Synthetics Corp.
APF	American Petrofina Co. of Texas
ARA	Arapahoe Chemical, Inc. Sub/Syntex (U.S.A.), Inc.
ARK	Armstrong Cork Co.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
ASH	Ashland Oil, Inc. and Ashland Chemical Co.
ASL	Ansul Chemical Co.
ATR	Atlantic Richfield Co.
BAS	BASF Wyandotte Corp.
BDO	Benzenoid Organics, Inc.
BJL	Burdick & Jackson Laboratories, Inc.
BKL	Millmaster Onyx Corp., Millmaster Chemical Division, Berkeley Chemical Dept.
BPC	Stauffer Chemical Co., Specialty-Chemical Division, Benzol Products Dept.
BRP	BP Oil Corp.
BUC	Blackman-Uhler Chemical Co.
CCP	Crown Central Petroleum Corp.
CCW	Cincinnati Milacron Chemicals, Inc.
CEL	Celanese Corp., Celanese Chemical Co.
CGY	Ciba-Geigy Corp.
CHL	Chemol, Inc.
CLK	Clark Chemical Corp.
CMG	Nyanza, Inc.
CNP	Nipro, Inc.
CO	Continential Oil Co.
CPl	Commonwealth Petrochemicals, Inc.
CRS	Carus Corp., Carus Chemical Co.
CSD	Cosden Oil & Chemical Co.
CSO	Cities Service Oil Co.
CSP	Coastal States Petrochemical Co.
CTN	Chemetron Corp., Organic Chemical Division
CWN	Upjohn Co., Fine Chemical Division
DA	Diamond Shamrock Corp.
DBC	Dow Badische Co.
DCC	Dow Corning Corp.
DOW	Dow Chemical Co.
DSC	Dye Specialties, Inc.
DUP	E.I. duPont de Nemours & Co., Inc.
DVC	Dover Chemical Corp.
EK	Eastman Kodak Co.:
EKT	Tennessee Eastman Co. Division
ELP	El Paso Products Co.
ENJ	Exxon Chemical Co. U.S.A.
FER	Ferro Corp., Ottawa Chemical Div.
FG	Foster Grant Co., Inc.
FIN	Fine Organics, Inc.
FMP	FMC Corp., Industrial Chemical Division
FMT	Fairmount Chemical Co., Inc.
FST	First Chemical Corp.
GAF	GAF Corp., Chemical Division
GE	General Electric Co.
GIV	Givaudan Corp.
GLY	Glyco Chemicals, Inc.
GNT	General Tire & Rubber Co.
GOC	Gulf Oil Corp., Gulf Oil Co., Chemical Co.-U.S.
GP	Georgia Pacific Corp., Chemical Division
GRS	Champlin Petroleum Co.
GYR	Goodyear Tire & Rubber Co.
HCR	Hercor Chemical Corp.
HEX	Hexagon Laboratories, Inc.
HK	Hooker Chemicals & Plastics Corp.
HN	Tenneco Chemicals, Inc.
HPC	Hercules, Inc.
HSC	Chemetron Corp., Pigments Division
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co.
HST	American Hoechst Corp.
ICC	Inmont Corp.
ICI	ICI America, Inc.
IDC	Industrial Dyestuff Co.
JCC	Jefferson Chemical Co., Inc.
KF	Kay-Fries Chemicals, Inc.
KLM	Kalama Chemical Co.
KPP	Arco/Polymers, Inc.
KPT	Koppers Co., Inc., Organic Materials Division
LAK	Lakeway Chemicals, Inc.
LEM	Napp Chemicals, Inc.
LIL	Eli Lilly & Co. and Puerto Rico
MAL	Mallinckrodt Chemical Works
MAY	Otto B. May, Inc.
MCB	Borg-Warner Corp., Marbon Chemical Division
MCH	Michigan Chemical Corp.
MER	Merichem Co.
MLC	Melamine Chemicals Inc.
MLS	Miles Laboratories, Inc., Marshall Division and Sumner Division
MNR	Monroe Chemical Co.
MOB	Mobay Chemical Co.
MOC	Marathon Oil Co., Texas Refining Division
MON	Monsanto Co.
MRA	Crown-Metro, Inc.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
MTO	Montrose Chemical Co.
MTR	Sobin Chemicals, Inc., Montrose Chemical Division
NCI	Union Camp Corp., Chemicals Division
NEP	Nepera Chemical Co., Inc.
NES	Nease Chemical Co., Inc.
NIL	Nilok Chemicals, Inc.
NOR	Norwich Pharmacal Co.
NPC	Northwest Petrochemical Corp.

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1973--CONTINUED

Code	Name of company
OMC	Olin Corp.
OPC	Orbis Products Corp.
ORO	Chevron Chemical Co.
ORT	Roehr Chemicals, Inc.
OTC	Story Chemical Corp., Ott Division
PAS	Pennwalt Corp.
PAT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
PCR	Princeton Chemical Research, Inc.
PCW	Pfister Chemical, Inc.
PD	Parke, Davis & Co.
PFZ	Pfizer, Inc.
PIT	Pitt-Consol Chemical Co.
PLC	Phillips Petroleum Co.
PPC	Premier Petrochemical Co.
PPG	PPG Industries, Inc.
PPR	Phillips Puerto Rico Core, Inc.
PRD	Productol Chemical Co., Inc.
PTO	Puerto Rico Chemical Co., Inc.
PTT	Petro-Tex Chemical Corp.
QKO	Quaker Oats Co.
RBC	Fike Chemicals, Inc.
RCI	Reichhold Chemicals, Inc.
RDA	Rhodia, Inc.
RH	Rohm & Haas Co.
RIL	Reilly Tar & Chemical Corp.
RPC	Millmaster Onyx Corp., Refined-Onyx Division
RSA	R.S.A. Corp.
RUC	Rubicon Chemicals, Inc.
SAL	Salsbury Laboratories
SAR	Sartomer Industries, Inc.
SCC	Standard Chlorine of Delaware, Inc.
SCH	Schering Corp.
SCN	Schenectady Chemicals, Inc.
SDC	Martin-Marietta Corp., Sodyeco Division
	Sterling Drug, Inc.:
SDH	Hilton-Davis Chemical Co. Division
SDW	Winthrop Laboratories Division
	Stauffer Chemical Co.:
SFA	Agricultural Division
SFC	Calhio Chemicals, Inc.
SFS	Specialty Chemical Division
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.
SM	Mobil Chemical Co.
SM	Mobil Oil Corp., Mobil Chemical Co., Industrial Chemicals Division
SNT	Suntide Refining Co.
SOC	Standard Oil Co. of California, Chevron Chemical Co.
SOG	Charter International Oil Co.
STG	Stange Co.
STP	Stepan Chemical Co.
STY	Styrochem Corp.
SVT	Solvent Chemical Co., Inc.
SW	Sherwin-Williams Co.
SWC	Corco Cyclohexane, Inc.
SYL	Deering Milliken, Inc., Milliken Chemical Division
TCH	Emery Industries, Inc., Trylon Chemical Division
TEN	Cities Service Co., Copperhill Operations
TKL	Thiokol Chemical Corp.
TMS	Sterling Drug, Inc., Thomasset Color Division
TNA	Ethyl Corp.
TOC	Tenneco Oil Co.
TRC	Toms River Chemical Corp.
TRD	Manufacturing Enterprises, Inc., Squibb Manufacturing, Inc., Trade Enterprise, Inc.
TX	Texaco, Inc.
UCC	Union Carbide Corp.
UOC	Union Oil Co. of California
UOP	Universal Oil Products Co., UOP Chemical Division
UPF	United States Pipe & Foundry Co.
UPJ	Upjohn Co.
USR	Uniroyal, Inc., Chemical Division
USS	USS Chemicals Div. of U.S. Steel Corp.
VAL	Valchem Corp.
VEL	Velsicol Chemical Corp.
VGC	Virginia Chemicals, Inc.
VPC	Baychem Corp., Verona Division
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Division
WHC	Whittaker Corp., Research & Development Division
WIL	Inolex Corp., Inolex Pharmaceutical Division
WJ	Warner-Jenkinson Manufacturing Co.
WTC	Witco Chemical Co., Inc.
WTH	Union Camp Corp., Harchem Division
WTL	Pennwalt Corp., Lucidol Division
WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
YAW	Y.S. Young Co., Young Aniline Works Division

Note.--Complete names and addresses of the above reporting companies are listed in table I 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 1973 amounted to 284 million pounds, or 7.9 percent more than the 263 million pounds produced in 1972 (table 1).[1] Sales of dyes in 1973 amounted to 266 million pounds, valued at $519 million, compared with 255 million pounds, valued at $480 million, in 1972. In terms of quantity, sales of dyes in 1973 were 4.6 percent larger than in 1972 and in terms of value, 8.1 percent larger. The average unit value of sales of all dyes in 1973 was $1.95 per pound, compared with $1.88 per pound in 1972.

For many important dyes, production was larger in 1973 than in 1972. Vat Yellow 2 production increased 13.0 percent from 3,304,000 pounds in 1972 to 3,732,000 pounds in 1973. Disperse Yellow 3 production increased by 33.3 percent from 2,810,000 pounds in 1972 to 3,748,000 pounds in 1973. Other important dyes whose production in 1973 was substantially larger than in 1972 were Direct Yellow 11 (10.1 percent increase), Vat Black 25, 12-1/2%, (69.9 percent increase), Acid Blue 9 (39.2 percent increase), Vat Green 1, 6%, (15.4 percent increase), and Disperse Red 60 (10.9 percent increase).

On the other hand, the production of several important dyes was smaller in 1973 than in 1972. Production of Vat Blue 6, 8-1/3%, was 1,957,000 pounds in 1973, or 32.8 percent less than the 2,911,000 pounds produced in 1972. Production of Basic Yellow 11 was 1,661,000 pounds in 1973, or 2.8 percent less than the 1,708,000 pounds produced in 1972. The production of Vat Green 3, 10%, was 5.2 percent less in 1973 than in 1972; Fluorescent Brightening Agent 28 was 28.2 percent less; Direct Yellow 44 was 9.6 percent less; and Acid Red 88 was 13.9 percent less.

Table 1A is a summary of production and sales of dyes in 1973 by class of application. Five application classes of dyes accounted for 73.9 percent of all dyes produced in 1973. Vat dyes accounted for 19.8

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

percent of total production; disperse dyes for 17.6 percent; direct dyes for 13.8 percent; acid dyes for 11.3 percent; and fluorescent brighteners for 11.4 percent. Of these five classes of dyes, the production of vat dyes was 2.2 percent larger in 1973 than in 1972; the production of disperse dyes was 25.4 percent larger; the production of acid dyes was 7.7 percent larger; the production of direct dyes was 4.5 percent larger; and the production of fluorescent brighteners was 18.8 percent larger.

As compared with the 1972 data, the 1973 production of the remaining dye classes changed in the following manner: Basic dyes increased by 18.7 percent; fiber-reactive dyes decreased by 0.1 percent; food, drug, and cosmetic colors increased by 12.9 percent; and solvent dyes increased by 12.2 percent.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973

[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 or sales were reported and identifies the manufacturer of each]

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total	284,226	266,199	518,621	$1.95
ACID DYES				
Total	32,034	30,508	78,031	2.56
Acid yellow dyes, total	9,011	8,616	21,991	2.55
Acid Yellow 11	73	46	100	2.17
Acid Yellow 17	327	330	778	2.36
Acid Yellow 19	438	385	765	1.99
Acid Yellow 23	631	428	1,096	2.56
Acid Yellow 34	88	74	191	2.58
Acid Yellow 36	197	189	344	1.82
Acid Yellow 38	121	80	244	3.05
Acid Yellow 40	258	200	645	3.23
Acid Yellow 42	65	62	114	1.84
Acid Yellow 54	58	40	80	2.00
Acid Yellow 65	53	55	204	3.71
Acid Yellow 99	93	78	224	2.87
Acid Yellow 124	...	35	95	2.71
Acid Yellow 151	1,799	1,950	3,934	2.02
Acid Yellow 159	505	546	1,540	2.82
All other	4,305	4,118	11,637	2.83
Acid orange dyes, total	4,360	4,141	8,704	2.10
Acid Orange 7	565	591	709	1.20
Acid Orange 8	275	295	434	1.47
Acid Orange 10	258	259	397	1.53
Acid Orange 24	461	499	785	1.57
Acid Orange 60	325	296	858	2.90
Acid Orange 74	88	62	162	2.61
Acid Orange 116	593	558	1,374	2.46
All other	1,795	1,581	3,985	2.52
Acid red dyes, total	6,687	6,376	15,952	2.50
Acid Red 1	455	388	396	1.02
Acid Red 4	153	174	335	1.93
Acid Red 14	132	109	199	1.83
Acid Red 17	34	...	...	...
Acid Red 18	140	116	158	1.36
Acid Red 37	63	68	273	4.02
Acid Red 73	261	240	801	3.34
Acid Red 85	169	126	298	2.37
Acid Red 88	1,008	...	...	...
Acid Red 89	...	17	25	1.47
Acid Red 99	135	135	261	1.93
Acid Red 114	560	491	1,215	2.48
Acid Red 115	52	34	89	2.62
Acid Red 137	130	151	580	3.84
Acid Red 151	1,166	1,070	2,179	2.04
Acid Red 182	92	84	300	3.57
Acid Red 266	295	275	1,255	4.56
Acid Red 299	132	94	228	2.43
Acid Red 337	279	250	999	4.00
All other	1,431	2,554	6,361	2.49

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
ACID DYES--Continued				
Acid violet dyes, total	338	370	984	$2.66
Acid Violet 1	...	23	44	1.91
Acid Violet 3	39	80	159	1.99
Acid Violet 7	98	90	135	1.50
Acid Violet 12	...	20	38	1.90
Acid Violet 17	29	36	90	2.50
Acid Violet 49	58	84	259	3.08
All other	114	37	259	7.00
Acid blue dyes, total	6,257	5,442	17,309	3.18
Acid Blue 7	...	36	147	4.08
Acid Blue 9	2,136	1,685	2,175	1.29
Acid Blue 25	642	498	2,488	5.00
Acid Blue 27	149	142	637	4.49
Acid Blue 40	680	614	2,476	4.03
Acid Blue 41	34	23	120	5.22
Acid Blue 45	91	137	566	4.13
Acid Blue 62	48	...	...	...
Acid Blue 78	32	48	349	7.27
Acid Blue 92	78	76	192	2.53
Acid Blue 113	841	708	1,715	2.42
Acid Blue 118	103	84	192	2.29
Acid Blue 158 and 158A	88	143	337	2.36
All other	1,335	1,248	5,915	4.74
Acid green dyes, total	789	792	2,494	3.15
Acid Green 3	206	165	308	1.87
Acid Green 16	83	74	355	4.80
Acid Green 20	24	36	79	2.19
Acid Green 25	336	359	1,203	3.35
All other	140	158	549	3.47
Acid brown dyes, total	868	997	2,549	2.56
Acid Brown 14	280	342	659	1.93
All other	588	655	1,890	2.89
Acid black dyes, total	3,724	3,774	8,048	2.13
Acid Black 1	786	742	1,325	1.79
Acid Black 52	848	904	1,762	1.95
Acid Black 107	303	365	1,254	3.44
All other	1,787	1,763	3,707	2.10
AZOIC DYES AND COMPONENTS				
Azoic Compositions				
Total	2,080	1,668	2,861	1.72
Azoic yellow dyes, total	51	35	56	1.60
Azoic Yellow 2	20	10	12	1.20
All other	31	25	44	1.76
Azoic Orange 3	82	...	...	...

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
AZOIC DYES AND COMPONENTS--Continued				
Azoic Compositions--Continued				
Azoic red dyes, total	726	543	615	$1.13
Azoic Red 1	302	...	...	...
Azoic Red 6	170	...	...	...
All other	254	543	615	1.13
Azoic Blue 3	317	187	371	1.98
Azoic Brown 9	352	334	511	1.53
Azoic black dyes	368	358	745	2.08
All other azoic compositions[2]	184	211	563	2.67
Azoic Diazo Components, Bases (Fast Color Bases)				
Total	744	722	1,284	1.78
Azoic Diazo Component 10, base	...	23	67	2.91
All other azoic diazo components, bases	744	699	1,217	1.74
Azoic Diazo Components, Salts (Fast Color Salts)				
Total	2,659	2,496	2,865	1.15
Azoic Diazo Component 1, salt	238	236	308	1.31
Azoic Diazo Component 3, salt	337	331	297	.90
Azoic Diazo Component 5, salt	336	282	402	1.43
Azoic Diazo Component 8, salt	99	85	90	1.06
Azoic Diazo Component 9, salt	214	198	164	.83
Azoic Diazo Component 10, salt	34	34	54	1.59
Azoic Diazo Component 11, salt	...	17	30	1.77
Azoic Diazo Component 12, salt	360	341	351	1.03
Azoic Diazo Component 13, salt	365	369	321	.87
Azoic Diazo Component 35, salt	...	4	12	3.00
Azoic Diazo Component 49, salt	59	54	170	3.15
All other azoic diazo components, salts	617	545	666	1.22
Azoic Coupling Components (Naphthol AS and Derivatives)				
Total	2,514	2,360	6,159	2.61
Azoic Coupling Component 19	20	19	114	6.00
Azoic Coupling Component 21	95	...	...	...
All other azoic coupling components	2,399	2,341	6,045	2.58
BASIC DYES				
Total	21,373	20,776	55,464	2.67
Basic yellow dyes, total	6,279	5,969	13,915	2.33
Basic Yellow 11	1,661	1,624	3,928	2.42
Basic Yellow 13	385	297	669	2.25
All other	4,233	4,048	9,318	2.30
Basic orange dyes, total	2,045	2,102	4,712	2.24
Basic Orange 1	313	393	576	1.47
Basic Orange 2	487	489	829	1.70
Basic Orange 21	939	934	2,282	2.44
All other	306	286	1,025	3.58

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
BASIC DYES--Continued				
Basic red dyes, total	3,438	3,265	10,225	$3.13
Basic Red 13	30	33	114	3.45
Basic Red 14	793	757	1,581	2.09
Basic Red 18	559	503	1,264	2.51
All other	2,056	1,972	7,266	3.68
Basic violet dyes, total	3,861	3,875	10,096	2.61
Basic Violet 1	1,321	1,075	2,021	1.88
Basic Violet 10	315	339	1,666	4.91
Basic Violet 16	476	516	1,563	3.03
All other	1,849	1,945	4,846	2.49
Basic blue dyes, total	4,066	3,725	12,742	3.42
Basic Blue 3	750	706	2,259	3.20
Basic Blue 5	16	17	108	6.35
Basic Blue 7	172	169	722	4.27
Basic Blue 26	29	30	113	3.77
All other	3,099	2,803	9,540	3.40
Basic Green 1	84	96	367	3.82
Basic Green 4	686	847	1,727	2.04
Basic Brown 1	130	153	257	1.68
Basic Brown 4	518	535	872	1.63
Basic black dyes	179	166	458	2.76
All other basic dyes	87	43	93	2.16
DIRECT DYES				
Total	39,356	37,973	63,237	1.67
Direct yellow dyes, total	12,342	11,244	19,461	1.73
Direct Yellow 4	601	523	790	1.51
Direct Yellow 5	144	186	615	3.31
Direct Yellow 6	583	542	957	1.77
Direct Yellow 8	24	15	58	3.87
Direct Yellow 11	2,685	2,694	2,416	.90
Direct Yellow 12	201	169	540	3.20
Direct Yellow 28	205	227	677	2.98
Direct Yellow 29	...	23	82	3.57
Direct Yellow 44	1,009	832	1,700	2.04
Direct Yellow 50	248	251	565	2.25
Direct Yellow 84	852	727	1,165	1.60
Direct Yellow 105	262	224	513	2.29
Direct Yellow 106	739	906	1,518	1.68
Direct Yellow 107	685	703	1,313	1.87
All other	4,104	3,222	6,552	2.03
Direct orange dyes, total	1,912	1,756	4,163	2.37
Direct Orange 8	132	106	132	1.25
Direct Orange 15	342	299	392	1.31
Direct Orange 26	...	74	168	2.27
Direct Orange 29	95	...	...	...
Direct Orange 34	103	85	237	2.79
Direct Orange 37	26	18	48	2.67
Direct Orange 39	126	138	337	2.44
Direct Orange 72	325	281	619	2.20
Direct Orange 73	91	136	479	3.52
Direct Orange 102	258	237	640	2.70
All other	414	382	1,111	2.91
Direct red dyes, total	5,240	4,757	11,681	2.46
Direct Red 1	200	188	375	2.00
Direct Red 2	212	204	463	2.27
Direct Red 4	...	36	124	3.44
Direct Red 10	...	8	14	1.75

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
DIRECT DYES--Continued				
Direct red dyes--Continued				
Direct Red 16	91	90	207	$2.30
Direct Red 23	252	205	620	3.02
Direct Red 24	400	354	775	2.19
Direct Red 26	217	133	364	2.74
Direct Red 28	300	230	413	1.80
Direct Red 31	44	14	59	4.21
Direct Red 37	133	96	300	3.13
Direct Red 39	125	112	342	3.05
Direct Red 72	362	311	764	2.46
Direct Red 75	32	15	65	4.33
Direct Red 79	90	113	398	3.52
Direct Red 80	653	634	1,272	2.01
Direct Red 81	742	712	1,638	2.30
Direct Red 83	164	139	247	1.78
All other	1,223	1,163	3,241	2.78
Direct violet dyes, total	222	262	766	2.92
Direct Violet 9	150	149	372	2.50
Direct Violet 51	12	7	45	6.43
All other	60	106	349	3.29
Direct blue dyes, total	8,061	7,613	13,624	1.79
Direct Blue 1	258	309	726	2.35
Direct Blue 2	1,188	1,116	1,341	1.20
Direct Blue 6	...	327	286	.88
Direct Blue 8	44	31	76	2.45
Direct Blue 15	...	254	468	1.84
Direct Blue 25	49	56	174	3.11
Direct Blue 71	131	126	463	3.68
Direct Blue 76	79	80	129	1.61
Direct Blue 78	105	101	347	3.44
Direct Blue 80	526	521	987	1.89
Direct Blue 86	1,085	895	1,585	1.77
Direct Blue 98	334	311	600	1.93
Direct Blue 126	93	125	416	3.33
Direct Blue 191	116	106	184	1.74
Direct Blue 218	1,472	1,264	2,550	2.02
All other	2,581	1,991	3,292	1.65
Direct green dyes, total	858	880	2,429	2.76
Direct Green 1	189	215	257	1.20
Direct Green 6	...	389	728	1.87
All other	669	276	1,444	5.23
Direct brown dyes, total	1,779	1,746	2,397	1.37
Direct Brown 2	148	174	320	1.84
Direct Brown 31	87	...	...	...
Direct Brown 95	567	569	599	1.05
Direct Brown 111	39	38	168	4.42
All other	938	965	1,310	1.36
Direct black dyes, total	8,942	9,715	8,716	.90
Direct Black 4	165	99	139	1.40
Direct Black 9	...	37	67	1.81
Direct Black 22	475	703	412	.59
Direct Black 38	6,743	7,330	5,610	.76
Direct Black 51	...	52	186	3.58

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DIRECT DYES--Continued				
Direct black dyes--Continued				
Direct Black 80	688	668	769	$1.15
All other	871	826	1,533	1.86
DISPERSE DYES				
Total	50,072	45,738	123,485	2.70
Disperse yellow dyes, total	9,759	9,337	19,201	2.06
Disperse Yellow 3	3,748	3,828	5,547	1.45
Disperse Yellow 23	745	852	1,280	1.50
Disperse Yellow 33	285	287	526	1.83
Disperse Yellow 34	119	122	207	1.70
Disperse Yellow 42	889	816	1,564	1.92
Disperse Yellow 54	1,333	1,128	4,368	3.87
All other	2,640	2,304	5,709	2.48
Disperse orange dyes, total	5,276	5,041	9,739	1.92
Disperse Orange 3	118	90	167	1.86
Disperse Orange 17	113	118	148	1.25
Disperse Orange 25	685	515	1,104	2.14
All other	4,360	4,318	8,320	1.93
Disperse red dyes, total	11,174	9,789	31,116	3.18
Disperse Red 1	351	296	545	1.84
Disperse Red 5	102	73	113	1.55
Disperse Red 11	...	54	368	6.82
Disperse Red 15	156	103	299	2.90
Disperse Red 17	270	218	341	1.56
Disperse Red 55	319	330	2,071	6.28
Disperse Red 60	2,047	2,141	7,168	3.35
Disperse Red 65	301	265	621	2.34
All other	7,628	6,309	19,590	3.11
Disperse violet dyes, total	1,020	801	3,182	3.97
Disperse Violet 1	103	60	215	3.58
Disperse Violet 27	190	117	263	2.25
All other	727	624	2,704	4.33
Disperse blue dyes, total	20,132	18,388	55,998	3.05
Disperse Blue 1	228	233	1,151	4.94
Disperse Blue 3	1,361	1,303	2,351	1.80
Disperse Blue 7	359	405	3,040	7.51
Disperse Blue 64	471	604	1,203	1.99
Disperse Blue 73	...	509	2,484	4.88
Disperse Blue 79	3,619	2,991	7,277	2.43
All other	14,094	12,343	38,492	3.12
Disperse black dyes, total	1,931	1,713	2,689	1.57
Disperse Black 1	...	149	286	1.92
All other	1,931	1,564	2,403	1.54
All other disperse dyes	780	669	1,560	2.33

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total	3,694	3,445	15,465	$4.49
Reactive yellow dyes	586	496	2,379	4.80
Reactive blue dyes	739	719	4,126	5.74
Reactive black dyes	...	132	447	3.39
All other reactive dyes[3]	2,369	2,098	8,513	4.06
FLUORESCENT BRIGHTENING AGENTS				
Total	32,449	31,990	43,068	1.35
Fluorescent Brightening Agent 28	1,151	1,442	2,064	1.43
All other fluorescent brightening agents	31,298	30,548	41,004	1.34
FOOD, DRUG, AND COSMETIC COLORS				
Total	5,244	5,050	22,405	4.44
Food, Drug, and Cosmetic Dyes				
Total	4,830	4,718	19,695	4.17
FD&C Blue No. 1	183	156	1,308	8.38
FD&C Blue No. 2	83	82	692	8.44
FD&C Red No. 2	1,267	1,120	2,943	2.63
FD&C Red No. 3	340	344	3,045	8.85
FD&C Yellow No. 5	1,378	1,328	3,675	2.77
FD&C Yellow No. 6	1,040	1,046	2,631	2.52
All other food, drug, and cosmetic dyes	539	642	5,401	8.41
Drug and Cosmetic and External Drug and Cosmetic Dyes				
Total	414	332	2,710	8.16
D&C green dyes	39	31	534	17.23
D&C Orange No. 4	5	4	42	10.50
D&C red dyes, total	272	203	1,188	5.85
D&C Red No. 7	60	32	160	5.00
D&C Red No. 12	4	...	...	...
D&C Red No. 19	...	13	118	9.08
D&C Red No. 22	...	4	30	7.50
D&C Red No. 36	11	9	50	5.56
All other	197	145	830	5.72
All other drug & cosmetic and external drug & cosmetic dyes[4]	98	94	946	10.06
MORDANT DYES				
Mordant yellow dyes	81	79	158	2.00
Mordant orange dyes, total	166	151	271	1.79
Mordant Orange 6	128	112	175	1.56
All other	38	39	96	2.46
Mordant red dyes	66	81	430	5.31
Mordant brown dyes, total	127	147	376	2.56
Mordant Brown 1	32	37	88	2.38
Mordant Brown 33	...	28	66	2.36
All other	95	82	222	2.71

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
SOLVENT DYES				
Total	13,988	11,741	24,267	$2.07
Solvent yellow dyes, total	1,381	1,336	3,541	2.65
Solvent Yellow 14	564	590	890	1.51
Solvent Yellow 33	...	66	280	4.24
Solvent Yellow 56	87	78	150	1.92
All other	730	602	2,221	3.69
Solvent orange dyes, total	646	583	1,449	2.49
Solvent Orange 3	87	68	128	1.88
Solvent Orange 7	78	72	136	1.89
All other	481	443	1,185	2.67
Solvent red dyes, total	2,243	2,226	4,443	2.00
Solvent Red 24	213	244	636	2.61
Solvent Red 26	206	178	432	2.43
All other	1,824	1,804	3,375	1.87
Solvent blue dyes, total	4,003	1,972	7,987	4.05
Solvent Blue 38	157	...	...	...
All other	3,846	1,972	7,987	4.05
Solvent Green 3	217	114	335	2.94
Solvent brown dyes, total	88	89	376	4.22
Solvent Brown 12	20	20	68	3.40
All other	68	69	308	4.46
All other solvent dyes[5]	5,410	5,421	6,136	1.13
VAT DYES				
Total	56,333	51,293	62,485	1.22
Vat yellow dyes, total	5,024	5,072	9,835	1.94
Vat Yellow 2, 8-1/2%	3,732	3,331	4,012	1.20
Vat Yellow 4, 12-1/2%	98	130	617	4.75
All other	1,194	1,611	5,206	3.23
Vat orange dyes, total	3,436	3,287	10,538	3.21
Vat Orange 1, 20%	1,303	1,099	3,803	3.46
Vat Orange 2, 12%	458	471	1,042	2.21
Vat Orange 9, 12%	283	301	797	2.65
Vat Orange 15, 10%	739	687	1,983	2.89
All other	653	729	2,913	4.00
Vat red dyes, total	824	754	2,598	3.45
Vat Red 1, 13%	311	303	849	2.80
Vat Red 13, 11%	280	165	574	3.48
All other	233	286	1,175	4.11
Vat violet dyes, total	1,249	851	2,570	3.02
Vat Violet 1, 11%	287	270	979	3.63
Vat Violet 9, 12%	...	112	569	5.08
Vat Violet 13, 6-1/4%	608	318	442	1.39
All other	354	151	580	3.84
Vat blue dyes, total	31,724	26,599	17,514	.66
Vat Blue 6, 8-1/3%	1,957	3,085	3,480	1.13
Vat Blue 14, 8-1/3%	...	191	254	1.33
Vat Blue 18, 13%	939	...	...	...
All other	28,828	23,323	13,780	.59

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
VAT DYES--Continued				
Vat green dyes, total	5,826	6,997	6,666	$0.95
Vat Green 1, 6%	2,077	2,709	2,055	.76
Vat Green 3, 10%	1,329	1,646	1,877	1.14
Vat Green 8, 8-1/2%	224	...	...	...
All other	2,196	2,642	2,734	1.03
Vat brown dyes, total	4,106	3,912	8,028	2.05
Vat Brown 1, 11%	792	766	1,369	1.79
Vat Brown 3, 11%	577	757	1,705	2.25
All other	2,737	2,389	4,954	2.07
Vat black dyes, total	4,144	5,821	4,736	1.24
Vat Black 25, 12-1/2%	2,346	1,957	1,864	.95
Vat Black 27, 12-1/2%	377	548	828	1.51
All other	1,421	1,316	2,044	1.55
All other dyes[6]	21,246	19,981	16,310	.82

[1] Calculated from rounded figures.
[2] The data include Azoic Orange 3 (sales only), azoic violet, azoic green, "all other" azoic orange, "all other" azoic blue, and "all other" azoic brown dyes.
[3] The data include reactive orange, red, violet, green, brown, and black (production only) dyes.
[4] The data include D&C blue, D&C violet, D&C yellow, "all other" D&C orange, and all external drug and cosmetic dyes.
[5] The data include solvent violet, black, and "all other" green dyes.
[6] The data include oxidation bases, "all other" mordant dyes, 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, 1973

Class of application	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total	284,226	266,199	518,621	$1.95
Acid	32,034	30,508	78,031	2.56
Azoic dyes and components:				
Azoic compositions	2,080	1,668	2,861	1.72
Azoic diazo components, bases (Fast color bases)	741	722	1,284	1.78
Azoic diazo components, salts (Fast color salts)	2,659	2,496	2,865	1.15
Azoic coupling components (Naphthol AS & derivatives)	2,514	2,360	6,159	2.61
Basic	21,373	20,776	55,464	2.67
Direct	39,356	37,973	63,237	1.67
Disperse	50,072	45,738	123,485	2.70
Fiber-reactive	3,694	3,445	15,465	4.49
Fluorescent brightening agents	32,449	31,990	43,068	1.35
Food, drug, and cosmetic colors	5,244	5,050	22,405	4.44
Solvent	13,988	11,741	24,267	2.07
Vat	56,333	51,293	62,485	1.22
All other[2]	21,686	20,439	17,545	.86

[1] Calculated from rounded figures.
[2] The data include oxidation bases, mordant dyes, 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, 1973

[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 14	TRC.
*Acid Yellow 17	ACS, BDO, CMG, DUP, HN, PDC, SDH, TRC, VPC.
*Acid Yellow 19	ALT, BAS, CMG, VPC, YAW.
*Acid Yellow 23	AC, ACS, ACY, ALT, GAF, MRX, PDC, TRC, VPC, WJ, YAW.
Acid Yellow 25	GAF.
Acid Yellow 29	GAF, TRC.
*Acid Yellow 34	ACS, ATL, HN, PDC.
*Acid Yellow 36	ACS, DUP, GAF, TRC.
*Acid Yellow 38	ACS, ATL, GAF.
*Acid Yellow 40	ACS, ALT, ATL, TRC, VPC.
*Acid Yellow 42	AC, ACY, GAF, VPC.
Acid Yellow 44	AC, GAF.
Acid Yellow 49	DUP, VPC.
*Acid Yellow 54	ACS, HN, TRC, VPC.
Acid Yellow 59	VPC.
Acid Yellow 63	AC, ACS.
*Acid Yellow 65	ALT, ATL, FAB, TRC, YAW.
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	ACS, DUP, HN.
Acid Yellow 127	TRC.
Acid Yellow 128	TRC.
Acid Yellow 129	TRC.
Acid Yellow 135	GAF.
*Acid Yellow 151	ACY, ALT, DUP, GAF, HN, TRC, VPC.
Acid Yellow 152	ACY.
*Acid Yellow 159	ACS, ALT, GAF, HN, TRC, VPC.
Acid Yellow 174	DUP, VPC.
Acid Yellow 175	DUP.
Acid Yellow 179	TRC.
Acid Yellow 190	HST.
Acid Yellow 198	DUP.
Other acid yellow dyes	ACY, ALT, ATL, CMG, DUP, GAF, TRC, VPC, YAW.
*Acid orange dyes:	
Acid Orange 1	GAF, HN.
Acid Orange 2	ACS.
Acid Orange 5	ACY.
Acid Orange 6	ACS.
*Acid Orange 7	ACS, ACY, ATL, GAF, HN, PDC, TRC, VPC, YAW.
*Acid Orange 8	ACS, ACY, ATL, DUP, GAF, HN, PDC, TRC, VPC.
*Acid Orange 10	ACS, ACY, ATL, DUP, GAF, PDC, TRC, VPC, YAW.
Acid Orange 12	PSC.
*Acid Orange 24	ACS, ACY, DUP, GAF, TRC, YAW.
Acid Orange 31	AC.
Acid Orange 45	ACS, YAW.
Acid Orange 50	AC.
Acid Orange 51	TRC.
Acid Orange 56	GAF.
*Acid Orange 60	ATL, CMG, DUP, GAF, HN, TRC, VPC.
Acid Orange 62	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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 86	ACS, ALT, TRC.
*Acid Orange 116	ACS, ALT, ATL, CMG, FAB, GAF, HN, TRC, YAW.
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, DUP, GAF, SDH, TRC, VPC, YAW.
*Acid Red 4	AC, ATL, BDO, CMG, GAF, PDC, TRC, VPC, YAW.
*Acid Red 14	ACS, ATL, GAF, PDC, YAW.
*Acid Red 17	ACS, ATL, TRC.
*Acid Red 18	ACS, ATL, GAF, PDC, TRC.
Acid Red 26	ACY, ATL, CPC, PDC.
Acid Red 27	ACS.
Acid Red 32	GAF.
Acid Red 33	YAW.
Acid Red 35	GAF.
*Acid Red 37	ACS, ATL, DUP, GAF, HN, TRC.
Acid Red 52	GAF.
Acid Red 57	ATL, CMG, TRC.
Acid Red 66	AC, ATL.
*Acid Red 73	ACS, ACY, ATL, DUP, GAF, PSC, TRC, VPC, YAW.
Acid Red 80	ICI.
*Acid Red 85	ACS, GAF, YAW.
Acid Red 87	SDH.
*Acid Red 88	ACS, ACY, ATL, DUP, GAF, PDC, TRC, SDH, YAW.
*Acid Red 89	AC, BDO, GAF.
Acid Red 97	ATL, GAF.
*Acid Red 99	ATL, FAB, HN, YAW.
Acid Red 100	DUP.
Acid Red 106	YAW.
*Acid Red 114	ACS, ALT, ATL, DUP, GAF, TRC, VPC.
*Acid Red 115	ACS, ATL, GAF.
Acid Red 119	ACS, ALT, ATL.
Acid Red 133	DUP, GAF.
Acid Red 134	TRC.
*Acid Red 137	ACS, ATL, DUP, GAF, HN, TRC.
Acid Red 138	ALT.
*Acid Red 151	AC, ACY, ATL, CMG, DUP, HN, TRC, VPC, YAW.
Acid Red 167	ATL, DUP, TRC.
Acid Red 178	DUP.
*Acid Red 182	ACS, ATL, BDO, CMG, DUP, GAF, HN.
Acid Red 183	TRC.
Acid Red 186	CMG, GAF, VPC.
Acid Red 191	TRC.
Acid Red 194	TRC.
Acid Red 201	TRC.
Acid Red 211	DUP.
Acid Red 212	TRC.
Acid Red 213	TRC.
Acid Red 225	VPC.
*Acid Red 266	DUP, TRC, VPC.
Acid Red 277	VPC.
Acid Red 278	VPC.
*Acid Red 299	ALT, FAB, TRC.
Acid Red 309	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid red dyes--Continued	
*Acid Red 337	DUP, TRC, VPC.
Acid Red 350	GAF.
Other acid red dyes	ACY, ALT, ATL, CMG, DUP, GAF, HN, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1	BDO, CMG, GAF.
*Acid Violet 3	ACS, ACY, TRC, YAW.
*Acid Violet 7	AC, ACS, ATL, BDO, CMG, GAF, TRC, VPC.
*Acid Violet 12	BDO, CMG, GAF.
*Acid Violet 17	DUP, GAF, SDH.
Acid Violet 29	HSH.
Acid Violet 34	ATL.
Acid Violet 41	CMG.
Acid Violet 43	ATL, CMG, HSH, ICI.
*Acid Violet 49	ACS, ACY, HSH, SDH, TRC.
Acid Violet 56	GAF.
Acid Violet 76	ACS.
Other acid violet dyes	CMG.
*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 23	TRC.
*Acid Blue 25	ACS, ATL, BDO, CMG, DUP, FAB, GAF, HN, ICI, TRC, VPC.
*Acid Blue 27	ATL, BDO, CMG, GAF, VPC.
Acid Blue 29	PDC, YAW.
Acid Blue 34	ACS.
*Acid Blue 40	ACS, ALT, ATL, BDO, CMG, DUP, GAF, ICI, TRC, VPC.
*Acid Blue 41	ATL, BDO, CMG, GAF.
Acid Blue 45	TRC.
*Acid Blue 45	ACS, ACY, ATL, CMG, GAF, HN, TRC.
Acid Blue 47	ICI.
*Acid Blue 62	ALT, BDO, CMG, GAF.
Acid Blue 69	GAF.
Acid Blue 74	ACS, DUP.
*Acid Blue 78	ACS, ATL, BDO, DUP, GAF, ICI, TRC.
Acid Blue 80	ATL, TRC.
Acid Blue 81	ICI.
Acid Blue 83	GAF.
*Acid Blue 92	ACS, ATL, YAW.
Acid Blue 93	HSC.
Acid Blue 104	ACS, GAF.
*Acid Blue 113	ACS, ALT, ATL, BDO, CMG, DUP, FAB, GAF, HN, PDC, TRC, YAW.
*Acid Blue 118	ACS, ATL, HN.
Acid Blue 120	ACS, ATL, GAF.
Acid Blue 122	DUP.
Acid Blue 127	CMG.
Acid Blue 145	ACS, DUP.
*Acid Blue 158 and 158A	BDO, CMG, GAF, HN, TRC, VPC.
Acid Blue 165	DUP.
Acid Blue 179	GAF.
Acid Blue 203	VPC.
Acid Blue 215	HST.
Acid Blue 221	VPC.
Acid Blue 230	ACS, DUP, TRC.
Acid Blue 231	TRC.
Acid Blue 298	DUP.
Other acid blue dyes	ALT, ATL, GAF, HN, TRC, YAW.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid green dyes:	
Acid Green 1	ACS, ACY, DUP.
*Acid Green 3	ACS, ACY, GAF, TRC.
Acid Green 9	ACS, ACY, GAF.
Acid Green 12	ACS, GAF.
*Acid Green 16	ACS, GAF, SDH, TRC.
Acid Green 19	ALT.
*Acid Green 20	ATL, BDO, GAF, PDC, TRC.
Acid Green 22	GAF.
*Acid Green 25	ACS, ATL, GAF, HSH, ICI, TRC, VPC.
Acid Green 35	TRC.
Acid Green 41	ICI, VPC.
Acid Green 50	ACY, GAF.
Acid Green 58	TRC.
Acid Green 70	TRC.
Acid Green 84	VPC.
Other acid green dyes	ALT, HN, VPC.
*Acid brown dyes:	
Acid Brown 1	GAF.
Acid Brown 6	GAF.
*Acid Brown 14	AC, ACS, ACY, DUP, GAF, TRC, YAW.
Acid Brown 19	TRC.
Acid Brown 22	DUP.
Acid Brown 28	TRC.
Acid Brown 31	GAF.
Acid Brown 45	TRC.
Acid Brown 51	CMG.
Acid Brown 58	YAW.
Acid Brown 96	ACY.
Acid Brown 97	ACY.
Acid Brown 98	ACY, TRC, YAW.
Acid Brown 152	GAF.
Acid Brown 158	GAF.
Acid Brown 239	ALT.
Acid Brown 354	ACY.
Other acid brown dyes	ALT, DUP, GAF, VPC.
*Acid black dyes:	
*Acid Black 1	AC, ACS, ACY, ATL, DUP, GAF, HN, PDC, TRC, YAW.
Acid Black 2	ACS, ACY.
Acid Black 24	ACS, DUP, GAF.
Acid Black 26, 26A and 26B	ATL, DUP, TRC.
Acid Black 29	GAF, YAW.
Acid Black 41	YAW.
Acid Black 48	ICI, TRC.
*Acid Black 52	ACS, DUP, FAB, GAF, HN, TRC, VPC.
Acid Black 53	PSC.
Acid Black 58	CMG, TRC.
Acid Black 60	BDO, TRC.
Acid Black 92	ACY.
*Acid Black 107	ACS, ALT, DUP, TRC.
Acid Black 108	GAF.
Acid Black 139	VPC.
Acid Black 140	CMG.
Acid Black 172	VPC.
Other acid black dyes	ALT, ATL, DUP, HN, PDC, VPC.
AZOIC DYES AND COMPONENTS	
Azoic Compositions	
*Azoic yellow dyes:	
Azoic Yellow 1	ATL, SDH.
*Azoic Yellow 2	ALL, ATL, BUC, x.
Azoic Yellow 3	ATL, BUC.
Other azoic yellow dyes	ALL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
Azoic Dyes and Components--Continued	
Azoic Compositions--Continued	
Azoic orange dyes:	
*Azoic Orange 3	ALL, ATL, BUC, x.
Azoic Orange 10	BUC.
Other azoic orange dyes	ALL.
*Azoic red dyes:	
*Azoic Red 1	ALL, ATL, BUC, SDH, x.
Azoic Red 2	ALL, ATL, BUC, GAF, x.
*Azoic Red 6	ATL, BUC, SDH, x.
Azoic Red 12	ATL.
Azoic Red 16	ATL.
Azoic Red 73	GAF.
Azoic Red 74	GAF.
Other azoic red dyes	ALL, x.
Azoic Violet dyes: Azoic Violet 1	ATL, BUC.
Azoic blue dyes:	
Azoic Blue 2	ATL.
*Azoic Blue 3	ALL, ATL, BUC, GAF, HST, SDH, x.
Azoic Blue 6	ATL.
Azoic Blue 7	ATL.
Other azoic blue dyes	ALL, ATL, GAF.
Azoic green dyes:	
Azoic Green 1	ATL.
Other azoic green dyes	ALL, BUC.
Azoic brown dyes:	
Azoic Brown 3	x.
Azoic Brown 7	ATL, BUC.
*Azoic Brown 9	ALL, ATL, BUC, GAF, HST, VPC, x.
Azoic Brown 10	ATL, BUC.
Azoic Brown 26	GAF.
Other azoic brown dyes	ATL, GAF.
*Azoic black dyes:	
Azoic Black 1	HST.
Azoic Black 4	ATL, BUC, GAF.
Azoic Black 15	GAF.
Other azoic black dyes	ALL, ATL, GAF, VPC.
Azoic Diazo Components, Bases (Fast Color Bases)	
Azoic Diazo Component 2, base	ATL, BUC.
Azoic Diazo Component 3, base	BUC.
Azoic Diazo Component 4, base	ATL, BUC, GAF, SDH.
Azoic Diazo Component 5, base	ATL, GAF.
Azoic Diazo Component 8, base	SDH.
*Azoic Diazo Component 10, base	ATL, BUC, GAF.
Azoic Diazo Component 11, base	ATL.
Azoic Diazo Component 12, base	BUC, SDH.
Azoic Diazo Component 13, base	ATL, BUC.
Azoic Diazo Component 14, base	AC.
Azoic Diazo Component 28, base	BUC.
Azoic Diazo Component 32, base	ALL, ATL, BUC.
Azoic Diazo Component 44, base	BUC.
Azoic Diazo Component 48, base	GAF.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
AZOIC DYES AND COMPONENTS--Continued	
Azoic Diazo Components, Salts (Fast Color Salts)	
*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, GAF.
*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, BUC.
*Azoic Diazo Component 12, salt	AC, ALL, BUC, SDH.
*Azoic Diazo Component 13, salt	AC, ALL, BUC, GAF, SDH.
Azoic Diazo Component 14, salt	AC.
Azoic Diazo Component 20, salt	ALL.
Azoic Diazo Component 28, salt	ALL, BUC, GAF, SDH.
Azoic Diazo Component 32, salt	ALL.
Azoic Diazo Component 34, salt	ALL, GAF.
*Azoic Diazo Component 35, salt	ALL, 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.
Azoic Diazo Component 121, salt	GAF.
Other azoic diazo components, salts	ALL.
Azoic Coupling Components (Naphthol AS and Derivatives)	
Azoic Coupling Component 2	ATL, BUC, PCW.
Azoic Coupling Component 3	BUC, PCW.
Azoic Coupling Component 4	ATL, BUC.
Azoic Coupling Component 5	BUC.
Azoic Coupling Component 7	BUC, PCW, SDH.
Azoic Coupling Component 8	ATL, BUC, PCW.
Azoic Coupling Component 10	ATL, PCW.
Azoic Coupling Component 11	BUC, PCW.
Azoic Coupling Component 12	ATL, BUC, PCW.
Azoic Coupling Component 13	GAF, HST.
Azoic Coupling Component 14	ATL, BUC, PCW.
Azoic Coupling Component 15	BUC, GAF.
Azoic Coupling Component 16	BUC.
Azoic Coupling Component 17	ATL, BUC, PCW.
Azoic Coupling Component 18	ATL, BUC, GAF, PCW.
*Azoic Coupling Component 19	BUC, GAF, PCW.
Azoic Coupling Component 20	ATL, BUC, GAF, PCW.
*Azoic Coupling Component 21	ATL, BUC, PCW.
Azoic Coupling Component 24	PCW.
Azoic Coupling Component 29	ATL, BUC, PCW.
Azoic Coupling Component 34	ATL, BUC, PCW.
Azoic Coupling Component 35	BUC, HST, PCW.
Azoic Coupling Component 43	ATL, BUC, GAF.
Other azoic coupling components	ATL, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES	
*Basic yellow dyes:	
Basic Yellow 1	DUP.
Basic Yellow 2	ACS, ACY.
*Basic Yellow 11	ACS, ACY, ALT, ATL, DUP, GAF, TRC, VPC.
*Basic Yellow 13	ACS, ALT, ATL, BAS, DUP, GAF, VPC.
Basic Yellow 15	DUP.
Basic Yellow 21	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, DUP.
Basic Yellow 41	ACY.
Basic Yellow 52	DUP.
Basic Yellow 53	DUP.
Basic Yellow 58	DUP.
Other basic yellow dyes	ACY, ALT, ATL, DUP, EKT, GAF.
*Basic orange dyes:	
*Basic Orange 1	ACS, ACY, GAF, PSC, TRC.
*Basic Orange 2	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
Basic Orange 14	GAF.
*Basic Orange 21	ACS, ACY, ALT, ATL, DUP, GAF, TRC, VPC.
Basic Orange 22	GAF.
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	ACY, DUP.
*Basic Red 13	ACS, ATL, GAF, TRC, VPC.
*Basic Red 14	ACS, ACY, ALT, ATL, DUP, GAF, VPC.
Basic Red 15	ATL, DUP, GAF, TRC.
Basic Red 16	DUP.
Basic Red 17	DUP.
*Basic Red 18	ATL, DUP, GAF, VPC.
Basic Red 22	ACY, TRC.
Basic Red 23	VPC.
Basic Red 29	BAS.
Basic Red 30	ACY.
Basic Red 46	TRC.
Basic Red 49	DUP, GAF.
Basic Red 51	BAS.
Basic Red 73	DUP.
Other basic red dyes	ATL, BAS, DUP, EKT, VPC.
*Basic violet dyes:	
*Basic Violet 1	ACS, ACY, DSC, HSC.
Basic Violet 2	DSC.
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	ACY, 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.
Other basic violet dyes	ACY, DUP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES--Continued	
*Basic blue dyes:	
Basic Blue 1	DSC, GAF, SDH, VPC.
Basic Blue 2	DSC.
*Basic Blue 3	ACY, ALT, DUP, GAF, HST.
Basic Blue 4	DUP.
*Basic Blue 5	DSC, SDH, VPC.
Basic Blue 6	ACY.
*Basic Blue 7	DSC, DUP, SDH.
Basic Blue 9	ACS, ACY.
Basic Blue 11	DSC, SDH.
Basic Blue 21	ACS, ALT, DUP.
Basic Blue 22	ACS, DUP.
*Basic Blue 26	DSC, DUP, SDH.
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 82	DUP.
Basic Blue 87	DUP.
Basic Blue 94	DUP.
Basic Blue 97	DUP.
Other basic blue dyes	ACS, ALT, ATL, BAS, DUP, EKT, VPC.
Basic green dyes:	
*Basic Green 1	ACS, ACY, DSC, DUP.
Basic Green 3	DUP.
*Basic Green 4	ACS, ACY, DSC, DUP, 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, DSC, EKT, VPC.
DIRECT DYES	
*Direct yellow dyes:	
*Direct Yellow 4	ACS, ACY, ATL, DUP, GAF, HN, TRC, VPC.
*Direct Yellow 5	ACS, 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	ACS, ACY, DUP, GAF, HN, SDH, TRC, VPC.
*Direct Yellow 12	ACS, ACY, ATL, CMG, DUP, FAB, GAF, TRC, YAW.
Direct Yellow 21	HN.
Direct Yellow 23	DUP.
Direct Yellow 26	ATL, HN, HSH.
*Direct Yellow 28	ACS, ATL, DUP, GAF, PDC, TRC.
*Direct Yellow 29	ATL, DUP, GAF.
Direct Yellow 34	ALT, HN.
Direct Yellow 39	TRC.
Direct Yellow 41	ATL.
*Direct Yellow 44	ACS, ATL, DUP, FAB, GAF, HN, HSH, TRC, VPC.
*Direct Yellow 50	ALT, ATL, FAB, GAF, HN, HSH, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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	ACS, ATL, DUP, FAB, GAF, HN, TRC, VPC.
Direct Yellow 103	ACS.
*Direct Yellow 105	ALT, HN, TRC.
*Direct Yellow 106	ACS, ALT, FAB, GAF, HN, TRC.
*Direct Yellow 107	ACS, ATL, GAF, TRC.
Direct Yellow 114	ACY.
Direct Yellow 117	TRC.
Direct Yellow 118	TRC.
Direct Yellow 119	DUP.
Direct Yellow 120	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, ACY, ALT, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
*Direct orange dyes:	
Direct Orange 1	ACS, BDO.
Direct Orange 6	ACS.
*Direct Orange 8	ACS, FAB, GAF, YAW.
Direct Orange 10	AC.
Direct Orange 11	GAF.
*Direct Orange 15	ACS, ACY, DUP, GAF, HN, TRC.
*Direct Orange 26	ACS, ATL, GAF, HSH, TRC.
*Direct Orange 29	FAB, HN, TRC, VPC.
*Direct Orange 34	ACS, ATL, CMG, DUP, GAF.
*Direct Orange 37	ACY, ATL, CMG, GAF.
*Direct Orange 39	ACY, ALT, CMG, DUP, FAB, GAF, HN.
Direct Orange 59	DUP, GAF.
Direct Orange 61	TRC.
Direct Orange 67	VPC.
*Direct Orange 72	ACS, ATL, FAB, HN, HSH, TRC, VPC.
*Direct Orange 73	DUP, GAF, TRC, VPC.
Direct Orange 74	DUP, HSH.
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.
Other direct orange dyes	ALT, ATL, TRC.
*Direct red dyes:	
*Direct Red 1	ACS, DUP, GAF, YAW.
*Direct Red 2	ACS, ATL, DUP, FAB, HN, TRC.
*Direct Red 4	ACS, ATL, TRC, VPC.
Direct Red 7	ATL.
*Direct Red 10	AC, ATL, YAW.
Direct Red 13	ACS, YAW.
*Direct Red 16	ACS, ATL, DUP, TRC.
Direct Red 20	GAF.
*Direct Red 23	ACS, ATL, DUP, FAB, GAF, HN, TRC, VPC.
*Direct Red 24	AC, ACS, ATL, FAB, HN, HSH, TRC, VPC.
*Direct Red 26	ACS, ATL, FAB, GAF, HN, HSH, TRC, VPC.
*Direct Red 28	ACS, DUP, FAB, YAW.
*Direct Red 31	ACS, ATL, GAF, HSH, TRC.
*Direct Red 37	ACS, GAF, YAW.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct red dyes--Continued	
*Direct Red 39	ATL, GAF, TRC, YAW.
Direct Red 46	ATL.
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	ATL, CMG, HN, TRC, VPC.
*Direct Red 80	AC, ACS, ALT, ATL, BDO, CMG, FAB, HN, HSH, SDH, TRC, VPC.
*Direct Red 81	ACS, ACY, ATL, BDO, CMG, DUP, GAF, HN, HSH, TRC, VPC, YAW.
*Direct Red 83	ACS, ALT, ATL, FAB, HN, HSH, TRC.
Direct Red 84	ATL.
Direct Red 95	VPC.
Direct Red 100	ATL.
Direct Red 111	GAF.
Direct Red 117	DUP.
Direct Red 120	CMG.
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. CMG.
Direct Red 209	TRC, VPC.
Direct Red 212	VPC.
Direct Red 236	DUP.
Direct Red 238	DUP.
Other direct red dyes	ALT, ATL, GAF, HN, 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 22	DUP.
Direct Violet 27	ACY.
Direct Violet 47	GAF.
Direct Violet 48	ACS.
*Direct Violet 51	ACS, ATL, DUP.
Direct Violet 62	ACY.
Direct Violet 66	ATL, TRC.
Direct Violet 67	DUP.
Direct Violet 99	DUP.
Other direct violet dyes	ALT.
*Direct blue dyes:	
*Direct Blue 1	AC, ACS, ACY, ATL, CMG, DUP, GAF, HN, TRC, VPC, YAW.
*Direct Blue 2	AC, ACS, FAB, GAF, HN, HSH, YAW.
*Direct Blue 6	AC, ACS, ACY, DUP, GAF, HN, YAW.
*Direct Blue 8	ACS, ATL, DUP, GAF.
Direct Blue 14	ACS, ATL, TRC.
*Direct Blue 15	ACS, ATL, DUP, GAF, VPC, YAW.
Direct Blue 22	ACS, ATL, CMG.
Direct Blue 24	ATL, YAW.
*Direct Blue 25	ACS, ATL, GAF, TRC, YAW.
Direct Blue 26	ATL.
Direct Blue 67	ATL, TRC.
*Direct Blue 71	ACS, ATL, GAF, TRC.
Direct Blue 75	TRC.
*Direct Blue 76	ACS, ALT, ATL, FAB, GAF, HN, HSH, TRC, VPC, YAW.
*Direct Blue 78	ACS, ATL, CMG, DUP, TRC.
*Direct Blue 80	ACS, ALT, ATL, DUP, FAB, GAF, HN, HSH, TRC, VPC.
Direct Blue 81	ATL.
*Direct Blue 86	ALT, ATL, DUP, FAB, GAF, HN, ICC, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct blue dyes--Continued	
Direct Blue B7	1C1.
Direct Blue 91	TRC.
*Direct Blue 98	ALT, ATL, GAF, TRC, VPC.
Direct Blue 100	ALT, FAB, HN.
Direct Blue 104	DUP.
Direct Blue 106	ATL.
Direct Blue 108	ATL.
Direct Blue 120 and 120A	ATL, DUP, FAB, HN, 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	FAB, TRC.
*Direct Blue 191	AC, ALT, ACS, GAF.
Direct Blue 199	DUP, GAF.
*Direct Blue 218	ACS, ALT, ATL, DUP, FAB, GAF, HN, TRC, VPC.
Direct Blue 263	DUP.
Other direct blue dyes	ALT, DUP, GAF, HN, TRC.
*Direct green dyes:	
*Direct Green 1	AC, ACS, DUP, FAB, GAF, HN, YAW.
*Direct Green 6	AC, ACS, DUP, FAB, GAF, HN, YAW.
Direct Green 26	DUP, TRC.
Direct Green 27	TRC.
Direct Green 28	TRC.
Direct Green 38	GAF.
Direct Green 45	ATL, VPC.
Direct Green 47	ATL, DUP, GAF.
Direct Green 51	TRC.
Direct Green 69	TRC.
Other direct green dyes	ALT, DUP, TRC.
*Direct brown dyes:	
Direct Brown 1	ACY, HN.
Direct Brown 1A	GAF, YAW.
*Direct Brown 2	AC, ACS, DUP, FAB. GAF, YAW.
Direct Brown 6	YAW.
*Direct Brown 31	AC, ACS, GAF, YAW.
Direct Brown 32	GAF.
Direct Brown 40	AC.
Direct Brown 44	GAF, YAW.
Direct Brown 48	AC.
Direct Brown 59	YAW.
Direct Brown 74	ACS.
*Direct Brown 95	ACS, DUP, FAB, GAF, HN, YAW.
Direct Brown 106	GAF.
*Direct Brown 111	DUP, GAF, TRC, VPC.
Direct Brown 112	ATL.
Direct Brown 154	ACS, DUP, FAB, YAW.
Direct Brown 218	ACS.
Other direct brown dyes	ALT, ATL, HN, VPC.
*Direct black dyes:	
Direct Black 2	ACS, ACY.
*Direct Black 4	ACS, FAB, GAF, HN, YAW.
Direct Black 8	YAW.
*Direct Black 9	ACS, ATL, DUP, HN.
Direct Black 17	GAF.
Direct Black 19	ATL, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct black dyes--Continued	
*Direct Black 22	ALT, ATL, GAF, HN, TRC, VPC, YAW.
*Direct Black 38	ACS, ACY, ALT, FA8, GAF, HN, YAW.
*Direct Black 51	AC, ACS, DUP, GAF, TRC.
Direct Black 56	ACS, TRC.
Direct Black 75	GAF.
Direct Black 78	ACS, HN.
*Direct Black 80	ACS, ATL, FA8, HN, HSH, YAW.
Direct Black 95	ACS.
Direct Black 190	ACS, HN.
Other direct black dyes	ALT, ATL, DUP, HSH, TRC, VPC, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse Yellow 1	GAF.
*Disperse Yellow 3	AC, ALT, ATL, DUP, FAB, GAF, HN, ICC, TRC, YAW.
Disperse Yellow 5	GAF, ICC.
Disperse Yellow 8	ATL, TRC.
*Disperse Yellow 23	AC, ALT, DUP, EKT, FA8, GAF, HN, 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, FA8, GAF, HN, ICC, SDC, TRC.
Disperse Yellow 50	TRC.
*Disperse Yellow 54	AC, ALT, ATL, DUP, FAB, GAF, ICC, SDC, TRC.
Disperse Yellow 56	BAS.
Disperse Yellow 58	HST.
Disperse Yellow 64	BAS, BUC, DUP.
Disperse Yellow 67	ACY, DUP.
Disperse Yellow 68	HST.
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	EKT.
Disperse Yellow 93	VPC.
Disperse Yellow 95	VPC.
Disperse Yellow 96	VPC.
Disperse Yellow 118	AC.
Disperse Yellow 125	SDC.
Disperse Yellow 131	DUP.
Other disperse yellow dyes	ATL, BUC, EKT, GAF, MAY, SDC, VPC.
*Disperse orange dyes:	
*Disperse Orange 3	AC, EKT, FA8, GAF, HN, TRC.
Disperse Orange 5	AC, ATL, BUC, EKT, GAF.
Disperse Orange 16	AC.
*Disperse Orange 17	AC, EKT, GAF, HN, ICC.
Disperse Orange 21	TRC.
*Disperse Orange 25	ATL, DUP, EKT, TRC.
Disperse Orange 29	AC, GAF.
Disperse Orange 30	ICC, TRC.
Disperse Orange 37	TRC.
Disperse Orange 38	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, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse orange dyes--Continued	
Disperse Orange 58	AC, EKT.
Disperse Orange 59	EKT, ICC.
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 90	AC.
Disperse Orange 91	AC.
Disperse Orange 94	SDC.
Disperse Orange 98	DUP.
Other disperse orange dyes	ATL, BUC, EKT, GAF, SDC.
*Disperse red dyes:	
*Disperse Red 1	AC, DUP, EKT, GAF, HN, ICC, TRC.
Disperse Red 4	BUC, GAF, TRC.
*Disperse Red 5	AC, EKT, GAF, ICC, YAW.
Disperse Red 7	AC.
Disperse Red 9	ATL.
*Disperse Red 11	AC, DUP, GAF.
Disperse Red 13	AC, DUP, GAF.
*Disperse Red 15	CMG, GAF, HSH, ICC, TRC.
*Disperse Red 17	AC, DUP, EKT, GAF, ICC, TRC.
Disperse Red 21	EKT.
Disperse Red 30	EKT, TRC.
Disperse Red 31	ICC.
Disperse Red 35	EKT.
*Disperse Red 55	DUP, GAF, HN, TRC, VPC.
Disperse Red 59	ACY, DUP, GAF.
*Disperse Red 60	AC, ALT, ATL, BAS, DUP, EKT, GAF, HN, SDC, TRC, VPC.
*Disperse Red 65	ALT, DUP, EKT, ICC, TRC.
Disperse Red 73	TRC.
Disperse Red 78	ICC, TRC.
Disperse Red 82	VPC.
Disperse Red 86	EKT, GAF.
Disperse Red 88	EKT.
Disperse Red 90	VPC.
Disperse Red 91	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 137	EKT.
Disperse Red 138	EKT.
Disperse Red 139	VPC.
Disperse Red 140	AC, DUP.
Disperse Red 159	VPC
Disperse Red 161	DUP.
Disperse Red 162	DUP.
Disperse Red 167	GAF.
Disperse Red 177	ALT, ICC, SDC.
Disperse Red 178	ICC.
Disperse Red 179	ICC.
Disperse Red 180	ICC.
Disperse Red 211	DUP.
Other disperse red dyes	ALT, BUC, DUP, EKT, FAB, GAF, HST, ICC, MAY, SDC, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse violet dyes:	
*Disperse Violet 1	AC, GAF, HSH, ICC, TRC.
Disperse Violet 4	AC, GAF.
Disperse Violet 8	GAF.
Disperse Violet 17	DUP.
Disperse Violet 26	DUP.
*Disperse Violet 27	AC, DUP, EKT, ICC, TRC.
Disperse Violet 28	ALT, DUP, TRC.
Disperse Violet 40	VPC.
Disperse Violet 41	EKT.
Disperse Violet 42	EKT.
Disperse Violet 44	EKT.
Disperse Violet 57	TRC.
Other disperse violet dyes	GAF, SDC.
*Disperse blue dyes:	
*Disperse Blue 1	AC, GAF, ICC, TRC.
*Disperse Blue 3	AC, EKT, GAF, HN, HSH, ICC, TRC.
*Disperse Blue 7	DUP, GAF, HN, HSH, ICC, TRC.
Disperse Blue 14	EKT.
Disperse Blue 27	EKT.
Disperse Blue 35	ICI.
Disperse Blue 55	TRC.
Disperse Blue 56	ALT, DUP, ICC, TRC, VPC.
Disperse Blue 60	DUP.
Disperse Blue 62	DUP, EKT, GAF.
*Disperse Blue 64	AC, ATL, DUP, EKT, GAF, TRC.
Disperse Blue 71	VPC.
*Disperse Blue 73	ACS, ACY, TRC.
*Disperse Blue 79	EKT, HN, HST, MAY, TRC.
Disperse Blue 81	VPC.
Disperse Blue 85	TRC.
Disperse Blue 87	BAS.
Disperse Blue 94	BAS.
Disperse Blue 95	GAF.
Disperse Blue 102	EKT.
Disperse Blue 109	DUP, MAY.
Disperse Blue 112	EKT.
Disperse Blue 117	EKT.
Disperse Blue 118	EKT.
Disperse Blue 119	EKT.
Disperse Blue 120	EKT, GAF.
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 148	BAS.
Disperse Blue 150	DUP.
Disperse Blue 152	HST.
Disperse Blue 156	MAY.
Disperse Blue 165	DUP, VPC.
Disperse Blue 172	DUP.
Disperse Blue 173	AC.
Other disperse blue dyes	ALT, ATL, DUP, EKT, GAF, HSH, MAY, SDC, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
Disperse green dyes	GAF, VPC.
Disperse brown dyes:	
Disperse Brown 1	AC, SDC, TRC.
Disperse Brown 2	DUP, EKT, GAF.
Disperse Brown 5	EKT.
Disperse Brown 8	VPC.
Disperse Brown 11	AC.
Disperse Brown 14	DUP.
Other disperse brown dyes	ALT, DUP, GAF, ICC, SDC.
*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	EKT.
Other disperse black dyes	ALT, ATL, BUC, DUP, GAF, ICC, SDC, VPC.
FIBER-REACTIVE DYES	
*Reactive yellow dyes:	
Reactive Yellow 1	ICI.
Reactive Yellow 2	TRC.
Reactive Yellow 3	TRC.
Reactive Yellow 4	ICI.
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 31	HST.
Reactive Yellow 37	HST.
Reactive Yellow 42	ICI, HST.
Reactive Yellow 86	ICI.
Other reactive yellow dyes	HST.
Reactive orange dyes:	
Reactive Orange 1	ICI.
Reactive Orange 4	ICI.
Reactive Orange 5	TRC.
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	ICI.
Reactive Red 3	ICI.
Reactive Red 4	TRC.
Reactive Red 5	ICI.
Reactive Red 8	ICI.
Reactive Red 11	ICI.
Reactive Red 21	HST.
Reactive Red 29	ICI.
Reactive Red 31	ICI.
Reactive Red 33	ICI.
Reactive Red 40	VPC.
Reactive Red 41	VPC.
Reactive Red 43	ICI.
Reactive Red 55	TRC.
Reactive Red 58	ICI.
Reactive Red 86	TRC.
Reactive Red 94	HST.
Reactive Red 105	HST.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FIBER-REACTIVE DYES--Continued	
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 2	TRC.
Reactive Blue 3	ICI.
Reactive Blue 4	ICI.
Reactive Blue 5	ICI, TRC.
Reactive Blue 7	TRC.
Reactive Blue 19	HST.
Reactive Blue 21	HST.
Reactive Blue 25	ICI.
Reactive Blue 29	VPC.
Reactive Blue 38	HST.
Reactive Blue 71	ICI.
Reactive Blue 89	HST.
Reactive Blue 90	HST.
Other reactive blue dyes	HST.
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 1	CGY.
Fluorescent Brightening Agent 6	ACY.
Fluorescent Brightening Agent 8	ACY.
Fluorescent Brightening Agent 9	GAF, SDH.
Fluorescent Brightening Agent 22	CGY.
Fluorescent Brightening Agent 24	CGY.
Fluorescent Brightening Agent 2S	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 S2	S.
Fluorescent Brightening Agent S4	CGY.
Fluorescent Brightening Agent 59	CGY.
Fluorescent Brightening Agent 61	ACY.
Fluorescent Brightening Agent 68	CCW, GAF.
Fluorescent Brightening Agent 71	ACY, CGY, GAF.
Fluorescent Brightening Agent 75	GAF.
Fluorescent Brightening Agent 102	DUP, VPC.
Fluorescent Brightening Agent 108	GAF.
Fluorescent Brightening Agent 109	GAF.
Fluorescent Brightening Agent 114	VPC.
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, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FLUORESCENT BRIGHTENING AGENTS--Continued	
Fluorescent Brightening Agent 134	CGY.
Fluorescent Brightening Agent 189	ACY.
Other fluorescent brightening agents	ACY, CCW, CGY, GAF, PCW, S, VPC.
FOOD, DRUG, AND COSMETIC COLORS	
Food, Drug, and Cosmetic Dyes	
*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.
FD&C Red No. 40	ACS, KON, WJ.
FD&C Violet No. 1	ACS, SDH, WJ.
*FD&C Yellow No. 5	ACS, ALT, KON, STG, WJ.
*FD&C Yellow No. 6	ACS, ALT, KON, SDH, STG, WJ.
Other food, drug, and cosmetic dyes	STG.
Drug and Cosmetic Dyes	
D&C Blue No. 1	KON.
D&C Blue No. 6	ACS, KON.
D&C Green No. 5	ACS, ALT, 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	KON, 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. 17	KON.
*D&C Red No. 19	ACS, KON, SNA, TMS.
D&C Red No. 21	KON, SNA, TMS.
*D&C Red No. 22	ACS, KON, SDH.
D&C Red No. 27	TMS.
D&C Red No. 28	ACS.
D&C Red No. 30	KON, TMS.
D&C Red No. 31	KON.
D&C Red No. 33	ACS, KON.
D&C Red No. 34	KON, SNA.
*D&C Red No. 36	ALT, KON, TMS.
D&C Red No. 37	ACS.
D&C Violet No. 2	ACS.
D&C Yellow No. 5	KON, TMS.
D&C Yellow No. 6	KON.
D&C Yellow No. 7	ALT, KON.
D&C Yellow No. 8	KON.
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, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FOOD, DRUG, AND COSMETIC COLORS--Continued	
Drug and Cosmetic Dyes, External	
Ext. D&C Green No. 1	ACS.
Ext. D&C Yellow No. 1	ACS, KON.
Ext. D&C Yellow No. 7	KON.
INGRAIN DYES	
Ingrain blue dyes:	
Ingrain Blue 1	ICI.
Ingrain Blue 2	VPC.
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	PDC, VPC.
Mordant Yellow 29	GAF.
Mordant Yellow 30	TRC, VPC.
Mordant Yellow 36	PDC.
*Mordant orange dyes:	
Mordant Orange 1	ACY, PDC, TRC.
Mordant Orange 4	GAF.
*Mordant Orange 6	ATL, GAF, PDC, TRC.
Mordant Orange 8	TRC.
*Mordant red dyes:	
Mordant Red 3	ACY.
Mordant Red 7	ACY, BDO, CMG, GAF, PDC, TRC.
Mordant Red 9	MRX, PDC.
Mordant Red 11	ACY.
Mordant Red 27	DUP.
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 19	CMG.
Mordant green dyes: Mordant Green 36	PDC.
*Mordant brown dyes:	
*Mordant Brown 1	ACS, CMG, DUP, GAF, TRC, YAW.
Mordant Brown 12	PDC.
Mordant Brown 13	ACS.
Mordant Brown 15	GAF.
Mordant Brown 18	ACS, DUP, PDC.
Mordant Brown 19	GAF.
Mordant Brown 21	GAF, VPC.
*Mordant Brown 33	ACS, GAF, PDC, TRC.
Mordant Brown 40	CMG, GAF.
Mordant Brown 70	DUP, PDC.
Mordant black dyes:	
Mordant Black 3	TRC.
Mordant Black 8	VPC.
Mordant Black 9	ACS, ATL, VPC.
Mordant Black 11	ACS, GAF, TRC, VPC.
Mordant Black 13	HSH.
Mordant Black 17	ACY, GAF, TRC.
Mordant Black 19	PDC.
Mordant Black 26	TRC.
Mordant Black 38	PDC.
Other mordant black dyes	CMG.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
OXIDATION BASES	
Oxidation Base 8 and 8A	ACY.
Oxidation Base 21	PDC.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 2	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	GAF.
Solvent Yellow 30	ACS, PSC.
*Solvent Yellow 33	AC, ACS, ACY.
Solvent Yellow 34	ACY, DSC.
Solvent Yellow 40	ACS.
Solvent Yellow 42	ACS.
Solvent Yellow 43	GAF.
Solvent Yellow 44	ACS.
Solvent Yellow 45	ACS.
Solvent Yellow 47	ACY, DUP, GAF.
*Solvent Yellow 56	AC, ACS, ACY, PSC.
Solvent Yellow 71	ACY.
Solvent Yellow 72	ACY.
Solvent Yellow 87	ACY.
Solvent Yellow 107	PAT.
Other solvent yellow dyes	AC, ATL, DSC, PAT.
*Solvent orange dyes:	
Solvent Orange 2	PSC.
*Solvent Orange 3	ACS, ACY, DSC, GAF, PSC.
Solvent Orange 5	GAF.
*Solvent Orange 7	ACS, ACY, ATL, 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, 1973--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 75	ACS.
Solvent Red 105	ACY.
Solvent Red 108	ACY.
Solvent Red 111	ACY.
Solvent Red 115	ACY.
Solvent Red 126	ACY.
Solvent Red 164	PAT.
Solvent Red 166	PAT.
Other solvent red dyes	AC, ACY, ATL, DSC, DUP, PAT.
Solvent violet dyes:	
Solvent Violet 8	ACY, DSC.
Solvent Violet 9	DSC.
Solvent Violet 13	AC, ATL, HSH, PAT.
Solvent Violet 14	AC, PAT.
Other solvent violet dyes	AC, DSC.
*Solvent blue dyes:	
Solvent Blue 3	ACY, SW.
Solvent Blue 4	DSC, DUP.
Solvent Blue 5	DSC.
Solvent Blue 6	DSC.
Solvent Blue 7	ACS, ACY.
Solvent Blue 9	GAF.
Solvent Blue 11	BDO, GAF.
Solvent Blue 12	ACS, BDO.
Solvent Blue 14	ACY.
Solvent Blue 16	ACS.
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 60	ACY.
Solvent Blue 74	ACS.
Solvent Blue 89	ACY.
Solvent Blue 98	PAT.
Solvent Blue 100	PAT.
Other solvent blue dyes	ACY, DSC, GAF, SDH.
Solvent green dyes:	
Solvent Green 1	ACY, DSC.
Solvent Green 2	GAF.
*Solvent Green 3	AC, ACS, ATL, GAF, HSH, PAT.
Other solvent green dyes	ACY, DSC, GAF.
*Solvent brown dyes:	
Solvent Brown 11	GAF.
*Solvent Brown 12	ACY, DSC, GAF, PSC.
Solvent Brown 19	DUP.
Solvent Brown 20	ACY, DUP.
Solvent Brown 22	DUP, PSC.
Solvent Brown 38	ACY.
Other solvent brown dyes	DSC.
Solvent black dyes:	
Solvent Black 3	ACS.
Solvent Black 5	ACS, ACY, DSC, DUP.
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.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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.
Sulfur Yellow 4	SDC.
Leuco Sulfur Yellow 4	SDC.
Leuco Sulfur Yellow 9	STC.
Other sulfur yellow dyes	ACY, SDC.
Sulfur Orange 1	STC.
Sulfur red dyes:	
Sulfur Red 5	STC.
Leuco Sulfur Red 10	SDC.
Other sulfur red dyes	SDC.
Sulfur blue dyes:	
Sulfur Blue 7	ACY, SDC.
Leuco Sulfur Blue 7	ACY, SDC.
Solubilized Sulfur Blue 7	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:	
Sulfur Green 2	SDC.
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, STC.
Solubilized Sulfur Brown 10	SDC.
Sulfur Brown 14	SDC.
Leuco Sulfur Brown 14	SDC.
Leuco Sulfur Brown 20	STC.
Sulfur Brown 26	ACY, STC.
Leuco Sulfur Brown 37	SDC.
Sulfur Brown 52	SDC.
Leuco Sulfur Brown 81	ACY.
Leuco Sulfur Brown 82	ACY.
Other sulfur brown dyes	ACY, SDC.
Sulfur black dyes:	
Sulfur Black 1	SDC.
Leuco Sulfur Black 1	ACY, SDC, STC.
Solubilized Sulfur Black 1	ACY, STC.
Sulfur Black 2	SDC.
Leuco Sulfur Black 2	ACY, SDC.
Solubilized Sulfur Black 2	SDC.
Leuco Sulfur Black 10	SDC.
Sulfur Black 11	SDC.
Leuco Sulfur Black 11	SDC.
Other sulfur black dyes	SDC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES	
*Vat yellow dyes:	
Vat Yellow 1, 12-1/2%--	ACS.
*Vat Yellow 2, 8-1/2%--	AC, ATL, GAF, ICI, TRC, VPC.
Vat Yellow 3, 12-1/2%--	DUP.
*Vat Yellow 4, 12-1/2%--	ATL, GAF, HST, VPC.
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--	MAY, VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%--	ACY, ATL, GAF, HST, TRC, VPC.
*Vat Orange 2, 12%--	ACY, DUP, GAF, ICI, TRC.
Vat Orange 3, 13-1/2%--	DUP, GAF, HST.
Vat Orange 4, 6%--	DUP.
Vat Orange 5, 10%--	HST.
Solubilized Vat Orange 5, 30%--	HST.
Vat Orange 7, 11%--	HST, TRC.
*Vat Orange 9, 12%--	ACY, DUP, GAF, ICI, TRC.
Vat Orange 11, 6%--	DUP.
*Vat Orange 15, 10%--	AC, ATL, ACY, GAF, ICI, TRC, VPC.
Other vat orange dyes--	SDC.
*Vat red dyes:	
*Vat Red 1, 13%--	AC, ATL, ACY, HST, ICI.
Solubilized Vat Red 1, 3%--	HST.
Vat Red 10, 18%--	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, ICI, TRC.
Vat Violet 2, 20%--	ACY, HST.
Vat Violet 3, 15%--	HST.
*Vat Violet 9, 12%--	DUP, GAF, ICI, MAY, TRC.
*Vat Violet 13, 6-1/4%--	ATL, DUP, GAF, HST, ICI, TRC.
Vat Violet 14, 12-1/2%--	ATL.
Vat Violet 21--	VPC.
Other vat violet dyes--	GAF, MAY.
*Vat blue dyes:	
Vat Blue 1, 20%--	ACS.
Vat Blue 4, 10%--	ACY, DUP, GAF.
Vat Blue 5, 16%--	ATL, HST.
*Vat Blue 6, 8-1/3%--	ACY, DUP, GAF, ICI, TRC.
Solubilized Vat Blue 6, 17-1/2%--	HST.
Vat Blue 12, 6-1/2%--	DUP.
*Vat Blue 14, 8-1/3%--	DUP, GAF, TRC.
Vat Blue 16, 16-1/2%--	DUP, GAF.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES--Continued	
*Vat blue dyes--Continued	
*Vat Blue 18, 13%	AC, ACY, ATL, DUP, GAF, MAY, TRC.
Vat Blue 20, 14%	AC, ACS, ACY, ATL, DUP, GAF, MAY, SDC, TRC.
Vat Blue 26, 24%	GAF.
Vat Blue 29	GAF.
Vat Blue 39, 12%	GAF.
Vat Blue 43	SDC.
Vat Blue 60	DUP.
Vat Blue 67	HST.
Other vat blue dyes	GAF, MAY.
*Vat green dyes:	
*Vat Green 1, 6%	ACY, DUP, GAF, ICI, MAY.
*Vat Green 3, 10%	AC, ACY, ATL, DUP, GAF, ICI, MAY, TRC.
*Vat Green 8, 8-1/2%	ATL, DUP, GAF.
Vat Green 9, 12-1/2%	ATL, GAF, HST, MAY, SDC, TRC.
Vat Green 20, 6%	DUP.
Vat Green 32	VPC.
Other vat green dyes	ACY, GAF, SDC.
*Vat brown dyes:	
*Vat Brown 1, 11%	ACY, DUP, GAF, MAY, TRC.
Solubilized Vat Brown 1, 17%	GAF.
*Vat Brown 3, 11%	AC, ACY, DUP, GAF, ICI, 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 28, 22%	ICI.
Vat Brown 31, 28%	AC.
Vat Brown 40, 14%	DUP.
Vat Brown 57, 12.8%	HST, TRC.
Other vat brown dyes	GAF, SDC, VPC.
*Vat black dyes:	
Solubilized Vat Black 1, 27-1/2%	HST.
Vat Black 9, 16%	GAF, MAY.
Vat Black 13, 14%	DUP.
Vat Black 22, 19%	ACY, TRC.
*Vat Black 25, 12-1/2%	AC, ACY, DUP, GAF, MAY, TRC.
*Vat Black 27, 12-1/2%	ACY, BDO, DUP, GAF, ICI, MAY, TRC.
Vat Black 34, 16%	ICI.
Vat Black 38, 20%	GAF.
Other vat black dyes	ATL, GAF, MAY, SDC, TRC.
All other dyes	ACY, DUP, GAF, HSH, PAT, SDC.

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of dye manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in order of their identification codes as used in table 2]

Code	Name of company
AC	American Color & Chemical Corp.
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACY	American Cyanamid Co.
ALL	Alliance Chemical, Inc.
ALT	Crompton & Knowles Corp., Dyes & Chemicals Div.
ATL	Atlantic Chemical Corp.
BAS	BASF Wyandotte Corp.
BDO	Benzenoid Organics, Inc.
BUC	Blackman-Uhler Chemical Co.
CCW	Cincinnati Milacron Chemicals, Inc.
CGY	Ciba-Geigy Corp.
CNG	Nyanza, Inc.
CPC	Childs Pulp Colors, Inc.
DSC	Dye Specialties, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
FAB	Fabricolor Manufacturing Corp.
GAF	GAF Corp., Chemical Div.
HN	Tenneco Chemicals, Inc.
HSC	Chemetron Corp., Pigments Div.
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.
HST	American Hoechst Corp.
ICC	Inmont Corp.
ICI	ICI America, Inc.
KON	H. Kohnstamm & Co., Inc.
MAY	Otto B. May, Inc.
MRX	Max Marx Color & Chemical Co.
PAT	Morton International, Inc., Morton Chemical Co. Div.
PCW	Pfister Chemical Works
PDC	Berncolors-Poughkeepsie, Inc.
PSC	Passaic Color & Chemical Co.
S	Sandoz, Inc., Sandoz Color & Chemicals Div.
SDC	Martin-Marietta Corp., Sodyeco Div.
SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
SNA	Sun Chemical Corp.
STC	Sou-Tex Chemical Co., Inc.
STG	Stange Co.
SW	Sherwin-Williams Co.
TMS	Sterling Drug, Inc., Thomassen Colors Div.
TRC	Toms River Chemical Corp.
VPC	Baychem Corp., Verona Div.
WJ	Warner-Jenkinson Manufacturing Co.
YAW	Y.S. Young Co., Young Aniline Works Div.

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

Organic Pigments

As the terms are used in this report, 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 1973 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 1973 was 69.4 million pounds--5.3 percent more than the 65.9 million pounds produced in 1972 and 19.0 percent more than the 58.3 million pounds produced in 1971. Total sales of organic pigments in 1973 amounted to 61.5 million pounds, valued at $182.2 million, compared with 53.2 million pounds, valued at $149.3 million, in 1972 and 47.1 million pounds, valued at $130.0 million, in 1971. In terms of quantity, sales of organic pigments in 1973 were 15.5 percent greater than in 1972 and 30.6 percent greater than in 1971; in terms of value, sales in 1973 were 22.0 percent greater than in 1972 and 40.1 percent greater than in 1971.

Production of toners in 1973 amounted to 66.9 million pounds--6.5 percent more than the 62.9 million pounds reported for 1972. Sales in 1973 were 59.0 million pounds, valued at $178.6 million, compared with 50.5 million pounds, valued at $145.9 million, in 1972. Sales in 1973 were 16.8 percent more than those in 1972 in terms of quantity, and 22.4 percent more in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1973 were Pigment Yellow 12, 8.4 million pounds; Pigment Blue 15, beta form, 6.3 million pounds; Pigment Blue 15, alpha form, 4.5 million pounds; and Pigment Red 49, barium toner, 4.4 million pounds.

Production of lakes totaled 2.4 million pounds in 1973--19.0 percent less than the 3.0 million pounds reported for 1972. Sales of lakes in 1973 amounted to 2.5 million pounds, valued at $3.6 million, compared with sales in 1972 of 2.7 million pounds, valued at $3.4 million. Sales in 1973 were 8.7 percent less than those in 1972 in terms of quantity, and 5.3 percent more in terms of value.

For each of 10 selected pigments, or groups of pigments, table 1A gives data on sales by commercial forms. Pigment Yellow 12 and Pigment Red 53 were sold principally in the flushed form. The remaining 8 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, 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.

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

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1973

[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 all organic pigments for which data on production or sales were reported and identifies the manufacturers of each]

Pigment	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total	69,395	61,464	182,166	$2.96
TONERS				
Total	66,949	58,991	178,583	3.03
Yellow toners, total	17,434	13,620	38,269	2.81
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680	674	523	1,184	2.26
Pigment Yellow 3, C.I. 11 710	415	209	488	2.33
Pigment Yellow 73, C.I. 11 738	637	...	...	...
Pigment Yellow 74, C.I. 11 741	...	780	2,751	3.53
Benzidine yellows, total	13,547	10,215	24,320	2.38
Pigment Yellow 12, C.I. 21 090	8,598	5,781	10,670	1.85
Pigment Yellow 14, C.I. 21 095	2,964	2,589	5,989	2.31
Pigment Yellow 17, C.I. 21 105	574	459	1,416	3.08
Other benzidine yellows	1,611	1,386	6,245	4.51
All other[2]	2,161	1,893	9,526	5.03
Orange toners, total	1,837	1,713	6,799	3.97
Pigment Orange 5, C.I. 12 075	800	745	1,523	2.04
Pigment Orange 13, C.I. 21 110	327	289	1,017	3.52
Pigment Orange 16, C.I. 21 160	377	378	1,049	2.78
Pigment Orange 34, C.I. 21 115	90	84	296	3.52
All other	243	217	2,914	13.43
Red toners, total	24,085	22,421	55,272	2.47
Naphthol reds, total	1,209	947	4,005	4.23
Pigment Red 2, C.I. 12 310	78	35	104	2.97
Pigment Red 5, C.I. 12 490	100	67	361	5.39
Pigment Red 17, C.I. 12 390	81	59	210	3.56
Pigment Red 22, C.I. 12 315	129	118	406	3.44
Pigment Red 23, C.I. 12 355	269	256	1,273	4.97
Other naphthol reds	552	412	1,651	4.01
Pigment Red 3, C.I. 12 120	1,790	1,771	3,436	1.94
Pigment Red 4, C.I. 12 085	296	277	493	1.78
Pigment Red 38, C.I. 21 120	...	169	876	5.18
Pigment Red 48, C.I. 15 865	3,312	3,178	6,926	2.18
Pigment Red 49, C.I. 15 630:				
Barium toner	4,393	4,354	5,312	1.22
Calcium toner	1,395	1,353	1,736	1.28
Sodium toner	15	17	16	.94
Pigment Red 52, C.I. 15 860	...	1,996	3,863	1.94
Pigment Red 53, C.I. 15 585, barium toner	3,179	2,807	4,761	1.70
Pigment Red 54, C.I. 14 830, calcium toner	76	80	206	2.58
Pigment Red 57, C.I. 15 850, calcium toner	1,578	1,291	2,601	2.01
Pigment Red 63, C.I. 15 880	46	55	98	1.78
Pigment Red 81, C.I. 45 160, PMA	646	585	3,749	6.41
Pigment Red 81, C.I. 45 160, PTA	94	100	728	7.28
Pigment Red 90, C.I. 45 380	1,583	1,309	2,442	1.87
Pigment Red 122	97	100	1,398	13.98
All other[3]	4,376	2,032	12,626	6.21

See footnotes at end of table.

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Pigment	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
TONERS--Continued				
Violet toners, total	2,862	2,721	20,177	$7.42
Pigment Violet 1, C.I. 45 170, PMA	82	86	582	6.77
Pigment Violet 1, C.I. 45 170, PTA	115	74	557	7.53
Pigment Violet 3, C.I. 42 535, fugitive	582	578	1,012	1.75
Pigment Violet 3, C.I. 42 535, PMA	421	402	1,400	3.48
Pigment Violet 3, C.I. 42 535, PTA	40	37	185	5.00
Pigment Violet 23, C.I. 51 319	280	315	3,848	12.22
All other	1,342	1,229	12,593	10.25
Blue toners, total	15,721	14,148	41,546	2.94
Pigment Blue 1, C.I. 42 595, PMA	101	103	636	6.17
Pigment Blue 15, C.I. 74 160, alpha form	4,472	4,474	13,308	2.97
Pigment Blue 15, C.I. 74 160, beta form	6,336	5,285	16,649	3.15
All other	4,812	4,286	10,953	2.56
Green toners, total	4,706	4,045	15,970	3.95
Pigment Green 1, C.I. 42 040, PMA	6	7	41	5.86
Pigment Green 2, C.I. 42 040 and 49 005, PMA	63	62	394	6.35
Pigment Green 7, C.I. 74 260	3,828	3,275	12,466	3.81
Pigment Green 8, C.I. 10 006	148	130	188	1.45
Pigment Green 36, C.I. 74 265	348	337	1,445	4.29
All other	313	234	1,436	6.14
Brown and black toners, total	304	323	550	1.70
Pigment Brown 5, C.I. 15 800	140	132	251	1.90
All other	164	191	299	1.57
LAKES				
Total	2,446	2,473	3,583	1.45
Red lakes:				
Pigment Red 60, C.I. 16 105	340	363	720	1.98
Pigment Red 83, C.I. 58 000	68	64	255	3.98
(Acid Red 26), C.I. 16 150	200	...	...	...
Violet lake: Pigment Violet 5, C.I. 58 055	154	157	426	2.71
All other lakes[4]	1,684	1,889	2,182	1.16

[1] Calculated from rounded figures.
[2] Includes Pigment Yellow 73 (sales only), Pigment Yellow 74 (production only), and "all other" acetoacetarylide yellows.
[3] Includes production of Pigment Red 38 and Pigment Red 52.
[4] Includes all yellow, orange, blue, green, brown, black, "all other" red lakes, and sales of (Acid Red 26).

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, 1973

Selected pigments by commercial forms	Sales		
	Quantity[1]	Value	Unit value[2]
	1,000 pounds	*1,000 dollars*	*Per pound*
Pigment Yellow 12, C.I. 21 090, total	5,781	11,206	$1.94
Flushed color	4,393	8,289	1.89
Dry full-strength toner, aqueous dispersions,[3] and dry dispersion[4]	1,388	2,917	2.10
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	4,434	13,745	3.10
Dry full-strength toner	3,135	10,403	3.32
Aqueous dispersions[3]	666	1,822	2.74
Flushed color, dry extended toner, and dry dispersions[4]	633	1,520	2.40
Pigment Red 3, C.I. 12 120, total	1,771	3,635	2.05
Dry full-strength toner and dry extended toner[4]	1,145	2,249	1.96
Aqueous dispersions[3] and flushed color[4]	626	1,386	2.21
Pigment Red 48, C.I. 15 865, total	3,163	6,925	2.19
Dry full-strength toner, dry extended toner, and dry dispersions[4]	2,971	6,477	2.18
Aqueous dispersions[3]	35	85	2.43
Flushed color	157	363	2.31
Pigment Red 49, C.I. 15 630, barium toner, total	4,353	5,465	1.26
Dry full-strength toner, aqueous dispersions[3] and dry extended toner[4]	3,846	4,612	1.20
Flushed color	507	853	1.68
Pigment Red 53, C.I. 15 585, barium toner, total	2,808	4,823	1.72
Dry full-strength toner and dry dispersions[4]	1,071	1,697	1.58
Aqueous dispersions[3] and flushed color[4]	1,737	3,126	1.80
Pigment Violet 3, C.I. 42 535, PMA and PTA, total	440	1,605	3.65
Dry full-strength toner	340	1,275	3.75
Dry extended toner	8	67	8.38
Aqueous dispersion[3] and flushed color[4]	92	263	2.86
Pigment Blue 15, C.I. 74 160, alpha form, total	4,475	13,315	2.98
Dry full-strength toner	1,697	6,077	3.58
Dry dispersion	204	684	3.35
Aqueous dispersions[3]	1,008	2,249	2.23
Flushed color and dry extended toner[4]	1,566	4,305	2.75
Pigment Blue 15, C.I. 74 160, beta form, total	5,286	16,777	3.17
Dry full-strength toner	2,311	8,055	3.49
Dry extended toner and dry dispersions[4]	97	307	3.16
Aqueous dispersions[3]	1,278	3,266	2.56
Flushed color	1,600	5,149	3.22
Pigment Green 7, C.I. 74 260, total	3,276	12,464	3.80
Dry full-strength toner	1,633	6,469	3.96
Dry extended toner	321	1,308	4.07
Flushed color and dry dispersion[5]	318	1,264	3.97
Aqueous dispersions[3]	1,004	3,423	3.41

[1] Quantity of the various commercial forms is given in terms of dry full-strength toner (or dry lake) 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, 1973

[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:	
Acetoacetarylide yellows:	
*Pigment Yellow 1, C.I. 11 680	ACS, ACY, AMS, DUP, HPC, HSC, HSH, HST, KON, S, SDH, SNA, SW.
*Pigment Yellow 3, C.I. 11 710	ACS, HPC, HSC, HSH, HST, KCW, KON, PPG, SW.
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 49, C.I. 11 765	HPC.
Pigment Yellow 65	ACS.
*Pigment Yellow 73, C.I. 11 738	ACS, CIK, HN, HPC, SNA.
*Pigment Yellow 74, C.I. 11 741	DUP, HPC, SDH, SNA, SW.
Pigment Yellow 75, C.I. 11 770	HPC.
All other acetoacetarylide yellows	DUP, KCW, KON.
*Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090	ACS, ACY, AMS, APO, CIK, HPC, HSC, HSH, HST, ICC, KON, LVY, ROM, S, SDH, SNA, SW.
Pigment Yellow 13, C.I. 21 100	APO, BUC, GAF, HPC, HSH, HST, ICC, ROM, SDH, SNA.
*Pigment Yellow 14, C.I. 21 095	ACS, ACY, AMS, APO, BUC, CIK, GAF, HPC, HSC, HSH, HST, ICC, KON, ROM, S, SDH, SNA, x, x.
*Pigment Yellow 17, C.I. 21 105	ACS, AMS, BUC, GAF, HPC, HSC, HST, ICC, ROM, SDH, SNA, SW.
Pigment Yellow 76	HPC.
Pigment Yellow 83	ACS, HST.
All other benzidine yellows	HSH, ICC, ROM, S.
Pigment Yellow 16, C.I. 20 040	HST.
Pigment Yellow 24, C.I. 70 600	ACS.
Pigment Yellow 97	HST.
Pigment Yellow 108, C.I. 68 420	ACS.
(Basic Yellow 2), C.I. 41 000 fugitive	LVR, MRX.
(Basic Yellow 37), C.I. 41 001	LVR.
(Direct Yellow 6), C.I. 40 001	LVR.
(Direct Yellow 11), C.I. 40 000	LVR.
All other	ICC, S, TRC.
*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, SW.
*Pigment Orange 13, C.I. 21 110	ACS, ACY, AMS, HPC, HSC, ICC, KON, S, SNA.
Pigment Orange 15, C.I. 21 130	ACS.
*Pigment Orange 16, C.I. 21 160	ACS, GAF, HPC, HSC, HSH, HST, ICC, MRX, ROM, SDH, SNA.
*Pigment Orange 34, C.I. 21 115	BUC, ICC, ROM, SDH, SNA.
Pigment Orange 43, C.I. 71 105	ACS.
(Acid Orange 8), C.I. 15 575	LVR.
(Vat Orange 3), C.I. 59 300	HST.
(Vat Orange 4), C.I. 59 710	ACS.
(Vat Orange 7), C.I. 71 105	HST.
All other	KON, S, SNA.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310	ACS, HPC, HSH, KCW, KON.
*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, 1973--CONTINUED

Pigments	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, S.
Pigment Red 10, C.I. 12 440	KCW.
Pigment Red 13, C.I. 12 395	HPC, KCW, SW.
Pigment Red 15, C.I. 12 465	DUP.
*Pigment Red 17, C.I. 12 390	ACY, HPC, ICC, S, SNA, UHL.
Pigment Red 18, C.I. 12 350	ACS, HPC.
*Pigment Red 22, C.I. 12 315	ACY, DUP, GAF, HPC, MRX, ROM, SNA.
*Pigment Red 23, C.I. 12 355	ACY, BUC, DUP, HPC, ROM, SDH, SNA.
Pigment Red 31, C.I. 12 360	SNA.
Pigment Red 112, C.I. 12 370	HPC.
All other naphthol reds	ICC, KCW, ROM, S, SDH, SNA, x.
Pigment Red 1, C.I. 12 070, dark	AMS, HPC, HSH.
Pigment Red 1, C.I. 12 070, light	HPC, HSC, HSH, SDH.
*Pigment Red 3, C.I. 12 120	ACY, CIK, CPC, DUP, HPC, HSC, HSH, KCW, KON, PPG, SDH, SNA, SW, 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 38, C.I. 21 120	ACS, GAF, ICC, SNA, SW.
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, DUP, GAF, HPC, HSC, HSH, ICC, LVY, S, SNA, SW.
Pigment Red 49, C.I. 15 630:	
*Barium toner	ACY, AMS, APO, CIK, CPC, HSC, KON, LVY, PPG, SDH, SNA, SW, UHL.
*Calcium toner	ACY, AMS, HSC, LVY, SDH, SNA, SW.
*Sodium toner	HSC, KON, SDH, SW.
*Pigment Red 52, C.I. 15 860	CIK, HPC, HSC, HSH, SNA, SW.
*Pigment Red 53, C.I. 15 585, barium toner	ACY, AMS, APO, CIK, HPC, HSC, ICC, KON, LVY, MGR, MRX, SDH, SNA, SW.
*Pigment Red 54, C.I. 14 830, calcium toner	HPC, HSH, SDH.
Pigment Red 55, C.I. 15 820	HSH.
Pigmen Red 57, C.I. 15 850, calcium toner	AMS, CIK, DUP, HPC, HSC, KON, LVY, MGR, SDH, SNA.
Pigment Red 58, C.I. 15 825	DUP, HPC.
*Pigment Red 63, C.I. 15 880	HPC, HSH, KON, SNA, SW.
Pigment Red 64, C.I. 15 800	ACS.
Pigment Red 77, C.I. 15 826	SW.
Pigment Red 79, PMA	GAF.
Pigment Red 81, C.I. 45 160, fugitive	MGR.
*Pigment Red 81, C.I. 45 160, PMA	CPC, DUP, GAF, HPC, KON, LVR, LVY, MGR, MRX, SNA, UHL.
*Pigment Red 81, C.I. 45 160, PTA	AMS, DUP, GAF, HPC, KCW, KON, MGR, MRX, SDH, 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, HN, LVY, SDH.
Pigment Red 91	HN.
Pigment Red 112	HST.
*Pigment Red 122	ACS, HST, SNA, x.
Pigment Red 123, C.I. 71 145	ACS.
Pigment Red 146	HST.
Pigment Red 149	HST.
Pigment Red 168, C.I. 59 300	ACS.
Pigment Red 170	HST.
Pigment Red 176	HST.
Pigment Red 177	TRC.
Pigment Red 179, C.I. 71 130	ACS.
Pigment Red 181, C.I. 73 360	HST.
Pigment Red 190, C.I. 71 140	ACS, GAF.
Pigment Red 198, C.I. 73 390	ACS.
(Direct Red 81), C.I. 28 160	LVR.
(Vat Red 15), C.I. 71 100	HST.
All other	DUP, HSC, LVR, x.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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, MGR, 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, KON, MGR, MRX, SDH, SW, UHL.
*Pigment Violet 3, C.I. 42 535, PTA	ACY, HPC, KON, MRX.
Pigment Violet 4, C.I. 42 510, PMA	LVR.
Pigment Violet 19, C.I. 46 500	ACS, DUP, SNA.
*Pigment Violet 23, C.I. 51 319	ACS, ACY, BUC, GAF, HSC, HST, SDC, SNA.
Pigment Violet 31, C.I. 60 010	ACS, DUP.
Pigment Violet 36, C.I. 73 385	ACS, HST.
Pigment Violet 38, C.I. 73 395	ACS.
Pigment Violet 74	HST.
(Basic Violet 2), C.I. 42 520	HN.
All other	BUC, GAF, HPC, ICC, LVR, ROM.
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA	DUP, GAF, HN, HPC, KON, LVY, MGR, MRX, SW, UHL.
Pigment Blue 1, C.I. 42 595, PTA	HPC, MGR.
Pigment Blue 2, C.I. 44 045, PMA	GAF.
Pigment Blue 2, C.I. 44 045, PTA	KON.
Pigment Blue 7, PMA	LVR.
Pigment Blue 9, C.I. 42 025, PMA	KON, UHL.
Pigment Blue 9, C.I. 42 025, PTA	GAF, HPC, MGR.
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.
Pigment Blue 14, C.I. 42 600, PTA	DUP, GAF.
*Pigment Blue 15, C.I. 74 160, alpha form	ACS, ACY, APO, DUP, GAF, HPC, HSC, HST, ICC, MGR, SNA, SW, TMS.
*Pigment Blue 15, C.I. 74 160, beta form	ACS, ACY, AMS, BAS, BUC, CIK, DUP, GAF, HPC, HSC, ICC, LVY, MGR, ROM, SDH, SNA, SW, TMS.
Pigment Blue 19, C.I. 42 750A	AMS, HN, HSC, SW.
Pigment Blue 22, C.I. 69 810	ACS, DUP.
Pigment Blue 23	HST.
Pigment Blue 25, C.I. 21 180	DUP, GAF, ICC, S.
Pigment Blue 27, C.I. 77 510	x.
(Basic Blue 1), C.I. 42 025	GAF.
All other	DUP, GAF, SDH, TNI.
*Green toners:	
*Pigment Green 1, C.I. 42 040, PMA	HPC, MRX, S, UHL.
Pigment Green 1, C.I. 42 040, PTA	MGR.
*Pigment Green 2, C.I. 42 040 and 49 005, PMA	GAF, HPC, KON, MGR, MRX, S, 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	MGR.
Pigment Green 4, C.I. 42 000, PTA	ACY, MGR.
*Pigment Green 7, C.I. 74 260	ACS, ACY, BAS, CIK, DUP, GAF, HPC, HSC, HST, SNA, TMS, TRC.
*Pigment Green 8, C.I. 10 006	HPC, HSH, KCW.
Pigment Green 10, C.I. 12 775	DUP, HPC.
*Pigment Green 36, C.I. 74 265	ACS, ACY, GAF, SNA.
Pigment Green 38	DUP.
Pigment Green 40	HST.
All other	HPC, SNA.
*Brown and Black toners:	
Pigment Brown 1, C.I. 12 480	S.
Pigment Brown 3, C.I. 21 010, PMA	KCW, KON.
*Pigment Brown 5, C.I. 15 800	ACS, BUC, HSH, ICC, ROM.
Pigment Brown 26, C.I. 71 129	ACS.
Pigment Brown 28, C.I. 69 015	GAF.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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. 20195	LVR.
All other	DUP, GAF, SDH, UHL.
LAKES	
Yellow lakes: (Acid Yellow 23), C.I. 19 140	ACS, KON, MRX.
Orange lakes:	
Pigment Orange 7, C.I. 15 530	CPC.
Pigment Orange 17, C.I. 15 510	HPC, KCW.
Red lakes:	
*Pigment Red 60, C.I. 16 105	HSH, KON, MRX, SNA.
Pigment Red 81, C.I. 45 160	SNA.
*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	HPC.
Violet lakes: *Pigment Violet 5, C.I. 58 055	ACS, DUP, HPC, HSH, KON, S, UHL.
Blue lakes:	
Pigment Blue 17, C.I. 74 180	CPC.
Pigment Blue 24, C.I. 42 090	AMS, KON, LVY, SDH.
(Acid Blue 104), C.I. 42 735	KCW, LVR.
Green lakes	HPC.
Brown lakes	KON
Black lakes: (Natural Black 3), C.I. 75 291	CPC.

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 phosphomolyhdic and phosphotungstic (including phosphotungstomolybdic) acid, respectively.

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of organic pigment manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACY	American Cyanamid Co.
AMS	Ridgway Color & Chemical
APO	Apollo Colors, Inc.
BAS	BASF Wyandotte Corp.
BUC	Blackman-Uhler Chemical Co.
CIK	Tenneco Chemicals, Inc., Cal/Ink Div.
CPC	Childs Pulp Colors, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.
GAF	GAF Corp., Chemical Div.
HN	Tenneco Chemicals, Inc.
HPC	Hercules, Inc.
HSC	Chemetron Corp., Pigments Div.
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.
HST	American Hoechst Corp.
ICC	Inmont Corp.
KCW	Keystone Color Works, Inc.
KON	H. Kohnstamm & Co., Inc.
LVR	C. Lever Co., Inc.
LVY	Cities Service Co., Levey Div.
MGR	Magruder Color Co., Inc.
MRX	Max Marx Color & Chemical Co.
PPG	PPG Industries, Inc.
ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.
S	Sandoz, Inc., Sandoz Color & Chemicals Div.
SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
SNA	Sun Chemical Corp.
SW	The Sherwin-Williams Co.
TMS	Sterling Drug, Inc., Thomasset Colors Div.
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.

Table 1 shows statistics for production and sales of medicinal chemicals grouped by pharmacological class, while table 2 lists separately each product for which data were reported and identifies the manufacturers.[1] The statistics shown in table 1 are for bulk chemicals only; finished pharmaceutical preparations and products put up in pills, capsules, tablets, or other measured doses are excluded.[2] 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 1973 amounted to 233.6 million pounds, or 0.3 percent less than the 234.3 million pounds produced in 1972 and 4.6 percent more than the 223.2 million pounds produced in 1971. Total sales of bulk medicinal chemicals in 1973 amounted to 179 million pounds, valued at $582 million, compared with sales in 1972 of 163 million pounds, valued at $490 million, and sales in 1971 of 152 million pounds, valued at $487 million. In terms of quantity, sales in 1973 were thus 9.8 percent larger than in 1972 and 17.7 percent larger than in 1971. In terms of value, sales in 1973 were 18.8 percent larger than in 1972 and 19.7 percent larger than in 1971.

Production of the more important groups of medicinal chemicals in 1973 was as follows: Antibiotics, 20.8 million pounds (25.2 percent larger than in 1972), of which 12.6 million pounds was for medicinal use and 8.2 million pounds was for other uses; anti-infective agents other than

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[1] See table 3 for a list of manufacturers and their identification codes.

[2] 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 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.

antibiotics, 33.2 million pounds (3.4 percent smaller than in 1972); central nervous system depressants and stimulants, 48.6 million pounds (7.2 percent smaller); and vitamins, 34.0 million pounds (13.3 percent larger).

Production of some of the more important individual products listed in table 1 was as follows: Choline chloride, 46.6 million pounds (14.4 percent smaller than in 1972); aspirin, 32.2 million pounds (8.2 percent smaller); ascorbic acid, 15.4 million pounds (25.2 percent larger); penicillins (except semi-synthetic), 4,945 trillion units (29.2 percent larger); tetracyclines, 2.3 million kilograms (28.3 percent larger); and vitamin E, 1,732 billion units (15.3 percent larger).

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1973

[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 or sales were reported and identifies the manufacturer of each]

Chemical	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	233,583	179,178	582,352	$3.25
Acyclic	99,518	92,049	71,675	.78
Benzenoid[3]	110,517	71,875	363,081	5.05
Cyclic nonbenzenoid[4]	23,548	15,254	147,596	9.68
Antibiotics, total[5]	20,834	7,871	163,974	20.83
Antifungal and antitubercular antibiotics, for medicinal use	1,142	770	18,973	24.64
Neomycin, for medicinal use	...	213	2,482	11.65
Penicillins (except semisynthetic), total	7,404	3,842	34,372	8.95
Penicillin G, procaine, for all uses	1,771	1,243	9,326	7.50
All other, for medicinal use	5,633	2,599	25,046	9.64
Semisynthetic penicillins, for medicinal use, total	1,192	303	31,877	105.20
Ampicillin	934	263	28,358	107.83
Ampicillin, sodium	24	...	...	...
All other	234	40	3,519	87.98
Tetracyclines, for all uses	5,001	...	...	...
Other antibiotics, total	6,095	2,743	76,270	27.81
For medicinal use[6]	2,180	958	52,971	55.29
For nonmedicinal uses[7]	3,915	1,785	23,299	13.05
Antihistamines, total	421	232	5,713	24.62
Antinauseants	56	...	...	...
Chlorpheniramine maleate	32	10	338	33.80
All other	333	222	5,375	24.21
Anti-infective agents (except antibiotics), total	33,210	23,475	89,805	3.83
Anthelmintics, total	10,863	7,391	34,227	4.63
Piperazine	3,224	...	...	...
Piperazine dihydrochloride	2,096	1,970	1,395	.71
Piperazine hydrochloride	408	563	337	.60
All other	5,135	4,858	32,495	6.69
Antifungal agents	762	...	...	...
Antiprotozoan agents, total	10,761	10,364	36,224	3.50
Arsenic and bismuth compounds	6,086	...	...	...
All other	4,675	10,364	36,224	3.50
Mercury compounds	8	8	500	62.50
Oxyquinoline sulfate	8	10	44	4.40
Sulfonamides	[8]5,881	2,579	8,519	3.30
Urinary antiseptics	612	340	760	2.24
Other anti-infective agents[9]	4,315	2,783	9,531	3.42
Autonomic drugs, total	890	776	11,854	15.28
Parasympatholytic (anticholinergic) tertiary amines	48	35	2,086	59.60
Sympathomimetic (adrenergic) agents, total	782	716	8,073	11.28
Phenylephrine base, bitartrate, and tannate	59	...	...	...
Phenylephrine hydrochloride	102	92	3,108	33.78
Phenylpropanolamine hydrochloride	349	351	1,930	5.50
All other	272	273	3,035	11.12
Other autonomic drugs	60	25	1,695	67.80
Cardiovascular agents	2,150	580	16,945	29.22

See footnotes at end of table.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Central depressants and stimulants, total	48,640	35,572	71,077	$2.00
Amphetamines	6	...	...	...
Analgesics and antipyretics, total	41,591	29,682	40,549	1.37
Acetanilide derivatives	6,786	7,433	8,125	1.09
Aspirin	32,152	...	...	...
Meperidine hydrochloride	34	...	...	...
Methadone hydrochloride	3	...	...	...
All other	2,616	22,249	32,424	1.46
Antidepressants	169	...	...	...
Barbiturates, total	525	351	2,002	5.70
Pentobarbital, sodium	63	29	215	7.41
All other	462	322	1,787	5.55
Hypnotics and sedatives (except barbiturates)	356	112	908	8.11
Skeletal muscle relaxants	101	...	...	...
Tranquilizers	538	...	...	...
Other central depressants and stimulants[10]	5,354	5,427	27,618	5.09
Dermatological agents (except salicylic acid) and local anesthetics	2,021	1,423	1,920	1.35
Diagnostic agents, total	878	...	...	...
Roentgenographic contrast media	877	...	...	...
All other (excludes quantity and value of sales of roentgenographic contrast media)	1	1	174	174.00
Expectorants and mucolytic agents, total	2,488	2,672	6,624	2.48
Ethylenediamine dihydriodide	1,574	1,482	4,123	2.78
All other	914	1,190	2,501	2.10
Gastrointestinal agents (except methionine, hydroxy analog) and therapeutic nutrients, total	49,092	45,346	14,648	.32
Amino acids and salts	632	659	2,194	3.33
Choline chloride (all grades)	46,613	42,660	8,433	.20
All other	1,847	2,027	4,021	1.98
Hematological agents, total	44	...	...	...
Sodium heparin	4	3	1,566	522.00
All other	40	...	...	...
Hormones and synthetic substitutes, total	...	121	43,742	361.50
Antithyroid agents	6	...	...	...
Corticosteroids	58	46	32,267	701.46
Estrogens	2	...	...	...
Synthetic hypoglycemic agents	...	42	309	7.36
All other	...	33	11,166	338.36
Renal-acting and edema-reducing agents, total	1,901	240	5,856	24.40
Benzothiadiazine derivatives	...	129	4,873	37.78
Mercurial diuretics	...	(11)	19	111.76
Theophylline derivatives	104	...	...	...
All other	1,797	111	964	8.68
Vitamins, total	34,013	27,774	121,827	4.39
Niacin and niacinamide (all grades)	5,647	4,865	7,125	1.46
Pantothenic acid and derivatives, total	3,418	2,630	3,720	1.41
Calcium pantothenate (racemic)-calcium chloride complex (all grades)	2,256	...	...	...
All others	1,162	2,630	3,720	1.41
Riboflavin (all grades)	737	939	11,684	12.44
Vitamin C, total	18,714	14,472	27,883	1.93
Ascorbic acid	15,410	10,981	20,562	1.87
All other	3,304	3,491	7,321	2.10

See footnotes at end of table.

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Vitamins--Continued				
Vitamin D[12]	16	11	2,318	$210.73
Vitamin E, total[12]	3,421	2,957	39,297	13.29
d-and dl-Alpha tocopherol	436	463	11,505	24.85
d-and dl-Alpha tocopheryl acetate (medicinal grade)	1,929	1,756	20,069	11.43
All other	1,056	738	7,723	10.46
Vitamin K	...	75	554	7.39
All other vitamins	2,060	1,825	29,246	16.03
Miscellaneous medicinal chemicals[13]	36,935	33,092	26,627	.80

[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 carbocylic 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 444,450 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
				1,000 dollars	
Antifungal and antituberculars antibiotics, for medicinal use	----Kg----	517,790	349,128	18,973	$54.34
Neomycin, for medicinal use	----Kg----	...	96,628	2,482	25.69
Penicillins (except semisynthetic), total	----BU----	4,945,339	2,481,297	34,372	13.85
Penicillin G, procaine, for all uses	----BU----	811,050	569,266	9,326	16.38
All other, for medicinal use	----BU----	4,134,289	1,912,031	25,046	13.10
Semisynthetic penicillins, for medicinal use, total	----Kg----	540,614	137,221	31,877	232.30
Ampicillin	----Kg----	423,555	119,350	28,358	237.60
Ampicillin, sodium	----Kg----	10,977	...	...	...
All other	----Kg----	106,282	17,871	3,519	196.91
Tetracyclines, for all uses	----Kg----	2,268,502	...	...	...

[6] Production of all antibiotics for medicinal use amounted to 12,622,000 pounds.

[7] Production of all antibiotics for animal feeds and other nonmedicinal uses amounted to 8,212,000 pounds.

[8] Production of sulfonamides in 1973 was considerably larger than the 4,509,000 pounds shown in the cumulative total of the monthly reports because of 2 companies which did not report monthly data. In order to avoid disclosure, some of the previously unreported production is included in the figure shown for production of "all other antiinfective agents".

[9] Includes production of some sulfonamides (see footnote 8) and sales of antifungal agents.

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

Footnotes for table 1--Continued

[11] Sales of mercurial diuretics amounted to 170 pounds.

[12] All quantities for vitamins A, B_{12}, 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 B_{12}, 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 B_{12} 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
				1,000 dollars	
Vitamin D	----BU----	288,795	195,789	2,318	$11.84
Vitamin E, total	----MU----	1,731,630	1,508,404	39,297	26.05
d-and dl-Alpha tocopherol	----MU----	275,475	291,050	11,505	39.53
d-and dl-Alpha tocopheryl acetate (medicinal grade)	----MU----	961,521	866,891	20,069	23.15
All other	----MU----	494,634	350,463	7,723	22.04

[13] Includes production and sales of antineoplastic agents, methionine, hydroxy analog, calcium salt, salicylic acid, smooth muscle relaxants, and unclassified medicinal chemicals; also includes production of "all other" hormones and sales of roentgenographic contrast media and "all other" hematological agents.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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.
Candicidin	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:	
For medicinal use	OMS, PFZ, WYT.
For nonmedicinal uses	MRK, OMS.
Penicillin G, sodium	OMS.
Penicillin O, sodium	PFZ.
Phenoxymethylpenicillin (Penicillin V)	BRS, LIL, OMS.
Phenoxymethylpenicillin, benzathine	WYT.
Phenoxymethylpenicillin, hydrabamine	ABB.
Phenoxymethylpenicillin, 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.
Hetacillin	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.
Cephaloridine	LIL.
Cephalothin	LIL.
Chloramphenicol	PD, RLS.
Clindamycin	x.
Erythromycin	ABB, LIL, UPJ.
Fumagillin	ABB.
Gentamycin	SCH.
Gramicidin	PEN.
Kanamycin	BRS.
Lincomycin	UPJ.
Novobiocin	MRK, UPJ.
Oleandomycin	PFZ.
Paromomycin	MRK.
Polymyxin B	PFZ.
Spectinomycin	ABB, UPJ.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

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

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Anthelmintics--Continued	
Pyrvinium pamoate	x.
Thiabendazole	MRK.
*Antifungal agents:	
Benzoic acid	MON.
Calcium undecylenate	WTL.
Sodium caprylate	LEM.
Sodium undecylenate	NTL.
Undecylenic acid	NTL, WTL.
Zinc undecylenate	NTL, WTL.
*Antipropozoan agents:	
Aklomide	SAL.
Amodiaquin hydrochloride	PD.
Amprolium	MRK.
*Arsenic and bismuth compounds:	
Arsanilic acid	ABB, FLM, WHL.
Bismuth dipropylacetate	x.
Bismuth subsalicylate	MAL, NOR, PEN.
Carbarsone	LIL, WHL.
Drocarbil	LIL.
Glycobiarsol	SDW.
Nitarsone	SAL.
Roxarsone	SAL.
Roxarsone, sodium	SAL.
Chloroquine phosphate	SDW.
Clopidol	DOW.
Dimetridazole	RDA.
Diiodohydroxyquin	RSA, SRL.
3,5-Dinitro-o-toluamide	DOW.
Ethopabate	MRK.
Furazolidone	NOR.
Hydroxychloroquine	SDW.
Hydroxychloroquine sulfate	SDW.
Iodochlorhydroxyquin	CGY.
Metronidazole	RDA.
Nifuroxime	NOR.
Nifursol	LEM.
Nihydrazone	NOR.
Nitromide	SAL.
Nitrophenide	ACY.
Primaquine phosphate	PD, SDW.
Pyrimethamine	BUR.
*Mercury compounds:	
Merbromin	HYN.
Nitromersol	ABB.
Phenylmercuric acetate	WRC.
Phenylmercuric benzoate	WRC.
Phenylmercuric borate	WRC.
Phenylmercuric chloride	WRC.
Phenylmercuric nitrate	WRC.
Thimerosal	LIL.
*Oxyquinoline sulfate	ASH, LEM, MRK.
*Sulfonamides:	
Acetyl sulfamethoxypyridazine	ACY.
Acetyl sulfisoxazole	HOF.
Dinsed	SAL.
Mafenide acetate	SDW.
Mafenide hydrochloride	SDW.
Phthalylsulfacetamide	CTN, LEM.
Phthalylsulfathiazole	MRK.
Salicylazosulfapyridine	SAL.
Sulfabenzamide	ACY, LEM.
Sulfabenzamide, sodium	ACY.
Sulfabromomethazine, sodium	MRK.
Sulfacetamide	CTN, LEM.
Sulfacetamide, sodium	CTN, LEM.
Sulfachloropyrazine, sodium	ACY.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Sulfonamides--Continued	
Sulfachloropyridazine, sodium	ACY.
Sulfadiazine	ACY.
Sulfadiazine, sodium	ACY.
Sulfadimethoxine	HOF.
Sulfaguanidine	ACY, SAL.
Sulfamerazine	ACY.
Sulfamerazine, sodium	ACY.
Sulfamethazine	ACY, CTN, LEM.
Sulfamethazine, sodium	ACY, LEM.
Sulfamethizole	ACY, CTN.
Sulfamethoxazole	HOF.
Sulfamethoxypyridazine	ACY.
Sulfanilamide	MRK, SAL.
Sulfanitran	SAL.
Sulfapyridine	ACY, CTN.
Sulfapyridine, sodium	CTN.
Sulfaquinoxaline	LEM, MRK.
Sulfaquinoxaline, sodium	LEM.
Sulfathiazole	MRK.
Sulfathiazole, sodium	MRK, SAL.
Sulfisoxazole	HOF.
Sulfisoxazole, sodium	HOF.
*Urinary antiseptics:	
Mandelic acid	MAL.
Methenamine hippurate	RIK.
Methenamine mandelate	ARN, MAL, NEP.
Methylene blue	ACY.
Nitrofurantoin	NOR, RLS.
Phenazopyridine hydrochloride	HOF, NEP.
*Other anti-infective agents:	
Aminacrine	SDW.
Aminacrine hydrochloride	SDW.
Antileprotic and antitubercular agents:	
Aminosalicylic acid	MLS.
Dapsone	SDW.
Isoniazid	RIL.
Sodium aminosalicylate	MLS.
Sodium sulfoxone	ABB.
Antiviral agents:	
Amantadine	ALD.
Amantadine hydrochloride	DUP.
Betanaphthol	ACY.
Bromoform	DOW.
Camphor, monobromated	PEN.
Cetalkonium chloride	FIN, SDW.
Cetylpyridinium chloride	FIN, HEX.
Chlorobutanol	BPC, PD.
Furamazone	NOR.
8-Hydroxy-5-quinolinesulfonic acid	MRK.
Iodoform[2]	MAL, PEN.
Nalidixic acid	SDH.
Nitrofurathiazide	SCH.
Nitrofurazone	NOR.
Oxolinic acid	NEP.
Oxyquinoline	ASH, MRK.
Oxyquinoline benzoate	ASH, LEM.
Oxyquinoline citrate	ASH, MRK.
Povidine - iodine complex	GAF.
Resorcinol[3]	KPT.
Thymol	GIV.
Thymol iodide	MAL.
Trimethoprim	BUR.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Autonomic drugs:	
*Parasympatholytic (anticholinergic) tertiary amines:	
Adiphenine hydrochloride	CGY
Cycrimine hydrochloride	LIL.
Dicyclomine hydrochloride	BJL, BKC.
Orphenadrine citrate	RIK.
Orphenadrine hydrochloride	RIK.
Oxyphencyclimine hydrochloride	PFZ.
Piperidolate hydrochloride	LKL.
Thiphenamil hydrochloride	CTN.
Trihexphenidyl hydrochloride	ACY, SDW.
*Sympathomimetic (adrenergic) agents:	
Cinnamedrine hydrochloride	SDW.
Clorprenaline	LIL.
Cyclopentamine hybenzate	LIL.
Cyclopentamine hydrochloride	LIL.
Ephedrine	UPJ.
Epinerphrine bitartrate (levo)	SDW.
Epinephrine hydrochloride (racemic)	BLP, ECL, x.
l-Isoproterenol bitartrate	SDW.
Isoproterenol hydrochloride	SDW.
Isoproterenol sulfate	ABB.
Levarterenol bitartrate	SDW.
Methoxyphenamine hydrochloride	x.
Naphazoline hydrochloride	CGY.
Nordefrin hydrochloride	SDW.
Nylidrin hydrochloride	BKL.
*Phenylephrine base, bitartrate, and tannate:	
Phenylephrine	CTN, SDW.
Phenylephrine bitartrate	GAN, SDW.
Phenylephrine tannate	x.
*Phenylephrine hydrochloride	CTN, GAN, HEX, SDW.
*Phenylpropanolamine hydrochloride	ARS, GAN, HEX, NEP, ORT, PD.
Propylhexedrine	HEX, SK.
Protokylol hydrochloride	LKL.
Pseudoephedrine hydrochloride	BUR, GAN.
Pseudoephedrine sulfate	GAN.
Tetrahydrozoline hydrochloride	PFZ.
*Other autonomic drugs:	
Ganglionic blocking agents:	
Hexamethonium chloride	RSA.
Tetraethylammonium chloride	RSA.
Parasympatholytic (anticholinergic) quaternary ammonium compounds:	
Diphemanil methylsulfate	SCH.
Hexocyclium methylsulfate	ABB.
Isopropamide iodide	SK.
Mepenzolate bromide	LKL.
Pipenzolate bromide	LKL.
Tridihexethyl iodide	ACY.
Parasympatholytic (anticholinergic) tropane derivatives:	
Anisotropine methylbromide	x.
Benztropine mesylate	x.
Homatropine	CTN.
Homatropine hydrobromide	CTN.
Homatropine methylbromide	CTN.
Parasympathomimetic (cholinergic) agents:	
Neostigmine bromide	HEX, HOF.
Neostigmine methylsulfate	HOF.
Pyridostigmine bromide	HOF.
Sympatholytic (antiadrenergic) agent: Ergonovine maleate.	LIL.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Cardiovascular agents:	
Antihypertensive agents:	
Hydralazine hydrochloride	CGY.
Methyldopa	MRK.
Pargyline hydrochloride	ABB.
Rauwolfia and veratrum alkaloids:	
Alkavervir	RIK.
Alseroxylon	RIK.
Deserpidine	PEN.
Rauwolfia serpentina	PEN.
Reserpine	PEN.
Bioflavonoids:	
Hesperidin	SKG.
Lemon bioflavonoid complex	SKG.
Naringin	SKG.
Quercetin	RSA.
Vasodilators:	
Amyl nitrite	MAL.
Dioxyline phosphate	LIL.
Ethyl nitrite	MAL.
Nicotinyl alcohol tartrate	HOF.
Trolnitrate phosphate	PFZ.
Other cardiovascular agents:	
Colestipol hydrochloride	x.
Procainamide hydrochloride	OMS, PD.
Quinidine polygalacturonate	LEM.
*Central depressants and stimulants:	
*Amphetamines:	
Dextroamphetamine	ARN.
Dextroamphetamine sulfate	ARN, SK.
Dextroamphetamine tannate	ARN.
Methamphetamine (levo)	HEX
Methamphetamine hydrochloride (dextro)	ARN.
*Analgesics and antipyretics:	
*Acetanilide derivatives:	
Acetaminophen	ATP, MAL, NEP, NOR, PEN.
Phenacetin	MON.
*Aspirin	DOW, MLS, MON, NOR, SDG.
*Meperidine hydrochloride	PEN, SDW, WYT.
*Methadone hydrochloride	LIL, MAL, PEN.
*Other analgesics and antipyretics:	
p-Aminobenzoic acid and salts:	
Aminobenzoic acid	LEM, PD.
Potassium aminobenzoate	GAN.
Sodium aminobenzoate	GAN.
Anileridine hydrochloride	MRK.
Aurothioglucose	SCH.
Calcium succinate	LEM.
Codeine	MRK.
Dextropropoxyphene napsylate	LIL.
Ethoheptazine citrate	WYT.
Indomethacin	MRK.
Mefenamic acid	PD.
Oxycodone hydrochloride	EN.
Oxyphenbutazone	CGY.
Pentazocine	SDW.
Pentazocine hydrochloride	SDW.
Phenylbutazone	CGY.
Propoxyphene hydrochloride	LEM, LIL, RLS.
Salicylates:	
Aluminum aspirin	ABB, SCH.
Phenyl salicylate	DOW.
Potassium salicylate	HN.
Salicylamide	PEN.
Salicylsalicylic acid	PD.
Sodium salicylate	HN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Antidepressants:	
Amitriptyline	MRK.
Desipramine hydrochloride	CGY, LKL.
Doxepin hydrochloride	PFZ, SK.
Imipramine hydrochloride	CGY.
Isocarboxazid	HOF, MRK.
Nialamide	PFZ.
Nortriptyline	LIL.
Phenelzine sulfate	NEP.
*Barbiturates:	
Allylbarbituric acid	GAN.
Allybarbituric 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	SDW.
Mephobarbital	GAN, SDW.
Metharbital	ABB.
Methohexital, sodium	LIL.
Pentobarbital	ABB, GAN, PD.
*Pentobarbital, sodium	ABB, GAN, PD.
Phenobarbital	GAN, MAL.
Phenobarbital, sodium	GAN, MAL.
Secobarbital	GAN.
Secobarbital, sodium	GAN, LIL.
Thiamylal, sodium	GAN, PD.
Thiopental, sodium	ABB, GAN.
*Hypnotics and sedatives (except barbiturates):	
Carbromal	PD.
Ethchlorvynol	ABB.
Ethinamate	LIL.
Flurazepam hydrochloride	HOF.
Glutethimide	BKL, CGY.
Methaqualone	x.
Methaqualone hydrochloride	x.
Methyprylon	HOF.
*Skeletal muscle relaxants:	
Carisoprodol	BKL.
Chlorphenesin carbamate	UPJ.
Mephenesin	HEX.
Methocarbamol	x.
Phenaglycodol	LIL.
Succinylcholine chloride	ABB, BUR.
Tubocurarine	ABB, OMS.
*Tranquilizers:	
Buclizine hydrochloride	PFZ.
Chlorazepate dipotassium	ABB.
Chlordiazepoxide hydrochloride	HOF.
Chlormezanone	SDW.
Chlorprothixene	HOF.
Diazepam	HOF.
Ethoxybutamoxane	LIL.
Hydroxyzine hydrochloride	PFZ.
Hydroxyzine pamoate	PFZ.
Meprobamate	ABB, BKL.
Oxazepam	WYT.
Phenothiazine derivatives:	
Chlorpromazine hydrochloride	SK.
Fluphenazine hydrochloride	OMS. SCH.
Perphenazine	SCH.
Prochlorperazine edisylate	SK.
Prochlorperazine maleate	SK.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Tranquilizers--Continued	
Phenothiazine derivatives-Continued	
Promazine hydrochloride	WYT.
Promethazine hydrochloride	WYT.
Triflupromazine hydrochloride	OMS.
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.
Caramiphehen edisylate	SK.
Carbetapentane citrate	PFZ.
Chlophedianol hydrochloride	RIK.
Dextromethorphan hydrobromide	HOF.
Ethylmorphine hydrochloride	MAL, MRK.
Hydrocodone bitartrate	MAL, PEN.
Thebaine	MRK.
General anesthetic: Ketamine hydrochloride	PD.
Stimulants:	
Benzphetamine hydrochloride	UPJ.
Caffeine:	
Natural	CPR, GNF.
Synthetic	PFZ.
Caffeine sodium benzoate	GAN.
Chlorphentermine hydrochloride	NEP.
Diethylpropion	BKC.
Fenfluramine hydrochloride	x.
Nikethamide	CGY.
Phendimetrazine tartrate	BAX, GAN.
Phentermine	HEX.
*Dermatological agents (except salicylic acid) and local anesthetics:	
Dermatological agents:	
Allantoin	HFT, LEM.
Aluminum phenolsulfonate	SAL.
Ammonium phenolsulfonate	SAL.
Bismuth subgallate	MAL, PEN.
Glycol salicylate	RDA.
Podophyllum resin	PEN.
Sodium phenolsulfonate	SAL.
Zinc phenolsulfonate	MAL, SAL.
Local anesthetics:	
Butacaine hydrochloride	ABB.
Butacaine sulfate	ABB.
Butamben picrate	ABB.
Butyl aminobenzoate (Butamben)	ABB.
Dibucaine	CGY.
Dibucaine hydrochloride	CGY.
Ethylaminobenzoate (Benzocaine)	PD.
Isobutyl aminobenzoate	RSA.
Lidocaine	AST, RLS, SDW.
Oxethazaine	WYT.
Phenacaine hydrochloride	SDW.
Pramoxine hydrochloride	ABB.
Procaine hydrochloride	PFZ, UOP.
Proparacaine hydrochloride	OMS.
Propoxycaine	SDW.
Tetracaine	SDW.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*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.
Tyropanoate, sodium	SDW.
*Other diagnostic agents:	
Evans blue (blood volume determination)	NEP.
Indocyanine green (cardiac output test)	x.
Metyrapone (pituitary function test)	CGY.
Phenolphthalein monophosphate, dicyclohexylamine salt	NEP.
Phenolsulfonphthalein (kidney function test)	EK.
Sodium fluorescein (corneal trauma indicator)	SDH.
*Expectorants and mucolytic agents:	
*Ethylenediamine dihydriodide	HFT, MAL, WAG, WHL.
Glyceryl guaiacolate	GAN, HEX, PEN.
Guaiacol	MON.
Iodinated glycerol	x.
Lobeline sulfate	ABB.
Potassium guaiacolsulfonate	HN.
Terpin hydrate	PEN.
Thonzonium bromide	NEP.
*Gastrointestinal agents (except methionine, hydroxy analog) and therapeutic nutrients:	
*Amino acids and salts:	
Amino acid mixtures	MDJ.
Arginine aspartic acid	LEM.
Glutamic acid and salts:	
Glutamic acid	LEM.
Glutamic acid hydrochloride	LEM.
Potassium glutamate	LEM.
Lysine (feed grade)	MRK.
Lysine hydrochloride	MRK.
*Choline chloride:	
Feed grade	COM, DA, DOW, HFT, TMH.
Medicinal grade	HFT.
Technical grade	HFT.
*Other gastrointestinal agents and therapeutic nutrients:	
Gastrointestinal agents:	
Cathartics:	
Magnesium citrate	MAL.
Phenolphthalein	MON.
Podophyllin	ABB.
Sodium tartrate	MAL.
Choleretics and hydrocholeretics:	
Bile acids, oxidized	SRL, WIL.
Dehydrocholic acid	WIL.
Florantyrone	SRL.
Iron bile salts	LIL, WIL.
Ox bile extract	ABB, WIL.
Sodium dehydrocholate	WIL.
Tocamphyl	x.
Lipotropic agents:	
Betaine base	HFT, MAL.
Betaine hydrochloride	HFT.
Choline bicarbonate	COM.
Choline bitartrate	ACY, HFT.
Choline citrate (Tricholine citrate)	ACY, HFT.
Choline dihydrogen citrate	ACY, HFT.
Sitosterols	LIL, UPJ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Gastrointestinal agents (except methionine, hydroxy analog) and therapeutic nutrients--Continued	
*Other gastrointestinal agents and therapeutic nutrients--Continued	
Gastrointestinal agents--Continued	
Other gastrointestinal agents:	
Dihydroxyaluminum aminoacetate	BKC.
Pectin	SKG.
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.
*Hematological agents:	
Anticoagulants:	
Ammonium heparin	ABB, RIK, WIL.
Anisindione	SCH.
Bishydroxycoumarin	ABB.
Diphenadione	UPJ.
Lithium heparin	RIK.
Potassium heparin	WIL.
*Sodium heparin	ABB, RIK, WIL.
Warfarin	SDW.
Other hematological agents:	
Cellulose, oxidized	EKT.
Dextran	PHR.
Protamine	LIL.
*Hormones and synthetic substitutes:	
*Antithyroid agents:	
Methimazole	LIL.
Propylthiouracil	CTN.
2-Thiouracil	ACY.
*Corticosteroids:	
Betamethasone	SCH.
Betamethasone phosphate	SCH.
Betamethasone valerate	SCH.
Cortisone	SCH.
Cortisone acetate	MRK, UPJ.
Dexamethasone	MRK, SCH.
Dexamethasone phosphate	MRK.
Fludrocortisone acetate	UPJ.
Fluorometholone	UPJ.
9α-Fluoroprednisolone acetate	UPJ.
Flupredniso1one	UPJ.
Hydrocortisone	MRK, PFZ, UPJ.
Hydrocortisone acetate	MRK, UPJ.
Medrysone	UPJ.
Methylprednisolone	UPJ.
Prednisolone	MRK, UPJ.
Prednisolone acetate	UPJ.
Prednisone	MRK, UPJ.
Triamcinolone	TRD, x.
Triamcinolone acetonide	OMS.
Triamcinolone diacetate	OMS.
*Estrogens:	
Chlorotrianisene	BJL, BKC.
Diethylstilbestrol	CTN, LIL.
Diethylstilbestrol diphosphate	x.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Hormones and synthetic substitutes--Continued	
*Estrogens--Continued	
Estogenic substances, conjugated	ORG
Natural estrogenic substance	ORG.
Piperazine estrone sulfate	ABB.
Potassium estrone sulfate	PEN.
*Synthetic hypoglycemic agents:	
Acetohexamide	LIL.
Chlorpropamide	PFZ.
Phenformin hydrochloride	BKL.
Tolazamide	UPJ.
Tolbutamide	UPJ.
*Other hormones and synthetic substitutes:	
Anabolic agents and androgens:	
Fluoxymesterone	UPJ.
Testosterone cypionate	UPJ.
Zeranol	COM.
Corticotropin (ACTH)	ARP, ORG.
Glucagon	LIL.
Insulin	ARP, LIL.
Oxytocin	LIL.
Progestogens:	
Medroxyprogesterone acetate	UPJ.
Melengestrol acetate	UPJ.
Norgestrel	WYT.
Progesterone	UPJ.
Thyroid	LIL.
*Renal-acting and edema-reducing agents:	
*Benzothiadiazine derivatives:	
Bendroflumethiazide	OMS.
Benzthiazide	PFZ.
Chlorothiazide	MRK.
Flumethiazide	OMS.
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.
Probenecid	CTN, MRK.
Triamterene	ACY, SK.
*Vitamins:	
*Nicacin and niacinamide (all grades):	
Niacin (nicotinic acid) (feed grade)	MRK, NEP, RIL.
Niacin (nicotinic acid) (medicinal grade)	MRK, RIL, SCR.
Niacinamide	MRK, NEP, PD, RIL, SCR.
*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:	
Feed grade	CKL, DLI, HFT.
Medicinal grade	DA.
Dexpanthenol	HFT, 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, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Vitamins--Continued	
*Riboflavin (all grades):	
Riboflavin (feed grade)	GPR, HOF, MRK.
Riboflavin (medicinal grade)	HOF, MRK.
*Vitamin C:	
*Ascorbic acid	HOF, MRK, PFZ.
Calcium ascorbate	PFZ.
Sodium ascorbate	HOF, MRK, PFZ.
*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- and dl-Alpha tocopherol:	
d-Alpha tocopherol	EKT, GNM.
dl-Alpha tocopherol	GNM, HOF.
dl-Alpha tocopheryl acetate (feed grade)	HOF.
*d- and dl-Alpha tocopheryl acetate (medicinal grade):	
d-Alpha tocopheryl acetate	EKT, GNM.
dl-Alpha tocopheryl acetate	DA, EKT, GNM, HOF.
dl-Alpha tocopheryl acetate (technical grade)	DA.
d-Alpha tocopheryl acid succinate	EKT, GNM.
*Vitamin K:	
Menadiol sodium diphosphate	HOF.
Menadione	ABB, HET, WHL.
Menadione sodium bisulfite	ABB, DA, DLI, HET, HFT, WHL.
Phytonadione	MRK.
*Other Vitamins:	
Biotin	HOF.
Cyanocobalamin (feed grade)	MRK.
Cyanocobalamin (medicinal grade)	MRK.
Cyanocobalamin (U.S.P. crystalline)	MRK.
Cyanocobalamin with intrinsic factor concentrate	WIL.
Inositol	STA.
Niacinamide hydrochloride	NEP.
Pyridoxine	HOF.
Riboflavin-5-phosphate, sodium	HOF.
Thiamine hydrochloride	HOF, MRK.
Thiamine mononitrate	HOF, MRK.
Vitamin A:	
Beta-carotene (Provitamin A)	EKT, HOF.
Vitamin A acetate:	
Feed grade	HOF.
Medicinal grade	HOF.
Vitamin A acid	EK.
Vitamin A alcohol	HOF.
Vitamin A palmitate:	
Feed grade	EKT, HOF.
Medicinal grade	EKT, HOF.
*Miscellaneous medicinal chemicals:	
Antineoplastic agents:	
Azathioprine	BUR.
Calusterone	UPJ.
Mercaptopurine	BUR.
Thioguanine	BUR.
Vinblastine sulfate	LIL.
Vincristine sulfate	LIL.
Methionine, hydroxy analog, calcium salt	DUP, MON.
Salicylic acid[3]	DOW, HN, MON.
Smooth muscle relaxants:	
Alverine	x.
Alverine citrate	x.
Papaverine hydrochloride	LIL, MAL, MRK, PEN.
Unclassified medicinal chemicals:	
Allopurinol	BUR.
Berberine hydrochloride	PEN.
Etidronate, disodium	LEM.
Levodopa	BID, 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."

TABLE 3.--MEDICINAL CHEMICALS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of medicinal chemicals to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

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

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

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 1973 amounted to 117.0 million pounds (table 1).[1] Sales of these materials in 1973 amounted to 108.3 million pounds, valued at $108.5 million, compared with 90.5 million pounds, valued at $84.5 million in 1972. These totals do not include benzyl alcohol, which was previously included in flavor and perfume materials but will be shown in the miscellaneous cyclic section of the 1973 report. U.S. production of flavor and perfume materials in 1973 increased 17.0 percent over 1972, and the quantity of sales rose 19.6 percent.[2]

Production of cyclic flavor and perfume materials in 1973 amounted to 52.9 million pounds; sales amounted to 45.6 million pounds, valued at $66.2 million. The individual chemical in the cyclic group produced in the greatest volume in 1973 was methyl salicylate (6.8 million pounds).

U.S. output of acyclic flavor and perfume materials in 1973 amounted to 64.1 million pounds; sales of these materials amounted to 62.8 million pounds, valued at $42.3 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.

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

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

[2] Data for benzyl alcohol were excluded from both years.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1973

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

Material	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	117,000	108,327	108,489	$1.00
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total	52,928	45,553	66,150	1.45
Benzenoid and Naphthalenoid				
Total	42,685	36,397	46,920	1.29
4-Allyl-2-methoxyphenol (Eugenol)	429	389	1,191	3.07
Anisyl acetate	...	9	39	4.27
Benzophenone[2]	741	426	591	1.39
Benzyl acetate	2,070	2,850	1,094	.38
Benzyl benzoate	...	1,553	731	.47
Benzyl butyrate	...	12	19	1.54
Benzyl cinnamate	...	11	43	4.12
Benzyl phenylacetate	4	3	9	2.87
Benzyl propionate	50	46	56	1.23
Benzyl salicylate	566	767	669	.87
Cinnamaldehyde[2]	1,754	1,251	830	.66
Cinnamyl acetate	10	7	19	2.70
Cinnamyl alcohol	327	327	508	1.56
Cinnamyl anthranilate	...	1	16	13.36
Cinnamyl propionate	2	2	17	7.98
Ethyl phenylglycidate	16	...	...	...
Hydrocoumarin	56	...	...	...
Isobutyl phenylacetate	29	27	32	1.18
Isobutyl salicylate	...	18	16	.89
Isopentyl salicylate	761	841	511	.61
2-Methoxy-4-propenylphenol (Isoeugenol)	38	...	...	...
p-Methylanisole	61	17	18	1.02
Methyl anthranilate[2]	...	309	445	1.44
α-Methylbenzyl acetate (Styralyl acetate)	121	106	95	.89
Methyl cinnamate	40	51	91	1.77
Methyl phenylacetate	28	23	46	1.98
Methyl salicylate	6,792	6,624	2,972	.45
α-Pentylcinnamaldehyde	659	618	783	1.27
Phenethyl acetate	97	79	108	1.37
Phenethyl isobutyrate	...	10	25	2.35
Phenethyl isovalerate	12	8	22	2.83
2-Phenethyl phenylacetate	31	22	52	2.37
3-Phenyl-1-propanol (Hydrocinnamic alcohol)	...	36	68	1.91
p-Propenylanisole (Anethole)	2,282	2,292	1,870	.82
p-Tolyl acetate	...	4	17	4.05
All other benzenoid and naphthalenoid materials	25,729	17,658	33,917	1.92

See footnotes at end of table.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Material	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued				
Terpenoid, Heterocyclic, and Alicyclic				
Total	10,243	9,156	19,230	$2.10
Cedrol	147	...	...	...
Cedryl acetate	321	232	787	3.40
Guaiacwood acetate	40	40	136	3.36
α-Ionone	83	69	332	4.79
Ionone (α-and β-)	90	76	316	4.18
Menthol, synthetic, U.S.P	318	344	1,271	3.70
Methylionones	672	546	2,044	3.75
Terpineols	3,561	3,244	1,324	.41
α-Terpinyl acetate	1,043	1,014	706	.70
Vetivenyl acetate	31	24	491	20.67
All other terpenoid, heterocyclic, and alicyclic materials	3,937	3,567	11,823	3.31
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
Total	64,072	62,774	42,339	.67
Allyl hexanoate	29	20	50	2.46
Butyl butyryl lactate	53	48	158	3.26
Citronellyl acetate	46	36	64	1.81
Citronellyl formate	27	25	113	4.58
Citronellyl isobutyrate	...	8	28	3.44
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)	48	41	181	4.45
3,7-Dimethyl-trans-2,6-octadienal (Citral a; Geranial)	87	56	210	3.78
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	1,894	1,498	2,072	1.38
3,7-Dimethyl-6-octen-1-al (Citronellal)	640	68	256	3.75
3,7-Dimethyl-6-octen-1-ol (Citronellol)	1,183	1,147	1,799	1.57
Ethyl butyrate	469	471	307	.65
Ethyl heptanoate	...	17	26	1.51
Ethyl hexanoate (Ethyl caproate)	11	7	15	2.03
Ethyl nonanoate	7	5	16	2.98
Ethyl oxyhydrate	49	49	53	1.08
Geranyl acetate	114	106	209	1.98
Glutamic acid, monosodium salt (Monosodium glutamate)	46,526	51,882	23,656	.46
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	685	616	3,966	6.44
Isopentyl butyrate	125	96	80	.83
Isopentyl formate	9	7	10	1.57
Isopentyl isovalerate	26	...	...	...
Rhodinol	13	...	...	...
All other acyclic materials	12,031	6,571	9,070	1.38

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

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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	
Benzenoid and Naphthalenoid	
2'-Acetonaphthone	GIV.
Acetophenone	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.
Anisole (Methyl phenyl ether)	GIV.
*Anisyl acetate	ELN, GIV, UOP.
Benzal glyceryl acetal	GIV.
*Benzophenone	GAF, NEO, PD, UOP.
*Benzyl acetate	GIV, LUE, MON, OPC, UOP.
*Benzyl benzoate	LUE, MON, OPC, UOP, VEL.
*Benzyl butyrate	ELN, FB, GIV.
*Benzyl cinnamate	FB, GIV, UOP.
Benzyl ether	VEL.
Benzyl formate	GIV, UOP.
Benzyl isobutyrate	GIV.
Benzyl isopentyl ether	GIV.
Benzyl isovalerate	FB.
1-(Benzyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether).	GIV, UOP.
*Benzyl phenylacetate	ELN, GIV, RT.
*Benzyl propionate	ELN, FB, GIV, OPC.
*Benzyl salicylate	GIV, LUE, MON, 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 xylol)	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, 1973--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
*Cinnamyl propionate	ELN, FB, GIV.
Cinnamyl tiglate	FB.
Coumarin	DOW, RDA.
Cuminyl alcohol	GIV.
Cyclohexylcyclohexanone	GIV.
trans-Decahydro-β-naphthol	IFF.
2,4-Dibromo-6-nitro-meta-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-2,6-octadienylphenylacetate (Geranyl phenylacetate).	GIV.
α,α-Dimethylphenethyl acetate	IFF.
α,α-Dimethylphenethyl alcohol	GIV, IFF.
α,α-Dimethylphenethyl butyrate	IFF.
α,α-Dimethylphenethyl alcohol, tech	IFF.
Diphenylmethane (Benzylbenzene)	UOP.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)	GIV.
p-Ethoxybenzaldehyde	GIV.
2-Ethoxynaphthalene	GIV.
Ethyl anthranilate	FB.
Ethyl benzoate	ELN.
Ethyl butylcyclohexanol	HOF.
Ethyl cinnamate	ELN, GIV.
Ethyl α,β-epoxy-β-methylhydrocinnamate	ELN.
2-Ethylhexyl salicylate	FEL.
Ethyl phenylacetate	GIV.
*Ethyl phenylglycidate	GIV, PFW, UOP.
Ethyl salicylate	FB.
3'-Ethyl-5',6',7',8'-tetrahydro-5',5',8',8'-tetramethyl-2'-acetonaphthone.	GIV, UOP.
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta-gamma-2-benzopyran (Galaxolide).	IFF.
Hexyl benzoate	GIV.
α-Hexylcinnamaldehyde	CI, IFF.
Hydratropaldehyde	GIV, IFF.
Hydratropaldehyde, dimethyl acetal	GIV, IFF.
Hydrocinnamic acid	ARS.
*Hydrocoumarin	ARS, GIV, UOP.
Hydroxycitronellalmethyl anthranilate	GIV.
4-Hydroxy-3-ethoxybenzaldehyde (Ethylvanillin)	MON, LUE, SLV.
3-Hydroxy-4-methoxybenzaldehyde (Isovanillin)	SLV.
4-Hydroxy-3-methoxybenzaldehyde (Vanillin)	LUE, MON, SLV.
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, 1973--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
Isopentyl benzoate	GIV.
*Isopentyl salicylate	FB, GIV, MON, OPC, UOP.
p-Isopropylbenzaldehyde (Cumaldehyde)	GIV.
p-Isopropylcyclohexanol	CI, GIV.
p-Isopropyl-α-methylhydrocinnamaldehyde (Cyclamenaldehyde).	GIV, RDA.
p-Isoproxyl methylhydrocinnamyl alcohol	GIV.
p-Mentha-1,8-diene (Limonene)	SKG.
Menthyl anthranilate	PFW.
4'-Methoxyacetophenone (Acetanisole)	GIV, UOP.
p-Methoxybenzyl alcohol (Anisyl alcohol)	GIV, UOP.
o-Methoxycinnamaldehyde	CI.
2-Methoxynaphthalene	GIV.
1-(p-Methoxyphenyl)-1-penten-3-one	GIV.
*2-Methoxy-4-propenylphenol (Isoeugenol)	FB, GIV, UOP.
2-Methoxy-4-propenylphenol, acetate	UOP.
4'-Methylacetophenone	GIV, UOP.
*p-Methylanisole	GIV, SW, UOP.
*Methyl anthranilate	FB, OPC, PFW, SW, UNG.
Methyl anthranilidine-p-isopropyl methylhydrocinnamaldehyde (Orangeol N).	RDA.
Methyl benzoate	HN.
*α-Methylbenzyl acetate (Styralyl acetate)	CI, ELN, GIV.
α-Methylcinnamaldehyde	FB, GIV.
*Methyl cinnamate	CI, FB, UOP.
6-Methylcoumarin	GIV.
Methylcyclohexyl propionate	GIV.
1,2-(Methylenedioxy)-4-propenylbenzene (Isosafrole)	GIV.
p-Methylhydratropaldehyde	GIV.
1-Methyl-4-isohexyl-hexahydrobenzaldehyde (Vernaldehyde).	GIV.
Methyl-o-methoxybenzoate	GIV.
Methyl-n-methylanthranilate	GIV.
2-Methyl-6-(4-methyl-3-cyclohexamylidene)-2-heptene, and C_{15} hydrocarbon isomers.	HOF.
*Methyl phenylacetate	ELN, GIV, OPC.
*Methyl salicylate	DOW, HN, LUE, 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 formate	ELN, IFF.
*Phenethyl isobutyrate	ELN, GIV, IFF.
*Phenethyl isovalerate	ELN, FB, GIV, OPC.
*2-Phenethyl phenylacetate	CI, ELN, GIV, IFF.
Phenethyl propionate	ELN, GIV, IFF.
Phenethyl salicylate	GIV.
2-Phenoxyethyl isobutyrate	ELN, GIV, IFF.
Phenylacetaldehyde	GIV.
Phenylacetaldehyde, dimethyl acetal	GIV, UOP.
o-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	GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
3-Phenylpropyl cinnamate	FB.
Piperonal (Heliotropin)	AMB, GIV.
Piperonal bisulfite (Heliotropin bisulfite)	AMB.
*p-Propenylanisole (Anethole)	ARZ, GLD, HN, HPC, NCI.
p-Propylanisole (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, ammonium salt	SW.
Saccharin, calcium salt	SW.
Saccharin, sodium salt	SW.
p-Tolualdehyde	GIV, HN, TCC.
p-Tolylacetaldehyde	GIV.
*p-Tolyl acetate	ELN, FB, GIV.
p-Tolyl phenylacetate	GIV.
α-(Trichloromethyl) benzyl acetate (Rosetone)	NEO.
Terpenoid, Heterocyclic, and Alicyclic	
Acetyl cedrene (Vertofix)	IFF.
Amyris acetate	GIV.
Bornyl acetate	GIV.
Cadinene	FB.
β-Caryophyllene	CI, GIV.
Caryophellene acetate	CI.
Caryophellene alcohol	FB.
L-Carvyl 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, UNG, 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	IFF.
Dihydronordicyclopentadienyl propionate	GIV, IFF.
Dihydroterpinyl acetate	GIV.
Ethyl furoate	RT.
Furyl acrolein (furfural acrolein)	RT.
4-(2-Furyl)-3-buten-2-one (furfural acetone)	RT.
*Guaiacwood acetate	ELN, FB, GIV, NEO.
Guaiene	FB.
2-Heptylcyclopentanone	FB.
2-Hexyl-2-cyclopenten-1-one (Isojasmone)	FB.
3-Hydroxy-2-ethyl-4-pyrone (Ethyl maltol)	PFZ.
16-Hydroxyhexadecanoic acid, o-lactone (Hexadecanolide).	IFF.
4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-10-carboxaldehyde (Lyral).	IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
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.
Ionones:	
*α-Ionone	GIV, HOF, IFF, MYW.
β-Ionone	HOF, MYW.
*Ionone (α-and β-)	GIV, HOF, MYW, NEO.
Isobornyl acetate	FB, OPC, RDA.
Isobornyl propionate	GIV, OPC.
Isomenthone	GIV.
Jasmal	IFF.
Lavandin, acetylated	FEL, GIV, UNG.
p-Mentha-6,8-dien-2-ol (L-Carveol)	FB.
p-Mentha-6,8-dien-2-one (Carvone; Carvol)	FB, NEO.
p-Mentha-1,3-diene (α-Terpinene)	GLD.
p-Mentha-1,4-diene (γ-Terpinene)	GLD.
p-Menthan-3-one (Menthone)	GIV, NEO.
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-Menthen-6-yl-1-propanone	GIV.
Menthol, synthetic:	
Tech	GIV.
*U.S.P	GIV, GLD, HN, NEO.
Menthyl acetate	GIV.
*Methylionones:	
6-Methyl-α-ionone	GIV, MYW.
Methylionone (α- and β-)	GIV, IFF, MYW, NEO.
Nopyl acetate	CI, FEL, NEO, RDA.
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.
Tetrahydropseudo ionone	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.
4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-methyl-3-buten-2-one.	HOF.
Vetivenol	GIV, UOP.
*Vetivenyl acetate	ELN, FB, GIV, IFF, NEO, UOP.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Acetylbutyryl (2,3-Hexanedione)	FB.
Acetylisovaleryl	FB.
Acetylpropionyl	FB.
Allyl disulfide	RT.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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.
Ally isothiocyanate (Synthetic mustard oil)	MRT.
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, GIV.
Caprioic acid triglyceride	CI.
1-Chloro-3-methyl-butene-2	RDA.
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 methyl acetal	IFF.
Citronellyl oxyacetaldehyde	IFF.
Citronellyl propionate	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.
Dihydromyrcenol	IFF.
Dihydromyrcenyl formate (Dimyrcetol)	IFF.
Dihydro safrol	CI.
2,6-Dimethyl-5-hepten-1-al	GIV.
3,6-Dimethyl-5-hepten-2-ol and 7-Methyl-6-octen-3-ol (Brazinol).	RDA.
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-2,6-octadienal (Citral)	HOF, RDA.
*3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)	ELN, FB, GIV, GLD, IFF.
*3,7-Dimethyl-trans-2,6-octadienal (Citral a; Geranial)	FB, FEL, GIV, NCI, UOP.
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-trans-2,6-octadien-1-ol Hp (Geraniol HP)	GIV.
3,7-Dimethyl-1,6-octadien-3-ol (Linalool; Linalyl alcohol).	ELN, FB, FEL, GIV, GLD, HOF.
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate).	ELN, FB, GIV, GLD, HOF, NEO.
3,7-Dimethyl-1,6-octadien-3-ol isobutyrate (Linalyl isobutyrate).	HOF.
3,7-Dimethyl-1,6-octadien-3-ol propionate (Linalyl propionate).	HOF.
3,7-Dimethyloctan-3-ol	HOF.
3,7-Dimethyl-1-octanol (Dihydrocitronellol)	GIV.
*3,7-Dimethyl-6-octen-1-al (Citronellal)	CI, ELN, FB, GIV, IFF, NCI, 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.
*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, 1973--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 myristate	RT.
*Ethyl nonanoate	ELN, FB, FEL, GIV.
Ethyl octanoate	FB, RT.
*Ethyl oxyhydrate	FEL, FLO, LUE, PFW, RT, VND.
Ethyl propionate	FB, NW.
Ethyl valerate	PFW.
Geranic acid	FB.
Geranonitrile	IFF.
*Geranyl acetate	CI, FEL, GIV, IFF.
Geranyl butyrate	GIV.
Geranyl formate	CI, GIV.
Geranyl isobutyrate	IFF.
Geranyl isovalerate	FB.
Geranyl neryl formate	IFF.
Geranyl propionate (Geranyl dimethylacrylate)	FB, FMT.
Geranyl tiglate	FB.
*Glutamic acid, monosodium salt (Monosodium glutamate)	COM, GRW, SFF, UDW.
γ-Heptalactone	FB.
α-Hexalactone	FB.
Heptyl alcohol (1-Heptanol)	NTL, UCC.
Hexanoic acid (Caproic acid)	FB.
2-Hexanol	FB.
3-Hexanol	HOF.
2-Hexenal	FB, GIV.
cis-3-Hexen-1-ol	GIV, x.
cis-3-Hexen-1-ol lactate	RT.
Hexyl caproate	FB.
3-Hexyn-2-ol	x.
3-Hydroxy-2-butanone (Acetoin)	FMT.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	GIV, GLD, IFF, NEO, RDA, UOP.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal).	GIV, UOP.
Isoamyl acetate	FB.
Isoamyl geranate	FB.
Isoamyl propionate	FB.
Isoamyl undecylenate	GIV.
Isobutyl acetate	FB.
Isodihydro lavandulol	FB.
Isodihydro lavandulyl acetate	FB.
Isodihydro lavandulylaldehyde	FB.
Isopentyl acetate	NW.
*Isopentyl butyrate	FB, GIV, NW, PFW, UOP.
*Isopentyl formate	ELN, FB, GIV, RT.
*Isopentyl isovalerate	ELN, FB, PFW.
Lauraldehyde	CI, GIV.
3-Methyl-5-heptanone oxime	GIV.
2-Methyl-2-hepten-7-one	RDA.
6-Methyl-5 hepten-2-one	HOF.
Methyl isobutyrate	PFW.
3-Methyl-2-(and 3) nonenitrile	GIV.
Methyl-2-nonenoate	GIV.
Methylol methyl hexyl ketone	GIV.
2-Methylundecanal	GIV.
Muguol (Alloocimenol)	IFF.
Myrcenyl acetate	IFF.
Myristaldehyde	GIV.
Neryl acetate	FB, GIV.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Nonanal	GIV.
Nonane-I,3-diol monoacetate	CI, GIV.
Nonanol	GIV.
Nonyl acetate	GIV.
Ocimenol	IFF.
Ocimenyl acetate	IFF.
Octanal	GIV, IFF.
3-Octanol	GIV.
3-Octanone (Ethyl amyl ketone)	GIV.
n-Octyl acetate	GIV.
Octyl alcohol (1-Octanol)	GIV.
Octyl formate	FB.
Pentyl acetate	UOP.
Propionic acid ethyl ester	UOP.
Pseudo linalyl acetate	IFF.
Pyrolysate	GIV.
*Rhodinol	FB, FEL, GIV, IFF, NEO.
Rhodinyl acetate	GIV, IFF.
Tepyl acetate	UOP.
Tetrahydromuguol (T. H. alloocimenol)	IFF.
3,7,8,8-Tetramethyl-1,6-nonadiene-3-ol (Isobutyl linalool).	HOF.
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.
Undecanal	GIV, IFF.
10-Undecen-1-ol acetate	GIV.
9-Undecenal	GIV.
γ-Valerolactone	GIV.

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1973

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 1973 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	MRT	Morton Chemical Co., Div. of Morton-Norwich Products, Inc.
AMB	American Bio-Synthetics Corp.		
ARA	Arapahoe Chemical Inc., Sub/Syntex (U.S.A.), Inc.	MYW	Stepan Chemical Co.
ARS	Arsynco, Inc.	NCI	Union Camp Corp., Chemical Division
ARZ	Arizona Chemical Co.	NEO	Norda Inc.
		NTL	NL Industries, Inc.
BJL	Burdick & Jackson Labs., Inc.	NW	Northwestern Chemical Co.
CI	Chem-Fleur, Inc.	OPC	Orbis Products Corp.
COM	Commercial Solvents Corp.		
		PD	Parke, Davis & Co.
DOW	Dow Chemical Co.	PEN	CPC International, Inc., Penick Division
		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.	RT	F. Ritter & Co.
FLO	Florasynth, Inc.		
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.		
HOF	Hoffman-LaRoche, Inc.	UCC	Union Carbide Corp.
HPC	Hercules, Inc.	UDW	Accent International, Inc., Sub. of William Underwood Co.
IFF	International Flavor & Fragrances, Inc.	UNG	Ungerer & Co.
		UOP	Universal Oil Products Co., UOP Chemical Division
LUE	Monsanto Flavor/Essence, Inc.		
MNR	Monroe Chemical Co.	VEL	Velsicol Chemical Corp.
MON	Monsanto Co.	VND	Van Dyk & Co., Inc.

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

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 on U.S. production and sales of synthetic plastics and resin materials for 1973 are given in table 1.[1] U.S. production of plastics and resin materials in 1973 totaled 30,251 million pounds, or 16.7 percent more than the 25,921 million pounds produced in 1972. Sales in 1973 totaled 27,018 million pounds, valued at $5,347 million compared with 22,946 million pounds, valued at $4,258 million in 1972.

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 6,394 million pounds in 1973 compared with 4,484 million pounds in 1972. Production of the most important products in 1973 included phenolic resins (1,608 million pounds), amino (or urea and melamine) resins (1,442 million pounds), polyester resins (899 million pounds), and alkyd resins (734 million pounds).

For the first time, the Trade Commission has estimated the urethane foam (flexible and rigid) market. The estimate is based on one of the starting materials, polyether and polyester polyols for urethanes (see table 1, footnote 10).

Thermoplastic materials are those which can be repeatedly softened by heat and shaped. U.S. production of thermoplastic materials totaled 23,856 million pounds in 1973 compared with 21,437 million pounds in 1972. Production of the most important products in 1973 included polyethylene (8,582 million pounds), vinyl resins (5,522 million pounds), and styrene type materials (5,156 million pounds).

This year the Trade Commission has broken out a new family of thermoplastic materials, the engineering plastics (see table 1, footnote 17).

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

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1973

[Quantities and values are given in terms of the total weight of the materials (dry basis). Listed below are all plastics and resin materials and certain precursors for which any reported data on production or sales may be published. (Leaders (...) are used where the reported data are accented in confidence and may not be published and/or where no data were reported.) Table 2 lists all plastics and resin materials for which data on production 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	Per pound
Grand total	30,250,617	27,018,229	5,347,428	$0.20
Plastics and resin materials, benzenoid[3]	9,903,150	8,813,959	2,179,687	.25
Plastics and resin materials, nonbenzenoid	20,347,467	18,204,270	3,167,741	.17
THERMOSETTING RESINS				
Total	6,394,136	5,348,168	1,125,787	.21
Acetone-formaldehyde resins	914	1,036	228	.22
Alkyd resins, total	734,046	396,712	117,902	.30
Phthalic anhydride type	691,358	367,995	109,018	.30
Polybasic acid type	42,688	28,717	8,884	.31
Polyester resins, unsaturated[4 5]	899,409	833,149	187,704	.23
Styrene alkyd polyesters[6]	32,154	13,756	4,300	.31
Amino resins, total	1,441,791	1,330,770	163,779	.12
Melamine-formaldehyde resins	205,034	164,252	56,310	.34
Urea-formaldehyde resins[7]	1,236,757	1,166,518	107,469	.09
Dicyandiamide resins	2,219	1,950	1,314	.67
Epoxy resins:[8 9]				
Unmodified	236,931	214,608	110,462	.52
Modified	(52,356)	(31,430)	(28,664)	.91
Furfuryl type resins	3,788	3,006	821	.27
Phenolic and other tar acid resins	1,647,856	1,377,216	257,977	.19
Polyurethane and diisocyanate resins (excluding foam and elastomers)[10]	181,429	130,020	60,459	.46
Polyether and polyester polyols for urethanes[10 11]	1,161,035	1,020,155	190,457	.19
Silicone resins	18,386	12,589	24,162	1.92
Other thermosetting resin[12]	34,177	13,201	6,222	.47
THERMOPLASTIC RESINS				
Total	23,856,481	21,670,061	4,221,641	.19
Acrylic resins[13 14]	899,955	516,727	216,646	.42
Cellulosic plastics and resins[13 15]	224,865	208,248	112,208	.54
Coumarone-indene resins[16]	79,899	66,002	7,645	.12
Engineering plastics[17]	327,645	295,688	208,328	.70
Petroleum hydrocarbon resins[16 18]	297,061	287,704	32,355	.11
Polyamide resins, nylon type[13 19]	177,451	123,881	111,200	.90
Polyamide resins, non-nylon type	27,593	28,167	19,928	.71
Polyester resins, saturated[13 20 21]	172,094	152,265	138,098	.91
Polyethylene and copolymers, total[22]	8,581,832	7,959,686	1,109,314	.14
Density 0.940 and below	5,960,104	5,469,059	771,147	.14
Density over 0.940	2,621,718	2,490,627	338,167	.14
Polypropylene resins	2,164,642	2,199,533	371,215	.17
Polytetrafluroethylene (PTFE)	14,019	12,834	39,134	3.05
Rosin modifications, total	138,875	125,936	29,624	.24
Rosin and rosin esters, unmodified (ester gums)	38,439	27,302	7,311	.27
Other	100,436	98,634	22,313	.23

See footnotes at end of table.

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Material	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds dry basis[2]	*1,000 pounds dry basis*[2]	*1,000 dollars*	*Per pound*
THERMOPLASTIC RESINS--Continued				
Styrene plastics materials, total	5,155,967	4,973,711	997,281	$0.20
Acrylonitrile-butadiene-styrene (ABS) resins	926,181	910,069	272,260	.30
Styrene-acrylonitrile resins (SAN)	120,771	115,815	26,038	.22
Styrene and other styrene copolymer resins[23]	4,109,015	3,947,827	698,983	.18
Vinyl resins, total[24]	5,521,526	4,653,291	785,653	.17
Polyvinyl chloride and copolymers	[25]4,594,313	[25]3,973,748	597,909	.15
Polyvinyl acetate[26]	584,585	483,962	115,653	.24
Polyvinyl alcohol[27]	121,586	93,309	31,435	.34
Polyvinylidene chloride latex resins	21,257	18,861	7,103	.38
Other vinyl and vinylidene resins[28]	199,785	83,411	33,553	.40
All other thermoplastic resins[29 30]	73,067	66,388	43,012	.65

[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 liquids 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.

[4] 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.

[5] Due to a reporting error, both production and sales of unsaturated polyester resins were overstated by between 5 percent and 10 percent in the 1972 Synthetic Organic Chemical report.

[6] "Alkyd copolymers","styrene polyesters" and "styrenated alkyds" have been suggested as alternative names by industry sources.

[7] Due to a reporting error, the production and sales data for urea resins in the 1972 Synthetic Organic Chemical report was understated by about 5 percent. In addition, the average unit value reported by the Trade Commission for urea resins in 1972 was in error; the correct unit value was approximately 9 cents per pound.

[8] 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.

[9] Data shown for modified 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. Henceforth the term "advanced" epoxy will not be used in order to avoid confusion in reporting.

[10] 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 Trade Commission. Urethane foams are described by industry sources as those urethane products which have a density below 15 pounds per cubic foot. Industry sources have estimated that flexible urethane foams accounted for 75 percent of the total 1973 consumption of polyether and polyester polyols for urethanes; the polyols are one of the two major starting materials used in the manufacture of these foams. In order to obtain the approximate total production data for flexible urethane foams, it is necessary to apply a factor of 1.5 to the production of urethane polyols. These same industry sources estimated that in 1973 rigid urethane foams represented 20% of the total consumption of polyols for urethanes, and that a factor of 2.5 should be used to determine the approximate total output for rigid urethane foams. The remaining 5 percent of production of polyols for urethanes is consumed in elastomers (synthetic rubbers) and in solid urethane plastics (e.g., coatings, surface coatings, etc.). The estimated production of both flexible and rigid urethane foams for 1973 is as follows: Flexible foams (1,161,036 thousand pounds x .75 x 1.5)=1,306,165 thousand pounds and rigid foams (1,161,036 thousand pounds x .20 x 2.5)=580,158 thousand pounds.

Urethane elastomers, the other end-use product derived from these polypols for urethanes, are reported in the elastomers (synthetic rubbers) section of the Synthetic Organic Chemicals report.

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.

[11] Most of the increase in production and sales of polyols for urethanes in 1973 over 1972 resulted from a more thorough coverage of this industry by the Trade Commission.

Footnotes for table 1--Continued

[12] Includes glyoxal resins, polybutadiene resins, toluenesulfonamide resins, and other thermosetting resins and their precursors.
[13] Does not include production or sales for fiber use.
[14] Includes data for acrylic resins reported to the Trade Commission under thermosetting resins.
[15] The production and sales data reported in the 1972 Synthetic Organic Chemicals report for cellulosic plastics and resins were overstated by about 11 percent due to a reporting error. Production and sales data are virtually identical for both 1972 and 1973.
[16] Significantly under-reported in 1972 due to misclassification.
[17] Engineering plastics: Acetals, polycarbonate, polyimide, 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 as engineering plastics, ABS resins and nylon resins, are not included in the above list as they are published separately.
[18] Includes data for petroleum hydrocarbon resins reported to the Trade Commission under thermosetting resins.
[19] Statistics for nylon 6 and nylon 6/6 which are used in plastic applications (e.g., molding, etc.) are included here.
[20] Statistics for polyethylene terephthalate which is used in plastic applications (e.g., molding, etc.) are included here.
[21] The increase in both production and sales of saturated polyester resins in 1973 over 1972 is due in part to more complete industry coverage by the Trade Commission.
[22] Includes data for ethylene copolymers which could be published separately. The reason statistics for the copolymers are not reported separately is that there is no accepted industry definition of when a homopolymer ends and a copolymer begins. 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 conolymers includes those produced from ethylene and other hydrocarbon monomers (e.g., butene or hexene).
[23] Includes data for polystyrene resins reported to the Trade Commission under thermosetting resins.
[24] 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.
[25] Partially estimated in order to avoid possible disclosure.
[26] 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.
[27] Production and sales do not include polyvinyl alcohol used as a reactive intermediate for polyvinyl butyral or other vinyl resins.
[28] Incudes polyvinyl butyral, polyvinyl formal, polyvinylidene chloride (solid resin), and other vinyl resins
[29] Includes fluorocarbon resins except PTFE, α-methylstyrene resins, phenoxy resins, polybutylene type resins, polyphenylene sulfide type resins, polyterprene resins, and other thermoplastics materials.
[30] Decline in the production and sales of all other thermoplastic resins is due mainly to the break-out of a new category, engineering plastics.

Note.--Data reported to the Trade Commission do not necessarily coincide with that reported to the Society of the Plastics Industry (i.e., SPI) due to differences in both the reporting instructions (e.g., polyamide resins, nylon type) and in the coverage (e.g., phenolic resins).

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[Plastics and resin materials 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]

Material	Manufacturers' identification codes (according to list in table 3)
THERMOSETTING RESINS	
*Acetone-formaldehyde resins	ACY, AMR, 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, IPC, JOB, JSC, KMC, KMP, KPT, MCC, MID, MNP, NCI, NPV, OBC, PER, PPG, PRT, PRX, RCI, RED, REL, RH, SCN, SED, SEY, SKT, SM, SW, x, x.
*Polybasic acid type	ACY, ASH, BEN, CNE, COM, DEG, EW, FAR, FCD, FOC, GRV, HAN, ICF, IPC, KMC, KMP, MCC, MID, MOB, PFP, PPG, RCI, RED, REL, RH, SCN, SKT, SM, SW.
*Polyester resins, unsaturated	ACY, APT, ASH, AZS, CEL, CGL, CNE, CPV, DA, DEG, DOW, DSO, ENJ, EPC, EW, FAR, FLW, FMP, FOM, FRE, GEI, GLD, GNT, GRG, HAN, HKD, ICF, ICI, IPC, KMC, KPT, MFG, MID MMM, MRB, MRO, OBC, OCF, ORO, POL, PPG, PPL, RCI, REL, RH, SCN, SHA, SIC, SM, SW, TXT, WLN, WTC.
*Styrene-alkyd polyesters	APT, ASH, CEL, CGL, CPV, DSO, EW, FLW, GRV, HAN, ICF, JOB, MCC, MID, PPG, REL, SED, SM, SW.
*Amino resins:	
*Melamine-formaldehyde resins	ACP, ACY, AMR, BOR, CBD, CEL, CGL, CNE, CPV, DAN, DSO, DUP, ENJ, FOM, GRV, HAN, ICF, JSC, KPT, MON, MRA, PMC, PPG, PPL, QCP, RCI, REL, RH, SBC, SCM, SED, SM, SNW, STC, SW, VAL WRD.
*Urea-formaldehyde resins	ACP, ACY, AMR, ASH, BOR, CBD, CBM, CEL, CGL, CMP, CNE, CPV, DAN, DUP, EFH, GAF, GLD, GP, GRV, HAN, HNC, HPC, HRT, JSC, KPT, MMM, MON, MRA, NTC, PC, PGU, PPG, PPL, RCI, REL, RH, RPC, SAC, SED, SM, SNW, SOR, SW, TXT, UNO, UPL, USO, VAL, WCL, WIC, x.
*Dicyandiamide resins	CGY, ECC, JSC, MID, MRA, RPC, S, SNW.
Epoxy resins:	
*Unmodified	CEL, CGY, DOW, RCI, RSY, SHC, UCC, WLN.
*Modified	ACP, ASH, BEN, CNE, DSO, EW, GRV, HAN, HYC, ICF, JOB, MCC, MID, MMM, MRT, OCF, POL, PPG, RRX, RCI, REL, REZ, RSY, SCN, SED, SKT, SM.
*Furfuryl-type resins	ACR, HVG, PTT, SM, TXT, UNO, WRD.
*Phenolic and other tar acid resins	ACR, AMR, ASH, BME, BOR, CBD, CBM, CD, CGL, CLK, DSO, ENJ, EW, FAR, FOM, GE, GEI, GIL, GP, GRG, HER, HKD, HVG, ICF, INL, IRI, KND, KPT, KYN, MCA, MID, MMM, MON, MRB, NCI, NTC, OCF, PAI, PGU, PLS, PPG, PPL, PRX, PYZ, RAB, RCI, REL, RGC, RH, RPC, SCN, SHA, SIM, SKT, SM, SPL, SW, UCC, UNO, UPL, USR, VSV, WCA, WRD, x.
*Polyurethane and diisocyanate resins (excluding elastomers).	APT, ASH, BAL, BAS, CEL, CGL, CPV, DSO, DUP, EW, FAR, FRE, GPM, ICF, ICI, KMC, MCC, MID, MOB, MRT, OMC, PEL, PPG, PRT, PVI, QUN, RCI, REZ, SCN, SKT, SLC, SW, UCC, UPJ, WLN, WTC.
*Polyether and polyester polyols for urethanes	APT, ARK, BAS, CHC, CPV, DOW, DSO, DUP, ICI, JCC, MOB, OMC, PFP, PPG, RCI, SHC, UCC, UNO, UPJ, WLN, WTC.
*Silicone resins	ASH, CGL, DCC, MCC, MID, PPG, SPD, SWS, UCC, VPC.
All other thermosetting resins	AMR, ASH, CGY, CPV, DSO, EW, FLW, HYC, MID, MON, PPG, S, SM, USR, VAL, VPC, WIC.
THERMOPLASTIC RESINS	
*Acrylic resins	ACY, ASH, BAS, CEL, CHP, CNE, DSO, DUP, EFH, FLH, GLC, GLD, GLX, GNM, GRV, ICF, IOC, JNS, JOB, JSC, KMC, MID, MNP, NPV, POL, PPG, PVI, QUN, RH, RPC, SAR, SCO, SED, SEY, SM, SNW, UBS, VAL, VPC, x.
*Cellulosic plastics and resins	DOW, DUP, EKT, ICF, x.
*Coumarone-indene resins	DSO, DUP, NEV, PAI, VEL.

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Materials	Manufacturers' identification codes (according to list in table 3)
THERMOPLASTIC RESINS--Continued	
*Engineering plastics:	
Acetal resins	CEL, DUP, POL.
Polycarbonate resins	GE, MOB, POL.
Polyimides and amide-imide polymers	ACC, DSO, DUP.
Polyphenylene oxide type resins	EW, GE.
Polysulfone resins	UCC, VPC.
Fluorocarbon resins	DUP, MMM.
*Petroleum hydrocarbon resins	DSO, EKX, ENJ, GYR, ICF, NEV, NPV, PA1, PPG, RCI, VEL, ZGL.
Polyamide resins:	
*Nylon type	ALF, AZS, BCM, CEL, CTR, DBC, DOW, DUP, FG, GNM, LNP, MON, POL, RSN, SKP.
*Non-nylon type	CBY, CNE, COO, DSO, DUP, EMR, GNM, MCC, SM, SNW.
Polybutene and polyisobutylene resins	ENJ, WTC.
*Polyester resins, saturated	CEL, CNE, COO, DSO, DUP, EKT, GE, GLD, GNM, ICF, ICI, MID, MRT, RUB, SHA, VEL.
*Polyethylene and copolymers:	
*Density 0.940 and below	ACP, CBN, CEL, CPX, DOW, DUP, EKX, ENJ, GOC, KPP, MON, NWP, PLC, RCC, UCC, USI.
*Density over 0.940	ACC, ACP, CEL, CPX, DOW, DUP, GOC, HPC, KPP, MON, PLC, UCC, USI.
*Ethylene copolymers	DUP, EKX, UCC, USI.
*Polypropylene resins	ACC, DA, EKX, ENJ, HPC, NVT, PLC, RCC, SHC.
Polyterpene resins	CBY, PAI, SCN.
*Polytetrafluoroethylene (PTFE)	ACP, DUP, ICI.
*Rosin modifications:	
*Rosin and rosin esters, unmodified (ester gums)	ASH, CBY, CNE, DPP, FRP, MCC, NCI, RCI.
All other	ASH, CBY, CNE, DPP, FAR, FLW, FOC, FRP, GIL, GRV, ICF, MCC, NCI, RCI, SCF, SW, ZGL.
*Styrene type plastics materials:	
*Acrylonitrile-butadiene-styrene (ABS) resins	BFG, DOW, FG, GRD, MCB, MON, RCC, USR.
*Styrene-acrylonitrile resins(SAN)	BFG, DOW, MON, SKT, UCC.
*Styrene and other styrene copolymer resins	ACC, AEP, ATR, BAS, BFG, BOR, CNE, CSD, DOW, DPI, DSO, DUP, FG, FIR, GAF, GNT, GOR, GRD, GYR, HLM, ICF, IOC, JNS, JSC, KPP, MMM, MON, MNT, ONX, PAI, PLC, POL, PRX, PVI, RCC, RCD, RH, RPC, SBI, SHC, SKT, SOL, UBS, UCC, UOC, USR, USS, VEL, WIC.
α-Methylstyrene polymers	ACC, DOW, ICF.
*Vinyl resins:	
*Polyvinyl chloride and copolymer resins	ACP, AIP, AME, BFG, BOR, CO, DA, FIR, GNT, GRA, GYR, HN, ICF, KYS, MON, NSC, OMC, PNT, RBT, RUB, SFP, TNA, UCC, USR.
*Polyvinyl acetate resins	AIP, BAL, BEN, BLS, BOR, CEL, CNE, DAN, DAV, DSO, DUP, FAR, FLH, FLW, FSH, GLC, GLD, GRD, HNG, JOB, JSC, KMC, KMP, MCC, MMM, MNP, MON, NPV, NSC, OBC, OCF, ONX, PII, PPG, PRX, PVI, QCP, RCI, RPC, SBI, SCO, SED, SEY, SPC, UBS, UCC, UOC, WIC, x.
*Polyvinyl alcohol resins	AIP, DUP, MON.
Polyvinyl butyral resins	DUP, MON, UCC.
Polyvinylidene chloride resins:	
*Latex-type	BAS, BFG, DOW, DUP, GRD, MRT, UBS.
Solid-type	DOW.
All other vinyl resins	DSO, DUP, EW, MCC, MON, SM, UCC.
All other thermoplastic resins	DSO, DUP, EKX, PLC, PPG, RPC, SM, VPC, WIC.

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1973

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 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ABS	Abex Corp., American Brakeblok Division
ACC	Amoco Chemical Corp.
ACP	Allied Chemical Corp., Plastics Division
ACR	CPC International, Inc., Acme Resin Co. Div.
ACY	American Cyanamid Co.
AEP	A & E Plastics Pak Co., Inc.
AIP	Air Products & Chemicals, Inc.
ALF	Allied Chemical Corp., Fibers Div.
AME	American Chemical Corp.
AMR	Pacific Resins & Chemical Co.
APT	Whittaker Corp., Mol Rez Division
ARK	Armstrong Cork Co.
ASH	Ashland Oil, Inc., and Ashland Chemical Co. Div.
ATR	Atlantic Richfield Co.
AZS	AZS Corp., AZ Products Co. Div.
BAL	Baltimore Paint & Chemical Corp.
BAS	BASF Wyandotte Corp.
BCM	Belding Chemical Industries
BEN	Bennett's
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Co. Division
BLS	Dobbs-Life Savers, Inc.
BME	Bendix Corp., Friction Materials Division
BOR	Borden Co., Borden Chemical Co. Division
BRU	M.A. Bruder & Sons, Inc.
CBD	Chembond Corp.
CBM	Carborundum Co.
CBN	Cities Service Co., Columbian Div.
CBY	Crosby Chemicals, Inc.
CD	Budd Co., Polychem Division
CEL	Celanese Corp.:
	Celanese Coatings & Specialties Co.
	Celanese Plastics Co.
CGL	Cargill, Inc.
CGY	Ciba-Geigy Corp.
CHC	Choate Chemical Co.
CHP	C.H. Patrick & Co.
CLK	Clark Chemical Corp.
CM	Carpenter-Morton Co.
CMP	Commercial Products Co., Inc.
CNE	Conchemco, Inc., Eastern Div.
CO	Continental Oil Co.
COM	Commercial Solvents Corp.
COO	Coopers Polymers, Inc.
CPV	Cook Paint & Varnish Co.
CPX	Chemplex Co.
CSD	Cosden Oil & Chemical Co.
CTR	Custom Resins Inc.
DA	Diamond Shamrock Corp.
DAN	Dan River, Inc.
DAV	Conchemco, Inc., H.B. Davis Co. Division
DBC	Dow Badische Co.
DCC	Dow Corning Corp.
DEG	Degan Oil & Chemical Co.
DOW	Dow Chemical Co.
DPI	Diamond Plastics, Inc.
DPP	Dixie Pine Products Co., Inc.
DSO	DeSoto, Inc.
DUP	E.I. duPont de Nemours & Co., Inc.
ECC	Eastern Color & Chemical Co.
EFH	E.F. Houghton & Co.
	Eastman Kodak Co.:
EKT	Tennessee Eastman Co. Division
EKX	Texas Eastman Co. Division
EMR	Emery Industries, Inc.
ENJ	Exxon Corp. and Exxon Chemical Co. U.S.A., Nevamar Div.
EPC	Epoxylite Corp.
EW	Westinghouse Electric Corp., Industrial Plastics Div., Chemical Products Plant
FAR	Syncon, Inc., Farnow Div.
FCD	France, Campbell & Darling, Inc.
FG	Foster Grant Co., Inc.
FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.
FLH	H.B. Fuller Co.
FLW	Fuller-O'Brien Corp.
FMP	FMC Corp., Industrial Chemical Div.
FOC	Handschy Chemical Co., Farac Oil & Chemical Co. Div.
FOM	Formica Corp.
FRE	Freeman Chemical Corp.
FRP	FRP Company
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.
FSH	Insilco Inc., Frisch & Co. Div.
GAF	GAF Corp., Chemical Division
GE	General Electric Co.:
GEI	Insulating Materials Dept.
GIL	Gilman Paint & Varnish Co.
GLC	General Latex & Chemical Corp.
GLD	SCM Corp., Glidden-Durkee Division
GLX	Glasflex Corp.
GNM	General Mills Chemicals, Inc.
GNT	General Tire & Rubber Co., Chemical Div.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
GOR	Gordon Chemical Co., Inc.
GP	Georgia-Pacific Corp.
GPM	General Plastics Manufacturing Co.
GRA	Great American Chemical Corp.
GRD	W.R. Grace & Co., Polymers Chemicals Division
GRG	P.D. George Co.
GRV	Guardsman Chemical Coatings, Inc.
GYR	Goodyear Tire & Rubber Co.
HAN	Hanna Chemical Coating Corp.
HER	Heresite & Chemical Co.
HKD	Hooker Chemical Corp., Durez Division
HLM	U.S. Industries, Inc., E. Helman Co. Division

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1973--CONTINUED

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

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1973--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.
		VAL	Valchem
		VEL	Veliscol Chemical Corp.
TNA	Ethyl Corp.	VPC	Baychem Corp., Verona Div.
TX	Texaco, Inc.	VSV	Valentine Sugars, Inc.
TXT	Textilana Corp.		
		WCA	West Coast Adhesives Co.
UBS	A.E. Staley Manufacturing Co., Staley Chemicals Division	WCL	Wright Chemical Co.
		WIC	Story Chemical Corp., Wica Chemical Div.
UCC	Union Carbide Corp.		
UNO	United-Erie, Inc.	WLN	Wilmington Chemical Corp.
UOC	Union Oil Co. of California	WRD	Weyerhaeuser Co.
UPJ	Upjohn Co.	WTC	Witco Chemical Co., Inc.
UPL	U.S. Plywood, WCM Operations, Shasta Area		
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.	ZGL	Carolina Processing Corp.
USI	National Petro Chemical 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 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 1973 are given in table 1.[1]

Production of rubber-processing chemicals as a group in 1973 amounted to 401 million pounds, or 11.1 percent more than the 361 million pounds reported for 1972. Sales of rubber-processing chemicals in 1973 amounted to 312 million pounds, valued at $199 million, compared with 280 million pounds, valued at $178 million, in 1972. The increased production and sales of rubber-processing chemicals in 1973 is attributable principally to the increased production and sales of cyclic antioxidants, antiozonants, and stabilizers.

The production of cyclic rubber-processing chemicals in 1973 was 338 million pounds, or about 9.2 percent more than the 310 million pounds reported for 1972. Sales in 1973 were 264 million pounds, valued at $176 million, compared with 240 million pounds, valued at $158 million, in 1972. Of the total production of cyclic rubber-processing chemicals in 1973, accelerators accounted for 32.1 percent and antioxidants for 63.3 percent. Production of antioxidants, which amounted to 214.3 million pounds in 1973, included 138.0 million pounds of amino compounds and 76.3 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants in 1973 were 109.4 million pounds, valued at $73.2 million; sales of phenolic and phosphite antioxidants were 54.1 million pounds, valued at $30.1 million.

Production of acyclic rubber-processing chemicals in 1973 amounted to 62.6 million pounds, an increase of 22.4 percent from the 51.1 million pounds reported for 1972. Sales in 1973 totaled 48.1 million pounds, valued at $23.7 million, compared with 40.2 million pounds, valued at $19.7 million, in 1972. Accelerators accounted for 55.7 percent of the production of acyclic rubber-processing chemicals in 1973 and dodecyl mercaptans accounted for 33.5 percent.

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[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, 1973

[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 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	400,925	311,969	199,489	$0.64
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total	338,368	263,833	175,825	.67
Accelerators, activators, and vulcanizing agents, total	108,454	86,729	57,056	.66
Aldehyde-amine reaction products	1,974	1,510	1,397	.93
Dithiocarbamic acid derivatives	...	274	673	2.46
Thiazole derivatives, total	94,615	74,475	45,013	.60
N-Cyclohexyl-2-benzothiazolesulfenamide	...	6,567	8,069	1.23
2,2'-Dithiobis(benzothiazole)	23,241	12,944	6,644	.51
2-Mercaptobenzothiazole	7,907	7,633	2,738	.36
2-Mercaptobenzothiazole, zinc salt	...	4,453	2,266	.51
All other thiazole derivatives[2]	63,467	42,878	25,296	.59
All other accelerators, activators, and vulcanizing agents[3]	11,865	10,470	9,973	.95
Antioxidants, antiozonants, and stabilizers, total	214,314	163,428	103,377	.63
Amino compounds, total	138,030	109,370	73,236	.67
Aldehyde and acetone-amine reaction products	8,622	5,785	3,441	.59
Substituted p-phenylenediamines, total	71,792	52,672	44,162	.83
N,N'-Diphenyl-p-phenylenediamine	1,281	1,223	1,212	.99
All other substituted p-phenylenediamines	70,511	51,449	42,950	.84
N-Phenyl-2-naphthylamine	4,932	...	...	...
All other amino compounds[4]	52,684	50,913	25,633	.50
Phenolic and phosphite compounds, total	76,284	54,058	30,141	.56
Phenolic compounds, total	27,635	20,585	20,684	1.00
Polyphenolics (including bisphenols)	15,578	13,804	17,118	1.24
Phenol, alkylated	8,411	4,011	1,989	.50
Phenol, styrenated	2,092	1,457	479	.33
Other	1,554	1,313	1,098	.84
Phosphite compounds	48,649	33,473	9,457	.28
Peptizers	3,645	4,062	2,512	.62
Retarder: N-Nitrosodiphenylamine	2,485	1,863	1,178	.63
All other cyclic rubber-processing chemicals[5]	9,470	7,751	11,702	1.51
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total	62,557	48,136	23,664	.49
Accelerators, activators, and vulcanizing agents, total	34,864	23,134	14,492	.63
Dithiocarbamic acid derivatives, total[6]	11,037	9,791	8,098	.83
Dibutyldithiocarbamic acid, zinc salt	3,869	3,535	3,427	.97
Diethyldithiocarbamic acid, zinc salt	2,691	2,614	1,485	.57
Dimethyldithiocarbamic acid, zinc salt	2,265	2,337	1,132	.48
All other dithiocarbamic acid derivatives	2,212	1,305	2,054	1.54

See footnotes at end of table.

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued				
Accelerators, activators, and vulcanizing agents--Cont.				
Thiurams, total[7]	23,316	12,883	5,848	$0.45
Bis(dimethylthiocarbamoyl) disulfide	17,421	9,699	3,591	.37
Bis(dimethylthiocarbamoyl) sulfide	1,918	2,077	1,605	.77
All other thiurams	3,977	1,107	652	.59
All other accelerators, activators, and vulcanizing agents[8]	511	460	546	1.19
Polymerization regulators: Dodecyl mercaptans	20,928	21,327	7,641	.36
Shortstops: Dimethyldithiocarbamic acid, sodium salt	4,234	2,039	531	.26
All other acyclic rubber-processing chemicals[9]	2,531	1,636	1,000	.61

[1] Calculated from rounded figures.
[2] Includes N-cyclohexyl-2-benzothiazolesulfenamide (production only) and 2-mercaptobenzothiazole, zinc salt (production only).
[3] Includes guanidines and dithiocarbamic acid derivatives (production only).
[4] Includes N-phenyl-2-naphthylamine (sales only).
[5] Includes blowing agents, and other uses not separately shown.
[6] 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."
[7] Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.
[8] Includes xanthates and disulfides.
[9] Includes blowing agents, conditioning and lubricating agents, polymerization regulators, shortstops and physical property improvers.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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, MON, RCD, USR.
Butyraldehyde-butylideneaniline condensate	MON.
Heptaldehyde-aniline condensate	USR.
Triethyltrimethylenetriamine	USR.
*Dithiocarbamic acid derivatives:	
Dibenzyldithiocarbamic acid, sodium salt	USR.
Dibenzyldithiocarbamic acid, zinc salt	USR.
Dibutyldithiocarbamic 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.
Dodecyltetramethylguanidine	DUP.
1,2,3-Triphenylguanidine	ACS.
*Thiazole derivatives:	
2-Benzothiazyl N,N-diethylthiocarbamoyl sulfide	PAS.
N-tert-Butyl-2-benzothiazolesulfenamide	ACY, MON, USR.
*N-Cyclohexyl-2-benzothiazolesulfenamide	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide	ACY.
N-(2,6-Dimethylmorpholino)-2-benzothiazolesulfen-amide.	MON.
*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, GYR, USR.
4-Morpholinyl-2-benzothiazyl disulfide	GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide	ACY, BFG.
All other cyclic accelerators, activators, and vulcan-izing agents:	
p-Benzoquinonedioxime	CTN.
Bis(p-aminocyclohexyl)methane carbamate	DUP.
Bis-morpholine thiocarbamyl sulfenamide	BFG.
Bis(morpholinothiocarbonyl) disulfide	ACY.
Dibenzoyl-p-quinonedioxime	CTN, USR.
Dibenzylamine	MLS, USR.
N,N'-Dicinnamylidene-1,6-hexanediamine	DUP.
Di-N,N'-pentamethylenethiuram tetrasulfide	DUP, VNC.
4,4'-Dithiodimorpholine	MON, VNC.
2-Imidazoline-2-thiol	DUP.
m-Phenylenebismaleimide	DUP.
Poly-p-dinitrosobenzene	DUP.
Toluene-2,4-diisocyanate adduct of dimethylethanol-amine.	DUP.
All other	WSN.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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:	
Acetaldehyde-aniline hydrochloride condensate	USR.
Aldol-α-naphthylamine condensate	BFG.
Butyraldehyde-aniline condensate	DUP.
Diphenylamine-acetone condensate	ACY, BFG, USR.
Phenyl-2-naphthylamine-acetone condensate	USR.
*Substituted p-phenylenediamines:	
N,N'-Bis(1,3-dimethylbutyl)-p-phenylenediamine	x.
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	EKT, USR, 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.
N,N'-Dicyclohexyl-p-phenylenediamine	x.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylene-diamine.	GYR, USR.
N,N'-1,4-Dimethylhexyl-p-phenylenediamine	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.
All other substituted p-phenylenediamines	DUP, USR, x, x.
Other amino compounds:	
p-Anilinophenol	BFG.
1,2-Dihydro-6-dodecyl-2,2,4-trimethylquinoline	MON.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline	MON.
1,2-Dihydro-2,2,4-trimethylquinoline	BFG, MON.
4,4'-Dimethoxydiphenylamine	DUP.
Dinonyldiphenylamine	ACY.
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-)	PAS, USR.
Octyldiphenylamine	ACY, USR.
Octyldiphenylamine, alkylated	BFG.
N-Phenyl-1-naphthylamine	DUP, UCC.
*N-Phenyl-2-naphthylamine	BFG, DUP, USR.
p-(p-Toluenesulfonamide)diphenylamine	USR.
All other	USR.
*Phenolic and phosphite compounds:	
Phenolic compounds:	
*Polyphenolics (including bisphenols):	
Bisphenol, hindered	GYR, USR.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)	MON.
2,5-Di-sec-butyldecylhydroquinone	USR.
2,5-Di-(1,1-dimethylpropyl)hydroquinone	MON.
3,7-Dioctylphenothiazine	USR.
2,2'-Methylenebis(6-tert-butyl-p-cresol)	ACY, ASH.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)	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, 1973--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.
2,2'-Thiobis(4,6-di-sec-amylphenol)--------------	MON.
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.
Other phenolic compounds:	
o-Cresol, alkylated-----------------------------	PIT.
*Phenol, alkylated------------------------------	ACY, BFG, GYR, NEV, RCI.
Phenol, hindered--------------------------------	DUP, GYR.
*Phenol, styrenated-----------------------------	BFG, GYR, NEV, USR.
N-Stearoyl-p-aminophenol------------------------	MLS.
*Phosphite compounds:	
Alkylaryl phosphites, mixed---------------------	WES.
Nonyl phenyl phosphites, mixed------------------	NPI, USR.
Polymeric phosphite-----------------------------	NPI.
Polyphenolic phosphite, polyalkylated-----------	BFG.
Triaryl phosphites------------------------------	WES.
Blowing agents:	
4,4'-Biphenylene bis(sulfonylhydrazide)----------	USR.
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide------	DUP.
Dinitrosopentamethylenetetramine----------------	NPI.
p,p'-Oxybis(benzenesulfonhydrazide)--------------	USR.
p-Toluenesulfonylhydrazide----------------------	USR.
p-Toluenesulfonylsemicarbazide------------------	USR.
*Peptizers:	
2-Benzamidothiophene, zinc salt-----------------	ACY.
2',2'''-Dithiobis(benzanilide)------------------	ACY.
Dixylyl disulfides, mixed-----------------------	PIT.
2-Naphthalenethiol------------------------------	DUP.
Pentachlorobenzenethiol-------------------------	SDC.
Pentachlorobenzenethiol, zinc salt--------------	SDC.
Xylenethiol-------------------------------------	DUP.
*Retarders: N-Nitrosodiphenylamine--------------	ACY, BFG, CTN, GYR, NPI, USR.
Other cyclic rubber-processing chemicals:	
p-tert-Amylphenol sulfide (tackifier)-----------	PAS.
4-Chloro-2,6-bis(2,4-dihydroxybenzyl)phenol------	ICI.
Phenol cyanurate complex------------------------	ICI.
All other---------------------------------------	DUP, RC1, x.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Dithiocarbamic acid derivatives:	
Dibutyldithiocarbamic acid, nickel salt---------	USR.
Dibutyldithiocarbamic acid, potassium salt------	VNC.
Dibutyldithiocarbamic acid, sodium salt---------	ALC, DUP, USR, VNC.
*Dibutyldithiocarbamic acid, zinc salt----------	ALC, DUP, PAS, USR, VNC.
Diethyldithiocarbamic acid, selenium salt-------	VNC.
Diethyldithiocarbamic acid, sodium salt---------	PAS.
Diethyldithiocarbamic acid, tellurium salt------	VNC.
*Diethyldithiocarbamic acid, zinc salt----------	ALC, GYR, PAS, USR, VNC.
Dimethyldithiocarbamic acid, bismuth salt-------	VNC.
Dimethyldithiocarbamic acid, copper salt--------	VNC.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued	
*Accelerators, activators, and vulcanizing agents--Cont.	
*Dithiocarbamic acid derivatives--Continued	
Dimethyldithiocarbamic acid, lead salt	VNC.
Dimethyldithiocarbamic acid, selenium salt	VNC.
Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide.	BFG.
*Dimethyldithiocarbamic acid, zinc salt	ALC, DUP, FMN, GYR, PAS, USR, VNC, WRC.
All other	PAS, VNC.
*Thiurams:	
Bis(diethylthiocarbamoyl) disulfide	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide	DUP, GYR, PAS, VNC.
*Bis(dimethylthiocarbamoyl) sulfide	DUP, GYR, USR.
Bis(ethylmethylthiocarbamoyl) sulfide	PAS.
Xanthates and sulfides:	
Bis(diisopropoxythiophosphoryl) disulfide	DUP.
Di-n-butylxantho disulfide	USR.
Diisopropylxantho disulfide	BFG.
Methamethacrylate(monobasic zinc salt)	USR.
Zinc diisopropyl xanthate	VNC.
All other acyclic accelerators, activators, and vulcanizing agents:	
n-Butyraldhyde-butylamine condensate	DUP.
Di-n-butylammonium oleate	DUP.
3-Ethyl-1,1-dimethyl-2-thiourea	VNC.
Ethylenediamine carbamate	DUP.
Tetramethylthiourea	DUP.
1,1,3-Trimethyl-2-thiourea	RBC, VNC.
Blowing agents: Modified urea	DUP.
Conditioning and lubricating agents:	
Methyl stearyl-10-sulfonic acid, sodium salt	DUP.
Mono- and dialkyl acid phosphates, mixed	DUP.
Mono- and dialkyl phosphate ammonium salts, mixed	DUP.
Other	DUP.
Polymerization regulators:	
Alkyl mercaptans, mixed	PLC.
*Dodecyl mercaptans	HK, PAS, PLC.
tert-Hexyldecyl mercaptan	PLC.
n-Octyl mercaptan	PAS.
tert-Octyl mercaptan	PAS.
Tridecyl mercaptan	PAS.
Shortstops:	
Dimethyldithiocarbamic acid, potassium salt	USR.
*Dimethyldithiocarbamic acid, sodium salt	ALC, DUP, GYR, PAS, USR, WRC.
Other acyclic rubber processing chemicals:	
Zinc laurate (activator, physical-property improver)	USR.

TABLE 3.--RUBBER-PROCESSING CHEMICALS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of rubber-processing chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACY	American Cyanamid Co.
ALC	Alco Chemical Corp.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
CTN	Chemetron Corp., Organic Chemical Div.
DA	Diamond Shamrock Corp.
DUP	E. I. duPont de Nemours & Co., Inc.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
FMN	FMC Corp., Agricultural Chemical Div.
GYR	Goodyear Tire & Rubber Co.
HK	Hooker Chemicals & Plastics Corp.
ICI	ICI America, Inc.
MLS	Miles Laboratories, Inc., Marshall Div. & Sumner Div.
MON	Monsanto Co.
NEV	Neville Chemical Co.
NPI	Stepan Chemical Co., National Polychemicals Div., Polychem Dept.
PAS	Pennwalt Chemicals Corp.
PIT	Pitt-Consol Chemical Co.
PLC	Phillips Petroleum Co.
RBC	Fike Chemicals, Inc.
RCD	Richardson Co.
RCI	Reichhold Chemicals, Inc.
SDC	Martin-Marietta Corp., Sodyeco Div.
UCC	Union Carbide Corp.
USR	Uniroyal, Inc., Chemical Div.
VNC	Vanderbilt Chemical Corp.
WES	Borg-Warner Corp., Weston Chemical Div.
WRC	Ventron Corp., Wood Ridge Chemical
WSN	Mallinckrodt Chemical Works, Washine Div.

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 1973 are shown in table 1.[1]

Production and sales quantities for styrene-butadiene (S-type rubber) are reported beginning in 1973 on a basis which includes the oil content of oil-extended forms, whereas in previous years they were reported on an elastomer-content-only basis. This change has the effect of increasing the quantity levels of production and sales for S-type and total elastomers above those reported on the former basis, and of decreasing the unit values for these two categories.

Total U.S. production of synthetic rubber in 1973 amounted to 5,990 million pounds. If reported on the same basis as for 1972, total U.S. production of elastomers in 1973 would amount to 5,404 million pounds and would represent an increase of 10 percent over the total production reported for 1972. Total sales of elastomers in 1973 amounted to 5,159 million pounds, which, if reported on the former basis, would amount to 4,670 million pounds, an increase of 13 percent above sales reported for 1972.

Syrene-butadiene rubber (SBR, or S-type rubber) in 1973 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 38 million pounds of its vinylpyridine sub-type, amounted to 3,335 million pounds in 1973. If reported on the same basis as in 1972, production of S-type rubber in 1973 would be 2,749 million pounds, an increase of 4 percent above that reported for 1972. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1973 in the next largest amount--783 million pounds; production of isoprene and ethylene-propylene rubbers, the other stereo types, amounted to 265 million and 264 million pounds, respectively. Total U.S. production of these stereo type elastomers amounted to 1,312 million pounds in 1973--an increase of 13 percent over 1972. Other principal types of synthetic elastomers for which U.S. production data are reported separately are isobutylene-isoprene (butyl) rubber, production of which was 352 million pounds in 1973, and acrylonitrile-butadiene (N-type) rubber, production of which was 193 million pounds.

Sales of S-type rubber by U.S. producers in 1973 (including its vinyl-pyridine sub-type) amounted to 2,840 million pounds, which, if reported on the same basis as in 1972, would amount to 2,351 million pounds, an increase of 10 percent above sales reported for 1972. Sales of stereo-type elastomers in 1973 amounted to 995 million pounds. In the latter category, sales of solution polymerized butadiene rubber amounted to 515 million pounds, sales

of isoprene type rubber to 253 million pounds, and those of ethylene-propylene rubber of 227 million pounds. Sales of N-type rubber in 1973 amounted to 166 million pounds. The increase in 1973 sales over those of 1972 for the stereo-and N-type rubbers ranged from 6 percent for the isoprene type to 24 percent for the ethylene-propylene type; the increase for the butadiene type was 11 percent and for N-type 23 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.

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBERS):[1] U.S. PRODUCTION AND SALES, 1973

[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 or sales were reported and identifies the manufacturers of each]

Product	Production[2]	Sales		
		Quantity[2]	Value	Unit value[3]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	5,990,011	5,159,251	1,297,437	$0.25
Cyclic	3,517,739	3,018,006	571,902	.19
Acyclic	2,472,272	2,141,245	725,535	.34
Acrylonitrile-butadiene type (N-type)	193,156	166,346	73,363	.44
Isobutylene-isoprene type (Butyl)	352,400	...	...	...
Silicone type	37,001	35,087	77,797	2.22
Stereo elastomers, total	1,311,909	994,894	214,413	.22
Butadiene (solution polymerized) type	783,199	514,576	97,314	.19
Ethylene-propylene type	264,192	227,438	61,062	.27
Isoprene type	264,518	252,880	56,037	.22
Styrene-butadiene type (S-type)	3,297,440	2,818,418	459,912	.16
Styrene-butadiene-vinylpyridine type	37,817	21,868	12,129	.55
Urethane type[4]	89,687	64,797	70,314	1.09
All other elastomers[5]	670,601	1,057,841	389,509	.37

[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. (See note).

[3] Calculated from rounded figures.

[4] 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. An estimate of the total market can be made by applying a factor to sales of polyether and polyester polyols used in the manufacture of polyurethanes. (Data for such estimates will appear in the section on plastics and resin materials to be published later this year).

[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, thermoplastic rubber, miscellaneous elastomers, and sales data for the isobutylene-isoprene type elastomer.

Note.--Production and sales data for styrene-butadiene (S-type) rubber were reported in previous years on an elastomer content basis. Beginning with this report (1973), such annual data will be reported on the basis of total weight including oil content; thus, the figures for production and sales quantities of S-type, as well as those of total elastomers, are somewhat larger than they would have been if reported on the former basis. The new basis of reporting also has the effect of lowering the unit value of both the S-type and total elastomers. If reported on the same basis as for 1972 and previous years, production and sales statistics, total and for styrene-butadiene (S-type) rubber, for 1973 would be as follows:

	Production	Sales		
		Quantity	Value	Unit value
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total	5,403,767	4,669,526	1,304,678	$0.28
S-type	2,711,196	[1] 2,328,693	[2] 467,153	.20

[1] Partly estimated.

[2] Partly estimated. Includes the value of added oil.

TABLE 2.--ELASTOMERS (SYNTHETIC RUBBERS) FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[Elastomers (synthetic rubbers) 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)
Acrylic ester type	ACY, BFG, 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.
*Isobutylene-isoprene type (Butyl)	CBN, ENJ.
Polysulfide type	PRC, TKL.
Reaction products of natural rubber	GYR, ICI, WAY, x.
*Silicone type	DCC, FRC, 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, GYR, PLC, RUB, SBI, SHC, TUS, USR.
*Styrene-butadiene-vinylpyridine type	BFG, FIR, FRS, GNT, GYR, USR.
*Urethane type	ACY, BAS, BFG, CNI, DA, DNS, DUP, EPI, GNT, INP, MMM, MOB, PFP, PLN, PRC, RUB, TKL, UPJ, USR, WTC.
All other elastomers	ASY, BFG, DUP, ENJ, GNT, HDM, MMM, PLC, PRC, SHC, UCC.

TABLE 3.--ELASTOMERS (SYNTHETIC RUBBERS): DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of elastomers manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ACY	American Cyanamid Co.
ASH	Ashland Oil Co., Inc.
ASY	American Synthetic Rubber Corp.
ATR	Atlantic Richfield Co.
BAS	BASF Wyandotte Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
CBN	Cities Service Co., Columbian Group
CNI	Conap, Inc.
CPY	Copolymer Rubber & Chemical Corp.
DA	Diamond Shamrock Corp.
DCC	Dow Corning Corp.
DNS	Dennis Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc.
ENJ	Exxon Chemical Co., U.S.A.
EPI	Eagle Pitcher Industries, Inc., Ohio Rubber Div.
	Firestone Tire & Rubber Co.:
FIR	Firestone Plastics Co. Div.
FRS	Firestone Synthetic Rubber & Latex Co. Div.
GNT	General Tire & Rubber Co., Chemical Div.
GYR	Goodyear Tire & Rubber Co.
HDM	Hardman, Inc.
HPC	Hercules, Inc.
ICI	ICI America, Inc.
INP	INDPOL
MMM	Minnesota Mining & Manufacturing Co.
MOB	Mobay Chemical Co.
PFP	Midwest Manufacturing Corp.
PLC	Phillips Petroleum Co.
PLN	Disogrin Industries Corp.
PRC	Products Research & Chemical Corp., Chemical and Sealant Div.
PTT	Petro-Tex Chemical Corp.
RUB	Hooker Chemical Corp., Ruco Div.
SB1	Standard Brands Chemical Industries, Inc.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SPD	General Electric Co., Silicone Products Dept.
SWS	Stauffer Chemical Co., SWS Silicones Div.
TKL	Thiokol Chemical Corp.
TUS	Texas-U.S. Chemical Co.
UCC	Union Carbide Corp.
UPJ	Upjohn Co.
USR	Uniroyal, Inc., Chemical Div.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
WTC	Witco Chemical Co., 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 as detail as is possible without revealing the operations of individual producers.[1]

U.S. production of plasticizers totaled 1,873 million pounds in 1973, an increase of 9.7 percent from the 1,708 million pounds reported for 1972. Sales of plasticizers totaled 1,708 million pounds, valued at $341 million, in 1973, compared with 1,637 million pounds, valued at $291 million, in 1972.

Production of cyclic plasticizers in 1973, which consisted chiefly of the esters of phthalic anhydride and phosphoric acid, amounted to 1,385 million pounds, an increase of 6.4 percent from the 1,302 million pounds reported for 1972. Sales of cyclic plasticizers in 1973 totaled 1,290 million pounds, valued at $205 million, compared with 1,273 million pounds, valued at $180 million, in 1972. The most important cyclic plasticizer was di(2-ethylhexyl) phthalate, with production of 378 million pounds, in 1972.

Production of acyclic plasticizers in 1973 totaled 488 million pounds, an increase of 20.1 percent from the 406 million pounds reported for 1972. Sales of acyclic plasticizers totaled 419 million pounds, valued at $136 million, in 1973, compared with 364 million pounds, valued at $110 million, in 1972. Epoxidized soya oils were the most important acyclic plasticizer in 1973, with production of 117 million pounds.

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

TABLE 1.--PLASTICIZERS:[1] U.S. PRODUCTION AND SALES, 1973

[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 all plasticizers for which data on production or sales were reported and identifies the manufacturers of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	1,873,383	1,708,413	341,385	$0.20
Benzenoid[3]	1,502,160	1,389,714	233,556	.17
Nonbenzenoid	371,223	318,699	107,829	.34
PLASTICIZERS, CYCLIC				
Total	1,385,350	1,289,666	204,986	.16
Phosphoric acid esters, total	103,327	89,601	29,524	.33
Cresyl diphenyl phosphate	14,166	13,974	3,800	.27
Tricresyl phosphate	55,750	...	...	...
All other phosphoric acid esters[4]	33,411	75,627	25,724	.34
Phthalic anhydride esters, total	1,203,098	1,134,618	158,460	.14
Butyl octyl phthalates (including butyl 2-ethylhexyl phthalate, and butyl n-octyl phthalate)	7,365	8,015	1,160	.14
Dibutyl phthalate	37,913	31,230	5,583	.18
Diethyl phthalate	19,490	15,031	2,966	.20
Diisodecyl phthalate	170,742	155,329	20,938	.13
Dimethyl phthalate	11,339	10,880	1,952	.18
Dioctyl phthalates, total	429,493	423,159	53,947	.13
Di(2-ethylhexyl) phthalate	378,146	373,621	47,277	.13
Diiso-octyl phthalate	43,185	41,854	5,180	.12
Other Dioctyl phthalates	8,162	7,684	1,490	.19
Di-tridecyl phthalate	19,665	20,709	4,228	.20
Glycol phthalate esters (including Butyl phthalyl butyl glycolate, methyl phthalyl ethyl glycolate propylene glycol bis(amyl) phthalate and others)	3,653	4,061	1,781	.44
All other phthalic anhydride esters	503,438	466,204	65,905	.14
Trimellitic acid esters, total	15,361	13,649	4,048	.30
Triiso-octyl trimellitate	3,378	2,729	778	.28
Tri-n-octyl n-decyl trimellitate	867	872	298	.34
Trioctyl trimellitate	2,781	...	...	...
All other trimellitic acid esters	8,335	10,048	2,972	.30
All other cyclic plasticizers[5]	63,564	51,798	12,954	.25
PLASTICIZERS, ACYCLIC				
Total	488,033	418,747	136,399	.33
Adipic acid esters, total	69,592	61,645	14,667	.24
Di(2-ethylhexyl) adipate	44,906	37,138	7,835	.21
Diisodecyl adipate	3,516	3,936	965	.25
Diisopropyl adipate	304	..	...	...
n-Octyl n-decyl adipate	8,812	8,760	2,027	.23
All other adipic acid esters	12,054	11,811	5,840	.33
Complex linear polyesters and polymeric plasticizers[6]	65,635	55,870	21,296	.38
Di(2-ethylhexyl) azelate	...	9,262	3,124	.34

See footnotes at end of table.

TABLE 1.--PLASTICIZERS:[1] U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
PLASTICIZERS, ACYCLIC--Continued				
Epoxidized esters, total	150,266	119,730	32,525	$0.27
Epoxidized soya oils	117,050	92,781	25,231	.27
Octyl epoxytallates (including 2-ethylhexyl epoxytallates)	26,844	24,502	6,437	.26
All other epoxidized esters	6,372	2,447	857	.35
Glyceryl monoricinoleate	314	260	185	.71
Isopropyl myristate	5,005	6,540	2,859	.44
Isopropyl palmitate	7,550	5,879	2,497	.42
Oleic acid esters, total	16,271	14,739	4,392	.30
Butyl oleate	3,189	3,286	958	.29
Methyl oleate	3,481	3,423	885	.26
Propyl oleates (including n-propyl oleate and isopropyl oleate)	1,259	827	218	.26
All other oleic acid esters	8,342	7,203	2,331	.32
Phosphoric acid esters	27,493	27,626	12,536	.45
Sebacic acid esters, total	6,882	5,174	4,885	.94
Dibutyl sebacate	3,696	2,355	2,439	1.04
Di(2-ethylhexyl) sebacate	2,868	2,541	2,135	.84
All other sebacic acid esters	318	278	311	1.12
Stearic acid esters, total	17,012	14,081	4,840	.34
n-Butyl stearate	11,181	9,127	2,833	.31
All other stearic acid esters	5,831	4,954	2,007	.41
Triethylene glycol di(caprylate-caprate)	2,578	2,546	899	.35
All other acyclic plasticizers[7]	119,435	95,395	31,694	.33

[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 tricresyl phosphate, among other phosphate esters.

[5] Includes data for alkylated naphthalene, glycol dibenzoates, hydrogenated terphenyls, isopropylidenediphenoxy propanol, 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, and ricinoleic acid esters, 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, 1973

[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 sebacate	WTH.
Diethylene glycol dibenzoate	VEL.
Di-tert-octylphenyl ether	DOW.
Dipropanediol dibenzoate	VEL.
N-Ethyl-p-toluenesulfonamide	MON.
Isopropylidenediphenoxypropanol	DOW.
Naphthalene, alkylated	ACC.
*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, SFS.
*Phthalic anhydride esters:	
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	CPS.
*Butyl octyl phthalates:	
Butyl 2-ethylhexyl phthalate	GRH, TEK, UCC.
Butyl n-octyl phthalate	RCI, USS.
Di(2-butoxyethyl) phthalate	ARC, HAL.
*Dibutyl phthalate	COM, EKT, GRH, MON, SW, UCC, USS.
Dicyclohexyl isodecyl phthalate	GRH.
Dicyclohexyl phthalate	FMP, MON, PFZ.
Diethyl isophthalate	PFZ.
*Diethyl phthalate	EKT, KF, MON, PFZ.
Dihexyl phthalate	USS.
*Diisodecyl phthalate	CO, EKT, ENJ, GRH, PPL, RCI, TEK, UCC, USS.
Di-iso-hexyl phthalate	ENJ.
Diisononyl phthalate	ENJ, PFZ.
Di(2-methoxyethyl) phthalate	EKT.
Dimethyl isophthalate	PFZ.
*Dimethyl phthalate	EKT, KF, MON, PFZ. TCC.
Dinonyl phthalate	RCI.
*Dioctyl phthalates:	
Dicapryl phthalate	WTH.
Di(2-ethylhexyl) isophthalate	UCC.
*Di(2-ethylhexyl) phthalate	BAS, BFG, CO, EKT, ENJ, GRH, MON, PFZ, RCI, RUB, TEK, UCC, USS.
*Diiso-octyl phthalate	CO, ENJ, GRH, RCI, TEK, UCC, USS.
Di-n-octyl phthalate	EK, PPL, WRC.
Mixed dioctyl phthalates	TLK.
Diphenyl phthalate	MON.
*Di-tridecyl phthalate	ENJ, GRH, RCI, RUB, TEK, UCC, USS.
*Glycol phthalate esters:	
Butyl phthalyl butyl glycolate	MON.
Methyl phthalyl ethyl glycolate	MON.
Polyester of triethylene glycol (Phthalic anhydride).	UCC.
Propylene glycol bis(amyl) phthalate	UCC.
All other glycol phthalate esters	HPC, WTC.
n-Hexyl n-decyl phthalate	CO, ENJ, GRH, TEK, UCC.
Hexyl isodecyl phthalate	GRH.
Hexyl iso-octyl phthalate	PFZ.
n-Octyl n-decyl phthalate	GRH, RCI, TEK, UCC, USS.
All other phthalic anhydride esters	PFZ, RUB, TEK, UCC, USS, x, x.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, CYCLIC--Continued	
Polyethylene glycol dibenzoate	VEL.
Tetrahydrofurfuryl oleate	EMR.
Toluenesulfonamide o-, p- mixtures	MON.
*Trimellitic acid esters:	
Tricapryl trimellitate	WTH.
Tri(2-ethylhexyl) trimellitate	GRH, PFZ, RCI.
Tri-n-hexyl n-decyl trimellitate	TEK.
Tri-n-hexyl trimellitate	CO.
Triisodecyl trimellitate	PFZ.
Triisononyl trimellitate	ENJ.
*Triiso-octyl trimellitate	ENJ, GRH, RCI, RUB, TEK, USS.
*Tri-n-octyl n-decyl trimellitate	GRH, PFZ, RCI, RUB.
*Trioctyl trimellitate	RUB, TEK, USS.
All other trimellitic acid esters	USS, x.
Trimethylpentanediol dibenzoate	VEL.
All other cyclic plasticizers	HAL, NEV, x.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
Di[2-(butoxyethoxy)ethyl] adipate	EMP, RCI, TKL.
*Di(2-ethylhexyl) adipate	CO, DA, EKT, ENJ, GRH, MON, PFZ, RCI, RH, RUB, TEK, UCC, USS, WTH.
Diisobutyl adipate	GRH, HAL.
*Diisodecyl adipate	ENJ, GRH, PFZ, RCI, RH, RUB, UCC, USS.
Diisononyl adipate	ENJ.
*Diisopropyl adipate	SBC, VND, WTH.
Dinonyl adipate	WTH.
Dioctyl adipates: Diiso-octyl adipate	RH, USS.
Di-tridecyl adipate	GRH.
2-(Ethyl hexyl) butoxyethyl adipate	HAL.
n-Hexyl n-decyl adipate	GRH, TEK, USS.
n-Hexyl isodecyl adipate	GRH.
Iso-octyl isodecyl adipate	GRH, PFZ.
*n-Octyl n-decyl adipate	GRH, MON, RCI, RH, USS.
All other adipic acid esters	ARC, EK.
Azelaic acid esters:	
*Di(2-ethylhexyl) azelate	EKT, EMR, PFZ, RCI, UCC.
Di-n-hexyl azelate	EMR.
Diisobutyl azelate	HAL.
Diiso-octyl azelate	EMR, PFZ.
All other azelaic acid esters	EMR, HAL, PFZ.
1,4-Butanediol dicaprylate	RUB.
Butoxyethyl pelargonate	HAL.
Castor oil maleate	RH.
Citric and acetylcitric acid esters	ICI, PFZ.
*Complex linear polyesters and polymeric plasticizers	ASH, EKT, EKX, EMR, GRH, HAL, MON, PFZ, RCI, RH, RUB, TEK, WTC, WTH.
Di[(butoxyethoxy)ethoxy]methane	TKL.
Di(2-butoxyethyl) laurate	HAL.
Dibutyl tartrate	ARC.
Diethylene glycol dipelargonate (Dinonanoate)	EMR.
Diiso-octyl diglycolate	CCA.
Epoxidized esters:	
Epoxidized linseed oils	ASH, VIK.
*Epoxidized soya oils	ASH, EMP, NTL, RH, UCC, VIK, WRC, WTC.
Epoxidized tall oils	RH.
*2-Ethylhexyl epoxytallates	ASH, NTL, UCC.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
*Epoxidized esters--Continued	
Octyl epoxystearates	WTC.
*Octyl epoxytallates	RH, TEK, WTC.
All other epoxidized esters	NTL, RH.
Glyceryl tributyrate and tripropionate	EKT.
Glycol pelargonate	EMR.
Isodecyl nonanoate (Isodecyl pelargonate)	EMR.
Myristic acid esters:	
*Isopropyl myristate	ARC, TCH, WM, WTH.
All other myristic acid esters	SBC, SCP.
*Oleic acid esters:	
2-Butoxyethyl oleate	ARC, HAL.
*Butyl oleate	ARC, EMR, GRO, HAL, WM. WTH.
Decyl oleate	SBC, VND.
Glyceryl trioleate (Triolein)	CHL, EMR, GLY, GRO.
Isobutyl oleate	DA.
Isopropyl oleate	EMR, WM.
*Methyl oleate	DA, EFH, EMR, GRO, HUM.
*Propyl oleate	CHL, EMR, GRO, WM.
Palmitic acid esters:	
2-Ethylhexyl palmitate	VNO, WTH.
Isobutyl palmitate	ARC.
Iso-octyl palmitate	RUB.
*Isopropyl palmitate	ARC, SBC, TCH, WM, WTH.
*Phosphoric acid esters:	
Tri(2-butoxyethyl) phosphate	EMP.
Tri(2-chloroethyl) phosphate	SFS, UCC.
Tri(2-chloropropyl) phosphate	SFS.
Triethyl phosphate	EKT.
Trioctyl phosphate	UCC.
All other phosphoric acid esters	SCP, SFS, SM.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate	NTL.
Butyl ricinoleate	NTL, RCI.
*Glyceryl monoricinoleate	DA, GLY, HAL, NTL.
Glyceryl tri(acetylricinoleate)	NTL, PFZ.
Methyl ricinoleate	NTL.
All other ricinoleic and acetylricinoleic acid esters	NTL.
*Sebacic acid esters:	
Dibutoxyethyl sebacate	HAL, RCI.
*Dibutyl sebacate	EKT, GRH, PFZ, RH, USS, WTH.
*Di(2-ethylhexyl) sebacate	GRH, RCI, RH, WTH.
Diiso-octyl sebacate	DA.
Diisopropyl sebacate	WTH.
Dimethyl sebacate	WTH.
*Stearic acid esters:	
Butoxyethyl stearate	ARC.
*n-Butyl stearate	ARC, ASH, CHL, DA, EMR, GRO, RUB, TCH, WM, WTH.
Dimethylammonium stearate	RH.
Dodecyl (lauryl) stearate	RCI.
2-Ethylhexyl stearate	HAL, SCP.
Glyceryl triacetyl stearate	NTL.
Hexadecyl stearate	SCP, WTH.
2-Hydroxypropyl stearate	WTH.
Isobutyl stearate	ARC, DA, TCH, WM.
Isopropyl isostearate	TCH.
Isopropyl stearate	WM.
Methyl pentachlorostearate	HK.
Methyl stearate	CHL.
All other stearic acid esters	ARC, DA, SBC, WM, x.

TABLE 7.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
Sucrose acetate isobutyrate	ARC, EKT.
Tetraethylene glycol di(2-ethylhexanoate)	UCC.
Triethylene glycol dicaprylate	RUB.
*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	EMR, HAL, HPC, PFZ, SCP, SM, WTH.

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of plasticizers manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ACC	Amoco Chemicals Corp.
ARC	Armak Co.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.
BAS	BASF Wyandotte Corp.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
CCA	Cincinnati Milacron Chemicals, Inc.
CHL	Chemol, Inc.
CO	Continental Oil Co.
COM	Commercial Solvents Corp.
CPS	CPS Chemical Co.
DA	Diamond Shamrock Corp.
DOW	Dow Chemical Co.
EFH	E. F. Houghton & Co.
EK	Eastman Kodak Co.:
EKT	Tennessee Eastman Co. Div.
EKX	Texas Eastman Co. Div.
EMR	Emery Industries, Inc.
ENJ	Enjay Chemical Co.
FMP	FMC Corp., Organic Chemicals Div.
GLY	Glyco Chemicals, Inc.
GRH	W. R. Grace & Co., Hatco Chemical Div.
GRO	Millmaster Onyx Corp., A. Gross & Co., Div.
HAL	C. P. Hall Co. of Illinois
HK	Hooker Chemicals & Plastic Corp.
HPC	Hercules, Inc.
HUM	Kraftco Corp., Humko Plastics Div.
ICI	ICI America, Inc.
KF	Kay-Fries Chemicals, Inc.
MON	Monsanto Co.
MTR	Sobin Chemicals, Inc., Montrose Chemical Div.
NEV	Neville Chemical Co.
NTL	NL Industries, Inc.
ORO	Chevron Chemical Co.
PFZ	Pfizer, Inc.
PPL	Pioneer Plastics Corp.
PVO	PVO International, Inc.
RCI	Reichhold Chemicals, Inc.
RH	Rohm & Haas Co.
RUB	Hooker Chemical Corp., Ruco Div.
SBC	Scher Brothers, Inc.
SCP	Henkel, Inc.
SFS	Stauffer Chemical Co., Specialty Chemical Div.
SM	Mobil Oil Corp., Mobil Chemical Co. Div.: Chemical Coatings Div. Industrial Chemical Div.
SW	Sherwin-Williams Co.
TCC	Tanatex Chemical Corp.
TCH	Emory Industries, Inc., Trylon Chemicals Div.
TPK	Teknor Apex Co.
TKL	Thiokol Chemical Corp.
UCC	Union Carbide Corp.
USS	USS Chemicals Div. of U.S. Steel Corp.
VEL	Velsicol Chemical Corp.
VIK	Viking Chemical Co.
VND	Van Dyk & Co., Inc.
WM	Inolex Corp.
WRC	Ventron Corp., Wood Ridge Chemical
WTC	Witco Chemical Co., Inc.
WTH	Union Camp Corp., Harchem 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 1973 amounted to 4,372 million pounds, or 8.2 percent more than the 4,039 million pounds reported for 1972. Sales of bulk surface-active agents in 1973 amounted to 2,580 million pounds, valued at $532 million, compared with sales in 1972 of 2,258 million pounds, valued at $451 million. In terms of quantity, sales in 1973 were thus 14.3 percent larger than in 1972; in terms of value sales in 1973 were 18.0 percent larger than in 1972.

Production of anionic surface-active agents in 1973 amounted to 2,967 million pounds, or 68.0 percent of the total output reported for 1973 and 8.0 percent greater than the anionic output reported for 1972. Sales of anionics in 1973 amounted to 1,519 million pounds, valued at $228 million. Of the total anionic output, 922 million pounds consisted of potassium and sodium salts of fatty, rosin, and tall oil acids, of which 528 million pounds consisted of the potassium and sodium salts of tallow acids and 139 million pounds was the sodium salt of coconut oil acids; 678 million pounds consisted of alkylbenzenesulfonates, of which 374 million pounds was sodium dodecylbenzenesulfonate, 149 million pounds was dodecylbenzenesulfonic acid, and 120 million pounds was sodium tridecylbenzenesulfonate; 689 million pounds consisted of ligninsulfonates, of which 462 million pounds was the calcium salt; and 220 million pounds consisted of sulfated ethers.

Production of nonionic surface-active agents in 1973 amounted to 1,124 million pounds, or 25.7 percent of the total output reported for 1973

and 7.2 percent more than the nonionic output reported for 1972. Sales of nonionics in 1973 amounted to 834 million pounds, valued at $202 million. Of the total nonionic output, 283 million pounds consisted of benzenoid ethers, of which 152 million pounds was nonylphenol ethoxylate; 501 million pounds consisted of alcohol ethoxylates and other nonbenzenoid ethers, of which 377 million pounds was mixed linear alcohols ethoxylates; 110 million pounds consisted of glycerol esters; and 94 million pounds consisted of alkanolamides.

Production of cationic surface-active agents in 1973 amounted to 260 million pounds, or 5.9 percent of the total output reported for 1973 and 13.5 percent greater than the cationic output reported for 1972. Sales of cationics in 1973 amounted to 207 million pounds, valued at $89 million Of the total cationic output, 83 million pounds consisted of quaternary ammonium salts not containing oxygen, and 84 million pounds consisted of amines not containing oxygen.

Production of amphoteric surface-active agents in 1973 amounted to 21.1 million pounds, or 0.5 percent of the total output reported for 1973 and 46.5 percent greater than the amphoteric output reported for 1972. Sales of amphoterics in 1973 amounted to 19.6 million pounds, valued at $13.2 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, 1973

[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 or sales were reported and identifies the manufacturers of each]

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[3]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total	4,372,416	2,579,664	531,840	$0.21
Benzenoid[4]	1,108,452	627,521	120,945	.19
Nonbenzenoid[5]	3,263,964	1,952,143	410,895	.21
Amphoteric Surface-Active Agents				
Total	21,145	19,615	13,212	.67
Anionic Surface-Active Agents				
Total	2,967,119	1,519,152	227,509	.15
Carboxylic acids (and salts thereof), total	939,159	...	...	...
Carboxylic acids having amide, ester, or ether linkages, total	17,155	13,309	8,794	.66
N-Lauroylsarcosine, sodium salt	4,571	...	...	...
All other	12,584	13,309	8,794	.66
Potassium and sodium salts of fatty, rosin, and tall acids, total	922,004	...	...	...
Castor oil acids, potassium salt	...	59	20	.34
Coconut oil acid, potassium salt	10,149	1,974	926	.47
Coconut oil acid, sodium salt	139,452	978	333	.34
Corn oil acids, potassium and sodium salts	782	749	288	.39
Mixed vegetable oil acids, potassium salt	3,109	2,847	3,896	1.37
Oleic acid, potassium salt	...	298	108	.36
Oleic acid, sodium salt	1,450	501	196	.39
Soybean oil acids, potassium and sodium salts	579	521	111	.21
Stearic acid, potassium and sodium salts	1,750	1,338	598	.45
Tall oil acids, potassium salt	17,910	15,821	4,008	.25
Tall oil acids, sodium salt	10,876	...	...	...
Tallow acids, potassium and sodium salts	528,151	10,313	2,136	.21
All other	207,796	...	...	...
Phosphoric and polyphosphoric acid esters (and salts thereof), total	28,594	20,909	10,152	.49
Alcohols and phenol, ethoxylated and phosphated, total	18,313	13,513	6,166	.46
Mixed linear alcohols, ethoxylated and phosphated	3,955	3,856	1,813	.47
Nonylphenol, ethoxylated and phosphated	7,403	4,174	1,724	.41
Phenol, ethoxylated and phosphated	1,591	...	...	...
Tridecyl alcohol, ethoxylated and phosphated	784	693	271	.39
All other	4,580	4,790	2,358	.49
Alcohols, phosphated or polyphosphated, total	10,281	7,396	3,986	.54
2-Ethylhexyl phosphate, sodium salt	508	227	80	.35
All other	9,773	7,169	3,906	.55
Sulfonic acids (and salts thereof), total	1,524,356	...	...	...
Alkylbenzenesulfonates, total	678,447	234,651	34,529	.15
Dodecylbenzenesulfonic acid	149,096	67,251	9,089	.14
Dodecylbenzenesulfonic acid, calcium salt	8,767	8,558	3,979	.46
Dodecylbenzenesulfonic acid, isopropylamine salt	5,387	6,489	2,004	.31
Dodecylbenzenesulfonic acid, sodium salt	374,355	91,310	14,789	.16
Dodecylbenzenesulfonic acid, triethanolamine salt	6,681	...	...	...

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[3]
Anionic Surface-Active Agents--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Sulfonic acids (and salts thereof)--Continued				
Alkylbenzenesulfonates--Continued				
Tridecylbenzenesulfonic acid, sodium salt	119,926	...	...	...
All other	14,235	61,043	4,668	$0.08
Benzene-, cumene-, toluene-, and xylenesulfonates, total	77,018	64,244	6,764	.11
Toluenesulfonic acid, potassium and sodium salts	16,173	16,192	1,709	.11
Xylenesulfonic acid, ammonium salt	14,608	14,396	1,362	.09
Xylenesulfonic acid, sodium salt	40,139	28,497	3,008	.11
All other	6,098	5,159	685	.13
Ligninsulfonates, total	689,495	667,117	22,602	.03
Ligninsulfonic acid, ammonium salt	94,573	84,080	1,549	.02
Ligninsulfonic acid, calcium salt	462,183	447,985	8,858	.02
All other	132,739	135,052	12,195	.09
Naphthalenesulfonates	7,647	7,110	2,970	.42
Sulfonic acids having amide linkages, total	5,828	3,505	2,672	.76
Sulfosuccinic acid derivatives	2,324	1,876	1,403	.75
Taurine derivatives	3,504	1,629	1,269	.78
Sulfonic acids having ester or ether linkages, total	45,549	29,087	18,720	.64
Sulfosuccinic acid esters, total	17,166	14,619	8,250	.56
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt	595	...	...	...
Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt	13,080	10,870	6,237	.57
All other	3,491	3,749	2,013	.54
Other sulfonic acids having ester or ether linkages	28,383	14,468	10,470	.72
All other sulfonic acids	20,372	...	...	...
Sulfuric acid esters (and salts thereof), total	...	222,817	57,559	.26
Acids, amides, and esters, sulfated, total	...	16,385	4,620	.28
Esters of sulfated oleic acid, total	4,759	4,761	1,651	.34
Butyl oleate, sulfated, sodium salt	1,458	1,577	459	.29
Propyl oleate, sulfated, sodium salt	517	515	161	.31
All other	2,784	2,669	1,011	.38
Tall oil, sulfated, sodium salt	3,492	3,372	680	.20
Other acids, amides, and esters, sulfated	...	8,252	2,309	.28
Alcohols, sulfated, total	...	37,813	18,428	.49
Decyl sulfate, sodium salt	251	238	102	.43
Dodecyl sulfate salts, total	48,633	30,579	14,907	.49
Dodecyl sulfate, ammonium salt	...	2,458	1,264	.51
Dodecyl sulfate, magnesium salt	655	653	402	.62
Dodecyl sulfate, sodium salt	18,904	17,664	8,381	.47
Dodecyl sulfate, triethanolamine salt	7,570	7,568	3,190	.42
All other	21,504	2,236	1,670	.75
Mixed linear alcohols, sulfated, ammonium salt	835	734	307	.42
Mixed linear alcohols, sulfated, sodium salt	...	1,523	672	.44
Octyl sulfate, sodium salt	389	387	300	.78
Other alcohols, sulfated	...	4,352	2,140	.49
Ethers, sulfated, total	219,587	138,470	26,224	.19
Alkylphenols, ethoxylated and sulfated, total	3,842	3,924	1,275	.33
Nonylphenol, ethoxylated and sulfated, sodium salt	145	201	53	.26
All other	3,697	3,723	1,222	.33
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	2,356	2,356	523	.22

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[1]
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Anionic Surface-Active Agents--Continued				
Sulfuric acid esters (and salts thereof)--Continued				
Ethers, sulfated--Continued				
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	7,845	7,613	3,672	$0.48
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	96,277	...	...	...
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	...	23,937	4,972	.21
All other	109,267	100,640	15,782	.16
Natural fats and oils, sulfated, total	31,853	30,149	8,287	.28
Castor oil, sulfated, sodium salt	5,920	5,664	2,707	.48
Coconut oil, sulfated, sodium salt	871	774	280	.36
Cod oil, sulfated, sodium salt	1,666	1,656	274	.17
Herring oil, sulfated, sodium salt	690	688	139	.20
Mixed fish oils, sulfated, sodium salt	4,023	3,728	747	.20
Neat's-foot oil, sulfated, sodium salt	2,066	1,407	333	.24
Ricebran oil, sulfated, sodium salt	9	9	2	.22
Soybean oil, sulfated, sodium salt	614	566	101	.18
Sperm oil, sulfated, sodium salt	778	688	184	.27
Tallow, sulfated, sodium salt	5,860	5,869	1,014	.17
All other	9,356	9,100	2,506	.28
Other anionic surface-active agents[6]	165,211	221,004	50,127	.23
Cationic Surface-Active Agents				
Total	260,452	206,589	88,705	.43
Amine oxides and oxygen-containing amines (except those having amide linkages), total	47,477	23,865	14,651	.61
Acyclic, total	41,983	18,995	12,394	.65
(Coconut oil alkyl)amine, ethoxylated	3,955	3,355	1,269	.38
(9-Octadecenyl)amine, ethoxylated	1,279	1,163	430	.37
(Tallow alkyl)amine, ethoxylated	2,098	2,327	1,062	.46
All other	34,651	12,150	9,633	.79
Cyclic (except imidazoline and oxazoline derivatives)	1,717	1,661	517	.31
Imidazoline and oxazoline derivatives, total	3,777	3,209	1,740	.54
2-Heptadecyl-1-(2-hydroxyethyl)-2-imidazoline	312	264	193	.73
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	1,043	536	242	.45
All other	2,422	2,409	1,305	.54
Amines and amine oxides having amide linkages, total	27,638	25,978	7,844	.30
Carboxylic acid - diamine and polyamine condensates, total	22,980	22,337	5,653	.25
Mixed fatty acids - polyalkylenepolyamine condensate	2,601	2,698	1,026	.38
Tall oil acids - diethylenetriamine and polyalkylenepolyamine condensate	18,067	17,974	2,866	.16
All other	2,312	1,665	1,761	1.05
Other amines and amine oxides having amide linkages	4,658	3,641	2,191	.60
Amines, not containing oxygen (and salts thereof), total	83,923	62,039	25,775	.42
Amine salts	2,339	2,553	732	.29
Diamines and polyamines, total	16,332	15,060	4,927	.33
Imidazoline derivatives	1,539	1,044	464	.44
N-(Mixed alkyl)polyethylenepolyamine	4,384	4,265	765	.18

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Cationic Surface-Active Agents--Continued				
Amines, not containing oxygen (and salts thereof)--Continued				
Diamines and polyamines--Continued				
N-(9-Octadecenyl)trimethylenediamine	2,661	2,970	1,144	$0.39
N-(Tallow alkyl) trimethylenediamine	5,866	5,040	1,741	.35
All other	1,882	1,741	813	.47
Primary monoamines, total	36,442	28,012	11,339	.41
(Coconut oil alkyl)amine	1,254	1,260	656	.52
9-Octadecenylamine	7,262	6,500	2,714	.42
Octadecylamine	...	685	331	.48
(Tallow alkyl)amine	6,560	4,564	1,882	.41
All other	21,366	15,003	5,756	.38
Secondary and tertiary monoamines, total	28,810	16,414	8,777	.54
Bis(hydrogenated tallow alkyl)amine	974	...	...	...
N,N-Dimethyl(hydrogenated tallow alkyl)amine	4,296	...	...	...
N-Methylbis(coconut oil alkyl)amine	...	220	117	.53
N-Methylbis(hydrogenated tallow alkyl)amine	...	934	328	.35
All other	23,540	15,260	8,332	.55
Oxygen-containing quaternary ammonium salts	18,902	18,405	6,950	.38
Quaternary ammonium salts, not containing oxygen, total	82,512	76,302	33,485	.44
Acyclic, total	63,384	60,082	20,382	.34
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	29,672	29,180	7,416	.25
All other	33,712	30,902	12,966	.42
Benzenoid, total	19,128	16,220	13,103	.81
Benzyl (coconut oil alkyl)dimethylammonium chloride	726	735	638	.87
Benzyldimethyl(mixed alkyl)ammonium chloride	9,387	9,009	7,598	.84
Benzyldimethyloctadecylammonium chloride	1,392	...	...	...
Benzyldimethyltetradecylammonium chloride	345	...	...	...
All other	7,278	6,476	4,867	.75
Nonionic Surface-Active Agents				
Total	1,125,700	834,308	202,414	.24
Carboxylic acid amides, total	94,032	58,648	19,658	.34
Diethanolamine condensates (amine/acid ratio=2/1), total	22,757	16,996	5,747	.34
Capric acid	181	145	72	.50
Coconut oil acids	10,061	8,925	3,087	.35
Coconut oil and tallow acids	3,584	2,379	575	.24
Lauric acid	1,785	635	292	.46
Oleic acid	1,216	969	347	.36
Stearic acid	617	429	152	.35
Tall oil acids	1,194	211	65	.31
All other	4,119	3,303	1,157	.35
Diethanolamine condensates (other amine/acid ratios), total	45,989	32,738	10,823	.33
Coconut oil acids (amine/acid ratio=1/1)	23,825	20,532	6,205	.30
Lauric acid (amine/acid ratio=1/1)	9,986	6,918	2,808	.41
Oleic acid (amine/acid ratio=1/1)	618	...	...	...
Stearic acid (amine/acid ratio=1/1)	413	380	177	.47
All other	11,147	4,908	1,633	.33
All other carboxylic acid amides	25,286	8,914	3,088	.35

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Nonionic Surface-Active Agents--Continued				
Carboxylic acid esters, total	245,867	190,466	67,039	$0.35
Anhydrosorbitol esters, total	29,001	17,918	7,042	.39
Anhydrosorbitol monoester of tall oil acids	152	...	...	...
Anhydrosorbitol mono-oleate	8,066	6,400	2,515	.39
Anhydrosorbitol trioleate	1,152	...	...	...
All other	19,651	11,518	4,527	.39
Diethylene glycol esters, total	2,228	2,117	668	.32
Diethylene glycol distearate	650	...	...	...
Diethylene glycol monolaurate	33	39	17	.44
Diethylene glycol monostearate	451	451	171	.38
Diethylene glycol sesquilaurate	...	340	124	.36
All other	1,094	1,287	356	.28
Ethoxylated anhydrosorbitol esters, total	30,392	23,666	9,446	.40
Ethoxylated anhydrosorbitol monolaurate	10,078	...	...	...
Ethoxylated anhydrosorbitol monopalmitate	333	...	...	...
Ethoxylated anhydrosorbitol monostearate	5,814	4,703	2,046	.44
Ethoxylated anhydrosorbitol tristearate	...	1,256	491	.39
All other	14,167	17,707	6,909	.39
Ethylene glycol esters	3,872	3,905	1,529	.39
Glycerol esters, total	109,849	88,727	29,022	.33
Complex glycerol esters	8,998	6,780	2,829	.42
Glycerol esters of chemically defined acids, total	26,149	18,371	6,966	.38
Glycerol monocaprylate	439	351	249	.71
Glycerol monolaurate	...	46	22	.48
Glycerol mono-oleate	4,039	2,633	988	.38
Glycerol monostearate	21,225	14,564	5,351	.37
All other	446	777	356	.46
Glycerol esters of mixed acids, total	74,702	63,576	19,227	.30
Glycerol monoester of hydrogenated cottonseed oil acids	2,918	...	...	...
Glycerol monoester of hydrogenated soybean oil acids	16,176	12,696	4,159	.33
Glycerol monoester of lard acids	5,268	3,656	1,032	.28
All other	50,340	47,224	14,036	.30
Natural fats and oils, alkoxylated, total	11,444	10,910	3,547	.33
Castor oil, ethoxylated	6,286	5,688	2,243	.39
Hydrogenated castor oil, ethoxylated	2,777	2,815	751	.27
Lanolin, ethoxylated	871	748	246	.33
All other	1,510	1,659	307	.19
Polyethylene glycol esters, total	33,668	25,206	9,782	.39
Polyethylene glycol esters of chemically defined acids, total	25,325	18,879	7,930	.42
Polyethylene glycol dilaurate	1,501	1,169	460	.39
Polyethylene glycol dioleate	4,370	1,407	546	.39
Polyethylene glycol monolaurate	4,387	4,195	1,762	.42
Polyethylene glycol mono-oleate	2,565	2,282	908	.40
Polyethylene glycol monostearate	7,126	5,907	2,403	.41
Polyethylene glycol sesquioleate	128	86	28	.33
All other	5,248	3,833	1,823	.48
Polyethylene glycol esters of tall oil acids	6,054	4,425	1,221	.28
Polyethylene glycol esters of other mixed acids, total	2,289	1,902	631	.33
Polyethylene glycol sesquiester of coconut oil acids	327	307	179	.58
All other	1,962	1,595	452	.28
Polyglycerol esters	6,327	6,318	1,393	.22

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Nonionic Surface-Active Agents--Continued				
Carboxylic acid esters--Continued				
Propanediol esters, total	4,675	1,993	947	$0.48
1,2-Propanediol monolaurate	87	98	66	.67
1,2-Propanediol monostearate	3,075	1,581	752	.48
All other	1,513	314	129	.41
Other carboxylic acid esters[7]	14,411	9,706	3,663	.38
Ethers, total	783,801	585,194	115,717	.20
Benzenoid ethers, total	282,946	267,530	49,619	.19
Dodecylphenol, ethoxylated	14,359	15,149	2,252	.15
Nonylphenol, ethoxylated	152,213	158,254	25,797	.16
Phenol, ethoxylated	7,327	6,967	1,128	.16
All other	109,047	87,160	20,442	.24
Nonbenzenoid ethers, total	500,855	317,664	66,098	.21
Linear alcohols, alkoxylated, total	430,509	259,696	45,258	.17
Decyl alcohol, ethoxylated	1,468	1,008	293	.29
Dodecyl alcohol, ethoxylated	6,611	6,387	1,397	.22
Mixed linear alcohols, ethoxylated	377,507	225,228	35,811	.16
Mixed linear alcohols, ethoxylated and propoxylated	23,901	21,225	4,442	.21
9-Octadecenyl alcohol, ethoxylated	2,297	2,452	1,542	.63
Octadecyl alcohol, ethoxylated	1,416	574	335	.58
All other	17,309	2,822	1,438	.51
Other ethers and thioethers, total	70,346	57,968	20,840	.36
Tridecyl alcohol, ethoxylated	8,044	6,683	1,784	.27
All other[8]	62,302	51,285	19,056	.37

[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).
[5] Includes ligninsulfonates.
[6] Includes production of "all other" sulfated alcohols; also includes sales of "all other" potassium and sodium salts of fatty, rosin, and tall oil acids.
[7] Includes ethoxylated sorbitol esters and miscellaneous esters.
[8] Includes "other" nonionic surface-active agents.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973

[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)
Amphoteric Surface-Active Agents	
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 amide)propyl]dimethylammonium chloride, sodium salt.	x.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt.	ASH, BRD, TCH.
(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-(2-Coconut oil amidoethyl)-N-(2-hydroxyethyl)-glycine, sodium salt.	TCC.
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.	ASH, RH.
(Mixed alkyl)sulfobetaine	TXT.
Mixed fatty betaines	TXT.
Oleic acid - ethylenediamine condensate, propoxylated and sulfated, sodium salt.	S.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt.	FNX, GNM.
All other acyclic	ARC, x.
Cyclic:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium chloride, disodium salt.	BRD.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt.	MIR.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	ASH, MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-dodecyl-2-imidazolinium hydroxide, sodium salt.	TCH.
Heptadecylmethylbenzimidazolinesulfonic acid, sodium salt.	CGY.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents	
*Carboxylic acids (and salts thereof):	
Amine salts of fatty, rosin, and tall oil acids:	
Coconut oil acids, diethanolamine salt	SOP.
Coconut oil acids, triethanolamine salt	SBP.
Lauric, myristic, and stearic acids, triethanolamine salt.	SBP.
Oleic acid, n-butylamine salt	DYS.
Oleic acid, diethylamine salt	ONX, WTC.
Oleic acid, triethanolamine salt	DA.
Rosin acid, triethanolamine salt	ONX.
Stearic acid, dimethylpropylamine salt	WM.
Stearic acid, N,N,N'N'-tetrakis(2-hydroxyethyl)-ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt	GLY.
Tall oil acids, diethanolamine salt	SOP.
Tallow acids, ethanolamine salt	SBP.
Tallow acids, triethanolamine salt	SBP.
*Carboxylic acids having amide, ester, or ether linkages:	
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-Oleoylpolypeptide, sodium salt	LMI.
N-Oleoylsarcosine, sodium salt	GAF.
Stearyl-2-lactylic acid	GLY.
Tridecyloxypoly(ethyleneoxy)acetic acid, sodium salt.	SYL.
Unspecified sarcosine derivatives	HMP.
All other	BRD, x.
*Potassium and sodium salts of fatty, rosin, and tall oil acids:	
Animal grease, sodium salt	NMC.
*Castor oil acids, potassium salt	NTL, PEK, SEA.
Castor oil acid, sodium salt	HEW, NTL.
Cocoa butter acids, sodium salt	HEW.
*Coconut oil acids, potassium salt	AES, CON, DA, DYS, ESS, GRC, GRL, HEW, HNT, JRG, MCP, NMC, PCH, PEK, PG, SOP.
*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 and sodium salts:	
Potassium salt	GRC, HNT, NMC.
Sodium salt	GRC, NMC.
Lauric acid, potassium salt	USR.
Lauric acid, sodium salt	HEW.
Mixed fish oil acids, sodium salt	DA.
*Mixed vegetable oil acids, potassium salt	AES, DYS, GRC, GRL, LUR, PCH, PEK.
*Oleic acid, potassium salt	AES, ARL. DA, DAN, GYR, HNT, SCP, SHP, 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, NMC, PRX.
Peanut oil acids, potassium salt	KAL, SLC.
Rosin acids, potassium salt	ASY, GYR, SNW, USR, x.
Rosin acids, sodium salt	ASY, CRT, HRT, PRX, SLM, x.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

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

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

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

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*Sulfonic acids (and salts thereof)--Continued	
*Benzene-, cumene-, toluene-, and xylenesulfonates--Continued	
*Xylenesulfonic acid, ammonium salt	CO, NES, STP, TXN, WTC.
Xylenesulfonic acid, potassium salt	NES.
*Xylenesulfonic acid, sodium salt	ATR, CO, ICI, NES, PIL, PRX, SDC, STP, TXT, WTC.
*Ligninsulfonates:	
Ligninsulfonic acid, aluminum salt	MAR.
*Ligninsulfonic acid, ammonium salt	CPP, CRZ, SPA, WVA.
*Ligninsulfonic acid, calcium salt	CRZ, CWP, LKY, MAR, PSP.
Ligninsulfonic acid, chromium salt	MAR, PSP, RAY.
Ligninsulfonic acid, copper salt	WVA.
Ligninsulfonic acid, iron salt	CRZ, WVA.
Ligninsulfonic acid, magnesium salt	MAR, WVA.
Ligninsulfonic acid, manganese salt	WVA.
Ligninsulfonic acid, potassium salt	SPA.
Ligninsulfonic acid, sodium salt	CRZ, MAR, PSP, RAY, SPA, WVA.
Ligninsulfonic acid, zinc salt	PSP, WVA.
All other	x.
*Naphthalenesulfonates:	
Benzylnaphthalenesulfonic acid	ECC.
Butylnaphthalenesulfonic acid, sodium salt	CLD, 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.
Methylnonylnaphthalenesulfonic acid, sodium salt	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.
Sulfosuccinamic acid, alkanolamide ester, ammonium salt.	SCP.
Sulfosuccinic acid, alkanolamide ester, sodium salt.	HDG, SCP.
Sulfosuccinic acid, alkanolamide ester, tri-ethanolamine 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-lauroyltaurine, sodium salt	GAF.
N-Methyl-N-myristoyltaurine, sodium salt	GAF.
N-Methyl-N-oleoyltaurine, sodium salt	DA, DEP, GAF, HRT.
N-Methyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt	CRT, FNX, GAF, MRA.
N-Methyl-N-(tallow acyl)taurine, sodium salt	GAF.
*Sulfonic acids having ester or ether linkages:	
*Sulfosuccinic acid esters:	
*Sulfossuccinic 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, FNX, HDG, HRT, MCP, MOA, MRA, PC, SBC, SCO, WTC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*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, diisodecyl ester, sodium salt.	MCP.
Sulfosuccinic acid, diisooctyl 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, LEV, 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 linear alpha olefins, sulfonated----------	CP, LAK, NLC, STP.
Petroleumsulfonic 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.	DEX, EMK.
*Esters of sulfated oleic acid:	
2-Butoxyethyl oleate, sulfated, sodium salt--------	S.
*Butyl oleate, sulfated, sodium salt----------	AKS, CRT, EFH, ICI, MCP, PC.
2-Ethylhexyl oleate, sulfated, sodium salt---------	CHP.
Ethyl oleate, sulfated, sodium salt----------	GAF.
Glyceryl trioleate, sulfated, sodium salt----------	LEA, MRV.
Isobutyl oleate, sulfated, sodium salt----------	DA.
Isopropyl oleate, sulfated, sodium salt----------	CRT, DEX, HRT, LEV, SCP.
Methyl oleate, sulfated, sodium salt----------	ICI.
Mixed oleic acid esters, sulfated, sodium salt-----	EFH.
*Propyl oleate, sulfated, sodium salt----------	ACY, AKS, CHP, CIN, MCP, MRV.
Oleic acid, sulfated, disodium salt----------	ACT, ACY, CHP, DA, GAF, LEA, SCO, TEN.
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, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*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	ACT, APX, BAO, CRT, DA, FNX, ICI, SEA, WHI, WHW, WTC.
All other	DA, DUP, EMR, SCO.
*Alcohols, sulfated:	
Coconut and sperm oil alkyl sulfate, sodium salt	DA, DUP, FNX.
Decyl and octyl sulfate, sodium salt	TCH.
*Decyl sulfate, sodium salt	APX, CTL, DUP, HLI, SCP.
3,9-Diethyl-6-tridecyl sulfate, sodium salt	UCC.
*Dodecyl sulfate salts:	
*Ammonium salt	AAC, CTL, HLI, JRG, ONX, PG, SCP, STP, TCH.
Diethanolamine salt	DUP, HLI, JRG, ONX, SCP, STP, TCH.
Diethylamine salt	AAC.
N,N-Diethylcyclohexylamine salt	DUP.
Isopropanolamine salt	JRG, TCH.
*Magnesium salt	AAC, HLI, ONX, STP.
Potassium salt	PG.
*Sodium salt	AAC, CTL, DUP, HLI, JRG, ONX, SCP, STP, TCH.
*Triethanolamine salt	AAC, CTL, DUP, HLI, ONX, SCP, STP, TCH, TXT.
2-Ethylhexyl sulfate, sodium salt	AAC, TCH, UCC.
Hexadecyl sulfate, sodium salt	AAC, DUP, SCP.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	UCC.
Hexyl sulfate, potassium salt	DEX.
Lauryl alcohol sulfate, sodium salt	SEY.
Lauryl alcohol sulfate, triethanolamine salt	SEY.
*Mixed linear alcohol sulfate, ammonium salt	LAK, NTL, S, SCP, TXT, UCC, WTC.
*Mixed linear alcohol sulfate, sodium salt	LAK, PG, SCP, TXT.
Mixed linear alcohol sulfate, triethanolamine salt.	LAK, PG, SCP.
Nonyl sulfate, sodium salt	TEN.
9-Octadecenyl sulfate, 2-(diethylamino)ethanol salt	AAC.
Octadecyl sulfate, sodium salt	DUP, EMK, ONX, PG.
*Octyl sulfate, sodium salt	AAC, DUP, WTC.
Oleyl sulfate, sodium salt	DUP.
Tridecyl sulfate, sodium salt	AAC.
All other	LEV.
*Ethers, sulfated:	
*Alkylphenols, ethoxylated and sulfated:	
Iso-octylphenol, ethoxylated and sulfated, sodium salt.	RH.
1-Naphthol, ethoxylated and sulfated, sodium salt	TCH.
Nonylphenol, ethoxylated and sulfated, ammonium salt.	CGY, GAF, STP, WTC.
*Nonylphenol, ethoxylated and sulfated, sodium salt.	CRT, DEX, GAF.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	ARL.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	AAC, AKS, CTL, STP, TXT.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, ASH, CTL, ONX, SCP, STP, TCH.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt.	LEV, TXN.
2-Ethylhexanol, ethoxylated and sulfated, sodium salt.	UCC.
2-Hexyloxypropyl sulfate, sodium salt	S.
*Mixed linear alcohols, ethoxylated and sulfated ammonium salt.	CO, LAK, NLC, PG, PIL, RCD, SCP, SHC, STP WTC.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt.	AAC, ASH, CO, DA, GAF, LAK, PG, PIL, RCD, SCP, SHC, STP, TCI, TXT, WTC.
Mixed linear alcohols, ethoxylated and sulfated, triethanolamine salt.	RCD.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*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	ACT, ACY, AKS, ARL, BAO, CRT, DA, DEX, EFH, FNX, GAF, HRT, ICI, KAL, KNG, LEA, LUR, MRD, S, SCO, SCP, SLC, SLM, WHW.
*Coconut oil, sulfated, sodium salt	ACY, APX, BAO, DA, LUR, MRD, SEA, WHW.
*Cod oil, sulfated, sodium salt	ACT, BAO, SEA, WHI, WHW.
Grease, other than wool, sulfated, sodium salt	SEA, WHI.
Herring oil, sulfated, ammonium salt	SCP.
*Herring oil, sulfated, sodium salt	ACT, DA, SLM, WHI, WHW.
Lard, sulfated, sodium salt	CRT, FNX, WAW, WHW.
Mixed alpha olefins and vegetable oils, sulfated, sodium salt.	SLM.
Mixed animal and vegetable oils, sulfated, sodium salt.	SLM.
*Mixed fish oils, sulfated, sodium salt	ACT, DA, MRD, SLM.
Mixed vegetable oils, sulfated, sodium salt	LUR, SLY.
Mustard seed oil, sulfated, sodium salt	DA, LUR, SLC.
*Neat's-foot oil, sulfated, sodium salt	ACT, BAO, CRT, DA, KAL, LUR, MRD, PC, SEA, SLM.
Peanut oil, sulfated, sodium salt	ACY, DA, LEA, LUR.
Pecan oil, sulfated, sodium salt	CRT.
*Ricebran oil, sulfated, sodium salt	DA, KNG, LUR.
*Soyhean oil, sulfated, sodium salt	ACT, CRT, HRT, KAL, LEA, MRD, ONX, WHW.
*Sperm oil, sulfated, sodium salt	ACT, BAO, DA, LEA, ONX, SCO, SEA, WHI, WHW.
*Tallow, sulfated, sodium salt	ACT, ACY, BSW, DA, ECC, LUR, MCP, MRD, PC, SCP, SEY, SID, SLM, SOS, WHI.
Other anionic surface-active agents:	
Lignin and salts thereof	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, STC.
Cationic Surface-Active Agents	
*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)dodecylamine	CTL.
N,N-Bis(2-hydroxyethyl)octadecylamine	ARC, FIN, TCH.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine	ARC.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine acetate	PG.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine oxide	ARC.
*(Coconut oil alkyl)amine, ethoxylated	ARC, ASH, BRD, ICI, NLC.
(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-Dimethyldecylamine oxide	BRD.
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, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Amine oxides and oxygen-containing amines(except those having amide linkages)--Continued	
*Acyclic--Continued	
(Hydrogenated tallow alkyl)amine, ethoxylated--------	CGY.
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, DA, TCH.
Octadecylamine, ethoxylated----------	ARC, TCH.
Polyethylenepolyamine, alkoxylated----------	NLC.
(Soybean oil alkyl)amine, ethoxylated----------	ARC, ASH.
*(Tallow alkyl)amine, ethoxylated----------	ARC, CGY, DUP, GAF, TCH, WTC.
Tallow alkyl amine ethoxylated, sulfate----------	DUP.
N-(Tallow alkyl)trimethylenediamine, ethoxylated-----	ARC, WTC.
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----------	TCH.
All other----------	ARC.
*Cyclic (except imidazoline and oxazoline derivatives):	
Aniline, ethoxylated----------	TCH.
N-(Coconut oil alkyl)morpholine oxide----------	ARC.
N-Dodecylmorpholine----------	BRD.
Lignin amines----------	WVA.
Rosin amine, ethoxylated----------	HPC, NLC, WTC.
m-Toluidine, ethoxylated----------	TCH.
Imidazoline and oxazoline derivatives:	
1-(2-Aminoethyl)-2-oleyl-2-imidazoline----------	TCH.
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline.	COM.
2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline.	BRD, DA, ONX.
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline.	BRD, COM.
*2-(Heptadecyl)-1-(2-hydroxyethyl)-2-imidazoline------	BRD, CGY, CHF, MOA, SNW.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline.	BRD, CGY, MOA, TCH.
*1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline.	BRD, HDG, MOA, NLC, TCH, WTC.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride.	CGY.
1-(2-Hydroxynropyl)-2-imidazoline----------	TCH.
*Amines and amine oxides having amide linkages:	
*Carboxylic acids - diamine and polyamine condensates:	
Caprylic acid - tetraethylenepentamine condensate----	ICI.
Coconut oil acids - diethylenetriamine condensate----	APX, TXT.
Coconut oil acids - N,N-dimethyltrimethylene-diamine condensate.	JRG.
Mixed dicarboxylic acids - polyalkylenepolyamine condensate.	TXT.
*Mixed fatty acids - polyalkylenepolyamine condensate.	GRD, NLC, QCP, TCH.
Oleic acid - diethylenetriamine condensate----------	ICI.
Oleic acid - N,N-dimethyltrimethylenediamine condensate.	CCW.
Pelargonic acid - tetraethylenepentamine condensate.	ICI

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Amines and amine oxides having amide linkages--Continued	
*Carboxylic acids - diamine and polyamine condensates--Continued	
Stearic acid, diethanolamine condensate, methyl sulfate.	DUP.
Stearic acid - diethylenetriamine condensate---------	FNX, ONX, S.
Stearic acid - N,N-diethylethylenediamine condensate.	CGY, S.
Stearic acid - N,N-dimethyltrimethylenediamine condensate.	SNW.
Stearic acid - polyamine condensate----------	VND.
Stearic acid - tetraethylenepentamine condensate-----	ONX.
*Tall oil acids - diethylenetriamine and polyalkylene polyamine condensates:	
Tall oil acids - diethylenetriamine condensate-----	AZS, FNX, NCW, NLC, WTC.
Tall oil acids - polyalkylenepolyamine condensate--	AZS, QCP, WTC.
All other----------	ASH.
*Other amines and amine oxides having amide linkages:	
Coconut oil acids - diethylenetriamine condensate, polyethoxylated.	TCC.
3-Lauramido-N,N-dimethylpropylamine oxide----------	SNW.
Mixed fatty acids - alkylenediamine condensate, polyethoxylated.	GAF.
Oleic acid - ethylenediamine condensate, monoethoxylated.	CLD, DA, DEX, SOC, TNA.
Palm oil acids - ethylenediamine condensate, monoethoxylated.	APX.
Stearic acid - diethylenetriamine condensate, polyethoxylated.	ARC, TCC.
Stearic acid - ethylenediamine condensate, monoethoxylated.	CLD, CST, DA, DEX, ICI, MRV, S, SCP.
Stearic acid - ethylenediamine condensate, polyethoxylated.	ICI.
*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----------	ACY, ARC.
N-(Oleyl alkyl)trimethylenediamine tallate----------	ARC.
(Tallow alkyl)amine acetate----------	ARC.
N-(Tallow alkyl)trimethylenediamine acetate----------	ARC, ASH.
N-(Tallow alkyl)trimethylenediamine oleate----------	ARC, ASH.
N-(Tallow alkyl)trimethylenediamine tallate----------	ARC.
All other----------	NLC, SM.
*Diamines and polyamines:	
N-(Coconut oil alkyl)trimethylenediamine----------	ARC, ENO, GNM.
N-(Docosyl and eicosyl)trimethylenediamine----------	ENO.
N-Dodecyldiethylenetriamine----------	ARC.
*Imidazoline derivatives:	
1-[5-(2-Aminoethyl)naphth-1-yl]-2-(8-heptadecenyl)-2-imidazoline.	NLC.
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline.	ARC, AZS, NLC.
2-Heptadecyl-2-imidazoline----------	EMR, SCO.
1-(2-Stearamidoethyl)-2-heptadecyl-2-imidazoline---	ICI.
*N-(Mixed alkyl)polyethylenepolyamine----------	ARC, BAS, CCW, SNW.
*N-(9-Octadecenyl)trimethylenediamine----------	ARC, ASH, GNM.
N-(Soybean oil alkyl)trimethylenediamine----------	ENO.
N-(Tallow alkyl)dipropylenetriamine----------	ARC, GNM.
*N-(Tallow alkyl)trimethylenediamine----------	ARC, ASH, ENO, GNM.
*Primary monoamines:	
*(Coconut oil alkyl)amine----------	ARC, ASH, ENO, GNM.
Dodecylamine----------	ARC, ASH, GNM.
(Docosyl and eicosyl)amine----------	ENO.
(Hydrogenated tallow alkyl)amine----------	ARC, ASH, ENO, GNM.
(Mixed alkyl)amine----------	ARC.
(Mixed tert-alkyl)amine----------	RH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Amines, not containing oxygen (and salts thereof)--Continued	
*Primary monoamines--Continued	
*9-Octadecenylamine	ARC, ASH, ENO, GNM.
*Octadecylamine	ARC, ASH, ENO, GNM.
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, ONX.
*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, ONX.
N,N-Dimethyltridecylamine	BRD.
*N-Methylbis(coconut oil alkyl)amine	ASH, ENO, GNM.
*N-Methylbis(hydrogenated tallow alkyl)amine	ARC, ASH, ENO, GNM.
N-Methyldioctadecylamine	ASH.
Trioctylamine	GNM.
Tris(hydrogenated tallow alkyl)amine	ASH.
*Oxygen-containing quaternary ammonium salts:	
Quaternary ammonium salts having amide linkages:	
Ethyldimethyl(3-pelagonamidopropyl)ammonium ethyl sulfate.	TCH.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium dihydrogen phosphate.	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium nitrate.	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)-ammonium methyl sulfate.	DUP.
(3-Lauramidopropyl)trimethylammonium methyl sulfate.	ACY.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride.	WTC.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride.	WTC.
Tall oil acid - polyalkylenepolyamine condensate, ammonium methyl sulfate.	NLC.
All other	x.
Other oxygen-containing quaternary ammonium salts:	
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate.	LUB.
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)-ammonium chloride.	CGY, NLC.
Benzyl(coconut oil alkyl, ethoxylated)dimethyl-ammonium chloride.	GAF.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazolinium chloride.	MOA, NLC.
Bis(2-hydroxyethyl, ethoxylated)ethyl(hydrogenated tallow alkyl)ammonium ethyl sulfate.	ICI.
Bis(2-hydroxyethyl, ethoxylated)methyl(9-octadecenyl)ammonium chloride.	ARC.
Bis(2-hydroxyethyl, ethoxylated)methyloctadecyl-ammonium chloride.	ARC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Oxygen-containing quaternary ammonium salts--Continued	
Other oxygen-containing quaternary ammonium salts--Continued	
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)methylammonium chloride.	ARC, ASH.
(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.
2-Hydroxytrimethylenebis[(coconut oil alkyl)dimethylammonium chloride].	CGY.
Quaternarized propoxylated stearyl amine----------	TCC.
*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 aluminum silicate.	GNM.
Bis(hydrogenated tallow alkyl)dimethylammonium methyl sulfate.	PRX.
(Coconut oil alkyl)trimethylammonium chloride--------	ARC, GNM.
Didecyldimethylammonium chloride----------	BRD.
Didecyldimethyldioctylammonium chloride----------	BRD.
Didodecyldimethylammonium bromide----------	ONX.
Dimethylbis(9-octadecenyl)ammonium chloride----------	GNM.
Dimethylbis(soybean oil alkyl)ammonium chloride------	ARC.
Dimethyldioctadecylammonium chloride----------	ASH, ONX, PG.
Dimethyldioctadecylammonium methyl sulfate----------	ONX.
Dodecyltrimethylammonium bromide----------	DUP.
Dodecyltrimethylammonium chloride----------	ARC, GNM.
1-Ethylamino-bis(ethyleneheptadecylamide) ethyl sulfate.	EFH.
Ethyldimethyl(mixed alkyl)ammonium ethyl sulfate-----	DEX, JOR, TCC.
Ethyldimethyl(9-octadecenyl)ammonium bromide---------	ONX.
Ethylhexadecyldimethylammonium bromide----------	FIN.
Hexadecyltrimethylammonium bromide----------	DUP, FIN.
Hexadecyltrimethylammonium chloride----------	ARC, BRD.
Hexadecyltrimethylammonium p-toluenesulfonate--------	FIN.
(Hydrogenated tallow alkyl)trimethylammonium chloride.	ARC.
Methyltrioctylammonium chloride----------	GNM.
Mixed dialkyldimethylammonium chloride----------	BRD.
N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)trimethylenebis[ammonium chloride].	ARC, GNM.
Trimethyl(mixed alkyl)ammonium chloride----------	NLC.
Trimethyloctadecylammonium chloride----------	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride--------	ARC.
Trimethyl(tallow alkyl)ammonium chloride----------	ARC, ASH, ENO, GNM.
Trimethyltetradecylammonium bromide----------	FIN.
All other----------	GNM, x.
*Benzenoid:	
*Benzyl(coconut oil alkyl)dimethylammonium chloride.	ARC, CRT, DEP, ENO, LUR, TXT.
*Benzyldimethyl(mixed alkyl)ammonium chloride---------	AAC, ASH, BRD, FIN, ONX, RH, SDH, TXT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Quaternary ammonium salts, not containing oxygen--Continued	
*Benzenoid--Continued	
*Benzyldimethyloctadecylammonium chloride	BRD, FIN, ONX, RH, SNW, TNI.
Benzyldimethyl(tallow alkyl)ammonium chloride	ENO.
*Benzyldimethyltetradecylammonium chloride	FIN, LEM, SDH.
Benzyldodecyldimethylammonium chloride	FIN, ONX.
Benzylhexadecyldimethylammonium chloride	ONX.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride.	ENO, ONX.
1-Benzyl-2-picolinium bromide	FIN.
1-Benzylpyridinium chloride	DEP.
Benzyltrimethylammonium chloride	CHP, 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, ONX.
(Methyloctyl)bis(2-hydroxyethyl)ammonium p-toluene-sulfonate.	FIN.
1-(Mixed alkyl)quinolinium ethyl sulfate	x.
1-Phenethyl-2-picolinium bromide	FIN.
All other	IC1, STC.
Nonionic Surface-Active Agents	
*Carboxylic acid amides:	
*Diethanolamine condensates (amine/acid ratio=2/1):	
*Capric acid	CGY, ECC, SCP, TCH.
Castor oil acids	CL1, FNX, NTL.
*Coconut oil acids	ACT, AKS, ARD, ARL, BRD, BSW, CIN, CLI, CTL, DA, EFH, FNX, HL1, HRT, JOR, KNP, LUR, MCP, MOA, MRV, ONX, PC, PG, PNX, PVO, SBC, SCP, SEY, STP, TCH, TXC, TXN, UNN, VND, WTC, x.
*Coconut oil and tallow acids	ACT, ASH, CLI, CRT, ECC, ESS, MOA, PG, PVO, SOS.
*Lauric acid	ARD, BRD, CLI, DA, ECC, HLI, ONX, PG, SOS, TCH.
Lauric and myristic acids	HLI, MOA, PVO, SBC, STP.
Linoleic acid	VND, WTC.
Mixed vegetable oil acids	HLI.
*Oleic acid	CCW, CL1, EMR, PVO, STP.
Pelargonic acid	TCH.
*Stearic acid	CLI, DA, EMR, ECC, JOR, ONX, SCO, TXC, VAL.
*Tall oil acids	EFH, MCP, MOA, MRV, SOS, WTC.
Tallow acids	SOS.
*Diethanolamine condensates (other amine/acid ratios):	
*Coconut oil acids (amine/acid ratio=1/1)	ARD, ASH, AZS, CCL, CGY, CLI, CTL, DA, FNX, HLI, JRG, MOA, MRV, ONX, PIL, SBC, SEY, STP, TCC, TCH, TXN, TXT, WTC.
Coconut oil acids (amine acid ratio unspecified)	CON, JRG.
Isostearic acids (amine/acid ratio=1/1)	SBC.
*Lauric acid (amine/acid ratio=1/1)	ARD, ASH, CLI, CTL, EMR, LEV, MOA, ONX, SBC, TCH, TXN, TXT, WTC.
Lauric and myristic acids (amine/acid ratio=1/1)	PG, TXT.
Linoleic acid (amine/acid ratio=1/1)	MOA, SBC.
*Oleic acid (amine/acid ratio=1/1)	CGY, HLI, SBC, 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, ECC, EMR, FNX, 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, 1973--CONTINUED

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

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Ethoxylated anhydrosorbitol esters:	
Ethoxylated anhydrosorbitol isostearate	TCH.
*Ethoxylated anhydrosorbitol monolaurate	AAC, GLY, HDG, ICI, PVO, SYL, TCH.
Ethoxylated anhydrosorbitol mono-oleate	AAC, ARC, GLY, HDG, ICI, PVO, SYL, TCH.
*Ethoxylated anhydrosorbitol monopalmitate	AAC, 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.
All other	GLY.
*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	GLY.
Ethoxylated sorbitol monostearate	TCH.
Ethoxylated sorbitol oleate, acetylated	ICI.
Ethoxylated sorbitol pentaester of tall oil acids	WTC.
Ethoxylated sorbitol pentalaurate	ICI.
Ethoxylated sorbitol pentaoleate	ICI.
Ethoxylated sorbitol tetraester of lauric and oleic acids.	ICI.
Ethoxylated sorbitol tetraester of tall oil 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.
All other	EMR.
*Glycerol esters:	
*Complex glycerol esters:	
Glycerol diacetyltartrate 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, x.
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, GLY, PVO.
Glycerol monoisostearate	TCH.
*Glycerol monolaurate	ARC, GLY, HAL.
*Glycerol mono-oleate	ARC, CCW, CHP, DA, EFH, EMR, GLY, GRO, HAL, HDG, PVO, TCH, WM, WTC.
Glycerol monoricinoleate	DA, HAL, HDG.
*Glycerol monostearate	ARC, ASH, BLS, CHL, CIN, EFH, EMR, FNX, GLY, GRO, HAL, HDG, LUR, PG, PVO, SCP, SOS, TCH, VND,, WM, WTC.
*Glycerol esters of mixed acids:	
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, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Glycerol esters--Continued	
*Glycerol esters of mixed acids--Continued	
*Glycerol monoester of hydrogenated cottonseed oil acids.	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 peanut oil acids----------	PVO.
Glycerol monoester of tallow acids----------	BFP.
Glycerol sesquiester of hydrogenated tallow acids--	JRG.
Glycerol sesquiester of tall oil acids----------	SLM.
All other----------	BFP, EKT, GLD, ICI, LEV.
*Natural fats and oils, alkoxylated:	
Avocado oil, ethoxylated----------	TCH.
*Castor oil, ethoxylated----------	AAC, DA, GAF, ICI, NLC, NTL, PVO, SYL, TCH, TMH, WTC.
Corn oil, ethoxylated----------	TCH.
*Hydrogenated castor oil, ethoxylated----------	DA, ICI, TCH.
*Lanolin, ethoxylated----------	AAC, CRD, CRN, ICI, PRX, TCH.
All other----------	ARC, DA, JCC.
*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, DA, EFH, GLY, HAL, HDG, NLC, TCH, VND, WM.
Polyethylene glycol distearate----------	ARC, FNX, GLY, HAL, HDG, TCH, WM.
Polyethylene glycol methylcarbitol maleate---------	CCA.
Polyethylene glycol monoisostearate----------	TCH.
*Polyethylene glycol monolaurate----------	AAC, ARC, BRD, CCA, CGY, DA, GLY, HAL, HDG, ICI, KNP, TCH.
*Polyethylene glycol mono-oleate----------	AAC, ARC, BRD, CCA, CGY, CLD, CRT, DA, DEX, EFH, GAF, GLY, HAL, HDG, ICI, ONX, PVO, SCP, TCH, VND, WM, WTC.
Polyethylene glycol mono-oleate, ethoxylated-------	ICI.
Polyethylene glycol monopalmitate----------	ICI, WTC.
Polyethylene glycol monopelargonate----------	EMR, TCH.
Polyethylene glycol monricinoleate----------	DA.
*Polyethylene glycol monostearate----------	AAC, AKS, ARC, CGY, CHP, CRT, DA, DEP, DEX, EFH, EMR, GAF, GLY, HAL, HDG, HRT, ICI, KNP, MCP, ONX, PC, PVO, TCH, VND, WM, WTC.
Polyethylene glycol monotallate----------	TCH.
*Polyethylene glycol sesquioleate----------	ICI, TCH, WTC.
*Polyethylene glycol esters of tall oil acids:	
Polyethylene glycol diester of tall oil acids------	GLY.
Polyethylene glycol ester of tall oil acids--------	ACT, EFH, GLY.
Polyethylene glycol monoester of tall oil acids, ethoxylated.	NLC, TCH.
Polyethylene glycol sesquiester of rosin acids-------	HPC.
Polyethylene glycol sesquiester of tall oil acids.	ARC, ICI, MON, PVO, SLM, SM, WTC.
*Polyethylene glycol esters of other mixed acids:	
Polyethylene glycol diester of trimerized castor oil acids.	GLY.
Polyethylene glycol monoester of coconut oil acids.	GLY.
Polyethylene glycol monoesters of lauric and stearic acids.	MCP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Polyethylene glycol esters--Continued	
*Polyethylene glycol esters of other mixed acids--Continued	
Polyethylene glycol monoester of coconut oil acids, ethoxylated.	AAC, ICI.
Polyethylene glycol monoester of soybean oil acids.	TCH.
Polyethylene glyco. sesquiester of castor oil acids.	CGY.
*Polyethylene glycol sesquiester of coconut oil acids.	AAC, ARL, MRT, PG, VND.
Polyethylene glycol sesquiester of oleic acid------	SM.
Polyethylene glycol sesquiester of tallow acids----	SOS.
All other----------	ECC, EMR, MCP.
*Polyglycerol esters:	
Polyglycerol decaoleate----------	TCH.
Polyglycerol ester of tall oil acids----------	ACS.
Polyglycerol mono-oleate----------	HDG, PVO, TCH, VND, WTC.
Polyglycerol monostearate----------	GLY, PVO, SEY, TCH, WTC.
Polyglycerol tetraoleate----------	GLY.
*Propanediol esters:	
1,2-Propanediol dicocoate----------	GLY.
1,2-Propanediol dioleate----------	X.
1,3-Propanediol monoester of coconut oil acids-------	WM.
*1,2-Propanediol monolaurate----------	ARC, HAL, PVO.
1,2-Propanediol mono-oleate----------	EFH, HAL.
*1,2-Propanediol monostearate----------	ARC, CCW, EKT, GLD, GLY, HAL, ICI, PVO, TCH, WTC.
1,2-Propanediol sesquiester of hydrogenated tallow acids.	JRG.
All other----------	GLD.
Miscellaneous carboxylic acid esters:	
Anhydrosorbitol glycerol monolaurate----------	ICI.
Ethoxylated glycerol sesquiester of mixed fatty acids.	ICI.
Ethoxylated 1,2-propanediol mono-oleate----------	WTC.
Ethoxylated 1,2-propanediol monostearate----------	ICI, WTC.
2-Hydroxymethyl-2-butene-1,4-diol monopelargonate----	ICI.
Lauric acid esters of glycerol and ethoxylated nonylphenol.	TCC.
Mannitol dioleate, propoxylated----------	WTC.
Methylglucoside laurate----------	HDC.
Mixed polyhydric alcohols triester of tall oil acids.	ICI.
Oleic acid esters of ethoxylated nonylphenol---------	EFH.
Pentaerythritol distearate----------	GLY, QCP.
Pentaerythritol stearate----------	VAL.
Polyalkylene glycol adipate----------	NLC.
Polypropylene glycol monoester----------	SOS.
Polypropylene glycol mono-oleate----------	HDG.
Polypropylene glycol monostearate----------	HDG.
Stearic acid, ethoxylated and propoxylated----------	TCH.
All other----------	CCW, EMR, GLY, TCH.
*Ethers:	
*Benzenoid ethers:	
(Mixed alkyl)phenol - formaldehyde, alkoxylated------	NLC, NTL, WTC.
Nonylphenol - formaldehyde, alkoxylated----------	NLC, WTC.
tert-Octylphenol - formaldehyde, ethoxylated---------	ARC, DA.
Diisobutylphenol, ethoxylated----------	GAF.
Dinonylphenol, ethoxylated----------	GAF, JCC, STP, TCH.
*Dodecylphenol, ethoxylated----------	GAF, MON, TCH, TMH, UCC, WTC.
Iso-octylphenol, ethoxylated----------	ABC, APX, DA, OMC, RH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Ethers--Continued	
*Benzenoid ethers--Continued	
(Mixed alkyl)phenol, ethoxylated	GAF, PRX, RH, TCH.
(Mixed alkyl)phenol, ethoxylated, butyl ether	NTL.
(Mixed alkyl)phenoxypoly(ethyleneoxy)ethyl chloride.	GAF, NLC.
*Nonylphenol, ethoxylated	ABC, ASH, CGY, DA, GAF, HDG, ICI, JCC, MON, OMC, RH, STP, TCH, TMH, UCC, WTC.
Nonylphenol, ethoxylated and propoxylated	WTC.
Nonylphenoxypoly(ethyleneoxy)ethyl iodide	GAF.
n-Octylphenol, ethoxylated	TCH, VPC.
*Phenol, ethoxylated	CLY, DA, GAF, ICI, JCC, UCC.
Phenol, propoxylated	ICI.
Styrenated phenol, ethoxylated	DA.
Tetradecylphenol, ethoxylated	ORO.
Tridecylphenol, ethoxylated	TCH.
Xylenol, ethoxylated	NLC.
All other	SDW.
*Nonbenzenoid ethers:	
*Linear alcohols, alkoxylated:	
Coconut oil alcohol, ethoxylated	GLY, TCH, WTC.
*Decyl alcohol, ethoxylated	GAF, ICI, TCH, VPC.
Decyl and octyl alcohols, ethoxylated	GAF, GLY.
Decyl and octyl alcohols, ethoxylated and propoxylated.	GAF.
Decyloxypoly(ethyleneoxy)ethyl chloride	GAF.
Derivative of ethoxylated primary alcohol	RH.
*Dodecyl alcohol, ethoxylated	AAC, ABC, HDG, ICI, OMC, UCC, VPC, WTC.
Hexadecyl alcohol, ethoxylated	AAC, CGY, GLY, ICI, TCH.
*Mixed linear alcohols, ethoxylated	AAC, CIN, CO, DA, DUP, GAF, HDG, JCC, NLC, RH, SHC, STP, TCH, UCC, WTC.
*Mixed linear alcohols, ethoxylated and propoxylated.	BAS, DUP, JCC, STP, TCH, UCC, WTC.
Mixed linear alcohols, propoxylated	DUP.
*9-Octadecenyl alcohol, ethoxylated	AAC, ABC, CRN, DA, GAF, ICI, TCH, VPC.
*Octadecyl alcohol, ethoxylated	CGY, DA, DUP, GAF, ICI, HDG, TCH, VPC.
Oleyl alcohol, ethoxylated	CRD.
Sperm oil alcohol, ethoxylated	DUP.
Stearyl alcohol, ethoxylated	TCH.
Tallow alcohol, ethoxylated	AAC, JCC, TCH.
Wool wax alcohols, ethoxylated	CRD.
*Other ethers and thioethers:	
tert-Dodecyl mercaptan, ethoxylated	AAC, UCC.
2-Ethylhexanol, ethoxylated	TCH.
Ethyloctanol, ethoxylated	TCH.
Glucose, ethoxylated	RH.
Glycerol, alkoxylated	NLC.
Isodecyl alcohol, ethoxylated	TCH.
Isodecyl alcohol, ethoxylated and propoxylated	TCH.
Iso-octyl alcohol, ethoxylated	GAF.
Lauryl alcohol, ethoxylated	ASH.
Mixed alcohols, ethoxylated	CRN, PVO, SYL, UCC.
Poly(mixed ethylene, propylene)glycol	BAS, NLC, UCC, WTC.
Polypropylene glycol, ethoxylated	ASH, NLC, WTC.
Rosin alcohol, ethoxylated	NLC.
Sorbitol, ethoxylated	TCH, WTC.
*Tridecyl alcohol, ethoxylated	AAC, DUP, GAF, ICI, JCC, MON, NLC, OMC, PVO, SYL, TCH, UCC, WTC.
Tridecyl alcohol, propoxylated and ethoxylated	JCC.
Trimethylheptanol, ethoxylated	TCH.
Trimethylnonyl alcohol, ethoxylated	HDG, UCC.
Trimethylolpropane, alkoxylated	BAS, HDG.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Ethers--Continued	
*Other nonionic surface-active agents:	
Dodecylbenzenesulfonic acid - diethanolamine condensate, fatty acid monoester.	ACT.
Octyl phosphate, ethoxylated----------	DUP.
Tri(castor oil alkyl)phosphate----------	GLY.
All other----------	AIP, STC, SYL.

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of surface-active agents to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

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

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1973--CONTINUED

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

Note.--Complete names and addresses of the above reporting companies are listed in Table I 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 1973 amounted to 1,289 million pounds--11.3 percent greater than the 1,158 million pounds reported for 1972 (table 1).[1] Sales in 1973 were 1,199 million pounds, valued at $1,344 million, compared with 1,022 million pounds, valued at $1,092 million, in 1972.

The output of cyclic pesticides and related products amounted to 910 million pounds in 1973--8.4 percent greater than the 839 million pounds produced in 1972. Sales in 1973 were 852 million pounds, valued at $1,091 million, compared with 720 million pounds, valued at $890 million in 1972. Production of acyclic pesticides and related products in 1973 amounted to 379 million pounds, compared with 318 million pounds reported for 1972, an increase of 19.1 percent. Sales in 1973 were 347 million pounds, an increase of about 15.0 percent, as compared to the 302 million pounds reported in 1972; the value of sales was $252 million in 1973, compared with $202 million in 1972--an increase of 24.9 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.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1973

[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 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	1,288,952	1,198,568	1,343,581	$1.12
Benzenoid	750,829	681,344	862,753	1.27
Nonbenzenoid	538,123	517,224	480,828	.93
PESTICIDES AND RELATED PRODUCTS, CYCLIC				
Total	909,901	851,568	1,091,211	1.28
Fungicides, total	110,336	101,968	81,015	.79
Mercury fungicides, total	651	567	2,183	3.85
Phenylmercuric acetate (PMA)	290	273	1,092	4.00
Other mercury fungicides	361	294	1,091	3.71
Naphthenic acid, copper salt	1,552	1,613	538	.33
Pentachloronphenol (PCP)	46,606	48,936	7,820	.16
All other cyclic fungicides[2]	61,527	50,852	70,474	1.39
Herbicides and plant hormones, total	386,852	351,805	683,041	1.94
1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)	...	3,947	5,727	1.45
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	29,542	30,199	10,737	.36
All other cyclic herbicides and plant hormones[3]	357,310	317,659	666,577	2.10
Insecticides and rodenticides, total	412,713	397,795	327,155	.82
Aldrin-toxaphene group[4]	145,584	141,963	74,366	.52
Organophosphorus insecticides, total	102,155	102,540	121,999	1.19
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (Methyl parathion)	48,890	52,450	26,046	.50
All other organophosphorus insecticides[5]	53,265	50,090	95,953	1.92
All other cyclic insecticides and rodenticides[6]	164,974	153,292	130,690	.85
PESTICIDES AND RELATED PRODUCTS, ACYCLIC				
Total	379,051	347,000	252,370	.73
Fungicides, total	43,628	44,436	27,120	.61
Dithiocarbamic acid salts[7]	41,417	41,583	21,238	.51
All other acyclic fungicides[8]	2,211	2,853	5,882	2.06
Herbicides and plant hormones, total	108,967	95,044	81,348	.86
Methanearsonic acid salts[9]	40,126	38,235	10,743	.28
All other acyclic herbicides[10]	68,841	56,809	70,605	1.24

See footnotes at end of table.

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Product	Production	Sales		
		Quantity	Value	Unit value[1]
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Insecticides, rodenticides, soil conditioners and fumigants, total	226,456	207,520	143,902	$0.69
Methyl bromide (Bromomethane)	29,571	28,663	11,580	.40
Organophosphorus insecticides[11]	70,450	65,438	91,034	1.39
All other acyclic insecticides, rodenticides, soil conditioners and fumigants[12]	126,435	113,419	41,288	.36

[1] Calculated from rounded figures.
[2] Includes cantan, captafol, dinocap, DMT, difolatan, folpet, pentachloronitrobenzene, sodium pentachlorophenate, tri- and tetra-chlorophenols (including 2,4,5-trichlorophenol and its salts), and others.
[3] Includes amiben esters and salts, atrazine, barban, benefin, bensulide, 2,4-D, acid, esters, and salts, 2,4-DB, dicamba, dimethylurea compounds, dinitrophenol compounds, isopropyl phenylcarbamates (IPC and CIPC), MCPA, MH (production only), 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 azinphosmethyl, carbophenothion, 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, methoxychlor, and others), insect attractants, DEET and other insect repellents, small amounts of rodenticides, pineronyl butoxide and other synergists, and others.
[7] Includes ferbam, maneb, naham, PETD and zineb, plus the remaining dithiocarbamates which are used chiefly as fungicides.
[8] Includes dodine, mercury compounds, and others.
[9] Includes the mono- and di-sodium salts, and the dodecyl- and octyl-ammonium salts of methanearsonic acid.
[10] Includes cacodylic acid, CDAA, dalapon, thiocarbamate, thiolcarbamate, and organophosphorus herbicides, sodium TCA, and others.
[11] Includes DDVP, dimethoate, disulfoton, ethion, malathion, monocrotophos, naled, phorate, and other organophosphorus insecticides.
[12] Includes aldicarb, chloropicrin, DBCP, soil conditioners and fumigants, methomyl, 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, 1973

[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-dioxaline	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-2,2,4-trimethylquinoline (Ethoxyquin).	MON.
3,5-Dimethyl-1,3,5-2H-tetrahydrothiadiazine-2-thione (DMTT).	MRK.
Diphenylammonium propionate	MRK.
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, WRC.
Phenylmercuric ammonium acetate	TRO.
Phenylmercuric dimethyldithiocarbamate	WRC.
Phenylmercuric hydroxide	WRC.
Phenylmercuric lactate	WRC.
Phenylmercuric oleate	CLY, HN, TRO, WRC.
Phenylmercuric propionate	MRK.
Phenylmercuric succinate	WRC.
Methyl-N-benzimidazol-2-yl-N-(butylcarbomoyl) 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, SHP, 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-Tetrachloroisophthalonitrile	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:	
2-Amino-4-N,N-diethylamino-3,5-dinitrobenzotrifluoride (Cobex).	x.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)	DOW.
2,4-Bis(isopropylamino)-6-methylthio-s-triazine (Prometryn).	CGY.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	ACN, DUP.
2-sec-Butylamino-4-ethylamino-6-methoxy-s-triazine.	CGY.
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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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-α,α,α-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.
2-(4-Chloro-6-ethylamino-s-triazin-2-ylamino)-2-methylpropionitrile (Cyanazine)	CGY.
2-Chloro-N-isopropylacetanilide (Propachlor)----------	MON.
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.
2,5-Dichloro-3-aminobenzoic acid, ammonium salt-------	GAF, x.
2,5-Dichloro-3-aminobenzoic acid, methyl ester--------	GAF.
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.
2,4-Dichlorophenoxypropionic acid---------------------	RDA.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)-------	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron).	DUP.
3',4'-Dichloropropionanilide (Propanil)---------------	EGR, MON, RH.
*1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH).	ACY, ASL, FMT, USR.
N-(beta-0,0-Diisopropyl-dithiophosphorylethyl)benzene sulfonamide (Bensulide).	SFA.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)-------	CWN.
Dimethyl-2,3,5,6-tetrachloroterephthalate (DCPA)------	DA.
Dinitrobutylphenol (DNBP)-----------------------------	DOW, FMN.
Dinitrobutylphenol, ammonium salt---------------------	DOW, FMN.
Dinitrobutylphenol, triethanolamine salt--------------	DOW, FMN.
Dinitrocresol, sodium salt----------------------------	FMN.
3,5-Dinitro-N^4, N^4- di(n-propylsulfanilamide (Oryzalin).	LIL.
2-Ethylamino-4-isopropylamino-6-methylmercapto-s-triazine (Ametryne).	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.	CGY.
Gibberellic acid--------------------------------------	ABB, MRK.
3-Indolebutyric acid----------------------------------	ARA, MRK.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)----------	PPG.
Isopropyl N-phenylcarbamate (IPC)---------------------	PPG.
2-Methoxy-4,6-bis(isopropylamino)-s-triazine (Prometron).	CGY.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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.
4-(Methylsulfonyl)-2,6-dinitro-N,N-dipropylaniline (Nitralin).	SHC.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetic acid, sodium salt----------	AMC, BKL.
1,8-Naphthalic anhydride----------	GOC.
N-1-Naphthylphthalamic acid (NPA)----------	USR.
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (Endothall).	PAS.
Phenoxyacetic acid derivatives:	
4-Chloro-2-methylphenoxyacetic acid (MCPA)----------	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-butoxyethyl ester.	DOW, RIV.
2,4-Dichlorophenoxyacetic acid, butoxypolypropyleneglycol ester.	DOW.
2,4-Dichlorophenoxyacetic acid, n-butyl ester------	RIV.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester----	DOW, RDA.
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt.	DOW, PBI, 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.
2,4-Dichlorophenoxyacetic acid, lithium salt-------	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt--------	DOW, RIV.
2,4,5-Trichlorophenoxyacetic acid esters and salts:	
2,4,5-Trichlorophenoxyacetic acid, 2-butoxyethyl ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, butoxypolypropyleneglycol ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, sec-butyl ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester.	DOW, RIV, TMH.
2,4,5-Trichlorophenoxyacetic acid, triethylamine salt.	DOW.
Polychloro-tetrahydro-methanoindene (Polychlorodicyclopentadiene) isomers.	VEL.
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)------	DOW, TMH.
2-(2,4,5-Trichlorophenoxy)propionic acid esters and salts:	
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-butoxyethyl ester.	DOW, RIV.
2-(2,4,5-Trichlorophenoxy)propionic acid, butoxypolypropylene glycol ester.	DOW.
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----------	LIL, RH, x.
Insect attractants and repellents:	
tert-Butyl 4(and 5)-chloro-2-methylcyclohexanecarboxylate (Trimedlure).	UOP.
2-(3,4-Dichlorophenyl)-1,2,4-oxadiazoline-4-methyl-3,5-dione.	NES.
N,N-Diethyltoluamide (DEET)----------	HPC, PFZ.
Di-n-propylisocinchomeronate----------	MGK.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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-propenyl)cyclopropane carboxylate (Resmethrin).	PEN.
Bacillus thuringiensis	ABB, DMC, 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.
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane (DDD) (TDE).	RH.
α-Bis(p-chlorophenyl)β,β,β-trichloroethane (DDT)	MTO.
Chlorobenzilate	CGY.
o-Chlorophenyl-N-methylcarbamate	OTC.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone (Tetradifon).	FMN.
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta-[cd] pentalen-2-one (Chlordecone).	ACN.
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.
Hexachlorocyclohexane (Benzene hexachloride) (BHC)	HK.
Hexachlorocyclohexane, 100% γ-isomer (Lindane)	HK.
Hexachloro-hexahydro-methano-benzodioxathiepin 3-oxide (Endosulfan).	HK.
Isopropyl 4,4'-dichlorobenzilate (Chloropropylate)	CGY.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	ACN, CHF, DUP.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methyl-carbamate (Carbofuran).	FMC.
m-[[(Dimethylamino)methylene]amino]phenyl-N-methyl-carbamate.	X.
m-[[(Dimethylamino)methylene]amino]phenyl methyl-carbamate hydrochloride (Formetanate hydrochloride).	MRT.
m-(1-Ethylpropyl)phenyl methylcarbamate	ORO.
m-(1-Methylbutyl)phenyl methylcarbamate	ORO.
1-Naphthyl N-methylcarbamate (Carbaryl)	UCC.
Organophosphorus insecticides:	
O-(4-Bromo-2,5-dichlorophenyl)O-methyl phenyl-phosphonothioate (Leptophos).	VEL.
4-tert-Butyl-2-chlorophenylmethyl methylphos-phoramidite.	DOW.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
Insecticides--Continued	
*Organophosphorus insecticides--Continued	
S-[[(p-Chlorophenyl)thio]methyl 0,0-diethyl phosphorodithioate (Carbophenothion).	SFA.
0,0-Diethyl 0-3-chloro-4-methyl-1-oxo-2H-1-benzopyran-7-yl-phosphorothioate (Coumaphos).	CHG.
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, VEL.
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-nitrophenyl phenylphosphonothioate (EPN).	SFA.
0-Ethyl S-phenylethylphosphonodithioate	SFA.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-crotonate.	SHC.
0,0,0',0'-Tetramethyl 0,0'-thiodi-p-phenylene phosphorothioate.	ACY.
All other organophosphorus insecticides	SFA, SHC.
N-(1-Phenyl-2-nitropropyl)piperazine	MRK.
All other cyclic insecticides	PFZ, PLC.
Nematocides:	
0,0-Diethyl 0-(2,4-dichlorophenyl) phosphorothioate (Dichlofenthion).	SM.
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin).	ACY.
Rodenticides:	
3-(α-Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)	MOT, PLN.
2-Diphenylacetyl-1,3-indandione and sodium salt (Diphacinone).	NIS.
2-Pivaloyl-1,3-indandione (Pindone)	MOT, PIC.
Synergists and adjuvants:	
α-[2-(2-n-Butoxyethoxy)-ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide).	ALP, BKL, FMC, 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	PLN.
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, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Fungicides--Continued	
1-Chloro-2-nitropropane (Korax)	FMN.
Copper tallate	AMP.
Dimethylthiocarbonyl disulfide	CLY.
Disodium cyanodithioimidocarbonate	x.
*Dithiocarbamic acid fungicides:	
Dimethyldithiocarbamic acid, ferric salt (Ferbam)	FMN.
Dimethyldithiocarbamic acid, manganese salt	FMN.
Dimethyldithiocarbamic acid, potassium salt	BKM.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam).	ALC, RH, USR.
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.
Polyethylenethiuram disulfide (PETD)	FMN.
All other dithiocarbamic acid fungicides	VNC.
n-Dodecylguanidine acetate (Dodine)	ACY.
2-Hydroxypropylmethanethiol sulfonate	x.
Chloromethoxypropylmercuric acetate	TRO.
*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.
S-2,3-Dichloroallyl diisopropylthiolcarbamate (Diallate).	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)	DOW.
N-Dimethylaminosuccinamic acid (DMSA)	USR.
Dimethylarsinic acid (Cacodylic acid)	ASL.
S-Ethyl-N,N-diisobutylthiocarbamate (Butylate)	SFA.
S-Ethyl N,N-dipropylthiolcarbamate (EPTC)	SFA.
Ethyl xanthogen disulfide (EXD)	RBC.
*Methanearsonic acid, disodium salt (DSMA)	ASL, CLY, VIN.
*Methanearsonic acid, dodecyl- and octylammonium salt	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,S-Tributyl phosphorotrithioate	PLC.
Tributyl phosphorotrithioite (Merphos)	SM.
Trichloroacetic acid, sodium salt (TCA)	DOW.
S-2,3,3-Trichloroallyl diisopropylthiolcarbamate (Triallate).	MON.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
S-Methyl N-[(methylcarbamoyl)oxy]thioacetimidate (Methomyl).	DUP.
*Organophosphorus insecticides:	
S-[1,2-Bis(ethoxycarbonyl)ethyl] O,O-dimethyl phosphorodithioate (Malathion).	ACN, ACY.
2-Carbomethoxy-1-propen-2yl dimethyl phosphate (Mevinphos).	SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled).	SHC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--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-2-(ethylthio)ethyl phosphorodithioate (Disulfoton).	CHG.
0,0-Diethyl O-2-(ethylthio)ethyl phosphorothioate (Demeton O).	CHG.
0,0-Diethyl S-(ethylthio)methyl phosphorodithioate (Phorate).	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide (Dicrotophos).	SHC.
0,0-Dimethyl 2,2-dichlorovinyl phosphate (Dichlorvos).	SHC.
0,0-Dimethyl S-[2-ethylsulfinyl)ethyl]phosphorothioate (Oxydemetonmethyl).	CHG.
0,0-Dimethyl S-(N-methylcarbamoylmethyl)phosphorodithioate (Dimethoate).	ACY.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis crotonamide (Monocrotophos).	SHC.
0,S-Dimethyl phosphoramidothioate	CHG.
0,0,0',0'-Tetraethyl S,S'-methylene bisphosphorodithioate (Ethion).	FMN, FMP.
0,0,0',0'-Tetra-n-propyl dithiopyrophosphate	SFA.
All other acyclic insecticides	PLC.
Nematocides:	
O-Ethyl S,S-dipropyl phosphorodithioate	SM.
2-Methyl-2-(methylthio)propionaldehyde O-(methylcarbamoyl)oxime (Aldicarb).	CGY, UCC.
Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY.
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.
Methyl isothiocyanate	MRT.
Trichloronitromethane (Chloropicrin)	DOW, NLO, SBN.
All other acyclic pesticides and related products	ACY, PLC, RBC, SFA, TRO.

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1973

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 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ABB	Abbott Laboratories
ACN	Allied Chemical Corp., Agricultural Div.
ACY	American Cyanamid Co.
ALC	Alco Chemical Corp.
ALP	Alpha Laboratories, Inc.
AMC	Amchem Products, Inc., Div. of Rorer-Amchem, Inc.
AMP	Kerr-McGee Chemical Corp.
ARA	Aranahoe Chemical, Inc. Sub. of Syntex (U.S.A.) Inc.
ASH	Ashland Oil, Inc. Ashland Chemical Co. Div.
ASL	Ansul Chemical Co.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.
BKM	Buckman Labs., Inc.
CCA	Cincinnati Milacron Chemicals, Inc.
CGY	Ciba-Geigy Corp., Ciba Agricultural Co.
CHF	Chemical Formulators, Inc.
CHG	Baychem Corp., Chemagro Div.
CLY	W. A. Cleary Corp.
CWN	Upjohn Co., Fine Chemical Div.
DA	Diamond Shamrock Corp.
DOW	Dow Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc.
EFH	E. F. Houghton & Co.
EGR	Eagle River Chemical Corp.
FER	Ferro Corp., Ferro Chemical Div.
FMC	FMC Corp.:
FMN	Agricultural Chemical Div.
FMP	Industrial Chemical Div., Organic Business Group
FMT	Fairmount Chemical Co.
FRO	Vulcan Materials, Co., Chemical Div.
GAF	GAF Corp., Chemical Div.
GOC	Gulf Oil Corp., Gulf Oil Chemical Co.-U.S.
GTH	Guth Chemical Co.
GTL	Great Lakes Chemical Corp.
HK	Hooker Chemicals & Plastics Corp.
HN	Tenneco Chemicals, Inc.
HPC	Hercules, Inc.
IMC	International Minerals & Chemical Corp.
LIL	Eli Lilly & Co.
MAL	Mallinckrodt Chemical Works
MCH	Michigan Chemical Corp.
MCI	Mooney Chemical Corp.
MGK	McLaughlin, Gormley & King Co.
MON	Monsanto Co.
MOT	Motomoco, Inc.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co. Div. of Morton-Norwich Products, Inc.
MTO	Montrose Chemical Corp. of California
NFS	Nease Chemical Co., Inc.
NLO	Niklor Chemical Co.
OMC	Olin Corp.
ORO	Chevron Chemical Co.
OTC	Story Chemical Corp.
PAS	Pennwalt Corp.
PBI	Gordon Corp.
PEN	CPC International, Inc., Penick Div.
PFE	Pfizer, Inc.
PIC	Pierce Organics, Inc.
PLC	Phillips Petroleum Co.
PPG	PPG Industries, Inc.
RBC	Fike Chemicals, Inc.
RCI	Reichhold Chemicals, Inc.
RDA	Rhodia, Inc.
RH	Rohm & Haas Co.
RIV	Riverdale Chemical Co.
S	Sandoz-Wander, Inc.
SAL	Salsbury Laboratories
SBN	Sobin Chemical Co.
SFA	Stauffer Chemical Co.: Agricultural Div.
SFC	Calhio Chemicals, Inc. Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHP	Shepherd Chemical Co.
SM	Mobil Oil Corp., Mobil Chemical Co. Div., Industrial Chemical Div.
TMH	Thompson-Hayward Chemical Co.
TRO	Troy Chemical Co.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Div.
USR	Uniroyal, Inc., Chemical Div.
VEL	Velsicol Chemical Corp.
VIN	Vineland Chemical Co.
VNC	Vanderbilt Chemical Corp.
WRC	Ventron Corp., Ventron Chemical
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 1973 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 1973 totaled almost 99 billion pounds, or 9.4 percent more than the output of 90.5 billion pounds reported for 1972. Sales of miscellaneous chemicals in 1973 amounted to 49.7 billion pounds, valued as $5.3 billion, compared with 45.2 billion pounds, valued at $4.7 billion in 1972.

The total output of miscellaneous cyclic chemicals in 1973 was 3.2 billion pounds. Sales in 1973 totaled 1.5 billion pounds, valued at $523 million. In 1973, the most important cyclic compound was polyethylene terephthalate, the output of which was 1.7 billion pounds. The lubricating oil and grease additives group output increased significantly, from 388 million pounds in 1972 to 535 million pounds in 1973.

Total production of miscellaneous acyclic chemicals in 1973 was 95.7 billion pounds, or 8.7 percent more than the output of 88.1 billion pounds reported for 1972. Sales in 1973 totaled 48.2 billion pounds, valued at $4.8 billion, compared with 44.0 billion pounds, valued at $4.3 billion, in 1972. 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 1973, 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 22.6 billion pounds. The most important chemicals in this group were dichloroethane (production of 9.3 billion pounds in 1973, compared with 7.8 billion pounds in 1972) and vinyl chloride (5.4 billion pounds

in 1973, compared with 5.1 billion pounds in 1972). Output of nitrogenous compounds totaled 17.0 billion pounds. The most important chemical in this group was urea (used principally in fertilizers and as a feed additive), production of which was 7.1 billion pounds in 1973 and 6.9 billion pounds in 1972.

Monohydric alcohols, which are used largely as solvents and intermediates, were the third largest group in 1973, with production of 14.9 billion pounds. The most important items in the group in terms of production were synthetic methanol (7.1 billion pounds in 1973, compared with 6.5 billion pounds in 1972), synthetic ethyl alcohol (2.0 billion pounds in 1973, compared with 1.8 billion pounds in 1972) and isopropyl alcohol (remaining at the 1.8 billion pound level in 1973). Aldehydes and ketones, which are also used largely as solvents and intermediates, were the next largest group with production of 12.2 billion pounds. The most important items in this group in 1973 were formaldehyde (6.4 billion pounds) and acetone (2.0 billion pounds).

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973

[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 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*
Grand total	98,973,517	49,666,924	5,286,928	$0.11
MISCELLANEOUS CHEMICALS, CYCLIC				
Total	3,224,383	1,478,792	523,356	.35
Benzoic acid, sodium salt	11,783	12,718	3,879	.31
Benzoyl peroxide	8,829	7,930	7,405	.93
Benzyl alcohol	12,862	13,356	4,073	.30
Butyl benzoate	5,095	5,144	962	.19
tert-Butyl peroxybenzoate	2,434	2,440	2,479	1.02
2,6-Di-tert-butyl-p-cresol:				
Food grade	8,057	8,621	4,563	.53
Tech	23,907	19,337	9,347	.48
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	776	...	...	...
Dioxane (1,4-Diethylene oxide)	16,223	6,928	2,308	.33
Enzymes	(2)	(2)	26,244	...
Flotation reagents	11,195	9,740	1,601	.16
Gasoline additives[3]	55,121	...	...	...
Hexamethylenetetramine, tech	100,711	71,073	9,070	.13
p-Hydroxybenzoic acid esters:				
Methyl p-hydroxybenzoate (Methylparaben)	1,085	1,111	1,714	1.54
Propyl p-hydroxybenzoate (Propylparaben)	358	329	604	1.84
Lubricating oil and grease additives, total	534,821	372,106	73,818	.20
Oil-soluble petroleum sulfonates, total	371,410	244,515	39,085	.16
Oil-soluble petroleum sulfonates, calcium salt	197,352	105,605	15,966	.15
Oil-soluble petroleum sulfonates, sodium salt	128,177	105,930	14,192	.13
All other	45,881	32,980	8,927	.27
Phenol salts	78,481	...	...	...
All other lubricating oil and grease additives	84,930	127,591	34,733	.27
Morpholine	...	25,963	7,868	.30
Naphthenic acid salts, total[4] [5]	20,170	19,346	6,992	.36
Calcium naphthenate	1,303	1,322	502	.38
Cobalt naphthenate	3,252	3,220	2,354	.73
Iron naphthenate	...	223	77	.35
Lead naphthenate	11,611	...	...	...
Manganese naphthenate	1,200	1,232	421	.34
Zinc naphthenate	1,276	1,231	394	.32
All other	1,528	12,118	3,244	.27
Photographic chemicals:				
2,5-Diethoxy-4-morpholinobenzenediazonium chloride	155	157	902	5.75
p-Diethylaminobenzenediazonium chloride	142	142	271	1.91
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride	18	18	56	3.11

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, CYCLIC--Continued				
Pinenes (α- and β-)	85,102	51,767	6,251	$0.12
Polyethylene terephthalate	1,672,314	322,075	93,401	.29
Tall oil salts, total[5]	7,460	7,529	1,693	.22
Cobalt tallate	1,050	1,044	571	.55
Copper tallate	66	60	18	.30
Lead tallate	1,333	1,395	330	.24
Manganese tallate	455	464	154	.33
All other	4,556	4,566	620	.14
Tanning materials, synthetic	54,932	55,151	12,234	.22
All other miscellaneous cyclic chemicals	590,833	465,811	245,621	.53
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total	95,749,134	48,188,132	4,763,572	.10
Cellulose Esters and Ethers				
Total	1,065,806	323,087	139,766	.43
Cellulose esters: Cellulose acetate	834,489	...	...	...
Cellulose ethers: Sodium carboxymethylcellulose, 100%	68,542	73,442	33,682	.46
All other cellulose esters and ethers[6]	162,775	249,645	106,084	.42
Lubricating Oil Additives				
Total	569,641	209,188	48,034	.23
Phosphorodithioates (Thiophosphates)	129,050	...	...	...
Sulfur compounds: Sulfurized lard oil	4,041	2,841	668	.24
All other	436,550	206,347	47,366	.23
Nitrogenous Compounds				
Total[7]	17,040,379	9,228,234	945,437	.10
Acrylonitrile	1,354,160	480,715	50,878	.11
Amines, total	1,376,156	368,820	85,437	.23
Butylamines	19,771	10,545	3,453	.33
Diethylenetriamine	...	30,857	10,206	.33
Ethylamines	...	29,163	5,493	.19
Ethylenediamine	...	52,731	10,895	.21
1,6-Hexanediamine (Hexamethylenediamine)	918,312	...	...	...
Methylamines:				
Dimethylamine	121,522	50,152	5,107	.10
Methylamine, mono	57,015	26,719	2,395	.09
Trimethylamine	28,892	23,526	2,263	.10

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Nitrogenous compounds--Continued				
Amines--Continued				
Propylamines:				
Dipropylamine	18,104	18,103	4,708	$0.26
Propylamine, mono-	439	416	253	.61
Triethylenetetramine	...	16,102	5,880	.37
All other	232,101	110,506	34,784	.31
Caprolactam	656,297	293,886	57,944	.20
2-Dimethylaminoethanol	4,204	...	...	...
Erucamide	3,674	3,513	3,648	1.04
Ethanolamines, total	293,061	267,276	31,757	.12
2-Aminoethanol (Monoethanolamine)	88,376	82,458	9,300	.11
2,2'-Aminodiethanol (Diethanolamine)	106,171	87,446	9,323	.11
2,2',2'''-Nitrilotriethanol (Triethanolamine)	98,514	97,372	13,134	.14
N,N'-Ethylene bis(stearamide)	8,297	8,896	3,170	.36
Hexamethylenediammonium adipate (Nylon salt)	770,395	...	...	...
Nitriloacids and salts, total	160,856	125,466	32,305	.26
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt	4,134	3,960	1,096	.28
(Ethylenedinitrilo)tetraacetic acid, disodium salt	1,495	...	...	...
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate	3,501	3,189	1,538	.48
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	62,787	38,954	10,675	.27
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	7,210	5,033	2,109	.42
All other	81,729	74,330	16,887	.23
Nylon 6 and 6/6 (polymers for fiber, only)	1,692,133	...	...	...
Pentaerythritol tetranitrate	5,171	3,375	2,928	.87
Polyacrylamide	19,996	17,289	13,774	.80
Polyacrylonitrile	751,695	...	...	...
Urea in compounds or mixtures (100% basis), total	[8] 7,086,178	6,756,710	[9] 228,103	.03
In feed compounds	818,046	797,375	26,058	.03
In liquid fertilizer	2,472,051	2,225,507	79,093	.04
In solid fertilizer	2,912,346	3,182,133	105,816	.03
All other	883,735	551,697	17,136	.03
All other nitrogenous compounds	2,858,106	907,288	435,493	.48
Acids, Acyl Halides and Anhydrides				
Total	7,184,058	1,943,065	275,121	.14
Acetic acid, synthetic, 100%	2,428,606	608,742	32,069	.05
Acetic anhydride, 100%	1,670,046	...	...	...
Acrylic acid	131,627	26,425	5,434	.21
Adipic acid	1,567,113	152,750	24,757	.16
Dodecenylsuccinic anhydride	1,644	1,575	711	.45
Formic acid, 90%	53,106	44,688	4,099	.09

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Acids, Acyl Halides and Anhydrides--Continued				
Fumaric acid	53,509	45,631	8,955	$0.20
Lauroyl chloride	4,198	...	...	...
Maleic anhydride	281,813	213,906	32,330	.15
Polyacrylic acid	873	833	497	.60
Propionic acid	60,392	53,324	5,184	.10
All other acids, acyl halides and anhydrides	931,131	795,191	161,085	.20
Salts of Organic Acids				
Total	347,704	305,098	119,116	.39
Acetic acid salts, total	27,726	33,806	7,308	.22
Copper acetate	291	281	268	.95
Potassium acetate	2,567	2,291	686	.30
Sodium acetate	...	20,551	3,654	.18
Zinc acetate	526	615	244	.40
Zirconium acetate	...	287	115	.40
All other	24,342	9,781	2,341	.24
Allylsulfonic acid, sodium salt	1,857	1,716	918	.53
2-Ethylhexanoic acid (α-Ethylcaproic acid) salts, total	11,390	9,618	8,642	.90
Calcium 2-ethylhexanoate	2,003	1,179	572	.49
Cobalt 2-ethylhexanoate	3,225	2,776	2,692	.97
Lead 2-ethylhexanoate	891	615	171	.28
Manganese 2-ethylhexanoate	455	...	...	...
Zinc 2-ethylhexanoate	1,172	1,116	664	.59
Zirconium 2-ethylhexanoate	1,828	1,749	2,030	1.16
All other	1,816	2,183	2,513	1.15
Formic acid, sodium salt, tech	38,566	38,412	1,184	.03
Gluconic acid, sodium salt	11,841	14,639	3,817	.26
Lactic acid salts	2,534	2,051	1,030	.50
Octanoic acid salts	1,630	1,369	1,775	1.30
Oleic acid salts	1,012	692	480	.69
Palmitic acid salts	104	...	...	...
Propionic acid salts:				
Calcium propionate	20,164	16,037	3,612	.23
Sodium propionate	3,580	...	...	...
Stearic acid salts, total[10]	75,749	73,493	30,314	.41
Aluminum stearates, total	3,699	3,684	1,784	.48
Aluminum distearate	2,845	2,878	1,388	.48
Aluminum monostearate	465	432	217	.50
Aluminum tristearate	389	374	179	.48
Barium stearate	435	431	218	.51
Calcium stearate	42,838	43,015	15,995	.37
Magnesium stearate	6,154	4,332	2,023	.47
Zinc stearate	18,640	18,242	8,418	.46
All other	3,983	3,789	1,876	.50
All other salts of organic acids	151,551	113,265	60,036	.53

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Aldehydes and Ketones				
Total	12,183,262	6,111,697	271,701	$0.04
Acetone, total	1,989,469	1,547,689	67,928	.04
From cumene	1,240,109	849,868	36,942	.04
All other	749,360	697,821	30,986	.04
2-Butanone (Methyl ethyl ketone)	540,709	520,126	43,686	.08
Butyraldehyde	477,001	...	...	...
Formaldehyde (37% by weight)	6,424,113	2,771,589	51,578	.02
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	...	50,994	6,317	.12
4-Methyl-2-pentanone (Methyl isobutyl ketone)	154,751	168,909	18,846	.11
All other aldehydes and ketones	2,597,219	1,052,390	83,346	.08
Alcohols, Monohydric, Unsubstituted				
Total	14,873,319	8,980,682	411,627	.05
Alcohols, C_{11} or lower, unmixed:				
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)	518,551	383,405	30,245	.08
Isobutyl alcohol (Isopropylcarbinol)	132,830	104,575	5,656	.05
Ethyl alcohol, synthetic[11]	1,961,829	1,520,227	84,015	.06
2-Ethyl-1-hexanol	402,307	346,302	33,136	.10
Hexyl alcohol	19,826	...	...	...
Isodecyl alcohol	174,317	46,943	5,039	.11
Iso-octyl alcohols	49,259	36,402	3,936	.11
Isopropyl alcohol	1,834,952	899,752	52,533	.06
Methanol, synthetic	7,064,370	3,841,752	64,306	.02
Propyl alcohol (Propanol)	92,603	80,145	9,160	.11
Alcohols, C_{12} and higher, unmixed: Stearyl and other octadecyl alcohols	...	10,961	3,544	.32
Mixtures of alcohols, total	540,503	431,445	58,920	.14
C_{11} and lower, only	114,142	112,539	11,933	.11
C_{12} and higher, only	426,361	318,906	46,987	.15
All other monohydric alcohols, unsubstituted (including mixtures)	2,081,972	1,278,773	61,137	.05
Polyhydric Alcohols and Their Esters and Ethers				
Total[12]	6,256,772	5,270,251	559,970	.11
Polyhydric alcohols, total	4,686,022	3,937,346	357,601	.09
Ethylene glycol	3,277,639	2,828,598	193,317	.07
Glycerol, synthetic only	207,983	...	...	...
2-Methyl-2,4-pentanediol (Hexylene glycol)	23,917	33,416	4,978	.15
Pentaerythritol	103,237	103,636	18,344	.18
Propylene glycol (1,2-Propanediol)	501,808	520,298	44,911	.09
Sorbitol	157,956	105,908	22,799	.22
All other	413,482	345,490	73,252	.21
Polyhydric alcohol esters, total	219,606	255,938	55,203	.22
Ethylene glycol diacetate	6,119	6,217	1,152	.18
All other	213,487	249,721	54,051	.22

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Polyhydric Alcohols and Their Esters and Ethers--Continued				
Polyhydric alcohol ethers, total	1,351,144	1,076,967	147,166	$0.14
2-Butoxyethanol (Ethylene glycol monobutyl ether)	137,773	120,966	17,533	.14
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monoisobutyl ether)	25,331	21,492	3,348	.16
Diethylene glycol	268,704	212,781	13,410	.06
Dipropylene glycol	55,282	52,105	4,793	.09
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	190,261	96,620	11,775	.12
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	27,809	33,546	4,808	.14
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	23,446	...	...	...
2-Methoxyethanol (Ethylene glycol monomethyl ether)	86,246	88,754	10,681	.12
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	29,072	12,759	1,954	.15
2-(2-Methoxyethoxy)ethanol (Diethyleneglycol monomethyl ether)	13,725	15,213	1,848	.12
Polyethylene glycol	56,917	53,997	12,382	.23
Polypropylene glycol	85,458	67,714	12,065	.18
Tetraethylene glycol	12,155	8,365	1,134	.14
Triethylene glycol	113,097	93,552	10,695	.11
Tripropylene glycol	...	1,837	307	.17
All other ethers of polyhydric alcohols	227,870	197,266	40,633	.21
Esters of Monohydric Alcohols				
Total	3,675,654	2,247,272	304,442	.14
n-Butyl acetate, unmixed	81,080	90,746	10,707	.12
Isobutyl acetate, unmixed	...	56,685	5,688	.10
Butyl acrylate	128,003	78,130	13,027	.17
tert-Butyl-peroxy-2-ethylhexanoate	1,424	1,415	2,049	1.45
tert-Butyl peroxypivalate	1,014	1,003	1,741	1.74
Dibutyl maleate	11,226	...	...	...
Diethyl malonate	718	...	...	...
Diethyl(1-methylbutyl)malonate	290	...	...	...
Dilauryl 3,3'-thiodipropionate	1,912	1,848	1,290	.70
Dioctyl maleate	7,692	6,878	1,194	.17
Distearyl 3,3'-thiodipropionate	2,084	1,924	1,382	.72
Ethyl acetate (85%)	221,477	219,517	19,473	.09
Ethyl acrylate	275,506	136,410	21,107	.15
2-Ethyl-1-hexyl acrylate	49,089	44,678	8,567	.19
Iso-octyl mercaptoacetate	6,451	...	...	...
Isopropyl acetate	...	44,843	4,756	.11
Methyl methacrylate, monomer	706,295	...	...	...
Phosphorus acid esters, not elsewhere specified	82,027	63,121	27,602	.44
Propyl acetate	34,585	34,768	4,319	.12
Vinyl acetate	1,502,666	962,740	67,095	.07
All other	562,145	522,566	116,445	.22

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1973--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Halogenated Hydrocarbons				
Total	22,603,048	10,259,807	794,482	$0.08
Carbon tetrachloride	1,047,318	989,388	59,531	.06
Chlorinated paraffins, total	74,566	76,003	11,581	.15
35-64% chlorine	56,627	58,857	7,904	.13
Other	17,938	17,146	3,677	.21
Chlorodifluoromethane	...	97,461	43,682	.45
Chloroethane (Ethyl chloride)	660,120	281,598	18,559	.07
Chloroform	252,786	243,828	16,018	.07
Chloromethane (Methyl chloride)	[13] 544,060	227,342	12,553	.06
1,2-Dibromoethane (Ethylene dibromide)	331,121	169,284	28,100	.17
Dichlorodifluoromethane	488,851	463,894	110,812	.24
1,2-Dichloroethane (Ethylene dichloride)	[13] 9,292,704	1,351,414	40,489	.03
Dichloromethane (Methylene chloride)	520,183	473,891	37,297	.08
Iodoethane (Ethyl iodide)	10	...	...	...
Iodomethane (Methyl iodide)	19	...	...	...
Tetrachloroethylene (Perchloroethylene)	705,819	734,395	47,294	.06
1,1,1-Trichloroethane (Methylchloroform)	548,394	566,194	49,534	.09
Trichloroethylene	451,702	463,099	32,956	.07
Trichlorofluoromethane	333,773	328,992	61,352	.19
Vinyl chloride, monomer (Chloroethylene)	5,351,056	3,554,276	147,518	.04
All other halogenated hydrocarbons	2,000,586	238,748	77,206	.32
All Other Miscellaneous Acyclic Chemicals				
Total	9,949,491	3,309,751	893,876	.27
2-Butanone peroxide	6,429	6,384	6,205	.97
tert-Butyl peroxide (Di-tert-butyl peroxide)	2,439	2,394	1,771	.74
Carbon disulfide	777,420	552,420	21,179	.04
Epoxides, ethers, and acetals, total	6,509,228	1,375,628	119,300	.09
Ethylene oxide	4,167,076	501,074	34,913	.07
Ethyl ether, tech	68,824	...	...	...
Ethyl ether, U.S.P.	3,610	...	...	...
Isopropyl ether	...	9,789	931	.10
Propylene oxide	1,753,085	...	...	...
All other epoxides, ethers, and acetals	516,635	864,765	83,456	.10
Organo-silicon compounds, total	253,983	115,083	148,609	1.29
Silicone fluids	90,330	70,029	77,446	1.11
Other organo-silicon compounds	143,653	45,054	71,163	1.58
Phosgene (Carbonyl chloride)	728,164	...	...	...
Sodium methoxide (Sodium methylate)	7,592	8,004	2,189	.27
Tetraethyllead	353,346	...	...	...
Other organo-lead compounds	765,390	959,013	518,667	.54
All other	567,500	290,825	75,958	.26

See footnotes on following page.

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 7,270,732 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 and ethylene dichloride 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, 1973

[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.
Acetylcyclohexanesulfonyl peroxide	WTL.
Adenosine and derivatives	PLB.
3-(3"-Aminobenzamide)-1-(2',4',6'-trichlorophenyl)-5-pyrazole.	x.
2-Aminobenzothiazole	FMT.
1-(2-Aminoethyl)piperazine	JCC, UCC.
1-(2-Aminoethyl) piperazine, technical	UCC.
1-(2-Aminopropyl) piperazine	JCC.
Amyl p-dimethylaminobenzoate	VND.
Benzatriazoles, substituted	CGY.
*Benzoic acid, sodium salt	HN, MON, PFZ, VEL, WSN.
p-Benzoquinone (p-Quinone)	EKT.
Benzothiazole	ACY.
*Benzoyl peroxide	AZT, CAD, NOC, RCI, WTC, WTL.
*Benzyl alcohol	BPC, HN, MNR, UOP, VFL.
Bis(2,4-dichlorobenzoyl) peroxide	CAD, WTL.
1,8-Bis-(dimethylamino)naphthalene	ALD.
Bis(α,α-dimethylbenzyl)peroxide	WTL.
2,4-Bis(4-Hydroxy-3,5-di-tert-butylphenoxy)-6-(n-octylthio)-1,3,5-triazine.	CGY.
1,3-Bis(N-m-methoxyphenylurethane benzene	OTC.
2,4-Bis(n-octylthio)-6-(4'-hydroxy-3',5'-di-tert-butylanilino)-1,3,5-triazine.	CGY.
2-Bromothiazole	ALD.
Boron fluoride-phenol complex	ACS.
*Butyl benzoate	CHL, CPS, PFZ, TCC, VFL.
2(and 3)-tert-Butyl-4-methoxyphenol	EKT.
*tert-Butyl peroxybenzoate	AZT, CAD, NOC, WTC, WTL.
4-tert-Butylpyrocatechol	BKL, DOW.
Camphene	GLD, HN, HPC.
Cellulose acetate phthalate	x.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)	OTC.
Chemical indicators and reagents	EK, FIN, GFS, LAM, NEP, PFN, x.
Chloramine B (Sodium derivative of N-chlorobenzenesulfonamide).	NES.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride.	DOW.
o-Chlorobenzamalononitrile	ASH.
Chlorophyllin, sodium-potassium-copper	KCH.
Cumene hydroperoxide	ACP, RCI.
Cyanuric acid	FMB.
1,3-Cyclohexadiene	ALD.
Cyclohexanone peroxide	AZT, NOC.
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid) disubstituted, polyester salts: Barium and cadmium salts.	RCI.
Cyclohexyl chloride	x.
1,4-Cyclohexylenedimethanol	EKT.
Cyclopropanecarboxylic acid or acid chloride	ALD.
Cyclopropane	OH, TAE.
Cytidine and derivatives	PLB.
Decabromobiphenyl or ether	FIN.
Decahydronaphthalene (Decalin)	DUP.
Dehydroacetic acid or sodium salt	GAN.
2,5-Di-tert-amylhydroquinone	EKT.
1,4-Diazobicyc1-(2.2.2)octane	AIP.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Diazodinitrophenol	HPC.
2,5-Di(benzoylperoxy)-2,5-dimethylhexane	WTL.
Di- and tribomosalicylanilide	FIN.
2,6-Di-tert-butyl-p-cresol:	
*Food grade	ASH, KPT, SHC, USR.
*Tech	ASH, KPT, PRD, SHC, USR.
2,5-Di-tert-butylhydroquinone	EKT.
Di-tert-butyl diperoxyphthalate	WTL.
1,3-Dichloro-5,5-dimethylhydantoin	GLY.
4,4'-Dichloro-3-(trifluoromethyl)carbanilide	CGY.
Dicyclohexylammonium nitrate	OMC.
2,5-Dihydrothiophene-1,1-dioxide (Sulfolene)	PLC.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone	GAF.
3,5-Dihydroxy-3,5-dimethyl-1,2-peroxycyclopentane	WTL.
2,6-Dihydroxyisonicotinic acid (2,6-Dihydroxy-4-carboxypyridine).	EK.
2,2'-Dihydroxy-4-methoxybenzophenone	ACY.
Diiodomethyl-p-tolyl sulphone	ABB.
Diisopropylbenzene hydroperoxide	HPC.
Diisopropyl cresols	GIV.
Diketene	ALD, EKT, EMP.
*p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT, GAF.
2,6-Dimethylmorpholine	DOW, UCC.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Di-n-octadecyl-3,5-di-tert-butyl-4-hydroxyphenyl phosphonate.	CGY.
1,2-Dioctylcyclobutane-3,4-bis(octamethyleneisocyanate)	x.
*Dioxane (1,4-Diethylene oxide)	DOW, FER, UCC.
1,3-Dioxolane	FER.
Dipropylene glycol salicylate	SBC.
4-(Dodecyloxy)-2-hydroxybenzophenone	DUP, EKT.
*Enzymes:	
Hydrolytic:	
Amylases	BAX, CRN, DLI, GPR, MLS, PFZ, RH.
Proteases	BAX, CHH, DOL, MLS, PEN, PFZ, SPR.
Other	BAX, JFR, MLS, OMS, PFZ, RH, SPR, WBC.
Nonhydrolytic	MLS, OMS, PFZ, PLB, WBC.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)	DUP.
Ethyl cellulose phthalate	EK.
Ethyl-α-cyano-β-pentyleinnamate	GAF.
2-Ethylhexyl benzoate	x.
2-Ethylhexyl p-dimethylaminobenzoate	VND.
Ethylidene norbornene	UCC.
4-Ethylmorpholine	JCC, UCC.
*Flotation reagents:	
Dicresylphosphorodithioic acid (Dicresylthiophosphoric acid).	ACY.
Dicresylphosphorodithioic acid, ammonium salt	ACY.
Dicresylphosphorodithioic acid, sodium salt	KCU.
2,2'-Dimethylthiocarbanilide (Di-o-tolylthiourea)	RBC.
Rosin amines	HPC.
Tall oil derived	HN.
Thiocarbanilide (Diphenylthiourea)	ACY.
Furan derivatives:	
2-Furaldehyde (Furfural)	QKO.
Tetrahydrofurfuryl alcohol	QKO.
Gallic acid	MAL.
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	EKT.
Butylphenols, mixed	TNA.
N-sec-Butyl-N-phenylphenylenediamine	x.
2,6-Di-tert-butylphenol	TNA.
N,N'-Di-sec-butyl-p-phenylenediamine	DUP, EKT, USR.
2,6-Di-tert-butyl-α-dimethylamino-p-cresol	TNA.
2,6-Diethylaniline	TNA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Gasoline additives--Continued	
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)	TNA.
4,4'-Thiobis(6-tert-butyl-o-cresol)	TNA.
2,2'-Thiobis(6-tert-butyl-p-cresol)	ASH.
Triheptyl phenol	SM.
1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-mesitylene.	TNA.
Other	EKT, GLY, SM, TNA, x.
Glyceryl p-aminobenzoate	VND.
Guanosine and derivatives	PLB.
*Hexamethylenetetramine, tech	BOR, DUP, HKD, HN, HMP, PLS, UCC.
Homomenthyl salicylate	ARS.
Hydrabamine hydrobromide	ABB.
Hydrindantin	HEX.
p-Hydroxybenzoic acid esters:	
Butyl p-hydroxybenzoate (Butylparaben)	HN, LEM, WSN.
Ethyl p-hydroxybenzoate (Ethylparaben)	HN, WSN.
*Methyl p-hydroxybenzoate (Methylparaben)	ARS, HN, LEM, WSN.
*Propyl p-hydroxybenzoate (Propylparaben)	ARS, HN, LEM, WSN.
N-(Hydroxyethyl)piperazine	UCC.
2-Hydroxy-4-methoxybenzophenone	ACY, GAF.
Hydroxymethyl dimethyl-5,5-hydantoin	GLY.
2-Hydroxy-4-methoxy-5-sulfobenzophenone trihydrate	ACY.
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole	ACY.
1-Hydroxy-2-pyridine (Omadine)	OMC.
1,2,3-Indantrione monohydrate (Ninhydrin)	HEX.
Inosine and derivatives	PLB.
Isopropyl-o-cresols	CP.
*Lubricating oil and grease additives:	
*Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt	NTL.
Oil-soluble petroleum sulfonate, barium salt	CO, LUB, WTC.
*Oil-soluble petroleum sulfonate, calcium salt	CO, ENJ, LUB, ORO, PAR, PLC, TX, WTC.
Oil-soluble petroleum sulfonate, magnesium salt	CO, LUB.
*Oil-soluble petroleum sulfonate, sodium salt	CO, ENJ, MOR, PAR, SHC, SOC, WTC.
Other	CO, LUB, ORO, TX.
*Phenol salts:	
Barium alkylphenolates	CCA, ENJ, TX.
Calcium alkylphenolates	ORO, TX.
Other	ATR, ENJ, ORO, SM, x.
All other	ENJ, GLY, GOC, LUB, ORO, PLC, SM, UCC, x.
p-Menthane	HPC.
B-p-Menthyl hydroperoxide	HN, HPC.
p-Methoxybenzylidenemalonic acid, diethyl and dimethyl esters.	ACY.
p-Methoxybenzylidenemalonic acid, dimethyl ester	ACY.
4-Methoxyphenol	ARS, ASL, EKT.
Methyl o-cresotinate	TCC.
2,2'-Methylenebis(4-chlorophenol) (Dichlorophene)	GIV.
Methylenebis(phenoxypropanol)	JCC.
2,2'-Methylenebis(3,4,6-trichlorophenol) (Hexachlorophene).	GIV.
Methyl gallate	HSH.
4-Methylmorpholine	JCC, UCC.
Methyl phenyl phosphates	TNA.
4-Methylpiperazine	UCC.
1-Methyl-2-pyrrolidone, monomer	GAF.
*Morpholine	DOW, JCC, UCC.
Morpholine salt of p-toluenesulfonic acid	AMB.
*Naphthenic acid salts:	
Aluminum naphthenate	SHP.
Barium naphthenate	CCA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Naphthenic acid salts--Continued	
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, CCC, FER, HN, MCI, SHP, TRO, WTC.
Chromium naphthenate	MCI.
Cobalt lead manganese naphthenate	HN.
*Cobalt naphthenate	CCA, FER, HN, MCI, SHP, TRO, WTC.
*Iron naphthenate	CCA, HN, MCI, WTC.
Lead manganese naphthenate	CCA.
*Lead naphthenate	CCA, CCC, FER, MCI, SHP, TX, WTC.
Lithium naphthenate	CCA, MCI.
*Manganese naphthenate	CCA, FER, HN, MCI, SHP, SM, WTC.
Magnesium naphthenate	CCA.
Rare earths naphthenates	CCA, SHP.
Sodium naphthenate	CCA.
Strontium naphthenate	CCA.
*Zinc naphthenate	CCA, CCC, FER, HN, MCI, SHP, WTC.
All other	SHP, TRO.
1-Naphthenyl-2-tallow diamine	SM.
Norcamphor	ALD.
Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate.	CGY.
1-Oleylprimidine-2-oleyl diamine	SM.
Phenothiazine	WAG.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	DOW, TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether).	DOW.
2,2'-(p-Phenylene)diethanol	EKT.
m-Phenylene isonaphthalamide	DUP.
Phenyl hydrogen phosphate	HDG.
5-Phosphorylribose-1-pyrophosphate	PLB.
Photographic chemicals:	
N-(2-Acetamidophenethyl)-1-hydroxy-2-naphthamide	EKT.
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, MRT, SW.
α-Benzoyl-o-methoxyacetanilide	EKT.
p-Benzylaminophenol hydrochloride	EK.
Catechol	CRZ.
5-Chlorobenzetriazole	FMT.
3-Chloro-4-diethylaminobenzenediazonium chloride (p-Diazo-2-chloro-N,N-diethylaniline) - zinc chloride.	ESA, FMT.
2-Chloro-N,N-diethyl-p-phenylenediamine hydrochloride	IDC.
Chlorohydroquinone	EK.
2N-(2,4-Di-tert-amylphenoxyacetamido)-4,6-dichloro-m-cresol.	x.
4-Diazo-3,5-diethoxythiocresol salts	FMT.
4-Diazo-1-morpholine benzene zinc chloride	FMT.
*2,5-Diethoxy-4-morpholinobenzenediazonium chloride	ALL, ESA, HST.
*p-Diethylaminobenzenediazonium chloride	ESA, FMT, IDC.
p-Diethylaminobenzenediazonium fluorborate	x.
p-Diethylamino-o-toluenediazonium chloride	IDC.
N,N-Diethyl-p-phenylenediamine hydrochloride	EKT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	EKT, FMT, IDC.
2,5-Dihydroxy-p-benzenedisulfonic acid dipotassium salt.	EK.
2,5-Dihydroxybenzenesulfonic acid	EK.
p-Dimethylaminobenzenediazonium chloride	ESA, FMT, IDC.
2,5-Dimethylbenzothiazole	FMT.
4N-(2',6'-Dimethylmorpholinyl)benzenediazonium chloride.	IDC.
p-Diphenylaminediazonium sulfate	FMT.
p-(N-Ethylbenzimido)benzenediazonium chloride	ESA. FMT.
*p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride.	ESA, FMT, IDC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	IDC.
Hydroquinone (Hydroquinol)	EKT.
p[(2-Hydroxyethyl)methylamino]benzenediazonium chloride.	ESA, FMT, IDC.
N-(2-Hydroxyethyl)-ß-resorcylamide	MRT.
1-Hydroxy-3-(4'-hexadecenyl-4-sulfo-2-(N-n-octadecyl)-naphthamide.	x.
2-Hydroxynaphthoic ethylamide	FMT.
1-(3-Hydroxyphenyl)urea	FMT.
4-Methoxy-1-naphthol	x.
p-Methylaminophenol sulfate	EK.
S-Methylbenzotriazole	EK.
S-Methyl-1,7-dihydroxy-1,3,4-triazaindolizine	FMT.
4-Methyl-1-phenyl-3-pyrazolidinone	WAY.
2-Methylthiazoline	FMT.
p-Morpholinyl-2,S-dibutoxybenzenediazonium chloride	IDC.
6-Nitrobenzimidazole	EK, FMT.
p-(N-Phenyl)aniline, diazoniumformaldehyde polymer-mixture, zinc chloride salt.	IDC.
1-Phenyl-3-pyrazolidine	CGY.
1-Phenyl-3-pyrazolidone	WAY.
4-Phenylpyrocatechol	x.
1-Phenyl-2-tetrazole-S-thiol	FMT.
4N-(1-Pyrrolidyl)-m-toluenediazonium chloride	IDC.
2-Resorcylic acid monoethanolamide	FMT.
2,2',4,4'-Tetrahydroxydiphenyl sulfide	FMT.
1-(2,4,6-Trichlorophenyl)-3-p-nitroanilino-2-pyrazolin-S-one.	EKT.
All other	FMT, IDC, NES, x.
Phthalic acid, lead salt, dibasic	NTL.
Picramic acid, sodium salt	SDC.
*Pinene (α- and ß-)	ARZ, CBY, GLD, HN, HPC, NCI.
α-Pinene, P_2S_5 treated	ARZ, HN, NCI.
Pinene, sulfate	HPC.
Pinene, wood	HPC.
Piperazine, ethoxylated	GAF.
Poly-4-(2-acryloxyethoxy)-2-hydroxybenzophenone	ACY.
Polydodecylbenzenesulfonic acid, calcium salt	CO.
*Polyethylene terephthalate	DUP, EK, EKT, FND, FRF, GYR.
Polyvinyl phthalate	EK.
Propyl gallate	EKT, HSH.
Pyrogallol (Pyrogallic acid)	HSH, MAL.
2-Pyrrolidinone	GAF.
Resorcinol monobenzoate	EKT.
Rosin acid salts:	
Calcium resinate	CBY, HN.
Calcium zinc resinate	CBY.
Zinc resinate	HN.
All other	SHP.
Salicylanilide	FIN, PCW.
Salicylic acid, lead salt	NTL.
Sodium cresoxide (Cresylic acid, sodium salt)	DEX, GOC.
Sodium ferric ethylenediaminedihydroxyphenylacetate	CGY.
Sucrose benzoate	VEL.
Sulfosalicylic acid	MON.
Tall oil, chemically modified	ZGL.
Tall oil salts (Linoleic-rosin acid salts):	
Calcium manganese tallate	MCI.
Calcium tallate	CCA, CCC, HN, MCI, TRO, WTC.
*Cobalt tallate	CCA, CCC, FER, HN, MCI, SHP, TRO, WTC.
*Copper tallate	CCA, MCI, SHP.
Iron tallate	CCA.
Lead manganese tallate	MCI.
*Lead tallate	CCA, CCC, FER, HN, MCI, SHP, WTC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Tall oil salts (Linoleic-rosin acid salts)--continued	
*Manganese tallate	CCA, CCC, FER, HN, MCI, SHP, WTC.
Zinc tallate	MCI.
All other	WTC.
Tall oil, chemically modified	ZGL.
Tannic acid	MAL.
*Tanning materials, synthetic:	
Cresol phenol formaldehyde condensate	DA.
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	CGY, DA.
1-Naphthalenesulfonic acid, formaldehyde condensate and salt.	DA.
2-Naphthalenesulfonic acid, formaldehyde condensate and salt.	AKS, GRD, HN, RH.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated).	RH.
Styrene-maleic anhydride interpolymer, partial sodium salt.	DUP.
Terpene hydrocarbons, monocyclic (Solvenol)	HPC.
Tetrabromobisphenol A	GTL.
2,3,5,6-Tetrachloro-4-(methylsulfonyl)pyridine	DOW.
1,2,3,4-Tetrahydronaphthalene (Tetralin)	DUP, UCC.
Tetrahydrothiophene	PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)	PLC.
Tetrabis[methylene-3-(3',5'-di-tert-butyl-4'-hydroxyphenol)propionate]methane.	CGY.
1,3,6,8-Tetranitrocarbazole	SDC.
Tetraphenyltin	x.
Tetraphenyltin chloride	x.
Tetraphenyltin hydroxide	x.
Tetraphenyltin phosphine	x.
Tetraphenyltin succinic acid	TX.
Textile chemicals, other than surface-active agents:	
Dimethyloldihydroxy ethylene urea	x.
1-((Octadecyloxy)methyl)pyridinium chloride	DUP.
Phenol, sulfurated	GAF.
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	x.
2,2'-Thiobis(4,6-dichlororophenol)	SDH.
[2,2'-Thiobis(4-octylphenolate)]-n-butylamine nickel	ACY.
4,4'-Thiodiresorcinol	BKC.
Thiophene	PAS.
Thymidine and derivatives	PLB.
p-Toluquinone	EK.
o-Toluidine formaldehyde hydrochloride	RBC.
Triallyl cyanurate	ACY.
3,4',5-Tribromosalicylanilide	FIN, PCW, WW.
3,4,4'-Trichlorocarbanilide	MON.
1,2,3-Triketohydrindene hydrate	PIC.
Trimethylaminopropyl piperazine	JCC.
3,5,5-Trimethyl-2-cyclohexen-1-one (Isophorone)	ENJ, UCC.
2,4,6-Trinitroresorcinol and lead derivative	REM.
s-Trioxane	CEL.
Triphenyl sulfonium chloride	ASH.
Uridine derivatives	PLB.
Vinyl norbornene	UCC.
1-Vinyl-2-pyrrolidinone, monomer and polymer	GAF.
1-Vinyl-2-pyrrolidinone - ethylacrylate, copolymer	GAF.
1-Vinyl-2-pyrrolidione - methylacrylic acid-dimethylamine ethyl ester, copolymer.	GAF.
1-Vinyl-2-pyrrolidinone - vinyl acetate, copolymer	GAF.
1-Vinyl-2-pyrrolidinone - other copolymers	GAF.
All other	ABB, ACS, AMB, ALB, ALD, ARA, AZT, BKL, CCA, DUP, EK, EKT, EVN, FMT, GAF, GIV, HMY, IDC, JCC, MON, PD, PFN, PIC, RSA, SHP, SM, TCH, WBC, UCC, x, x.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC	
Cellulose Esters and Ethers	
Cellulose esters:	
*Cellulose acetate	AV, CEL, DUP, EKT.
Cellulose acetate butyrate	EKT.
Cellulose acetate propionate	EKT.
Cellulose propionate	CEL.
Cellulose ethers:	
Hydroxyethylcellulose	UCC, x.
Hydroxypropylcellulose	x.
Methylcellulose	DOW.
*Sodium carboxymethylcellulose, 100%	BAS, BUK, DUP, KON, WMP, x.
All other	UCC.
Lubricating Oil Additives	
*Phosphorodithioates (Thiophosphates):	
Di-2-ethylhexylphosphorodithioic acid	SFA.
Di-N-propylphosphorodithioic acid	SFA.
Zinc dialkyl dithiophosphate	ATR, ENJ.
Zinc di(butylhexyl) phosphorodithioate	ORO.
Zinc dihexyl phosphorodithioate	MON, SM.
Zinc hydrocarbon dithiophosphate	LUB.
Zinc isopropyl hexyl phosphorodithioate	TX.
Sulfur compounds:	
Aliphatic hydrocarbon sulfides	LUB.
Chlorosulfurized sperm oil	CCW.
Phosphosulfurized polybutene	ENJ.
*Sulfurized lard oil	ATR, CCW, GOC, QCP, WBG.
Sulfurized sperm oil and substitutes	CCW.
Other sulfur compounds	ATR, CCW, HK, TX.
All other	ALD, ALX, ATR, ENJ, GOC, LUB, MON, ORO, SM, UCC, x, x.
Nitrogenous Compounds	
Acetamide	ACS.
Acetamidine hydrochloride	MRK.
Acetamidoethanol (N-Acetyl-ethanolamine)	ALB, RBC.
Acetone semicarbazone	NOR.
Acetonitrile	EKX, MON, SOH.
Acrylamide monomer	ACY.
Acrylamide, dimethylaminomethyl acrylamide and methylmethacrylate, polymer.	GAF.
*Acrylonitrile	ACY, DUP, MON, SOH, UCC.
Adiponitrile	DUP, MON.
β-Alanine	HFT.
1-Allyl-3,3-bis(2-hydroxyethyl)thiourea	IDC.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea	FMT, IDC.
Allyl isothiocyanate, non-perfume grade	OPC.
*Amines:	
Allylamines	SHC.
Bis-hexamethylenetriamine amine	DUP.
*Butylamines:	
n-Butylamine, mono-	PAS, UCC, VGC.
Di-n-butylamine	PAS, UCC, VGC.
Diisobutylamine	AIP, PAS, VGC.
sec-Butylamine, mono-	PAS, VGC.
tert-Butylamine, mono-	MON, RH.
Tri-n-butylamine	PAS, UCC, VGC.
n-Butylethylamine	PAS.
Diethylaminopropylamine	UCC.
*Diethylenetriamine	DOW, JCC, UCC.
N,N-Diethylethylenediamine	ALB, GCY.
N^1,N^1-Diethyl-1,4-pentanediamine (Novoldiamine)	SDH.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Amines--Continued	
Di-(methoxyethyl)hydroxylamine	x.
Dimethylaminopropylamine	JCC, UCC.
1,3-Dimethylbutylamine	PAS.
Dipropylenetriamine	UCC.
Ethylamine blends	PAS.
*Ethylamines:	
Diethylamine	AIP, PAS, UCC, VGC.
Diethylamine hydrochloride	BKL, EK.
Ethylamine hydrochloride	EK.
Ethylamine, mono-	AIP, PAS, UCC, VGC.
Triethylamine	AIP, PAS, UCC, VGC.
*Ethylenediamine	DOW, JCC, UCC.
(2-Ethylhexyl)amine, mono-	VGC.
Hexamethyleneimine	DUP.
*1,6-Hexanediamine (Hexamethylenediamine)	CEL, DUP, ELP, MON.
2-Hydroxypropylethylenediamine	UCC.
3,3'-Iminobispropylamine	JCC.
Isopropylamines:	
Diisopropylamine	AIP, UCC, VGC.
Isopropylamine, mono-	AIP, UCC, VGC.
Methylamines:	
8-Chloroallyl-N-methylamine	LIL.
*Dimethylamine	AIP, COM, DUP, GAF.
Dimethylamine hydrochloride	EK, RSA.
Dimethylamine sulfate	RH.
*Methylamine, mono-	AIP, COM, DUP, GAF.
*Trimethylamine	AIP, COM, DUP, GAF.
n-Octylamine, mono-	VGC.
Oleylamine	x.
Pentaethylenehexamine	JCC, UCC.
Pentylamines (Amylamines):	
Dipentylamine	PAS, VGC.
Pentylamine, mono-	PAS.
Tripentylamine	PAS.
Polyalkylene polyamines	NLC.
Polymericamine condensate	ONX.
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.
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, NES, ONX, PAS, PIC, RSA, SM, UCC, VGC, x.
2-Amino-1-butanol	COM.
1-Aminoethanol (Acetaldehyde ammonia)	HEX.
Aminoethoxyethanol	JCC.
*2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	DOW, HDG, JCC, UCC.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate).	EVN.
2-Amino-2-ethyl-1,3-propanediol	COM.
Aminoguanidine bicarbonate	COM.
2-Amino-2-(hydroxymethyl)-1,3-propanediol (Tris-(hydroxymethyl)aminomethane).	COM.
2-Amino-2-methyl-1,3-propanediol	COM, JCC.
2-Amino-2-methyl-1-propanol	COM.
2-Amino-2-methyl-1-propanol hydrochloride	VAL.
2-Aminooctane	PAS.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
3-Aminopropanoic acid	DA.
Ammonium titanyl acetate	DUP.
1,1'-Azobisformamide	FMT, USR.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile).	DUP.
N-Bis(hydroxyethyl)amino alkanol	TX.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)	GLY, x.
N,O-Bis(trimethylsilyl)acetamide	PIC.
N,N-Bis-(trimethylsilyl)acetamide	ALD.
N,O-Bis-(trimethylsilyl)trifluoroacetamide	PIC.
Biuret	DOW.
N-Bromoacetamide	ARA.
N-Bromosuccinimide (Succinibromimide)	ARA.
2,3-Butanedione monoxime	EK.
Butyldiethanolamine	PAS.
1-Butyl-3-ethyl-2-thiourea	PAS.
Butyl isocyanate	CWN, OTC, UPJ.
n-Butyronitrile	EKX.
*Caprolactam (2-Oxohexamethylenimine)	ACP, CNP, DBC.
Carbohydrazide	EK.
2-(2-Chloroacetamide) ethyl stearate	KF.
Chlorocholine chloride	ACY.
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-Chloro-N,N-diethylethylamine hydrochloride	HEX, MCH.
2-Chlorotriethylamine hydrochloride	CGY.
Choline base	RH.
Choline bicarbonate	TCH.
Choline bisulfite	WAY.
Coco nitrile	ASH.
Coconut oil acids - ammonium condensate	PC.
Coconut oil amide	ARC.
Creating and creatinine	PFN.
Cyanoacetic acid	KF.
Cyanogen bromide	EK.
2-Dibutylaminoethanol	AAC, PAS.
1,3-Dibutyl-2-thiourea	PAS, RBC.
1,4-Dicyanobutene	DUP.
Diethanolamide/ester mixture	TX.
2-Diethylaminoethanol	AAC, DUP, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	PAS.
2-Diethylaminoethyl acrylate	ABC, UCC.
2-Diethylaminoethyl methacrylate	DUP.
Diethyl carbonyl chloride	ASH.
Diethyldithiocarbamic acid, sodium salt	EK.
N,N-Diethyldodecanamide	EK.
Diethylhydroxylamine	PAS.
1,3-Diethyl-2-thiourea	PAS, RBC.
Diisopropylaminoethanol	PAS, UCC.
2-Diisopropylaminoethyl chloride hydrochloride	MCH.
N,N-Dimethylacetamide	DUP.
2-Dimethylaminoethanethiol hydrochloride	EVN.
*2-Dimethylaminoethanol	AAC, PAS, RH, UCC.
Dimethylaminoethyl acrylate	ABC.
Dimethylaminoethyl methacrylate	AAC, ABC.
Dimethylaminoethyl methacrylate, methyl chloride quaternary salt.	AAC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Dimethylamino-2-propanol	PAS.
3-Dimethylaminopropionitrile	ACY, UCC.
3-Dimethylenedimethylpropionamide	UCC.
N,N-Dimethylformamide	AIP, DUP.
1,1-Dimethylhydrazine	FMP.
Dimethyl isocyanate	GNM.
2-Dimethyl-2-methyl-1-propanol	COM.
Dimethylthiocarbamoyl chloride	ALD.
2,5-Dithiobiurea	ACY, EK.
Dithiooxamide	MAL.
*Erucamide	ARC, ASH, FIN, HUM.
Erucamide - Lauramide	FIN.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)	DOW, GLY, JCC, MAT, OMC, UCC.
*2,2'-Aminodiethanol (Diethanolamine)	DOW, JCC, MAT, OMC, UCC.
Butyldiethanolamine	PAS.
*2,2'2''-Nitrilotriethanol (Triethanolamine)	DOW, JCC, MAT, OMC, UCC.
N-Octylethanolamine	x.
Triethanolamine phosphate, sodium salt	WAY.
Triethanolamine, propoxylated	JCC.
Ethoxymethylenemalononitrile	ALD, KF.
3-Ethoxypropionitrile	ACY, DIX.
Ethylallyl-(1-methylbutyl)cyanoacetate	PD.
Ethylallyl-(1-methyl-2-pentynol)cyanoacetate	LIL.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS.
Ethyl cyanoacetate	KF.
Ethyl diazoacetate	ALD.
N,N'-Ethylene bis(stearamide)	CCW, CTN, DA, HUM.
Ethylenediamine sulfate	EK.
Ethyleneimine, monomer	DOW.
Ethyleneimine, polymer	DOW.
Ethylenethiourea	PAS.
Ethyl formylglycine	LIL.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	SDW.
Ethylmonoethanolamide, mixed	PAS.
Fish oil fatty acid amide	HUM.
Formamide	DUP.
Formamidine disulfide dihydrochloride	WAY.
Glycine (Aminoacetic acid)	CHT.
Glycine ethyl ester hydrochloride	BFC.
Glycolonitrile	KF.
4-Guanyl-1-nitrosoguanyl-1-tetrazine	REM.
*Hexamethylenediammonium adipate (Nylon salt)	CEL, DUP, MON.
Hydracrylonitrile (Ethylene cyanohydrin)	AAE.
Hydrazine hydrate (100%)	USR.
Hydroxyethyl carbamate	JCC.
Hydroxyethylethyleneimine	UCC.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane).	COM.
12-Hydroxystearamide	HUM.
Imino diacetic acid	HMP.
Isobutyronitrile	AIP.
Isocyanates, (complex)	MOB.
Isopropanolamines:	
1-Amino-2-propanol (Monoisopropanolamine)	DOW, UCC.
1,1'-Iminodi-2-propanol (Diisopropanolamine)	DOW, UCC.
1,1',1''-Nitrilotri-2-propanol (Triisopropanolamine)	DOW, UCC.
3-Isopropoxypropionitrile	DUP.
3-Isopropoxypropylamine	DUP.
2-Isopropylaminoethanol	PAS.
Isopropyl ethylthionocarbamate	DOW.
Ketimine, tetrafunctional	GNM.
Lactonitrile	MON.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Lauronitrile (Dodecyl nitrile)	ASH.
Methacrylamide	x.
Methacrylic monomers, cationic	x.
Methacrylonitrile	SOH.
3-Methoxypropylamine	JCC.
N-Methylacetamide	ARS, EK.
N-Methylacetamide-N-sodium	ARS.
2-Methylaminoethanol (N-Methylethanolamine)	UCC.
Methylcarbamate	BKL, FMP.
Methyl cyanoacetate	KF.
Methyl α-cyanoacrylate	EKT.
N,N'-Methylenebis(acrylamide)	ACY, SOH.
Methyl isocyanate	OTC, UCC.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	PAS, UCC.
2-Methyllactonitrile (Acetone cyanohydrin)	RH, x.
2-Methyl-2-nitro-1,3-propanediol	COM.
2-Methyl-2-nitro-1-propanol	COM.
Methylpolyethanolamine	GAF.
N-Methyltaurine	GAF.
N-Methylurea	LIL, RSA.
*Nitriloacids and salts:	
(Diethylenetrinitrilo)pentaacetic acid	DAN, HMP.
(Diethylenetrinitrilo)pentaacetic acid, monosodium hydrogen ferric salt.	CGY.
*(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt.	CGY, DOW, HMP.
(Diethylenetrinitrilo)pentaacetic, sodium salt	CGY, RPC.
(Diethylenetrinitrilo)pentamethylenephosphonic acid, pentasodium salt.	WAY.
N,N-Dihydroxyethylglycine, sodium salt	DOW, HMP.
Ethanoldiglycine, disodium salt	HMP.
(Ethylene-bis-nitrilo)dimethylene tetraphosphonic acid, sodium salt.	WAY.
(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine-tetraacetic acid).	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt.	CGY, DOW.
(Ethylenedinitrilo)tetraacetic acid, diammonium salt	DOW.
*(Ethylenedinitrilo)tetraacetic acid, disodium salt	CGY, DOW, EK, HMP, RPC.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate.	CGY, HMP.
*(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	CGY, DOW, HMP.
(Ethylenedinitrilo)tetraacetic acid, manganese salt	CGY, 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-Hydroxyethylethylenedinitrilo)triacetic acid	HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, copper salt.	HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt.	HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, magnesium salt.	HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, manganese salt.	HMP.
*(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt.	CGY, CRT, DAN, DOW, HMP, RPC.
Nitrilotriacetic acid	HMP.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Nitriloacids and salts--Continued	
Nitrolotriacetic acid, trisodium salt	DOW, HMP, MON.
Nitrilo-tris-methylene triphosphonic acid	WAY.
Nitrilo-tris-methylene triphosphonic acid, sodium salt.	WAY.
Other	EK.
2-Nitro-1-butanol	COM.
Nitroethane	COM.
Nitromethane	COM.
1-Nitropropane	COM.
2-Nitropropane	COM.
*Nylon, 6 and 6/6 polymer for fiber	ALF, DBC, DUP, FND, FRF, MON.
Octadecyl isocyanate	CWN, MOB, UPJ.
Oleamide (Octadecene amide)	ARC, FIN, GLY, HUM.
Oleic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW.
Oleonitrile (Octadecene nitrile)	ARC.
Oleoylhydroxamic acid	CTN.
Oleoylpalmitamide	FIN.
Oleyl nitrate	SM.
*Pentaerythritol tetranitrate	COM, DUP, HPC.
Pentyl nitrate (Amyl nitrate) & hexyl nitrate	TNA.
*Polyacrylamide	ACY, DOW, HPC, NLC.
Polyacrylamide polymers other than polyacrylamide	ACY.
*Polyacrylonitrile	ACY, DBC, DUP, EKX, MON.
Polyacrylonitrile, hydrolyzed	NLC.
Polyalkylene amine	NLC.
Polyamide resin (flake)	MON.
Polyethoxy (Hydrogenated tallow) amide	ARC.
Polyethoxy oleamide	ARC.
Polyglycolamine	UCC.
Polyoxypropylenediamine	JCC.
n-Propyl carbamate	BKL.
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.
Stearylerucamide	FIN.
Tall oil diethylenetetramine and acetic acid	ACY.
Tall oil nitrile	ASH.
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 chloride	EK, RSA.
Tetramethyl ammonium hydroxide	RSA.
Tetramethylguanidine	ACY.
Thioacetamide	EK, RBC.
3,3'-Thiodipropionitrile	ACY, EVN.
N-Trimethylsilylacetamide	LIL, PIC.
Trisodiumhydroxyethylethylenediamine triacetate	CGY.
Tris-amino concentrate	COM.
*Urea in compounds or mixtures, 100% basis:	
*In feed compounds	ACN, AIP, AKL, APD, AGY, FTX, GCC, HKY, JDC, MSC, PPC, SOH, TER, TRI, VLN, WYC.
*In liquid fertilizer	ACN, ACP, APD, ARM, AGY, AIP, AKL, CFA, CHN, CNC, FCA, FTX, GCC, HKY, HPC, JDC, MSC, PLC, PPC, SNI, SOH, TER, TRI, VLN, WLC, WYC
*In solid fertilizer	ACN, AGY, AKL, APD, COL, GCC, HPC, JDC, MSC, OMC, PPC, SNO, SOH, TER, TRI, VLN, WLC, WYC.
In plastics	BOR, OMC, TRI.
*All other	CHP, DUP, MSC, PPC, SOH, SNO, SNW, TER, WYC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in tables 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Urea ammonium nitrate solution	WYC.
Urea - urethane copolymer	DUP.
All other nitrogenous compounds	AAC, ALB, ALD, DSO, EK, EVN, FMT, GAF, ICI, IDC, JCC, KF, LIL, PD, PFN, PFZ, RSA, S, SBC, SDW, TKL, VLN.
Acids, Acid Anhydrides, and Acyl Halides	
*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	ACP, CEL, DUP, ELP, MON, RH.
Azelaic acid	EMR.
Behenic acid	ASH.
Bromobutyric acid	GTL.
2-Bromododecanoic acid	DUP.
α-Bromo (mixed) lauric stearic acid	DUP.
tert-Butylacetyl chloride	ALD.
tert-Butylperoxymaleic acid	WTL.
Butyric acid	CEL, EKT, UCC.
Butyric anhydride	EKT.
Castor oil fatty acids, dehydrated	DA, NTL.
Chloroacetic acid, mono-	BUK, DOW, HPC.
Chloroacetyl chloride	DOW.
Citric acid	MLS, PFZ.
Crotonic acid (2-Butenoic acid)	EKT.
Decanoyl chloride	WTL.
2,2-Dichloropropionic acid	DOW.
Dimer acid (C-36 aliphatic dibasic acid)	ACS.
Dimethylpropionic acid	COM.
Di-n-propylacetic acid and chloride	CTN.
Dipropylmalonic acid	CTN.
Dodecanedioic acid	DUP.
*Dodecenylsuccinic 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	ACT, WTL.
*Formic acid, 90%	CEL, DUP, UCC.
*Fumaric acid	ACS, HN, MON, PFZ, USS.
Gluconic acid, tech	PFZ, PMP.
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.
Isobutyryl chloride	EK, WTL.
Iso-octadecenylsuccinic anhydride	HMY.
Itaconic acid (Methylenesuccinic acid)	PFZ.
2-Keto-D-gluconic acid	MRK.
Lactic acid	CLN, MON.
*Lauroyl chloride	GAF, HK, ONX, TEK, UOP, WTL.
Maleic acid	ACS, PFN, PFZ.
*Maleic anhydride	ACS, HN, KPT, MON, PTT, RCI, USS.
Malic acid	ACS, EK.
Malonic acid	KF.
Mercaptoacetic acid (Thioglycolic acid)	EVN, HAB.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
3-Mercaptopropionic acid	EVN.
Mercaptosuccinic acid (Thiomalic acid)	EVN.
Methacrylic acid	DUP, RH.
Methanesulfonic acid	EK, PAS.
Methanesulfonyl chloride	PAS.
2-Methylvaleric acid (2-Methylpentanoic acid)	UCC.
Neodecanoic acid	ENJ.
Neodecanoyl chloride	WTL.
Neopentanoic acid	ENJ.
Nonanoic acid (Pelargonic acid)	EMR, GIV.
Nonenylsuccinic anhydride	HMY.
Oleic acid	ASH.
Octanoyl chloride	HK.
Octenylsuccinic anhydride	HMY.
Oleoyl chloride	GAF, HRT.
Oxalic acid	ACS, PFZ.
Palmitoyl chloride	GAF, OPC.
Peroxyacetic acid	FMB, UCC.
Pivaloyl chloride	ACT, WTL.
*Polyacrylic acid	AAE, DA, RH.
Polygalacturonic acid	SKG.
*Propionic acid	CEL, COM, EKT, UCC.
Propionic anhydride	EKT, UCC.
Propionyl chloride	EK.
Sebacic acid	RH, WTH.
Sebacoyl chloride	EK, WTL.
Stearoyl chloride	EK, GAF, UOP.
Succinic acid	ACS.
Succinic anhydride	ACS, ORO.
Tetrahydroxysuccinic acid (Dioxytartaric acid)	ACY.
Thioacetic acid	EK, EVN.
Thiolacetic acid	EVN.
3,3'-Thiodipropionic acid	CCW, EVN.
Trichloroacetic acid	DOW.
Valeric acid	UCC.
All other	ABB, ALD, AMB, EK, ENJ, EVN, GAF, HMY, LIL, PAS, PFN, PLC, QKO, RH, SHA, WAY.
Salts of Organic Acids	
*Acetic acid salts:	
Aluminum acetate	ACY, UCC.
Ammonium acetate	ACS, BKC, MAL.
Barium acetate	ACS, BKC, MAL.
Calcium acetate	ACS, MAL.
Cobalt acetate	HSH, SHP.
*Copper acetate	ACS, BKC, SHP, UCC.
Lead acetate	BKC, MAL.
Lead subacetate	BKC, MAL.
Lead tetraacetate	ARA.
Magnesium acetate	BKC, SHP.
Manganese acetate	HSH, SHP.
Mercuric acetate	MAL.
Nickel acetate	BKC, HSH, SHP.
*Potassium acetate	ACS, BKC, MAL, SFI, UCC.
Silver acetate	MAL, NTL.
*Sodium acetate	ACS, BKC, CEL, CHP, DAN, EKT, MAL, UCC, WSN.
Sodium diacetate	UCC.
*Zinc acetate	ACS, BKC, HSH, MAL, SHP, UCC.
*Zirconium acetate	HSH, SNW, TZC.
Other acetic acid salts	ALD, LIL, MHI.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Acrylic acid, sodium salt	AAE.
Adipic acid, ammonium salt	ASH.
*Allylsulfonic acid, sodium alt	IOC, NES, SAL, UOP.
Chloroacetic acid, sodium salt	DOW.
Citric acid salts:	
Ammonium citrate	MAL, PFZ.
Calcium citrate	PFZ.
Ferric ammonium citrate	MAL, PFZ.
Ferric citrate	MAL.
Potassium citrate	MLS, PFZ.
Sodium citrate	MLS, PFZ.
Other citric acid salts	EK.
Diethyl chlorophosphate	SFA.
*2-Ethylhexanoic acid (α-Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate	PFZ, WTC.
Barium 2-ethylhexanoate	CCA, PFZ.
Cadmium 2-ethylhexanoate	CCA.
*Calcium 2-ethylhexanoate	CCA, FER, HN, MCI, PFZ, SW, TRO, WTC.
*Cobalt 2-ethylhexanoate	CCA, FER, HN, MCI, SW, TRO, WTC.
Copper 2-ethylhexanoate	CCA.
Dibutyltin di-2-ethylhexanoate	x.
Iron 2-ethylhexanoate	CCA, HN.
*Lead 2-ethylhexanoate	CCA, CCC, FER, HN, MCI, NTL, SW, WTC.
Lithium 2-ethylhexanoate	WTC.
*Manganese 2-ethylhexanoate	CCA, HN, MCI, SW.
Nickel 2-ethylhexanoate	MCI, WTC.
Potassium 2-ethylhexanoate	CCA.
Rare earths 2-ethylhexanoate	CCA.
Stannous 2-ethylhexanoate	WTC.
Strontium 2-ethylhexanoate	CCA.
*Zinc 2-ethylhexanoate	CCA, FER, HN, MCI, SW, WTC.
*Zirconium 2-ethylhexanoate	CCA, FER, HN, TRO, WTC.
Formic acid salts:	
Aluminum formate	WSN.
Ammonium formate	ACS.
Calcium formate	COM.
Chromic formate	GAF.
Copper formate	CTN.
Lead formate	NTL.
Sodium formate, refined	ACS, BKC.
*Sodium formate, tech	CEL, COM, HPC.
Fumaric acid, lead salt	NTL.
Glucoheptonic acid salts: Sodium glucoheptanoate	PFN.
Gluconic acids salts: *Sodium gluconate	PFZ, PMP, SFI.
Glycolic acid, sodium salt	SAL.
9H-Hexadecafluorononanoic acid, ammonium salt	DUP, WTC.
Humic acids, sodium salts	NLC.
Isoascorbic acid, sodium salt	MRK, PFZ.
*Lactic acid salts:	
Ammonium lactate	TCC.
Calcium lactate	SHF.
Sodium lactate	MAL, REH, PFN.
Other	PFN, REH.
Lauric acid salts: Zinc laurate	SNW, x.
Linoleic acid salts:	
Calcium linoleate	CCA, SHP.
Cobalt linoleate	SHP.
Iron linoleate	SHP.
Lead manganese linoleate	SDH.
Manganese linoleate	SHP.
Maleic acid salts: Lead (tribasic) maleate	NTL.
Mercaptoacetic acid (Thioglycolic acid) salts:	
Ammonium mercaptoacetate	EVN, HAB, TNI.
Antimony mercaptoacetate	CCA.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Mercaptoacetic acid (Thioglycolic acid) salts--Continued	
Calcium mercaptoacetate	EVN.
Dibutyltin-bis-iso octyl mercaptoacetate	x.
Dibutyltin mercaptoacetate	CCA.
Potassium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN.
Mercaptopropionic acid, dibutyltin salt	CCA.
Methacrylic acid, sodium salt	AAE.
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.
Zinc octanoate	BKC.
Other	DA.
*Oleic acid salts:	
Aluminum oleate	SHP, WTC.
Ammonium oleate	ARS, SHP.
Chromium oleate	SHP.
Copper oleate	SHP, WTC.
Lead oleate	NOC.
Stannous oleate	CCW, x.
Other oleic acid salts	CHP.
Oxalic acid salts:	
Ammonium oxalate	ACS, PFZ.
Ferric ammonium oxalate	PFZ.
Ferrous oxalate	BKL.
Potassium oxalate	BKC, PFZ.
Sodium oxalate	BKC.
*Palmitic acid salts:	
Aluminum palmitate	DA, WTC.
Zinc palmitate	ACY, DA, WTC.
Phosphorodithioic acid salts (Dithiophosphates):	
Sodium di-sec-butyl diethyl phosphorodithioate	ACY.
Sodium di-sec-butyl phosphorodithioate	ACY.
Sodium diethyl phosphorodithioate	ACY.
Sodium dihexyl phosphorodithioate	ACY.
Sodium diisopropyl phosphorodithioate	ACY.
Polyacrylic acid salts:	
Ammonium polyacrylate	BFG.
Sodium ammonium polyacrylate and copolymers	BFG.
Sodium polyacrylate	ALC, BFG, DA, JOR, RH.
Polymethacrylic acid, sodium salt	GRD.
Propionic acid salts:	
*Calcium propionate	HFT, PFZ, UCC, WSN.
*Sodium propionate	HFT, PFZ, UCC, WSN.
Ricinoleic acid salts:	
Calcium ricinoleate	NTL.
Lithium ricinoleate	NTL.
Sodium ethyl oxalacetate	FMP.
Sodium polypectate	SKG.
Sodium sorbitol borate	ICI.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum distearate	ACY, DA, JTC, MAL, NOC, PEN, WTC.
*Aluminum monostearate	DA, JTC, MAL, NOC, WTC.
*Aluminum tristearate	DA, JTC, MAL, NOC, PEN, WTC.
Ammonium stearate	DA, NOC, WTC.
*Barium stearate	DA, NOC, PEN, WTC.
Cadmium stearate	WTC.
*Calcium stearate	ACY, DA, HN, JTC, MAL, NOC, PEN, WTC.
Cobalt stearate	WTC.
Copper stearate	NOC.
Ferric stearate	WTC.
Lead stearate	DA, NOC, WTC.
Lead stearate, dibasic	NTL.
Lithium stearate	DA, PEN, WTC.
*Magnesium stearate	ACY, DA, JTC, MAL, NOC, PEN, WTC.
Nickel stearate	WTC.
Silver stearate	PEN.
*Zinc stearate	ACY, DA, HN, JTC, MAL, NOC, PEN, PLS, WTC.
All other	CHP, DA, SNW.
Succinic acid, sodium salt	MAL.
Sulfoacetic acid, disodium salt	EK.
Sulfosuccinic acid, trisodium salt	STP.
Tartaric acid salts:	
Antimony potassium tartrate	PFZ.
Potassium sodium tartrate	PFZ.
Sodium bitartrate	PFZ.
Valeric acid, ammonium salt	RSA.
Xanthic acid salts:	
Potassium amylxanthate	DOW.
Potassium ethylxanthate	DOW.
Potassium hexylxanthate	DOW.
Potassium isopropylxanthate	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	ACY, ALD, BAX, BKC, CCA, CCW, CHP, CRN, CTN, DA, DUP, EK, EVN, GAF, HMP, KCH, MCI, MLS, NTL, PEN, RSA, SDW, SHF, SHP, SNW, UCC, WSN, x.
Aldehydes and Ketones	
Acetaldehyde	CEL, EKT, EKX, PUB, SHC, UCC.
*Acetone:	
*From cumene	ACP, CLK, DOW, GP, GYR, MON, SHC, SKO, SOC, UCC, USS.
From isopropyl alcohol	EKT, ENJ, SHC, UCC.
Other	CEL, DIX.
Acetone, crude	OCC.
Acrolein (Acrylaldehyde)	SHC, UCC.
*2-Butanone (Methyl ethyl ketone)	ATR, CEL, DIX, ENJ, SHC, UCC.
*Butyraldehyde	CEL, EKX, UCC.
Chloral (Trichloroacetaldehyde)	DA, MTO.
S-Chloro-2-pentanone	SDW.
1-Chloro-1-penten-3-one (β-Chlorovinyl ethyl ketone)	ABB.
Chloro-2-propanone (Chloroacetone)	EK, MRK.
Crotonaldehyde	CEL, EKT, UCC.
1,3-Dihydroxy-2-propanone (Dihydroxyacetone)	BAX.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	EKX.
Di-n-propyl ketone	ORT.
2-Ethylbutyraldehyde	UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' 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)	ACP, 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.
3-Heptanone (Ethyl butyl ketone)	UCC.
Hexaldehyde	UCC.
2,5-Hexanedione (Acetonylacetone)	ARS, UCC.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	CEL, SHC, UCC.
Isobutyraldehyde	EKX, OXC, UCC.
Isopentaldehyde, mixed isomers	UCC.
Isovalerone (Diisobutyl ketone)	UCC.
Lactide (3,6-Dimethyl-2,5,p-dioxanedione)	CLN.
Methacrolein	ALD.
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)	SHC, UCC.
2-Methylvaleraldehyde (2-Methylpentaldehyde)	UCC.
n-Nonyl ketone	ARC.
3-Octanone (Ethyl amyl ketone)	SHC.
Paraformaldehyde	CEL, HN.
2,4-Pentanedione (Acetylacetone)	UCC.
2-Pentanone (Methyl propyl ketone)	UCC.
3-Pentanone (Diethyl ketone)	HEX, ORT.
Propionaldehyde	EKX, UCC.
Pseudoionone	RDA.
Tetrahydropseudoionone	CEL.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
Valeraldehyde	UCC.
All other	ALD, ARC, EK, LIL, UCC.
Alcohols, Monohydric, Unsubstituted	
Alcohols C11 or lower, unmixed:	
Allyl alcohol	FMP, SHC.
Amyl alcohols:	
2-Methyl-1-butanol	CPS, UCC.
1-Pentanol	UCC.
2-Pentanol	UCC.
Butyl alcohols:	
Primary:	
*Iso (Isopropylcarbinol)	CEL, DBC, EKX, OXC, SHC, UCC.
*Normal (n-Propylcarbinol)	CEL, CO, DBC, EKX, OXC, SHC, TNA, UCC.
Secondary (Methylethylcarbinol)	CEL, ENJ, SHC.
Tertiary (Trimethylcarbinol)	SHC, X.
1-Decanol	CO, PG.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)	UCC.
*Ethyl alcohol, synthetic	EKX, ENJ, HPC, PUB, SHC, UCC, USI.
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.
*Hexyl alcohol	CO, ENJ, TNA.
*Isodecyl alcohol	ENJ, TID, UCC, USS.
Isononyl alcohol	ENJ.
*Iso-octyl alcohol	ENJ, TID, USS.
*Isopropyl alcohol	ATR, CEL, ENJ, SHC, UCC.
*Methanol, synthetic	AIP, BOR, CEL, DUP, GP, HN, HPC, MON, RH.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Alcohols, Monohydric, Unsubstituted--Continued	
*Alcohols C_{11} or lower, unmixed--Continued	
Methyl amyl alcohol	UCC.
3-Methyl-1-butanol	UCC.
2-Methyl-1-pentanol	EKX, UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	SHC.
1-Octanol	PG, WTH.
2-Octanol (sec-Capryl alcohol)	RH.
3-Pentanol	EK.
*Propyl alcohol (Propanol)	CEL, EKX, UCC.
2-Propyn-1-ol	GAF.
*Alcohols, C_{12} or higher, unmixed:	
1-Decanol	CO, PG.
Dodecyl alcohol (Lauryl alcohol) (95%)	CO, PG.
1-Hexadecanol (Cetyl alcohol)(95%)	CO, GIV, PG.
Hexadecyl alcohols, other	ENJ.
*1-Octadecanol (Stearyl alcohol) (95%)	CO, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)	ASH, DUP.
1-Tetradecanol (Myristyl alcohol)	CO.
1-Tridecanol	ENJ.
2,6,8-Trimethyl-4-nonanol	UCC.
*Mixtures of alcohols:	
*C_{11} and lower only	CEL, CO, EKX, ENJ, PUB, TNA.
*C_{12} and higher only	ASH, CO, GLY, SHC, TNA, UCC.
All other monohydric alcohols, unsubstituted (including mixtures).	ALD, CEL, CO, EKX, GYR, PG, TNA, UCC.
Polyhydric Alcohols and Their Esters and Ethers	
*Polyhydric alcohols:	
2,2-Bis(bromomethyl)-1,3-propanediol	DOW.
1,2(and 1,3)-Butanediol	CEL.
1,4-Butanediol	GAF.
2-Butene-1,4-diol	GAF.
2-Butyne-1,4-diol	GAF.
3-Chloro-1,2-propanediol (Glycerol-α-chlorohydrin)	BVN.
1,10-Decanediol	ASH.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	EKX.
*Ethylene glycol	BAS, CAU, CEL, DIX, DOW, DUP, EKX, JCC, MAT, NWP, OMC, PPG, SHC, UCC.
2-Ethyl-1,3-hexandiol	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-2,4-pentanediol (Hexylene glycol)	CEL, SHC, UCC.
2-Methyl-2-propyl-1,3-propanediol	BKL.
*Pentaerythritol	CEL, COM, HN, HPC, RCI.
1,5-Pentanediol	UCC.
*Propylene glycol (1,2-Propanediol)	CEL, DOW, JCC, OCC, OMC, UCC.
*Sorbitol	BRD, ICI, MRK, PFE.
2,2,4-Trimethyl-1,3-pentanediol	EKX.
All other	GLY, ICI, PHR, PIC.
*Polyhydric alcohol esters:	
1,3-Butanediol dimethacrylate	SAR.
2,(2-Butoxyethoxy)ethyl acetate	EKT, UCC.
2-Butoxyethyl acetate	UCC.
1,3-Butyleneglycol diacetate	SAR.
Diethylene glycol chloroformate	PD.
2-Diisopropylaminoethyl methacrylate	DUP.
2-(2-Ethoxyethoxy)ethyl acetate	EKT, UCC.
2-Ethoxyethyl acetate	ENJ, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and their Esters and Ethers--Continued	
*Polyhydric alcohol esters--Continued	
*Ethylene glycol diacetate	CPS, 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)	ARC, EKT, UCC.
Glycol adipate	x.
1,6-Hexanediol diacrylate	SAR.
Hexylene glycol diacetate	UCC.
Hydroxyethyl acrylate	DOW.
Hydroxypropyl acrylate	DOW.
Lanolin acetate	CRN.
Lanolin alcohol acetate	CRN.
2-Methoxyethyl acetate	UCC.
2-Methoxyethyl carbamate	VAL.
Monoglyceride lactate	PG.
Pentaerythritol caprylate	PVO.
Pentaerythritol pelargonate	PVO.
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 diacrylate	AAE, UCC.
Triethylene glycol dimethacrylate	SAR.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	EKX, UCC.
Trimethylolpropane triacrylate	AAE, SAR.
All other	ALD, CCW, EK, EKX, EVN, PFN, PG, SAR SHC, UCC, USB.
*Polyhydric alcohol ethers:	
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, OMC, SHC, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol monoisobutyl 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.
N-Butoxypropanol polyalkylene glycol	UCC.
Diethoxytetraglycol	UCC.
*Diethylene glycol	BAS, CEL, DIX, DOW, EKX, JCC, MAT, NWP, PPG, SHC, UCC.
Diethylene glycol, borated	GLY, JCC.
Diethylene glycol monobutyl ether	OMC.
Dimethoxyethane (Ethylene glycol dimethyl ether)	ASL.
*Dipropylene glycol	CEL, DOW, JCC, OCC, OMC, UCC.
Di-tributyletherethylene glycol	EKX.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and Their Esters and Ethers--Continued	
Polyhydric alcohol ethers--Continued	
Di-tri-isobutyl ether	EKX.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	CEL, DOW, EKX, JCC, OMC, SHC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoether).	CEL, DOW, EKX, JCC, OMC, SHC, UCC.
*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.
2-(2-Isobutoxyethoxy)ethanol (Diethylene glycol monoisobutyl ether).	EKX.
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	UCC.
1-Methoxy-2-propanol	DOW, UCC.
3-(3-Methoxypropoxy)propanol	DOW, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol	DOW.
Polyethoxyethylsorbitol	GLY.
Polyethoxylated-1,4-butanediol	TCH.
Polyethoxypolypropoxy butanol	JCC.
Polypropoxybutyl ether	DA, JCC.
*Polyethylene glycol	ABC, BAS, DA, DOW, DUP, GAF, HDG, JCC, MAT, NLC, OMC, TCH, UCC.
Polyglycols, ethylene glycol, and glycol ether, mixed-	DOW.
Polyoxypropylene polyoxyethylene glycol, mixed	JCC.
*Polypropylene glycol	BAS, DOW, JCC, HDG, NLC, OMC, TCH, UCC.
Polytetramethylene ether glycol	DUP, QKO.
Propylene glycol mixed ether	DOW.
Sorbitol, ethoxylated	ICI.
Sorbitol, propoxylated	ICI.
*Tetraethylene glycol	DOW, EKX, JCC, OMC, UCC.
1,1,3,3-Tetramethoxypropane	KF.
2,2'-Thiodiethanol (Thiodiglycol)	HAB, UCC.
*Triethylene glycol	CEL, DIX, DOW, EKX, JCC, MAT, NWP, OMC, PPG, SHC, UCC.
*Tripropylene glycol	DOW, HDG, OMC, UCC.
All other	ALD, CAU, CEL, CHT, EK, EKX, GAF, NLC, PFN, SAR, UCC, x.
Esters of Monohydric Alcohols	
Allyl methacrylate	SAR.
Amyl acetates, 90%:	
Isopentyl acetate (Isoamyl acetate)	CPS, UCC.
n-Pentyl acetate	PFW, PUB.
Bis(2-chloroethyl)(2-chloroethyl) phosphonate	x.
Butyl acetates:	
*Iso	CEL, EKX, ENJ, UCC.
*Normal	CEL, EKT, PUB, SHC, UCC.
Secondary	EKT, ENJ, PUB, SHC.
*Butyl acrylate	CEL, DBC, RH, UCC.
Butyl chloroacetate	MON.
sec-Butyl chloroformate	CTN.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols	
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	PPG, WTL.
tert-Butyl peroxyneodecanoate	WTC, WTL.
*tert-Butyl peroxypivalate	AZT, WTC, WTL.
tert-Butyl peroxy-3,3,5-trimethyl cyclohexane	WTL.
Cetyl lactate	VND.
Diallyl maleate	FMP.
Di(sec-butyl) chloroformate	WTL.
Dibutyl fumarate	MON, PFZ, RCI, USS.
*Dibutyl maleate	MON, RCI, RUB, 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 ethylisopentylmalonate	LIL.
Diethyl ethylmalonate (Ethyl malonic ester)	LIL.
Diethyl ethyl(1-methylbutyl)malonate	ABB.
Di(2-ethylhexyl) chloroformate	WTL.
Di(2-ethyl-1-hexyl) fumarate	RUB.
Di(2-ethyl-1-hexyl) maleate	HRT, RUB.
Di(2-ethyl-1-hexyl) peroxydicarbonate	WTL.
Diethyl ketomalonate	ALD.
Diethyl maleate	ACY, MRK, UCC.
*Diethyl malonate (Malonic ester)	ABB, KF, LIL.
*Diethyl (1-methylbutyl)malonate	ABB, CTN, LIL.
Diethyl methylmalonate	CTN.
Diethyl oxalate (Ethyl oxalate)	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, HAB.
Dimethyl carbonate	CTN.
2,5-Dimethylhexane-2,5-diperoctoate	DUP, WTC.
Dimethyl maleate	AAC, ABC.
Dimethyl malonate	KF.
Di-(4-methyl-2-pentyl)maleate	ABC.
Dimyristyl 3,3'-thiodipropionate	CCW, EVN.
*Dioctyl maleate	MON, RCI, USS.
Di-n-propyl peroxydicarbonate	WTL.
*Distearyl 3,3'-thiodipropionate	ACY, CCW, EVN, HAB.
Dithiobis(stearyl propionate)	EVN.
Ditridecyl maleate	RUB.
Di(tridecyl) 3,3'-thiodipropionate	ACY, EVN.
*Ethyl acetate (85%)	CEL, EKT, EKX, ENJ, MON, PUB, UCC.
Ethyl acetoacetate	EKT, UCC.
*Ethyl acrylate	CEL, DBC, RH, UCC.
Ethyl chloroacetate	DOW, MON.
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, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
*2-Ethyl-1-hexyl acrylate	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate	x.
Ethyl silicate (Tetraethoxysilane)	UCC.
Ethyl sulfate (Diethyl sulfate)	UCC.
Ethyl thioglycolate	EVN.
Fatty acid esters, not included with plasticizers or surface-active agents:	
Butyl palmitate	AAE, CBY.
tert-Butylperoxy neodecanoate	WTC.
Dimethyl brassylate	EMR.
Ethylhexyl stearate	TCH.
n-Hexyl caprylate	ARC.
Isopropyl ester of lanolin	CRN.
Isopropyl linoleate	VND.
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, LAK, PG.
Myristyl myristate	VND.
All other	HUM, LIL, ROB.
Glycidyl acrylate	AAE.
Glycidyl methacrylate	AAE.
Hexyl acetate	CPS.
Isoamyl ethylmalonate	LIL.
Isobutyl acrylate	RH, UCC.
Isobutyl chloroformate	CTN.
Isobutyl isobutyrate	EKX.
Isodecyl acrylate	UCC.
*Iso-octyl mercaptoacetate	CCW, EVN, HAB.
Iso-octyl 3-mercaptopropionate	EVN.
*Isopropyl acetate	CEL, EKT, LNJ, UCC.
Isopropyl chloroformate	CTN, PPG.
Isostearyl neopentanoate	VND.
Lauryl lactate	VND.
Lauryl methacrylate	x.
Maleic esters and copolymers	GAF.
Methallylidene diacetate	UCC.
Methyl acetate	EK, GRD, MON, UCC.
Methyl acetoacetate	EKT.
Methyl acrylate, monomer	CEL, RH.
Methyl amylacetate	PUB.
Methyl borate	SFS.
Methyl chloroacetate	DOW.
Methyl chloroformate	CTN.
Methyl dichloroacetate	PD.
Methyl formate	CEL, DUP.
*Methyl methacrylate, monomer	ACY, DUP, RH.
4-Methyl-2-pentyl acetate	SHC, UCC.
Methyl sulfate (Dimethyl sulfate)	DUP.
Methyl vinyl acetate	UCC.
Myristyl lactate	VND.
*Phosphorus acid esters:	
Bis(2-ethylhexyl) hydrogen phosphate	SM, UCC.
Bis(2-ethylhexyl) hydrogen phosphite	SM.
Butyl hydrogen phosphates	SM.
Dibutyl butylphosphonate	SM.
Dibutyl hydrogen phosphite	SM.
Didodecyl hydrogen phosphate	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, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
*Phosphorus acid esters--Continued	
Dimethyl methylphosphonate	SM.
Dimethyl(2-oxoheptyl)phosphonate	ALD.
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	WES.
Tri(butoxyethyl)phosphate	HN.
Tributyl phosphate	COM, FMP, HN.
Tributyl phosphite	SM.
Triethyl phosphite	SFA, SFS, SM.
Triiso-octyl phosphite	SM.
Triisopropyl phosphite	SM.
Trimethyl phosphite	SFA, SFS, SM.
Tris(2-chloroethyl) phosphite	SM.
Tris(chloroisopropyl) thionophosphate	TNA.
Tris(2,3-dibromopropyl) phosphate	DOW, MCH, NES.
Tris(1,3-dichloro-2-propyl) phosphorothioate	SM.
All other	MON, SM, TNA.
*Propyl acetate	CEL, EKT, UCC.
Propylene carbonate	JCC.
Sodium methylpropyl carbinol	LIL.
Stearyl methacrylate	x.
Tetraethyl silicate	UCC.
1,1,3,3-Tetramethyl butylhydroperoxide	WTL.
1,1,3,3-Tetramethylbutyl peroxy-2-ethylhexanoate	WTL.
Tetraoctyl orthosilicate	MON.
Titanic acid esters:	
Bis(2-[bis(2-hydroxyethyl)amino]ethyl) diisopropyl titanate.	DUP.
Tetrabutyl titanate	DUP.
Tetraisopropyl titanate	DUP.
Tetrakis(2-ethylhexyl) titanate	DUP.
Other	DUP.
Triethyl orthoacetate	EK, KF.
Triethyl orthoformate	KF.
Triethyl orthopropionate	KF.
Triisodecyl orthoformate	KF.
Trimethyl orthoformate	KF.
*Vinyl acetate, monomer	BOR, CEL, DUP, NSC, UCC, USI.
All other	ALD, BAX, CEL, CTN, DUP, EK, EKX, EMR, EVN, KF, PD, RH, TNI, UCC, USS, VND.
Halogenated Hydrocarbons	
1-Bromobutane (n-Butyl bromide)	ABB, 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-methylbutane	LIL.
1-Bromo-3-methyl-2-butene	SDW.
1-Bromo-octadecane	DUP, HMY.
1-Bromo-octane (n-Octyl bromide)	MCH.
2-Bromopentane (1-Methylbutyl bromide)	ABB, LIL.
1-Bromopropane (n-Propyl bromide)	EK.
Bromotrichloromethane	MCH.
Bromotrifluoromethane	DUP.
*Carbon tetrachloride	ACS, DA, DOW, FMB, FRO, SFI.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Halogenated Hydrocarbons--Continued	
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.
1-Chloro-1,1-difluoroethane	ACS, DUP, PAS.
*Chlorodifluoromethane	ACS, DUP, KAI, PAS, RCN.
*Chloroethane (Ethyl chloride)	AME, DOW, DUP, HPC, PPG, SHC, TNA.
*Chloroform	ACS, DA, DOW, DUP, FRO, SFI.
*Chloromethane (Methyl chloride)	ACS, CO, DCC, DOW, DUP, FRO, TNA, UCC.
2-Chloro-2-methylpropane (tert-Butyl chloride)	EK.
3-Chloro-2-methylpropene (Methallyl chloride)	FMP.
Chloropentafluoroethane	DUP.
3-Chloropropene (Allyl chloride)	DOW, SHC.
Chlorotrifluoroethylene (Trifluorovinyl chloride)	ACS, MMM.
Chlorotrifluoromethane	DUP.
*1,2-Dibromoethane (Ethylene dibromide)	DOW, GTL, MCH, PPG, TNA.
Dibromomethane (Methylene bromide)	DOW.
1,4-Dibromopentane	PD.
1,2-Dibromo-1,1,2,2-tetrafluroethane	DUP.
Dichlorobutadiene	DUP.
1,3-Dichloro-2-butene	DUP.
1,4-Dichlorobutene	DUP.
*Dichlorodifluoromethane	ACS, DUP, KAI, PAS, RCN, UCC.
*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.
2,3-Dichloropropene	DOW.
Dichlorotetrafluoroethane	ACS, DUP.
1,1-Difluoroethane	ACS, DUP.
Difluorotetrachloroethane	DUP.
Diiodomethane (Methylene iodide)	NTB, SDW.
Hexafluoro-2-propane	DUP.
Hexafluoropropylene, monomer	DUP, PAS.
*Iodoethane (Ethyl iodide), tech	EK, FMT, RSA.
*Iodomethane (Methyl iodide)	EK, FMT, RSA.
1-Iodoperfluorohexane	DUP.
Lauryl chlorides	AZT.
Octafluorocyclobutane	DUP.
n-Octyl bromide	MCH.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOW.
*Tetrachloroethylene (Perchloroethylene)	DA, DOW, FRO, HK, PPG, SFI, TNA.
Tetrafluoroethylene, monomer	DUP, TKL.
Tetrafluoroethylene, polymer	DUP.
Tetrafluoromethane	DUP.
*1,1,1-Trichloroethane (Methyl chloroform)	DA, DOW, FRO, PPG, TNA.
1,1,2-Trichloroethane (Vinyl trichloride)	DOW.
*Trichloroethylene	DA, DOW, HK, PPG, TNA.
*Trichlorofluoromethane	ACS, DUP, KAI, PAS, RCN, UCC.
1,2,3-Trichloropropane	DOW, SHC.
1,2,3-Trichloropropene	DOW.
Trichlorotrifluoroethane	ACS, PAS, x.
Vinyl bromide (Bromoethylene)	DOW, TNA.
*Vinyl chloride, monomer (Chloroethylene)	ACS, AME, BFG, CO, DOW, HN, MNO, PPG, SHC, TNA, USR.
Vinyl fluoride	DUP.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	DOW, FRO.
Vinylidene fluoride	DUP.
All other	ALD, DUP, EK, HMY, RSA, SDW, TKL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals	
Acetyl peroxide	AZT, CHT, WTL.
Aluminum isopropoxide (Aluminum isopropylate)	KCH.
Butadiene monoxide	ALD.
*2-Butanone peroxide	AZT, CAD, NOC, RCI, WTC, WTL.
tert-Butyl hydroperoxide	AZT, CAD, NOC, OCC, WTC, WTL.
*tert-Butyl peroxide (Di-tert-butyl peroxide)	AZT, CAD, NOC, SHC, WTC, WTL.
Butyrolactone	GAF.
Caprolactone	UCC.
*Carbon disulfide	ACS, FMB, PAS, PPG, SFI.
2-Chloroethanol (Ethylene chlorohydrin)	UCC.
Decanoyl peroxide	WTC, WTL.
Dialdehyde starch	MLS.
2,3-Dibromopropanol	GTL.
2,5-Dimethyl-2,5-bis(2-ethyl-1-hexanoylperoxy)hexane	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3	WTL.
*Epoxides, ethers, and acetals:	
Acetone dimethylacetal (2,2-Dimethoxypropane)	DOW.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	AAC, DIX.
Allyloxymethoxytriglycol	ARA.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKL.
Bis(2-chloroethyl) ether (Dichlorodiethyl ether)	DOW.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).	DOW.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	DOW.
Butylene oxide	DOW.
Butyl ether (Di-n-butyl ether)	PUB, UCC.
Butyl vinyl ether	GAF.
2-Chloroethyl vinyl ether	AAC, UCC.
Chloromethyl methyl ether	RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether	DOW.
Dimercaptodiethyl ether	EVN, USR.
Epichlorohydrin	DOW, SHC, x.
Epichlorohydrin polymer	NLC.
1,2-Epoxy-3-(tolyloxy)propane	DOW.
*Ethylene oxide	BAS, CAU, CEL, DOW, EKX, JCC, MAT, NWP, OMC, PPG, SHC, SNO, UCC.
Ethyl ether:	
Absolute	MAL, USI.
*Tech	EKX, ENJ, HPC, USI.
*U.S.P.	MAL, OMS, USI.
Ethyl vinyl ether	GAF, UCC.
Glycidol (2,3-Epoxy-1-propanol)	DIX.
Isobutyl vinyl ether	GAF.
*Isopropyl ether	ENJ, SHC, UCC.
Methyl ether (Dimethyl ether)	UCC.
Methyl vinyl ether	GAF.
*Propylene oxide	BAS, CEL, DOW, JCC, OCC, OMC.
Triglycol dichloride	RH.
Vinyl methoxytriglycol	UCC.
Other	ALD, EK, GAF, ICI, SHC, UCC.
Epoxy curing agents	SHC.
Ethanethiol	EK.
2-(Ethylmercapto)ethanol	PLC.
Fats and oils, chemically modified	ABB, DOM.
Fatty acids, hydrogenated	GLY.
Fatty acids, non-hydrogenated	GLY.
Glucono-delta-lactone	PFZ.
Glutaraldehyde bis(sodium bisulfite)	EK, FMT, IDC.
n-Hexadecyl disulfide	PAS.
Hydrocarbons:	
n-Decane	HMY, PLC.
n-Dodecane	HMY, PLC.
1-Dodecene	HMY.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All other Miscellaneous Acyclic Chemicals--Continued	
Hydrocarbons--Continued	
n-Eicosane	HMY.
Hexadecane	HMY.
n-Hexane	HMY.
Myrcene	IFF, NCI.
n-Nonane	HMY, PLC.
n-Octadecane	HMY.
1-Octadecene	HMY.
n-Octane	HMY, PLC.
1(and 2)-Octene	HMY, PLC.
Terpine hydrocarbons	CBY.
Tri-decane	PLC.
Other	HMY, PLC.
Hydrogenated tallow glycerides	CHL, GLY.
Hydroxypropyl methacrylate	CPV.
Lauroyl peroxide	AZT, WTL, WTC.
2-Mercaptoethanol	TCH.
Methylal (Dimethoxymethane)	CEL.
2-Methyl-2-hydroxymethylpropyl-2-methyl-2-hydroxy methyl propionate.	UCC.
Methyl sulfide (Dimethyl sulfide)	CRZ.
Methyl sulfoxide	CRZ.
Organo-aluminum compounds:	
Diethylaluminum chloride	TNA, TSA.
Diethylaluminum iodide	TSA.
Diisobutylaluminum chloride	TNA, TSA.
Diisobutylaluminum hydride	TSA.
Ethylaluminum chlorides	TNA, TSA.
Ethylaluminum sesquichloride	TNA, TSA.
Isopropenylaluminum	TSA.
Methylaluminum sesquichloride	TNA.
Triethylaluminum	TNA, TSA.
Triisobutylaluminum	TNA, TSA.
Trimethylaluminum	TNA.
Organo-Boron compounds:	
Boron fluoride - ethyl ether complex	ACS.
Triethylborane	TSA.
Trimethoxyboroxine	SFS.
Trimethyl borate	MHI.
Organo-lead compounds:	
Mixed lead alkyds	TNA.
*Tetraethyllead	DUP, PPG, TNA.
Tetramethyllead	DUP, NLC, TNA.
Tetra(methyl-ethyl)lead	DUP, PPG.
Organo-lithium compounds:	
n-Butyllithium	FTE.
sec-Butyllithium	FTE.
Organo-magnesium halides	ARA.
Organo-mercury compounds	EK, NTB.
*Organo-silicon compounds:	
Aminopropyltriethoxysilane	UCC.
Chloropropyltrimethoxysilane	UCC.
α-Chloropropyltrichlorsilane	UCC.
Chlorotrimethylsilane	DCC, UCC.
Dichlorodimethylsilane	DCC, UCC.
Dichloromethylsilane	DCC, UCC.
Dichloromethylvinylsilane	UCC.
α-Glycidoxypropyltrimethoxy silane	UCC.
Mercaptopropyltrimethoxysilane	UCC.
α-Methacryloxypropyltrimethoxy silane	UCC.
Methyltriethoxysilane	UCC.
Polyoxyalkylenes silicone	UCC.
Silicone greases	DCC, SPD.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1973--CONTINUED

Chemical	Manufactures' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals--Continued	
*Silicone fluids	DCC, ORO, SPD, UCC.
Trichloromethylsilane	DCC.
Trichlorovinylsilane	UCC.
Vinyl(tris-2-methoxyethoxy)silane	UCC.
Other organo-silicon compounds	PLC, SFS, SWS, UCC.
Organo-tin compounds:	
Bis(tributyltin) oxide	CCW, x.
Dibutyltin dichloride	CCW, x.
Dibutyltin dilaurate	CCA.
Dibutyltin maleate	CCA.
Dibutyltin methoxide	CCA.
Dibutyltin oxide	x.
Organo-tin mercaptide	CCW.
Tributyltin chloride	PCW, x.
Tributyltin fluoride	x.
Other	CCA, x.
Organo-zinc compounds	TSA.
Oxidized hydrocarbon mixtures	ALX.
Perchloromethanethio (Perchloromethyl mercaptan)	SFC.
*Phosgene (Carbonyl chloride)	ACS, CTN, DUP, MOB, OMC, OTC, PPG, RUC, UPJ, UCC, VDM.
Pine oil, synthetic	CBY, GLD, NCI.
Polyethylene adipate	BKL.
β-Propiolactone	CEL.
Rare sugars	PFN, RSA.
Sodium ethoxide	FMP.
Sodium formaldehyde bisulfite	EK, IDC.
Sodium formaldehyde sulfoxylate	DA, RH.
*Sodium methoxide (Sodium methylate)	DA, OMC, RBC.
Sodium succinaldehyde bisulfite	x.
Succinyl peroxide	WTL.
Tetrakis(hydroxymethyl)phosphonium chloride	HK.
Trioctylphosphine oxide	EK.
Zinc formaldehyde sulfoxylate	DA.
Other	ALD, ALX, BKL, BJL, CEL, DUP, EK, FER, GNM, GYR, HMY, NLC, PD, PIC, PLC, RSA, SAR, SDW, SFS, TNA, VND, WTL, x, x, x.

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1973

ALPHABETICAL DIRECTORY BY CODE

[Names of miscellaneous chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
AAC	Alcolac Chemical Corp.
AAE	American Aniline & Extract Co., Inc.
ABB	Abbott Laboratories
ABC	Balchem Corp.
	Allied Chemical Corp.:
ACN	Agricultural Div.
ACP	Plastics Div.
ACS	Specialty Chemicals Div.
ACY	American Cyanamid Co.
AGY	Agway, Inc., Olean Nitrogen Complex
AIP	Air Products & Chemicals, Inc.
AKL	Arkla Chemical Corp.
AKS	Arkansas Co., Inc.
ALB	Ames Laboratories, Inc.
ALC	Alco Chemical Corp.
ALD	Aldrich Chemical Co., Inc.
ALF	Allied Chemical Corp., Fibers Div.
ALX	Alox Corp.
AMB	American Bio-Synthetic Corp.
AME	American Chemical Corp.
APD	Atlas Powder Co., Subsidiary of Tyler Corp.
ARA	Arapahoe Chemicals, Inc. Subsidiary of Syntex (U.S.A.), Inc.
ARC	Armak Co.
ARD	Ardmore Chemical Co., Inc.
ARM	USS Agri-Chemicals, Div. of U. S. Steel Corp.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.
ASL	Ansul Chemical Co.
ATR	Atlantic Richfield Co., ARCO Div.
AV	FMC Corp., Fiber Div.
AZS	AZ Products Co. Div. of AZS Corp.
AZT	Dart Industries, Inc., Aztec Chemicals Div.
BAS	BASF Wyandotte Corp.
BAX	Baxter Laboratories, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
BFR	Pace National Corp.
BJL	Burdick & Jackson Laboratories, Inc.
BKC	J. T. Baker Chemical Co.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.
BOR	Borden Co., Borden Chemical Co. Div.
BPC	Stauffer Chemical Co., Specialty Chemical Div., Benzol Products
BRD	Lonza, Inc.
BUK	Buckeye Cellulose Corp.
CAD	Noury Chemical Corp.
CAU	Calcasieu Chemical Corp.
CBD	Chembond Corp.
CBY	Crosby Chemicals, Inc.
CCA	Cincinnati Milacron Chemicals, Inc.
CCC	Chase Chemical Corp.
CCH	Pearsall Chemical Corp.
CCW	Cincinnati Milacron Chemicals, Inc.
CEL	Celanese Corp.:
	Celanese Chemical Co.
	Celanese Fibers Co.
CFA	Cooperative Farm Chemicals Association
CGY	Ciba-Geigy Corp. & Ciba Pharmaceutical Co.
CHH	Charles Hansen's Laboratory, Inc.
CHL	Chemol, Inc.
CHN	Cherokee Nitrogen Co.
CHP	C. H. Patrick & Co., Inc.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.
CLK	Clark Chemical Corp.
CLN	Standard Brands, Inc., Clinton Corp. Processing Co. Div.
CNC	Columbia Nitrogen Corp.
CNP	Nipro Inc.
CO	Continental Oil Co.
COL	Collier Carbon & Chemical Corp.
COM	Commercial Solvents Corp.
CP	Colgate-Palmolive Co.
CPS	CPS Chemical Co.
CPV	Cook Paint & Varnish Co., Inc.
CRN	CPC International, Inc.
CRT	Crest Chemical Corp.
CRZ	Crown Zellerbach Corp., Chemical Products Div.
CTN	Chemetron Corp., Organic Chemical Div.
CWN	Upjohn Co., Fine Chemical Div.
DA	Diamond Shamrock Corp.
DAN	Dan River, Inc.
DBC	Dow Badische Co.
DCC	Dow Corning Corp.
DEX	Dexter Chemical Corp.
DIX	Dixie Chemical Co.
DLI	Dawe's Laboratories, Inc.
DOL	Dole Co., Div. of Castle & Cook, Inc.
DOM	Dominion Products, Inc.
DOW	Dow Chemical Co.
DSO	DeSoto, Inc.
DUP	E. I. DuPont de Nemours & Co., Inc.
DVC	Dover Chemical Corp.
EFH	E. F. Houghton & Co.
EK	Eastman Kodak Co.:
EKT	Tennessee Eastman Co. Div.
EKX	Texas Eastman Co. Div.
ELP	El Paso Products Co.
EMR	Emery Industries, Inc.
ENJ	Exxon Chemical Co. U.S.A.
ESA	East Shore Chemical Co., Inc.
EVN	Evans Chemetics, Inc.
FCA	C. F. Industries, Inc.
FER	Ferro Corp.:
	Ferro Chemical Div.
	Grant Chemical Div.
FIN	Fine Organics, Inc.
	FMC Corp.:
FMB	Industrial Chemical Div.
FMP	Industrial Chemical Div.
FMT	Fairmount Chemical Co., Inc.
FRF	Firestone Synthetic Fibers Co.-Div.
FRO	Vulcan Materials Co., Chemicals Div.
FTE	Foote Mineral Co.
FTX	CF Industries, Inc., Fremont Nitrogen Complex

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1973--CONTINUED

Code	Name of company
GAF	GAF Corp., Chemical Div.
GAN	Gane's Chemical Works, Inc.
GCC	W. R. Grace & Co., Agricultural Chem. Group
GFS	G. Frederick Smith Chemical Co.
GIV	Givaudan Corp.
GLD	SCM Corp. Glidden-Durkee Div.
GLY	Glyco Chemicals, Inc.
GNM	General Mills Chemicals, Inc.
GOC	Gulf Oil Corp., Gulf Oil Chemicals Co.-U.S.
GP	Georgia-Pacific Corp.
GPR	Grain Processing Corp.
GRD	W. R. Grace & Co., Polymers & Chemicals Div.
GRH	W. R. Grace & Co., Hatco Chemical Div.
GRO	Millmaster Onyx Corp., A. Gross & Co. Div.
GTL	Great Lakes Chemical Corp.
GYR	Goodyear Tire & Rubber Co.
HAB	Halby Products Co., Inc.
HAL	C.P. Hall Co. of Illinois
HDG	Hodag Chemical Corp.
HEX	Hexagon Laboratories, Inc.
HFT	Hoffman-Taff, Inc.
HK	Hooker Chemicals & Plastic Corp.: Durez Plastics Div.
HKY	Hawkeye Chemical Co.
HMP	W. R. Grace & Co., Dewey & Almy Chemical Div., Organic Chemical
HMY	Humphrey Chemical Co.
HN	Tenneco Chemicals, Inc.
HPC	Hercules, Inc.
HRT	Hart Products Corp.
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co.
HST	American Hoechst Corp.
HUM	Kraftco Corp., Humko Products Chemical Div.
ICI	ICI America, Inc.
IDC	Industrial Dyestuff Co.
IFF	International Flavors & Fragrances, Inc.
IOC	Ionac Chemical Co. Div. of Sybron Corp.
JCC	Jefferson Chemical Co., Inc.
JDC	Nipak, Inc.
JFR	George A. Jeffrey's & Co., Inc.
JOR	Jordan Chemical Co.
JTC	Joseph Turner & Co.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemicals Div.
KCC	Kennecott Copper Corp., Chino Mines Div.
KCH	Joseph Ayers, Inc.
KCU	Kennecott Copper Corp., Utah Copper Div.
KF	Kay-Fries Chemicals, Inc.
KON	H. Kohnstamm & Co., Inc.
KPT	Koppers Co., Inc., Organic Materials Div.
LAK	Lakeway Chemical, Inc.
LAM	LaMotte Chemical Products Co.
LEM	Napp Chemicals, Inc.
LIL	Eli Lilly & Co., Inc.
LUB	Lubrizol Corp.
MAL	Mallinckrodt Chemical Works
MAT	Koch Chemical Co.
MCH	Michigan Chemical Corp.
MCI	Mooney Chemicals, Inc.
MHI	Ventron Corp.
MLS	Miles Laboratories, Inc., Marschall Div. & Sumner Div.
MMM	Minnesota Mining & Manufacturing Co.
MNO	Monochem, Inc.
MOB	Mobay Chemical Co.
MON	Monsanto Co.
MOR	Marathon Morco, Co.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co., Div. of Morton-Norwich Products, Inc.
MSC	Mississippi Chemical Corp.
MTO	Montrose Chemical Corp. of California
NCI	Union Camp Corp., Chemical Div.
NEP	Nepera Chemical Co.
NES	Nease Chemical Co., Inc.
NEV	Neville Chemical Co.
NLC	Nalco Chemical Co.
NOC	Norac Co., Inc. and Mathe Chemical Co. Div.
NOR	Norwich Pharmacal Co.
NSC	National Starch & Chemical Corp.
NTB	National Biochemical Co.
NTL	NL Industries, Inc.
NW	Northwestern Chemical Co.
NWP	Northern Petrochemicals Co.
OCC	Oxirane Chemical Co.
OH	Airco, Inc., Ohio Medical Product Div.
OMC	Olin Corp.
OMS	E. R. Squibb & Sons, Inc.
ONX	Millmaster Onyx Corp., Onyx Chemical Co.
OPC	Orbis Products Corp.
ORO	Chevron Chemical Co.
ORT	Roehr Chemicals, Inc.
OTC	Story Chemical Corp.
OXC	Oxochem Enterprises
PAR	Pennzoil Co., Penneco Div.
PAS	Pennwalt Corp.
PCW	Pfister Chemical Works
PD	Parke, Davis & Co.
PEN	CPC International, Inc., S. B. Penick Div.
PFN	Pfanstiehl Laboratories, Inc.
PFW	Polak's Frutal Works, Inc.
PFZ	Pfizer, Inc.
PG	Procter & Gamble Co.
PHR	Pharmachem Corp.
PIC	Pierce Chemical, Inc.
PLB	P-L Biochemicals, Inc.
PLC	Phillips Petroleum Co. & Phillips Pacific Chemical Co.
PLS	Plastics Engineering Co.
PMP	Premier Malt Products, Inc.
PPC	Premier Petrochemical Co.
PPG	Pittsburgh Plate Glass Co.
PRD	Productol Chemical Co., Inc.
PTT	Petro-Tex Chemical
PUB	Publicker Industries, Inc.
PVO	PVO International, Inc.
QCP	Quaker Chemical Corp.
QKO	Quaker Oats Co.
RBC	Pike Chemicals, Inc.
RCI	Reichhold 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.

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1973--CONTINUED

Code	Name of company
RPC	Millmaster Onyx Corp., Refined-Onyx Div.
RSA	R.S.A. Corp.
RUB	Hooker Chemical Corp., Ruco Div.
RUC	Rubicon Chemicals, Inc.
S	Sandoz, Inc., Sandoz Colors & Chemical Div.
SAL	Salsbury Laboratories
SAR	Sartomer Industries, Inc.
SBC	Scher Bros.
SCH	Schering Corp.
SDC	Martin-Marietta Corp., Sodeyco Div.
	Sterling Drug, Inc.:
SDH	Hilton-Davis Chemical Co. Div.
SDW	Winthrop Laboratories Div.
	Stauffer Chemical Co.:
SFA	Agricultural Div.
SFC	Calhio Chemicals, Inc. Div.
SFI	Industrial Div.
SFS	Specialty Chemical Div.
SHA	Shanco Plastics & Chemical Co.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHF	Kraftco Corp., Humko Sheffield Div.
SHP	Shepherd Chemical Co.
SK	Smith, Kline & French Laboratories
SKG	Sunkist Growers, Inc.
SKO	Skelly Oil Co.
SM	Mobil Oil Corp., Mobil Chemical Co.:
	Chemical Coatings Div.
	Industrial Chemical Div.
SNI	Kaiser Aluminum & Chemical Corp., Kaiser Agricultural Chemicals Div.
SNO	SunOlin Chemical Co.
SNW	Sun Chemical Corp., Chemical Div.
SOC	Standard Oil Co. of California, Chevron Chemical Co.
SOH	Vistron Corp.
SPD	General Electric Co., Silcon Products Dept.
SPR	Scientific Protein Laboratories
STP	Stepan Chemical Co.
SW	Sherwin-Williams Co.
SWS	Stauffer Chemical Co., SWS Silicones Div.
SYP	Dart Industries, Inc., Synthetic Products Co. Div.
TAE	Chemetron Corp., Medical Products Div.
TCC	Tanatex Chemical Corp
TCH	Emery Trylon Chemicals Div. Industries Inc.
TEK	Teknor Apex Co.
TER	Terra Chemicals International, Inc.
TID	Getty Oil Co.
TKL	Thiokol Chemical Corp.
TNA	Ethyl Corp.
TNI	The Gillette Co., Chemical Div.
TRI	Triad Chemicals
TRO	Troy Chemical Co.
TSA	Texas Alkyls, Inc.
TX	Texaco, Inc.
TZC	Tizon Chemical Corp.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Div.
UPJ	Upjohn Co.
UPM	Universal Oil Products Co.
USB	U.S. Borax Research Corp.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.
USR	Uniroyal, Inc., Chemical Div.
USS	USS Chemicals Div. of U.S. Steel Corp.
VAL	Valchem
VDM	Van De Mark Chemical Co.
VEL	Velsicol Chemical Corp., Inc.
VGC	Virginia Chemicals, Inc.
VLN	Valley Nitrogen Producers, Inc.
VND	Van Dyk & Co., Inc.
WAG	West Agro Chemical, Inc.
WAY	Phillip A. Hunt Chemical Corp., Wayland Chemical Div.
WBC	Worthington Biochemical Corp.
WBG	White & Bagley Co.
WCL	Wright Chemical Co.
WES	Borg-Warner Corp., Weston Chemical Div.
WLC	Agrico Chemical Co.
WM	Inolex Corp.
WMP	Essex International, Inc.
WSN	Mallinckrodt Chemical Works, Washine Div.
WTC	Witco Chemical Co., Inc.
WTH	Union Camp Corp., Harchem 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, 1973

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. International Trade Commission for 1973 are listed below alphabetically, together with their identification codes as used in table 2 of the 14 individual sections of this report]

Identification code	Name of company	Office address
AEP	A & E Plastic Pak Co., Inc----------	14505 E. Proctor Ave., Industry, CA 91747.
AZS	AZS Corp.:	
	AZ Products Co. Div----------	2525 S. Combee Rd., Eaton Park, FL 33840.
	Lancaster Chemical Co. Div----------	Broad & 13th St., Carlstadt, NJ 07072.
ABB	Abbott Laboratories----------	14th St. and Sheridan Rd., N. Chicago, IL 60664.
ABS	Abex Corp., American Brakelok Div----------	2401 S. Loudoun St., Winchester, VA 22601.
UDW	Accent International, Inc., Sub. of William Underwood Co.	One Red Devil Lane, Watertown, MA 02172.
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	656E Swedesford Rd., 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.
ACP	Plastics Div----------	P. O. Box 2365R, Morristown, NJ 07960.
ACS	Specialty Chemicals Div----------	P. O. Box 1219R, 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 14302.
ALP	Alpha Laboratories, Inc----------	1685 S. Fairfax St., Denver, CO 80222.
AMC	Amchem Products, Inc. Div. of Rorer-Amchem, Inc.	Brookside Ave., Ambler, PA 19002.
AES	Amerace Corp., Penetone Div----------	74 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.
AME	American Chemical Corp----------	2112 E. 223d St., P. O. Box 1110, Long Beach, CA 90810.
AC	American Color & Chemical Corp----------	P. O. Box 3063, Paterson, NJ 07509.
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, 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 60601.
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 (U.S.A.), Inc.	2855 Walnut St., Boulder, CO 80302.
KPP	ARCO/Polymers, Inc----------	1500 Market St., Philadelphia, PA 19101.
ARD	Ardmore Chemical Co., Inc----------	840 Valley Brook Ave., Lyndhurst, NJ 07071.
ARN	Arenol Chemical Corp----------	40-33 23d St., Long Island City, NY 11101.
HAB	Argus Chemical Corp----------	633 Court St., Brooklyn, NY 11236.
ARZ	Arizona Chemical Co----------	Wayne, NJ 07470.
AKS	Arkansas Co., Inc----------	185 Foundry St., Newark, NJ 07105.
AKL	Arkla Chemical Corp----------	P. O. Box 825, Helena, AK 72342.
ARC	Armak Co----------	300 S. Wacker Dr., Chicago, IL 60606.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
AGP	Armour-Dial, Inc	P. O. Box 4309, Chicago, IL 60606.
ARP	Armour Pharmaceutical Co	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.
ASH	Ashland Oil, Inc	1401 Winchester Ave., Ashland, KY 41101 and P. O. Box 2458, Columbus, OH 43216.
	Ashland Chemical Co. Div	5200 Blazer Blvd., Dublin, OH 43215.
BLA	Astor Products, Inc., Blue Arrow Div	P. O. Box 2366, Jacksonville, FL 32203.
AST	Astra Pharmaceutical Products, Inc	Neponset St., Worcester, MA 01606.
ATL	Atlantic Chemical Corp	10 Kingsland Rd., Nutley, NJ 07110.
ATR	Atlantic Richfield Co	515 S. Flower St., Los Angeles, CA 90071.
APD	Atlas Powder Co. Sub. of Tyler Corp	P. O. Box 87, Joplin, MO 64801.
APR	Atlas Processing Co	P. O. Box 9389, 3546 Midway St., Shreveport, LA 71109.
KCH	Joseph Ayers, Inc	Route #2, Bethlehem, PA 18017.
BAS	BASF Wyandotte Corp	100 Cherry Hill Rd., Parsippany, NJ 07054.
BRP	BP Oil Corp	270 Midland Bldg., Cleveland, OH 44115.
BKC	J. T. Baker Chemical Co	222 Red School Lane, Philipsburg, NJ 08865.
ABC	Balchem Corp	Intersections 6 and 284, State 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.
	Baychem Corp.:	
CHG	Chemagro Div	P. O. Box 4913, Station "F", Kansas City, MO 64120.
VPC	Verona Div	Iorio Ct., Union, NJ 07083.
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	Belport Co., Inc	553 Dawson Dr., Camarillo, CA 93010.
BME	Bendix Corp., Friction Materials Div	P. O. Box 238, Troy, NY 12180.
BEN	Bennett's	65 W. 1st S. St., Salt Lake City, UT 84110.
BDO	Benzenoid 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, Waldrich, NJ 07463.
BID	Bio-Derivatives Corp	646 Nassau Ave., Freeport, NY 11520.
BOR	Borden, Inc., Borden Chemical Div	50 W. Broad St., Columbus, OH 43215.
MCB	Borg-Warner Corp., Borg-Warner Chemicals	P. O. Box 1868, Parkersburg, WV 26101.
WES	Borg-Warner Corp., Weston Chemical Div	103 Spring Valley Rd., Montvale, NJ 07645.
BFP	Breddo Food Products Corp	18th and Kansas Avenue, Kansas City, KS 66105.
BRS	Bristol-Meyers Co., Bristol Laboratories Div.	P. O. Box 657, E. Syracuse, NY 13057.
BRU	M. A. Bruder & Sons, Inc	52d St. and Grays Ave., Philadelphia, PA 19143.
BUK	Buckeye Cellulose Corp	2899 Jackson Ave., Memphis, TN 38108.
BKM	Buckman Laboratories, Inc	1256 N. McLean Blvd., Memphis, TN 38108.
CD	Budd Co., Polychem Div	70 S. Chapel St., Newark, DE 19711.
BJL	Burdick & Jackson Laboratories, Inc	1953 S. Harvey St., Muskegon, MI 49442.
BUR	Burroughs & Wellcome Co	3030 Cornwallis Rd., Research Triangle Park, NC 27709.
FCA	C.F. Industries, Inc	P. O. Box 87, Harrison, TN 37341.
FTX	Fremont Nitrogen Complex	P. O. Box 68, RFD#3, Fremont, NB 68025.
CRN	CPC International, Inc	International Plaza, Englewood Cliffs, NJ 07632.
ACR	Acme Resin Co. Div	1401 Circle Avenue, Forest Park, IL 60130.
PEN	S. B. Penick Co	100 Church St., New York, NY 10007.
CPS	CPS Chemical Co	P. O. Box 162, Old Bridge, NJ 08857.
CBT	Samuel Cabot, Inc	One Union St., Boston, MA 02108.
CAU	Calcasieu Chemical Corp	P. O. Box 1522, Lake Charles, LA 70601.
CBM	Carborundum Co	P. O. Box 477, Niagara Falls, NY 14302.
CGL	Cargill, Inc	Cargill Bldg., Minneapolis, MN 55402.
ZGL	Carolina Processing Corp	P.O. Box 161, Severn, NC 27877.
CRS	Carus Corp., Carus Chemical Co. Div	1500 8th St., LaSalle, IL 61301.
DOL	Castle & Cook, Inc., Hawaii Region	P. O. Box 338, Honolulu, HI 96801.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
CEL	Celanese Corp.:	
	Celanese Chemical Co	1211 Avenue of Americas, New York, NY 10036.
	Celanese Coatings & Specialties Co	P. O. Box 1863, Louisville, KY 40202.
	Celanese Fibers Co	P. O. Box 1414, Charlotte, NC 28232.
	Celanese Plastics Co	550 Broad St., Newark, NJ 07102.
CPR	Certified Processing Corp	Route 22 & Harding Terrace, Hillside, NJ 07205.
GRS	Champlin Petroleum Co	P. O. Box 9176, Corpus Christi, TX 78408.
CPP	Charmin Paper Products Co	6000 Center Hill Rd., Cincinnati, OH 45224.
SOG	Charter International Oil Co	P. O. Box 5008, Houston, TX 77012.
CCC	Chase Chemical Corp	3527 Smallman St., Pittsburgh, PA 15201.
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.
	Chemetron Corp.:	
TAE	Medical Products Div	1801 Lilly St., St. Louis, MO 63110.
CTN	Organic Chemicals Div	P. O. Box 480, Newport, TN 37821.
HSC	Pigments Div	491 Columbia Ave., Holland, MI 49423.
CI	Chem-Fleur, Inc	200 Pulaski St., Newark, NJ 07105.
CHF	Chemical Formulators, Inc	P. O. Box 26, Nitro, WV 25143.
CKL	Chemlek Laboratories, Inc	4040 W. 123d St., Alsip, IL 60658.
CHL	Chemol, Inc	P. O. Box 20687, Greensboro, NC 27420.
CPX	Chemplex Co	3100 Golf Rd., Rolling Meadows, IL 60008.
CHN	Cherokee Nitrogen Co	P. O. Box 429, Pryor, OK 74361.
ORO	Chevron Chemical Co	200 Bush St., San Francisco, CA 94120.
CPC	Childs Pulp Colors, Inc	5 Albany St., Springfield, MA 01101.
CHC	Choate Chemical Co., Div. of E.R. Carpenter	P. O. Box 58188, Houston, TX 77058.
CHH	CHR. Hansen's Laboratory, Inc	9015 W. Maple St., Milwaukee, WI 53214.
CGY	Ciba-Geigy Corp	444 Saw Mill River Rd., Ardsley, NY 10502.
	Agrochemical Div	P. O. Box 11422, Greensboro, NC 27409.
	Ciba Pharmaceutical Co	556 Morris Ave., Summit, NJ 07901.
CCA & CCW	Cincinnati Milacron Chemicals, Inc	500 Jersey Ave., New Brunswick, NJ 08903 and West St., Reading, OH 45215.
CIN	Cindet Chemicals, Inc	2408 Doyle St., Greensboro, NC 27406.
	Cities Service Co.:	
CBN	Columbia Div	3200 W. Market St., Akron, OH 44313.
TEN	Copperhill Operations	Copperhill, TN 37317.
LVY	Levey Div	630 Glendale-Milford Rd., Cincinnati, OH 45215.
CSO	Cities Service Oil Co	P. O. Box 300, Tulsa, OK 74102.
C8N	Petrochem Operations	P. O. Box 1522, Lake Charles, LA 70601.
CLK	Clark Chemical Corp	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLY	W. A. Cleary Corp	P. O. Box 749, New Brunswick, NJ 08903.
CLI	Clintwood Chemical Co	4342 S. Wolcoth Ave., Chicago, IL 60609.
CSP	Coastal States Petrochemical Co	P. O. Drawer 521, Corpus Christi, TX 78403.
CP	Colgate-Palmolive Co	300 Park Ave., New York, NY 10022.
COL	Collier Carbon & Chemical Corp	P. O. Box 60455, Los Angeles, CA 90060.
CLD	Colloids, Inc	394 Frelinghuysen Ave., Newark, NJ 07114.
CNC	Columbia Nitrogen Corp	P. O. Box 1483, Augusta, GA 30903.
CMP	Commercial Products Co., Inc	117 Ethel Ave., Hawthorne, NJ 07641.
COM	Commercial Solvents Corp	245 Park Ave., New York, NY 10017.
COR	Commonwealth Oil Refining Co., Inc	Petrochemical Complex, Ponce, PR 00731.
CPI	Commonwealth Petrochemicals, Inc	Petrochemical Complex, Ponce, PR 00731.
CNI	Conap, Inc	184 E. Union St., Allegany, NY 14706.
DAV	Conchemco, Inc	10000 Marshall Dr., Lenexa, KS 66201.
SED	Colony Paint	18th & Garfield Sts., Kansas City, MO 64127.
CNE	Eastern Div	P. O. Box 778, Baltimore, MD 21203.
CON	Concord Chemical Co., Inc	17th & Federal Sts., Camden, NJ 08105.
CWP	Consolidated Papers, Inc	Wisconsin Rapids, WI 54494.
CTL	Continental Chemical Co	270 Clifton Blvd., Clifton, NJ 07015.
CO	Continental Oil Co	Park Eighty Plaza East, Saddle Brook, NJ 07662.
CPV	Cook Paint & Varnish Co	1412 Knox St., N. Kansas City, MO 64116.
CFA	Cooperative Farm Chemicals Association	P. O. Box 308, Lawrence, KS 66044.
COO	Cooper Polymers, Inc	820 Woburn St., Wilmington, MA 01887.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
COP	Coopers Creek Chemical Corp	River Rd., W. Conshohocken, PA 19428.
CPY	Copolymer Rubber & Chemical Corp	P. O. Box 2S91, 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	12 Dudley St., Providence, RI 02901.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	Camas, WA 98607.
CTR	Customs Resins, Inc	Hyw #136, Henderson KY 42420.
DAN	Dan River, Inc	Danville, VA 24541.
	Dart Industries, Inc.:	
AZT	Azetec Chemicals Div	555 Garden St., Elyria, OH 44035.
RCC	Rexene Polymers Co. Div	W. 115 Century Rd., Paramus, NJ 07652.
DYS	Davies-Young Co	2700 Wagner Place, Maryland Heights, MO 63043.
DLI	Dawe's Laboratories, Inc	450 State St., Chicago Heights, IL 60411.
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	E. Water St., Waukegan, IL 60030.
DPI	Diamond Plastics, Inc	6421 Paramount Blvd., Long Beach, CA 90805.
DA	Diamond Shamrock Corp	1100 Superior Ave., Cleveland, OH 44114.
PLN	Diosgrin 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.
BLS	Dobbs-Life Savers, Inc	Church St., Canajoharie, NY 13317.
DOM	Dominion Products, Inc	882 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Co	W. 15th & Davis Sts., Dover, OH 44623.
DBC	Dow Badische Chemical Co	602 Copper Rd., Freeport, TX 77541.
DOW	Dow Chemical Co	202 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. Box 755, 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	4300 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 Buxton, 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 23217.
EVN	Evans Chemetics, Inc	90 Tokeneke Rd., Darien, CT 06820.

APPENDIX

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1975--CONTINUED

Identification code	Name of company	Office address
ENJ	Exxon Corp. and Exxon Chemical Co. U.S.A., Nevaman Div.	P. O. Box 3272, Houston, TX 77001 and Old Telegraph Rd., Odenton, MD 21113.
	FMC Corp.:	
FMN	Agricultural Chemical Div----------	100 Niagara St., Middleport, NY 14105.
AV	Fiber Div----------	1617 John F. Kennedy Blvd., Philadelphia, PA 19103.
FMB	Industrial Chemical Div----------	633 3d Ave., New York, NY 10017 and Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FMP	Industrial Chemical Div----------	633 3d Ave., New York, NY 10017.
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 07505.
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.
FNX	Finetex, Inc----------	418 Falmouth Ave., Elmwood Park, NJ 07407.
	Firestone Tire & Rubber Co.:	
FIR	Firestone Plastics Co. Div----------	P. O. Box 699, Pottstown, PA 19464.
FRF	Firestone Synthetic Fibers Co. Div--------	Honewell, VA 23860.
FRS	Firestone Synthetic Rubber & Latex Co. Div.	381 W. Wilbeth Rd., Akron, OH 44301.
FST	First Chemical Corp----------	P. O. Box 1427, Pascagoula, MS 39567.
FLM	Fleming Laboratories, Inc----------	P. O. Box 10373, 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.
FCD	France, Campbell & Darling, Inc----------	209 N. Michigan Ave., Kenilworth, NJ 07033.
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----------	P. O. Box 6037, Chattanooga, TN 37401.
	Chemical Div----------	P. O. Box 12, Linden, NJ 07036.
GAN	Gane's Chemical Works, Inc----------	535 5th Ave., New York, NY 10017.
GE	General Electric Co----------	1 Plastics Ave., Pittsfield, MA 01201 and S. 2d St., Coshocton, OH 43812.
GEI	Insulating Materials Dept----------	1 Campbell Rd., Schenectady, NY 12306.
SPD	Silicone Products Dept----------	Waterford, NY 12188.
GNF	General Foods Corp., Maxwell House Div------	1125 Hudson St., Hoboken, NJ 07030.
GLC	General Latex & Chemical Corp----------	666 Main St., Cambridge, MA 02139.
GNM	General Mills Chemicals, Inc----------	4620 W. 77th St., Minneapolis, MN 55435
GPM	General Plastics Manufacturing Co----------	3481 S. 35th St., Tacoma, WA 98409.
GNT	General Tire & Rubber Co., Chemical Div-----	1 General St., Akron, OH 44329.
GRG	P. D. George Co----------	5200 N. 2d St., St. Louis, MO 63147.
GP	Georgia-Pacific Corp----------	900 S.W. 5th Ave., Portland, OR 97240.
PSP	Bellingham Div----------	P. O. Box 1236, Bellingham, WA 98225.
GP	Chemical Div----------	P. O. Box 629, Plaquemine, LA 70764.
TID	Getty Oil Co----------	Delaware, DE 19706.
TNI	The Gillette Co., Chemical Div----------	P. O. Box 362, N. Chicago, IL 60064.
GIL	Gilman Paint & Varnish Co----------	216 W. 8th St., Chattanooga, TN 37402.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
GIV	Givaudan Corp	100 Delawanna Ave., Clifton, NJ 07014.
GLX	Glasflex Corp	P. O. Box 66, Sterling, 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	Gordon Chemical Co., Inc	88 Webster St., Worcester, MA 01603.
	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	62 Whittemore Ave., Cambridge, MA 02140.
GPR	Grain Processing Corp	1600 Oregon St., Muscatine, LA 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 & SCF	Guardsman Chemical Coatings, Inc	1350 Steele Ave., S.W., Grand Rapids, MI 49502 and 1350 S. 15th St., Louisville, KY 40210
	Gulf Oil Corp.:	
PGU	Gulf Adhesives	632 N. Cannon Ave., Lansdale, PA 19446.
GOC	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.	40 Morris Ave., Bryn Mawn, PA 19010.
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.
HFT	Hoffman-Taff, Inc	P. O. Box 1246 SSS, Springfield, MO 65805.
HK	Hooker Chemicals & Plastics Corp	MPO Box 8, Niagara Falls, NY 14302.
HKD	Durex Div	Walck Rd., N. Tonawanda, NY 14121.
RUB	Ruco Div	P. O. Box 456, Burlington, NJ 08016.
EFH	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., Wayland Chemical Div.	P. O. Box O, Lincoln, RI 02865.
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 America, Inc	Concord Pike & Murphy Rd., Wilmington, DE 19899.
RAY	ITT Rayonier, Inc	605 3d Ave., New York, NY 10016.
INP	INDPOL	8434 Rochester Ave., Cucamonga, CA 91730.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
IDC	Industrial Dyestuff Co----------	P. O. Box 4249, E. Providence, RI 02914.
INL	Inland Steel Co., Inland Steel Container Co.	4300 W. 130th St., Chicago, IL 60658.
ICC	Inmont Corp----------	150 Wagaraw Rd., Hawthorne, NJ 07506.
ICF	ABI Div----------	5935 Milford Ave., Detroit, MI 48210.
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.
IMC	International Minerals & Chemical Corp------	IMC Plaza, Libertyville, IL 60948.
IPC	Interplastic Corp----------	2015 NE. Broadway St., Minneapolis, MN 55413.
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., Folcraft, PA 19032.
JUL	Julian Associates, Inc----------	9352-58 W. Grand Ave., Franklin Park, IL 60131.
	Kaiser Aluminum & Chemical Corp.:	
SNI	Kaiser Agricultural Chemicals Div---------	P. O. Box 246, Savannah, GA 31402.
KAI	Kaiser Chemicals----------	P. O. Box 537, Gramercy, LA 70052.
KLM	Kalama Chemical Co----------	P. O. Box 427, Kalama, WA 98625.
KAL	Kali Manufacturing Co----------	427 Moyer St., Philadelphia, PA 19125.
KF	Kay-Fries Chemicals, Inc----------	360 Lexington Ave., New York, NY 10017.
KMP	Kelly-Moore Paint Co----------	1015 Commercial St., San Carlos, CA 94070.
	Kennecott Copper Corp.:	
KCC	Chino Mines Div----------	Hurley, MN 88043.
KCU	Utah Copper Div----------	P. O. Box 11299, Salt Lake City, UT 84111.
AMP	Kerr-McGee Chemical Corp----------	P. O. Box 25861, Oklahoma, OK 73125.
KYS	Keysor 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----------	651 High St., Lancaster, PA 17604.
MAT	Koch Chemical Co----------	P. O. Box 2256, Wichita, KS 67201.
KMC	Kohler-McLister 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 Material Div----------	Koppers Bldg., Pittsburgh, PA 15219.
	Roads Materials Div----------	Koppers Bldg., Pittsburgh, PA 15219.
	Krafto Corp.:	
HUM	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 & Boston Sts., Everett, MA 02149
LKL	Lakeside Laboratories Div. of Colgate-Palmolive Co.	1707 E. North Ave., Milwaukee, WI 53201.
LKY	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.
LIL	Eli Lilly & Co----------	307 E. McCarty St., Indianapolis, IN 46206 and G.P.O. Box 4388, San Juan, PR 00936.
LNP	Liquid Nitrogen Processing Corp----------	415 King St., Malvern, PA 19355.
BRD	Lonza, Inc----------	22-10 Route 208, Fair Lawn, NJ 07410.
LUB	Lubrizol Corp----------	29400 Lakeland Blvd., Wickliffe, OH 44092.
MET	M and T Chemicals, Inc----------	Woodridge Rd. & Randolph Ave., P. O. Box 1104, Rahway, NJ 07065.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
MGR	Magruder Color Co., Inc----------	1 Virginia St., Newark, NJ 07114.
MAL	Mallinckrodt Chemical Works----------	3600 N. 2d St., St. Louis, MO 63147.
WSN	Washine Div----------	165 Main St., Lodi, NJ 07644.
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.
	Martin-Marietta Corp.:	
SDC	Sodyeco Div----------	P. O. Box 10098, Charlotte, NC 28201.
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----------	351 E. Ohio St., Chicago, IL 60611.
PFP	Midwest Manufacturing Corp----------	Oak St. & Bluff Rd., Burlington, IA 52601
MLS	Miles Laboratories, Inc., Marschall Div. and Sumner Div.	1127 Myrtle St., Elkhart, IN 46514.
	Millmaster Onyx Corp.:	
GRO	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----------	277 Coit St., 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.
SM	Mobil Oil Corp----------	P. O. Box 900, Dallas, TX 75221.
	Mobil Chemical Co----------	P. O. Box 3868 Beaumont, TX 77704.
	Chemical Coatings Div----------	1024 South Ave., Plainfield, NJ 07062.
	Industrial Chemicals Div----------	P. O. Box 26683, Richmond, VA 23261.
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----------	Saville Ave. at 4th St., Eddystone, PA 19013.
MON	Monsanto Co----------	2710 Lafayette St., Santa Clara, CA 95052 and 800 N. Lindbergh Blvd., St. Louis, MO 63166.
	Bircham Bend Plant----------	190 Grochmal Ave., Indian Orchard, MA 01051.
	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 77591.
	Springfield Plant----------	730 Worcester St., Indian Orchard, MA 63166.
	Textiles Div----------	800 N. Lindbergh Blvd., St. Louis, MO 63166.
LUE	Monsanto Flavor/Essence, Inc----------	427 Washington St., New York, NY 10013.
MTO	Montrose Chemical Corp. of California-------	500 S. Virgil Ave., Los Angeles, CA 90005.
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 & PAT	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----------	180 N. Michigan Ave., Chicago, IL 60601.
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

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification 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	750 3d Ave., New York, NY 10017.
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.
MFG	North American Rockwell Corp	4501 Benefit Ave., Ashtabula, OH 44004.
ATP	Northern Fine Chemicals, Inc	93 Main St., Franklin, NJ 07416.
NWP	Northern Petrochemical Co	2400 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, Pedrichtown, 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 46628.
OMC	Olin Corp	120 Long Ridge Rd., Stamford, CT 06904 and P.O. 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.
PBI	PBI-Gordon Corp	300 S. 3d St., Kansas City, KS 66118.
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., Kirland, WA 98033.
AMR	Pacific Resins & Chemicals, Inc	1754 Thorne Rd., Tacoma, WA 93421.
PNT	Pantasote Co. of New York, Inc	26 Jefferson St., Passaic, NJ 07055.
PD	Parke Davis & Co	Jos. Campau at the River, Detroit, MI 48232.
PSC	Passaic Color & Chemical Co	28-36 Paterson St., Paterson, NJ 07501.
CHP	C. H. Patrick & Co., Inc	P. O. Box 2526, Greenville, SC 29602.
CCH	Pearsall Chemical Corp	P. O. Box 437, Houston, TX 77025.
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.
PAI	Pennsylvania Industrial Chemical Corp	120 State St., Clairton, PA 15025.
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	Pfanstiehl Laboratories, Inc	1219 Glen Rock Ave., Waukegan, IL 60085.
PCW	Pfister Chemical, Inc	Linden Ave., Ridgefield, NJ 07657.
PFZ	Pfizer, Inc	235 E. 42d St., New York, NY 10017.
	Pfizer Pharmaceuticals, Inc	P. O. Box 628, Barcelonita, PR 00617.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification 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 Core, Inc	GPO Box 4129, San Juan, PR 00936.
PIC	Pierce Chemical Co	P. O. Box 117, Rockford, IL 61105.
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	3518 Lakeshore Rd., 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.
PII	Polymer Industries, Inc	Viaduct Rd., Springdale, CT 06879.
PYZ	Polyrez Co., Inc	Woodbury, NJ 08096.
PVI	Polyvinyl Chemical Ind. Div. of Beatrice Foods Co.	730 Main St., Wilmington, MA 01887.
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 91504.
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, 6040 S. Ridge Rd., Witchita, 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 47708.
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.
REM	Remington Arms Co., Inc	P. O. Box 21423, Louisville, KY 40221.
RSY	Resyn Corp	939 Barnum Ave., Bridgeport, CT 06602.
RDA	Rhodia, Inc	1401 W. Blancke St., Linden, NJ 07036.
RCD	Richardson Co., Organic Chemicals Div	120 Jersey Ave., New Brunswick, NJ 08903.
AMS	Ridgway Color & Chemical	2400 E. Devon Ave., Des Plaines, IL 60018.
RIK	Riker Laboratories, Inc., Sub. of 3M Co	7S Front St., Ridgway, PA 15853.
RSN	Rilsan Corp	19901 Nordhoff St., Northridge, CA 91324.
RT	F. Ritter & Co	139 Harristown Rd., Glen Rock NJ 07452.
RIV	Riverdale Chemical Co	4001 Goodwin Ave., Los Angeles, CA 90039.
ROB	Robeco Chemicals, Inc	220 E. 17th St., Chicago Heights, IL 60411.
RBT	Robintech, Inc	51 Madison Ave., New York, NY 10010.
MFG	Rockwell International Corp., Resin Plant	P. O. Box 2342, Fort Worth, TX 76102.
ORT	Roehr Chemicals, Inc	4501 Benefit Ave., Ashtabula, OH 44004.
RGC	Rogers Corp	52-20 37th St., Long Island City, NY 11101.
RH	Rohm & Haas Co	Rogers, CT 06263. Independence Mall West, Philadelphia, PA 19105.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
RUC	Rubicon Chemicals, Inc----------	P. O. Box S17, 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., Sandoz Color & Chemical Div---	P. O. Box 357, Fair Lawn, NJ 07410 and Route No. 10, P. O. Box 11, E. Hanover, NJ 07936.
S	Sandoz-Wander, Inc., Crop Protection Dept---	P. O. Box 207, Wasco, CA 93280.
SAR	Sartomer Industries, Inc----------	Gov. Printz Blvd. & Wanamaker Ave., Essington, PA 19029.
SCN	Schenectady Chemicals, Inc----------	P. O. Box 1046, Schenectady, NY 12301.
SBC	Scher Bros., Inc----------	P. O. Box 538, Allwood Station, Clifton, NJ 07012.
SCR	R. P. Scherer Corp----------	9425 Grinnell Ave., Detroit, MI 48213.
SCH	Schering Corp----------	1011 Morris Ave., Union, NJ 07083.
SCO	Scholler 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----------	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., Inc----------	762 Marietta Blvd. NW., Atlanta, GA 30318.
SKP	Shakespeare Co., Monofilament Div----------	P. O. Box 246, Columbia, SC 29202.
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----------	2301 N. Columbia Blvd., Portland, OR 97217.
SKC	Sinclair-Koppers Chemical Co----------	9822 La Porte Freeway, Houston, TX 77012.
SPC	Sinclair Paint Co., Div. of Insilco Corp----	3960 E. Washington Blvd., Los Angeles, CA 90023.
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 Chemical Div.	100 Listen Ave., Newark, NJ 07105.
SOL	Solar Chemical Corp----------	29 Fuller St., Leominster, MA 01453.
SLC	Soluol Chemical Co., Inc----------	Green Hill & Market Sts., W. Warwick, RI 02893.
SVT	Solvent Chemical Co., Inc----------	335-341 Commercial St., Malden, MA 02148.
STC	Sou-Tex Chemical Co., Inc----------	E. Catawba Ave., P. O. Box 866, Mount Holly, NC 28120.
SAC	Southeastern Adhesives----------	P. O. Box 791, Lenoir, NC 28645.
SOP	Southern Chemical Products Co----------	P. O. Box 205, Macon, GA 31202.
SOS	Southern Sizing Co----------	P. O. Box 90987, East Point, GA 30344.
SPL	Spaulding Fibre Co., Inc----------	310 Wheeler St., Tonawanda, NY 14150.
OMS	E. R. Squibb & Sons, Inc----------	Georges Rd., New Brunswick, NJ 08903.
STA	A. E. Staley Manufacturing Co----------	2200 Eldorado St., Decatur, IL 62525.
UBS	Staley Chemicals Div----------	320 Schuyler Ave., Kearny, NJ 07032.
CCL	Textile Div----------	6301 St. John Lane, Charlotte, NC 28210.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	1251 Beaver Channel Parkway, Clinton, IA 52733.
SBI	Standard Brands Chemical Industries, Inc----	P. O. Drawer K, Dover, DE 19901.
SCC	Standard Chlorine of Delaware, Inc----------	1035 Belleville Turnpike, Kearny, NJ 07032.
SOC	Standard Oil Co. of California, Chevron Chemical Co.	200 Bush St., San Francisco, CA 94120.
SIO	Standard Oil Co. of Ohio----------	Midland Bldg., Cleveland, OH 44115.
STG	Stange Co----------	342 N. Western Ave., Chicago, IL 60612.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
	Stauffer Chemical Co.:	
SFA	Agricultural Div----------	636 California St., San Francisco, CA 94119.
SFC	Calhio Chemicals, Inc----------	636 California St., San Francisco, CA 94119.
SFF	Food Ingredients Div----------	636 California St., San Francisco, CA 94119.
SFI	Industrial Div----------	636 California St., San Francisco, CA 94119.
SFP	Plastics Div----------	636 California St., San Francisco, CA 94119.
SFS	Specialty Div----------	636 California St., San Francisco, CA 94119.
BPC	Benzol Products----------	Meadow Rd., Edison, NJ 08817.
SWS	SWS Silicones Div----------	636 California St., San Francisco, CA 94119.
STP & MYW	Stepan Chemical Co----------	RR #1, Elwood, IL 60421 and 100 West Hunter Ave., Maywood, NJ 07607.
NPI	National Polychemicals Div., Polychem Dept.	51 Eames St., Wilmington, MA 01887.
	Sterling Drug, Inc.:	
SDG	Glenbrook Laboratories Div----------	90 Park Ave., New York, NY 10016.
SDH	Hilton-Davis Chemical Co. Div----------	2235 Langdon Farm Rd., Cincinnati, OH 45237.
TMS	Thomasset Colors Div----------	120 Lister Ave., Newark, NJ 07105.
SDW	Winthrop Laboratories Div----------	90 Park Ave., New York, NY 10016.
SLV	Sterwin Chemicals, Inc----------	Military Rd., Rothschild, WI 54474.
OTC	Story Chemical Corp----------	500 Agard Rd., Muskegon, MI 49445.
WIC	Wica Chemicals Div----------	P. O. Box 506, Charlotte, NC 28230.
STY	Styrochem Corp----------	Petrochemical Complex, Ponce, PR 00731.
SBP	Sugar Beet Products Co----------	P. O. Box 1387, Saginaw, MI 48605.
SNA	Sun Chemical Corp----------	441 Tompkins Ave., Staten Island, NY 10305.
SNW	Chemical Div----------	P. O. Box 70, Chester, SC 29706.
SKG	Sunkist Growers, Inc----------	P. O. Box 7888, Valley Annex, Van Nuys, CA 91409.
SUN	Sun Oil Co----------	240 Radnor-Chester Rd., St. Davids, PA 19087.
SNO	Sun Olin Chemical Co----------	P. O. Box F, Claymount, DE 19703.
SNT	Suntide Refining Co----------	P. O. Box 2608, Corpus Christi, TX 78403.
BUC	Synalloy Corp., Blackman-Uhler Chemical Div.	P. O. Box 5627, Spartanburg, SC 29301.
FAR	Syncon Resins, Inc., Farnow Div----------	77 Jacobus Ave. S., Kearny, NJ 07032.
TCC	Tanatex Chemical Corp----------	P. O. Box 388, Lyndhurst NJ 07071.
CST	Charles S. Tanner Co----------	1310 Barcelona Dr., Greenville, SC 29606.
TEK	Teknor Apex Co----------	505 Central Ave., Pawtucket, RI 02662.
HN	Tenneco Chemicals, Inc----------	Park Eighty Plaza West-One, Saddle Brook, NJ 07662.
CIK	Cal/Ink Div----------	711 Camelia St., Berkeley, CA 94710.
TOC	Tenneco Oil Co----------	P. O. Box 2511, Houston, TX 77001.
TER	Terra Chemicals International, Inc----------	507 6th St., Sioux City, IA 51121.
TX	Texaco, Inc----------	135 E. 42d St., New York, NY 10017.
TSA	Texas Alkyls, Inc----------	P. O. Box 600, Deer Park, TX 77536.
TUS	Texas-U.S. Chemical Co----------	P. O. Box 667, Port Neches, TX 77651.
TXC	Tex Chem Co., Inc----------	20-21 Wagaraw Rd., Fair Lawn, NJ 07410.
TCI	Texize Chemicals, Co----------	P. O. Box 368, Greenville, SC 29602.
TXT	Textilana Corp----------	12607 Cerise Ave., Hawthorne, CA 90250.
TXN	Textilana Nease, Inc----------	12607 Cerise Ave., Hawthorne, CA 90250.
SKT	Textron, Inc., Spencer Kellogg Div----------	120 Delaware Ave., Buffalo, NY 14240.
TKL	Thiokol Chemical Corp----------	P. O. Box 27, Bristol, PA 19007.
SOR	Thomason Industries, Inc., Southern Resin Div.	P. O. Drawer 1600, Fayetteville, NC 29302.
TMH	Thompson-Hayward Chemical Co----------	5200 Speaker Rd., Kansas City, MO 66110 and 2 E. Madison St., Waukegan, IL 60085.
TZC	Tizon Chemical Corp----------	Locktown Rd., Flemington, NJ 08822.
TRC	Toms River Chemical Corp----------	P. O. Box 71, Toms River, NJ 08753.
ACT	Arthur C. Trask Co----------	7666 W. 63d St., Summit, IL 60501.

APPENDIX

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification 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.
JTC	Joseph Turner & Co	P. O. Box 88, Ridgefield, NJ 07657.
ARM	USS Agri-Chemicals Div of U.S. Steel Corp	30 Pryor St. S.W., Atlanta, GA 30301.
USS	USS Chemicals Div. of U.S. Steel Corp	600 Grant St., Rm. 2880, Pittsburgh, PA 15219.
UHL	Paul Uhlich & 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, NJ 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	P. O. Box 367, Endicott St., Norwood, MA 02062.
UNP	United Chemical Products Corp	York & Colgate Sts., Jersey City, NJ 07302.
UNO	United-Erie, Inc	438 Huron St. 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 WCM Operations, Shasta Area	P. O. Box 2517, Redding, CA 96001.
UPM	Universal Oil Products Co	70 UOP Plaza, Algonquin & Mt. Prospect, Des Plains, IL 60018.
UOP	UOP Chemical Div	State Highway 17, E. Rutherford, NJ 07073.
UPJ	Upjohn Co	7000 Portage Rd., Kalamazoo, MI 49001.
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 Valspan Corp	1101 S. 3d St., Minneapolis, MN 55415.
VDM	Van DeMark Chemical Co., Inc	1 N. Transit Rd., Lockport, NY 14094.
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.
MHl	Ventron Corp	12-16 Congress St., Beverly, MA 01915.
WRC	Wood Ridge Chemical	Park Place East, Wood Ridge, NJ 07075.
VIK	Viking Chemical Co	915 Midland Bank Bldg., Minneapolis, MN 55401.
VIN	Vineland Chemical Co	W. Wheat Rd., Vineland, NJ 08360.
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., Suite 2730, 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	501 Santa Fe St., Kansas City, MO 64105.
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 5207, 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.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1973--CONTINUED

Identification code	Name of company	Office address
WHI	White & Hodges, Inc----------	576 Lawrence St., Lowell, MA 01852.
WHL	Whitmoyer Laboratories, Inc----------	19 N. Railroad St., Myerstown, PA 17067.
	Whittaker Corp.:	
APT	Mol Rez Div----------	3134 California St. NE., Minneapolis, MN 55418.
WHC	Research & Development Div----------	3540 Aero Ct., San Diego, CA 92123.
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.
WCL	Wright Chemical Co----------	Acme Station, Riegelwood, NC 28456.
WYC	Wycon Chemical Co----------	P. O. Box 1087, Colorado Springs, CO 80901.
WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.	P. O. Box 851, Paoli, PA 19301.
YAW	J. S. Young Co., Young Aniline Works Div----	2731 Boston St., Baltimore, MD 21224.

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 390.6 million pounds with a foreign invoice value of $300.0 million in 1973 compared with 322.0 million pounds with a foreign invoice value of $246.7 million in 1972.

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, 39.2 percent of all the benzenoid imports under part 1B in 1973 came from West Germany; 19.2 percent, from Japan; 9.5 percent, from Switzerland; and 6.7 percent from Belgium.

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 31.5 percent of all finished benzenoid imports under part 1C in 1973 came from West Germany; 18.4 percent, from switzerland; 16.9 percent, from the United Kingdom; and 10.4 percent from Japan.

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[1] *Imports of Benzenoid Chemicals and Products, 1973*, TC Publication 688, 1974 [processed].

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, 1973

Part and competitive status	Number of items	Quantity	Percent of total quantity	Foreign invoice value	Percent of foreign value	Unit foreign value
		1,000 pounds		*1,000 dollars*		*Per pound*
Schedule 4, Part 1B						
Total[1]	735	205,899	100.0	101,932	100.0	$0.50
Competitive:						
Duty based on ASP[2]	379	155,209	75.4	63,764	62.5	.41
Noncompetitive:						
Duty based on U.S. value	267	19,010	9.3	20,964	20.6	1.10
Duty based on export value	86	29,953	14.5	15,354	15.1	.51
Competitive status not available	3	1,727	.8	1,850	1.8	1.07
Schedule 4, Part 1C						
Total[1]	2,069	184,737	100.0	198,094	100.0	1.07
Competitive:						
Duty based on ASP[2]	681	99,217	53.7	80,304	40.5	.81
Noncompetitive:						
Duty based on U.S. value	1,198	39,141	21.2	74,229	37.5	1.90
Duty based on export value	177	38,372	20.8	39,652	20.0	1.03
Competitive status not available	13	8,007	4.3	3,908	2.0	.49
Summary (Schedule 4, Parts 1B and 1C)						
Total[1]	2,804	390,636	100.0	300,024	100.0	.77
Competitive:						
Duty based on ASP[2]	1,060	254,426	65.1	144,068	48.0	.57
Noncompetitive:						
Duty based on U.S. value	1,465	58,151	14.9	95,193	31.7	1.64
Duty based on export value	263	68,325	17.5	55,006	18.3	.81
Competitive status not available	16	9,734	2.5	5,758	1.9	.59

[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 1973 varies from a low of 68 percent for flavors and perfumes to almost complete coverage for intermediates, dyes, pigments, 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.
Benzotrichoride	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'-Dianthrimide	1,1'-Iminodianthraquinone.
Dibenzanthrone	Violanthrone.
4,4'-Dihydroxydiphenylsulfone	4,4'-Sulfonyldiphenol.
Dimethyl POPOP	1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]benzene.
4,5-Dinitrochrysazin	1,8-Dihydroxy-4,5-dinitroanthraquinone.
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-napthalenetrisulfonic 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.
ß-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-anthraquinonylamino)anthraquinone.
Phenylbiphenyl	Ternhenyl.
N-Phenyldiethanolamine	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-dioxo-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-Sulfobenzaldehyde	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-Tolylenediamine	Toluene-2,4-diamine.
Trimellitic anhydride	1,2,4-Benzenetricarboxylic acid, 1,2-anhydride.
Trimethyl base	1,3,3-Trimethyl-2-methyleneindoline.
Trinitrophenol	Picric acid.
Vinyltoluene	ar-Methylstyrene.

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