UNITED STATES TARIFF COMMISSION

SYNTHETIC ORGANIC CHEMICALS

United States Production and Sales, 1972

TC Publication 681

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United States Production and Sales, 1972

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

U.S. GOVERNMENT PRINTING OFFICE
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TC Publication 681

UNITED STATES TARIFF COMMISSION

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INTRODUCTION

This is the fifty-sixth annual report of 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 1972 of benzenoid intermediates and finished benzenoid products, entered under schedule 4, parts 1B and 1C, of the Tariff Schedules of the United States.

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

> *PRODUCTION is the total quantity of a commodity made available by original manufacturers only. It is the sum--expressed in terms of 100% active ingredient unless otherwise specified in the reporting instructions--of the quantities:*
>
> *Produced, separated, and consumed in the same plant or establishment. A commodity is considered separated when it is isolated from the reaction system and/or when it is weighed, analyzed, or otherwise measured. This includes byproducts and coproducts that are not classifiable as waste materials;*
>
> *Produced and transferred to other plants or establishments of the same firm;*
>
> *Produced and sold to other firms, including production for another under a toll agreement (i.e., an agreement, under which one firm furnishes the raw materials and pays the processing costs and the other firm prepares the finished product and returns it to the first firm)*
>
> *Produced and held in stock.*

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

INTRODUCTION

PRODUCTION EXCLUDES:

Purification of a commodity, unless inclusion of such processing is specifically requested in the reporting instructions for individual sections;
Intermediate products which are formed in the manufacturing process, but are not isolated from the reaction system--that is, not weighed, analyzed, or otherwise measured;
Materials that are used in the process but which are recovered for re-use or sale;
Waste products having no economic significance.

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

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

SALES EXCLUDE:

All intra-company transfers within a corporate entity;
All sales of purchased commodities;
All shipments of a commodity produced for others under toll agreements.

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

Combined production of all synthetic organic chemicals, tars, tar crudes, and crude products from petroleum and natural gas in 1972 was 266,419 million pounds--an increase of 12.0 percent over the output in 1971 (see table 1). Sales of these materials in 1972, which totaled 150,818 million pounds, valued at $16,028 million, were 12.8 percent larger than in 1971 in terms of quantity and 13.5 percent larger in terms of value. These figures include data on production and sales of chemicals measured at several successive steps in the manufacturing process, and therefore they necessarily reflect some duplication.

In 1972, production of all synthetic organic chemicals, including cyclic intermediates and finished chemical products, totaled 164,218 million pounds, or 15.2 percent more than the output in 1971. Production increased in 1972 compared to 1971 for all subgroups of products. Among the groups with large volumes of production, plastics and resin materials (25,921 million pounds) lead with an increase of 23.0 percent and cyclic intermediates (34,967 million pounds) followed with an increase of 16.7 percent. Other groups in the large-volume production category increased as follows: plasticizers (1,708 million pounds), 14.3 percent; miscellaneous chemicals (90,476 million pounds), 13.9 percent; elastomers (4,914 million pounds), 6.4 percent; surface-active agents (4,039 million pounds), 5.5 percent. In the groups with smaller quantities of production, flavor and perfume materials (110 million pounds) increased 14.6 percent; organic pigments (66 million pounds) rose 13.0 percent; rubber-processing chemicals (361 million pounds) was up 11.6 percent; dyes (263 million pounds) increased 8.0 percent. Smaller increases were shown by medicinal chemicals (234 million pounds), 5.0 percent and pesticides and related products (1,158 million pounds), 1.9 percent.

TABLE 1.-- SYNTHETIC ORGANIC CHEMICALS AND THEIR RAW MATERIALS: U.S. PRODUCTION AND SALES, 1971 AND 1972

Chemical	Production			Sales					
				Quantity			Value		
	1971	1972	Increase or decrease (-), 1972 over 1971[1]	1971	1972	Increase or decrease (-), 1972 over 1971[1]	1971	1972	Increase or decrease (-), 1972 over 1971[1]
	Million pounds	*Million pounds*	*Percent*	*Million pounds*	*Million pounds*	*Percent*	*Million dollars*	*Million dollars*	*Percent*
Grand total[2]	237,961	266,419	12.0	133,666	150,818	12.8	14,119	16,028	13.5
Tar	6,794	7,472	10.0	3,341	3,409	2.0	36	40	10.2
Tar crudes	7,621	7,937	4.1	5,436	5,304	-2.4	123	126	2.4
Crude products from petroleum and natural gas	81,043	86,792	7.1	45,752	47,900	4.7	1,078	1,177	9.2
Synthetic organic chemicals, total[2]	142,503	164,218	15.2	79,137	94,205	19.0	12,883	14,686	14.0
Cyclic intermediates	29,953	34,967	16.7	12,971	16,196	24.9	1,252	1,434	14.5
Dyes	244	263	8.0	230	255	10.9	423	480	13.5
Organic pigments	58	66	13.0	47	53	13.1	130	149	14.9
Medicinal chemicals	223	234	5.0	152	163	7.2	487	490	.7
Flavor and perfume materials	96	110	14.6	85	104	22.7	84	88	5.3
Plastics and resin materials	21,071	25,921	23.0	18,473	22,946	24.2	3,507	4,258	21.4
Rubber-processing chemicals	323	361	11.6	246	280	13.9	159	178	11.5
Elastomers (synthetic rubbers)	4,616	4,914	6.4	4,031	4,136	2.6	1,034	1,095	5.8
Plasticizers	1,494	1,708	14.3	1,404	1,637	16.6	258	291	12.7
Surface-active agents	3,828	4,039	5.5	2,186	2,258	3.3	422	451	6.7
Pesticides and related products	1,136	1,158	1.9	946	1,022	8.0	979	1,092	11.5
Miscellaneous chemicals	79,460	90,476	13.9	38,367	45,155	17.7	4,148	4,680	12.8

[1] Percentages calculated from figures rounded to thousands.

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

SYNTHETIC ORGANIC CHEMICALS, 1972

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 1972 was 164,218 million pounds, or 15.2 percent more than the output of 142,503 million pounds reported for 1971 and 56.8 percent more than the output of 104,711 million pounds reported for 1967 (see table 2). Sales of synthetic organic chemicals in 1972 amounted to 94,205 million pounds, valued at $14,686 million, compared with 97,137 million pounds, valued at $12,883 million in 1971 and 55,177 million pounds, valued at $10,438 million in 1967. Production of all cyclic products (intermediates and finished products combined) in 1972 totaled 53,637 million pounds or 15.9 percent more than the 46,273 million pounds reported for 1971 and 60.2 percent more than the 33,479 million pounds reported for 1967. Production of all acyclic products in 1971 totaled 110,580 million pounds, or 14.9 percent more than the 96,230 million pounds reported for 1971 and 55.2 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, 1971, AND 1972

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

Chemical	1967[1]	1971	1972	Increase, or decrease (-)	
				1972 over 1967	1972 over 1971
				Percent	*Percent*
Organic chemicals, cyclic and acyclic, grand total:					
Production	104,711,357	142,502,514	164,217,690	56.8	15.2
Sales	55,176,823	79,136,628	94,205,254	70.7	19.0
Sales value	10,438,453	12,882,816	14,685,582	40.7	14.0
Cyclic, total:					
Production	33,479,469	46,272,717	53,637,371	60.2	15.9
Sales	19,328,628	25,859,561	31,082,064	60.8	20.2
Sales value	4,610,295	5,793,591	6,516,824	41.4	12.5
Acyclic, total:					
Production	71,231,888	96,229,797	110,580,319	55.2	14.9
Sales	35,848,195	53,277,067	63,123,190	76.1	18.5
Sales value	5,828,160	7,089,225	8,168,758	40.2	15.2
1. Cyclic Intermediates					
Production	20,793,132	29,952,917	34,967,181	68.2	16.7
Sales	9,461,180	12,970,553	16,195,641	71.2	24.9
Sales value	1,000,359	1,252,300	1,433,855	43.3	14.5
2. Dyes					
Production	206,240	243,729	263,304	27.7	8.0
Sales	198,592	229,544	254,536	28.2	10.9
Sales value	332,049	422,627	479,688	44.5	13.5
3. Organic Pigments					
Production	53,322	58,326	65,897	23.6	13.0
Sales	42,867	47,052	53,215	24.1	13.1
Sales value	108,354	130,013	149,343	37.8	14.9
4. Medicinal Chemicals					
Cyclic:					
Production	110,129	132,582	132,586	20.4	(2)
Sales	70,120	84,913	81,082	15.6	-4.5
Sales value	348,873	431,702	433,259	24.2	.4
Acyclic:					
Production	69,941	90,636	101,747	45.5	12.3
Sales	56,804	67,309	82,128	44.6	22.0
Sales value	36,402	54,856	56,878	56.3	3.7

See footnotes at end of table.

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1971, AND 1972--CONTINUED

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

Chemical	1967[1]	1971	1972	Increase, or decrease (-)	
				1972 over 1967	1972 over 1971
				Percent	*Percent*
5. Flavor and perfume Materials					
Cyclic:					
Production	57,978	49,682	51,868	-10.5	4.4
Sales	47,285	42,180	48,212	2.0	14.3
Sales value	52,866	52,884	54,168	2.5	2.4
Acyclic:					
Production	53,558	46,744	58,605	9.4	25.4
Sales	49,311	42,585	55,780	13.1	31.0
Sales value	40,495	31,084	34,234	-15.5	10.1
6. Plastics and Resin Materials					
Cyclic:					
Production	5,033,497	7,266,038	8,946,997	77.8	23.1
Sales	4,224,121	6,262,651	7,807,933	84.8	24.7
Sales value	1,036,940	1,400,553	1,715,579	65.5	22.5
Acyclic:					
Production	8,759,452	13,804,685	16,973,665	93.8	23.0
Sales	7,753,242	12,210,359	15,138,142	95.3	24.0
Sales value	1,635,690	2,105,989	2,542,861	55.5	20.7
7. Rubber-Processing Chemicals					
Cyclic:					
Production	220,139	276,146	309,930	40.8	12.2
Sales	169,970	211,065	240,044	41.2	13.7
Sales value	116,318	142,541	157,944	35.8	10.8
Acyclic:					
Production	43,994	47,312	51,091	16.1	8.0
Sales	30,878	34,926	40,199	30.2	15.1
Sales value	15,477	16,814	19,705	27.3	17.2
8. Elastomers (Synthetic Rubbers)					
Cyclic:					
Production	2,297,637	2,614,054	2,705,599	17.8	3.5
Sales	1,940,099	2,239,804	2,177,303	12.2	-2.8
Sales value	439,580	484,130	470,549	7.1	-2.8
Acyclic:					
Production	1,524,908	2,002,046	2,208,360	44.8	10.3
Sales	1,321,945	1,790,837	1,958,960	48.2	9.4
Sales value	434,657	550,315	624,257	43.6	13.4
9. Plasticizers					
Cyclic:					
Production	929,871	1,130,440	1,301,955	40.0	15.2
Sales	865,084	1,074,541	1,273,191	47.2	18.5
Sales value	167,827	157,925	180,051	7.3	14.0
Acyclic:					
Production	332,908	363,598	406,358	22.1	11.8
Sales	296,767	329,555	364,306	22.8	10.5
Sales value	93,142	99,840	110,513	18.7	10.7

See footnote at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 2.--SYNTHETIC ORGANIC CHEMICALS: SUMMARY OF U.S. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS, 1967, 1971, AND 1972--CONTINUED

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

Chemical	1967[1]	1971	1972	Increase, or decrease (-)	
				1972 over 1967	1972 over 1971
				Percent	*Percent*
10. Surface-Active Agents					
Cyclic:[3]					
Production	1,418,444	1,542,881	1,641,552	15.7	6.4
Sales	852,238	995,580	1,053,240	23.6	5.8
Sales value	95,810	120,795	129,792	35.5	7.5
Acyclic:					
Production	2,060,851	2,285,379	2,397,235	16.3	4.9
Sales	897,786	1,190,110	1,204,306	34.1	1.2
Sales value	220,877	301,685	320,976	45.3	6.4
11. Pesticides and Related Products					
Cyclic:					
Production	823,158	827,590	839,360	2.0	1.4
Sales	681,532	669,143	719,707	5.6	7.6
Sales value	627,742	819 028	889,613	41.7	8.6
Acyclic:					
Production	226,505	308,127	318,338	40.5	3.3
Sales	215,831	277,194	301,858	39.9	8.9
Sales value	159,301	160,055	202,095	26.9	26.3
12. Miscellaneous Chemicals					
Cyclic:					
Production	1,535,922	2,178,332	2,411,142	57.0	10.7
Sales	775,540	1,032,535	1,177,960	51.9	14.1
Sales value	283,575	379,093	422,983	49.2	11.6
Acyclic:					
Production	58,159,771	77,281,270	88,064,920	51.4	14.0
Sales	25,225,631	37,334,192	43,977,511	74.3	17.8
Sales value	3,192,119	3,768,587	4,257,239	33.4	13.0

[1] Standard reference base period for Federal Government general-purpose index numbers.
[2] Less than 0.05 percent.
[3] Includes Ligninsulfonates

The following tabulation shows, by chemical groups, the number of companies that reported production in 1971 of one or more of the chemical included in the groups listed in table 2:

Chemical	*Number of companies*	*Chemical group*	*Number of companies*
Cyclic intermediates	195	Rubber-processing chemicals	31
Dyes	44	Elastomers (synthetic rubbers)	40
Organic pigments	34	Plasticizers	55
Medicinal chemicals	99	Surface-active agents	187
Flavor and perfume materials	47	Pesticides and related products	80
Plastics and resin materials	230	Miscellaneous chemicals	338

TAR AND TAR CRUDES

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 1972 was almost entirely coal tar which amounted to 747 million gallons (see table 1[1]). Production in 1972 was 10 percent more than the 679 million gallons of coal tar produced in 1971. Sales of coal tar in 1972 amounted to 341 million gallons, valued at $40 million, compared with 334 million gallons, valued at $36 million, in 1971. U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1971 or 1972; production of these tars in 1968 amounted to 21 million gallons, according to trade publications.

Consumption of tar in 1972 amounted to 716 million gallons, of which 82.8 percent was consumed in distillation. Tar used by the producers as fuel amounted to 119 million gallons. A lesser amount, 4.3 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, naphthalene, creosote oil, and pitch of tar. Some of these products are identical with those obtained from petroleum. Data for materials obtained from petroleum are included, for the most part, with the statistics for like materials obtained from coke-oven gas and tars, and are shown in tables 1 and 1B.

Domestic production of industrial and specification grades of benzene reported by coke-oven operators and petroleum refinery operators[2] in 1972 amounted to 1,252 million gallons--16.4 percent more than the

---

[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.

1,076 million gallons reported for 1971. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum refiners in 1972 amounted to 679 million gallons, valued at $138 million, compared with 593 million gallons, valued at $119 million, in 1971. In 1972 the output of toluene[2] (including material produced for use in blending in aviation fuel) amounted to 916 million gallons--4.5 percent more than the 876 million gallons reported for 1971. Sales of toluene in 1972 were 546 million gallons, valued at $92 million, compared with 484 million gallons, valued at $80 million, in 1971. The output of xylene[2] in 1972 (including that produced for blending in motor fuels) was 739 million gallons, compared with 612 million gallons in 1971. Over 99 percent of the 739 million gallons of xylene produced in 1972 was obtained from petroleum sources.

Production of crude naphthalene in 1972 (including 231 million pounds of petroleum-derived naphthalene) amounted to 641 million pounds, compared with 619 million pounds in 1971. In 1972 the output of creosote oil for wood preservation was 139 million gallons (100 percent creosote basis), compared with 142 million gallons in 1971. Production of road tar in 1972 was 30 million gallons, compared with 40 million gallons in 1971.

Some of the products obtained from tars 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 $698 million in 1972, compared with $617 million in 1971. 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 $126 million in 1972, compared with $123 million in 1971.

Data for 1972 tar crudes was supplied by 12 companies and company divisions.

See footnote 2 on page 7.

TABLE 1.--TAR AND TAR CRUDES: U.S. PRODUCTION AND SALES, 1972

[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. Tariff Commission]

Product	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value[1]
				1,000 dollars	
Tar:[2] Coke-oven operators	1,000 gal--	747,186	340,875	39,634	$0.12
Crude light oil:[3] Coke-oven operators	1,000 gal--	214,201	86,915	9,584	.11
Intermediate light oil: Coke-oven operators	1,000 gal--	3,704	754	70	.09
Light-oil distillates:					
Benzene, specification and industrial grades, total[3] [4]	1,000 gal--	1,252,442	679,235	138,478	.20
Coke-oven operators	1,000 gal--	79,849	80,225	16,338	.20
Petroleum refiners	1,000 gal--	1,172,593	599,010	122,140	.20
Toluene, all grades, total[3] [4]	1,000 gal--	915,872	545,880	91,529	.17
Coke-oven operators	1,000 gal--	14,571	13,954	2,501	.18
Petroleum refiners	1,000 gal--	901,301	531,926	89,028	.17
Xylene, all grades[3] [4]	1,000 gal--	739,332	560,432	94,128	.17
Coke-oven operators	1,000 gal--	3,351	3,208	578	.18
Petroleum refiners	1,000 gal--	735,981	557,224	93,550	.17
Solvent naphtha: Coke-oven operators[3]	1,000 gal--	2,815	2,596	462	.18
Naphthalene, crude (tar distillers and coke-oven operators), total[5]	1,000 lb---	410,075	224,991	10,425	.05
Solidifying at--					
Less than 74° C	1,000 lb---	17,374	9,627	144	.01
74° C. to less than 79° C	1,000 lb---	392,701	215,364	10,281	.05
Crude tar-acid oils:[3] Coke-oven operators	1,000 gal--	9,731	9,722	1,469	.15
Creosote oil (Dead Oil) (tar distillers and coke-oven operators) (100% creosote basis), total[6]	1,000 gal--	139,308	114,733	22,956	...
Distillate as such (100% creosote basis)	1,000 gal--	114,095	91,248	16,187	.18
Creosote content of coal tar solution (100% creosote basis)[7]	1,000 gal--	25,213	23,485	[7] 6,769	([7])
All other distillates, total	1,000 gal--	...	19,864	3,675	.18
Coke-oven operators, total	1,000 gal--	6,905	5,357	1,060	.20
From light oil	1,000 gal--	3,898	2,520	849	.34
Other[8]	1,000 gal--	3,007	2,837	211	.07
Tar distillers[9]	1,000 gal--	...	14,507	2,615	.18
Tar, road	1,000 gal--	29,807	29,873	5,493	.18
Tar, refined, for other uses	1,000 gal--	14,395	13,082	3,516	.27
Pitch of tar (tar distillers and coke-oven operators), total	1,000 tons	1,368	1,009	48,670	48.24
Soft (water softening point less than 110° F.)	1,000 tons	394	199	7,852	39.46
Medium (water softening point 110° F. to 160° F.)	1,000 tons	188	177	10,035	56.69
Hard (water softening point over 160° F.)[10]	1,000 tons	786	633	30,783	48.63

[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 Tariff 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 1972, compared with 1971. 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.

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. Tariff Commission.

Footnotes for table 1--Continued

[4] Includes data for material produced for use in blending motor fuels.
[5] Statistics represent combined data for the commercial grades of naphthalene. Because of conversion of naphthalene from one grade to another, the figures may include some duplication.
[6] Statistics include data only for creosote oil sold for, or used in, wood preserving.
[7] In 1972, production of coal-tar solution containing creosote (100% solution basis) amounted to 38,144 thousand gallons; sales were 36,232 thousand gallons, valued at 6,769 thousand dollars, with a unit value of $0.19 per gallon.
[8] Includes data for crude sodium phenolate.
[9] Includes data for crude light oil, benzene, toluene, xylene, solvent naphtha, ethylbenzene, rubber-reclaiming oils, pyridine crude bases, crude tar-acid oils, crude cresylic acid, neutral oils, methylnaphthalene, crude tar for other uses, and unspecified tar distillates.
[10] Includes hard pitch and pitch emulsion, along with a small amount of medium pitch produced by coke-oven operators.

TABLE 1A.--TAR: U.S. PRODUCTION AND CONSUMPTION, 1971 AND 1972

(In thousands of gallons)

Product	1971	1972
PRODUCTION		
Coal tar from coke-oven byproduct plants, total[1]	679,377	747,186
CONSUMPTION		
Total	685,684	715,823
Tar consumed by distillation, total	572,160	592,507
Coal tar distilled or topped by coke-oven operators[1]	230,959	273,388
Coal tar and water-gas tar distilled by tar distillers[2]	341,201	319,119
Tar consumed by the producers chiefly as fuel[1]	111,877	119,030
Coal tar consumed at coke-oven plants in miscellaneous uses[1]	1,647	4,286

[1] Reported to the Division of Fossil Fuels, U.S. Bureau of Mines.
[2] Reported to U.S. Tariff Commission. Represents tar purchased from companies operating coke ovens and gas-retort plants and distilled by companies operating tar-distillation plants. Statistics also include tar consumed other than by distillation by tar distillers.

TAR AND TAR CRUDES

TABLE 1B.--TAR AND TAR CRUDES: SUMMARY OF U.S. PRODUCTION OF SPECIFIED PRODUCTS, 1967, 1971, AND 1972

Product	Unit of quantity	1967[1]	1971	1972	Increase, or decrease (-)	
					1972 over 1967	1972 over 1971
					Percent	*Percent*
Tar[2]	1,000 gal--	780,334	679,377	747,186	-4.2	10.0
Benzene:[3]						
Coke-oven operators	1,000 gal--	90,642	72,147	79,849	-11.9	10.7
Petroleum refiners	1,000 gal--	878,704	1,003,760	1,172,593	33.4	16.8
Total	1,000 gal--	969,346	1,075,907	1,252,442	29.2	16.4
Toluene:[3]						
Coke-oven operators	1,000 gal--	19,357	13,345	14,571	-24.7	9.2
Petroleum refiners	1,000 gal--	624,454	862,921	901,301	44.3	4.4
Total	1,000 gal--	643,811	876,266	915,872	42.3	4.5
Xylene:[3]						
Coke-oven operators	1,000 gal--	5,488	2,906	3,351	-38.9	15.3
Petroleum refiners	1,000 gal--	[4] 449,349	[4] 609,419	[4] 735,981	63.8	20.8
Total	1,000 gal--	454,837	612,325	739,332	62.5	20.7
Naphthalene:						
Crude[5]	1,000 lb---	520,991	360,607	410,075	-21.3	13.7
Petroleum naphthalene, all grades	1,000 lb---	376,679	258,312	230,643	-38.8	-10.7
Total	1,000 lb---	897,670	618,919	640,718	-28.6	3.5
Creosote oil (Dead oil):[6]						
Distillate as such (100% creosote basis)	1,000 gal--	108,832	115,669	114,095	4.8	-1.4
Creosote content of coal tar solution (100% creosote basis)	1,000 gal--	17,402	26,208	25,213	44.9	-3.8
Total	1,000 gal--	126,234	141,877	139,308	10.4	-1.8

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

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 2.--TAR CRUDES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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:	
Benzene, specification grades[1]	ACY, KPP.
Toluene, specification grades[1]	ACY, KPP.
Xylene, all grades[1]	ACY.
Solvent naphtha[1]	ACY, NEV, PAI.
All other light-oil distillates[1]	KPT, PAI.
Pyridine crude bases[1]	KPT.
*Naphthalene, crude, solidifying at--	
*Less than 74° C[1]	COP.
*74° C. to less than 79° C:[1]	
74° C. to less than 76° C	KPT.
76° C. to less than 79° C	ASC, KPT.
Methylnaphthalene	KPT.
Crude tar-acid oils:[1]	
Tar-acid content 5% to less than 24%	KPT.
Tar-acid content 24% to 50%	ASC, WTC.
Cresylic acid, crude	KPT.
*Creosote oil (Dead oil):	
*Distillate as such[1]	ASC, CBT, COP, HUS, KPT, RIL, WTC.
*Creosote in coal tar solution[1]	ASC, KPT, RIL, WTC.
*All other distillate products[1]	ASC, KPT, PAI.
*Tar, road	ASC, KPT, RIL.
Tar for other uses:	
Crude	KPT, RIL.
*Refined[1]	ASC, KPT, RIL.
*Pitch of tar:	
*Soft (water softening point less than 110° F.)[1]	ASC, KPT, WTC.
*Medium (water softening point 110° F. to 160° F.)[1]	ASC, CBT, COP, KPT, RIL, WTC.
*Hard (water softening point above 160° F.)[1]	ASC, HUS, KPT, RIL.
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, November 27, 1973, entitled "Coke Producers in the U.S. in 1972".

TABLE 3.--TAR AND TAR CRUDES: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of tar and tar crudes to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of company	Code	Name of company
ACY	American Cyanamid Co.	KPT	Koppers Co., Inc., Organic Materials Div.
ASC	Allied Chemical Corp., Semet-Solvay Div.		
CBT	Samuel Cabot, Inc.	NEV	Neville Chemical Co.
COP	Coopers Creek Chemical Corp.		
HUS	Husky Industries, Inc.	PAI	Pennsylvania Industrial Chemical Corp.
JEN	Jennison-Wright Corp.	RIL	Reilly Tar & Chemical Corp.
KPP	Sinclair-Koppers Co.	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 86,792 million pounds in 1972, or 7.0 percent more than the 81,043 million pounds reported for 1971 (table 1).[2] The larger output in 1972 is accounted for chiefly by increased production of ethylene, propylene and benzene. Sales of crude chemicals from petroleum in 1972 amounted to 47,900 million pounds, valued at $1,177 million, compared with 45,752 million pounds, valued at $1,078 million, in 1971.

The output of aromatic and naphthenic products from petroleum amounted to 23,753 million pounds in 1972, compared with 21,449 million pounds in 1971. Sales amounted to $351 million in 1972, and $308 million in 1971. The output of 1° and 2° benzene from petroleum in 1972 (8,654 million pounds) was 17.1 percent more than the 7,388 million pounds produced in 1971.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 63,039 million pounds in 1972, compared with 59,594 million pounds in 1971. Sales of these products were valued at $825 million in 1972 compared with $769 million in 1971. Production of ethylene was 20,852 million pounds in 1972--13.0 percent more than the 18,450 million pounds produced in 1971. The output of 1,3-butadiene in 1972 (3,527 million pounds) was the largest on record.

Data for 1972 crude products from petroleum and natural gas for chemical conversion was supplied by 73 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.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1972

[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	86,792,187	47,899,859	1,176,609	$0.025
AROMATICS AND NAPHTHENES[2]				
Total	23,752,898	15,402,465	351,401	.023
Benzene (1° and 2°)	8,653,736	4,420,693	122,140	.028
Naphthalene, all grades	230,643	164,314	7,753	.047
Naphthenic acid	33,190	...	...	...
Toluene, all grades, total	6,552,591	3,867,231	89,028	.023
Nitration grade, 1°	4,877,029	2,828,364	66,662	.024
Pure commercial grade, 2°	429,868	255,584	5,738	.022
Solvent grade, 90%	152,401	...	...	...
All other	1,093,293	783,283	16,628	.021
Xylenes, mixed, total	5,306,422	4,017,585	93,550	.023
3° grade	1,184,423	744,195	16,539	.022
5° grade	383,384	401,381	9,995	.025
All other[3]	3,738,615	2,872,009	67,016	.023
All other aromatics and naphthenes[4]	2,976,316	2,932,642	38,930	.013
ALIPHATIC HYDROCARBONS				
Total	63,039,289	32,497,394	825,208	.025
C_2 hydrocarbons, total	26,297,040	...	...	...
Acetylene[5]	308,356	...	...	...
Ethane	5,136,540	3,995,766	36,729	.009
Ethylene	20,852,144	5,649,443	168,252	.030
C_2 and C_3 hydrocarbons, mixed	133,062	...	...	...
C_3 hydrocarbons, total	18,079,972	12,539,212	219,210	.017
Propane	9,608,315	8,620,910	107,445	.012
Propylene[6]	8,471,657	3,918,302	111,765	.029
C_4 hydrocarbons, total	10,610,727	5,652,144	251,300	.044
1,3-Butadiene, grade for rubbers (elastomers)	3,527,422	2,230,009	173,844	.078
Butadiene and butylene fractions	567,998	436,231	11,817	.027
n-Butane	2,331,119	443,707	4,367	.010
1-Butene	61,397	46,617	2,386	.051
1-Butene and 2-butene mixtures[7]	752,791	782,157	21,681	.028
Isobutane	942,082	...	...	...
Isobutylene	600,184	315,564	11,808	.037
All other[8]	1,827,734	1,397,859	25,397	.018
C_5 hydrocarbons, total	962,223	526,451	16,328	.031
Isopentane (2-Methylbutane)	7,967	...	...	...
Isoprene (2-Methyl-1,3-butadiene)	372,663	...	...	...
Pentenes, mixed	318,978	...	...	...
All other[9]	262,615	526,451	16,328	.031

See footnotes at end of table.

TABLE 1.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: U.S. PRODUCTION AND SALES, 1972

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	6,956,265	4,134,378	133,389	$0.032
Alpha olefins[10]	517,434	401,084	21,946	.055
Heptenes, mixed	83,838	26,713	847	.032
Hexanes and other C_6 hydrocarbons	339,668	299,807	8,621	.029
Nonene (Tripropylene)	341,590	247,040	8,446	.034
n-Paraffins, total	1,063,653	747,744	23,151	.031
Carbon chain length, C_9-C_{15}	279,199	276,351	5,170	.019
Other	784,454	471,393	17,981	.038
Polybutene[11]	198,080	139,356	10,217	.073
Tetrapropylene	210,173	57,322	2,034	.035
Hydrocarbon derivatives[12]	114,246	82,760	10,008	.121
All other[13]	4,087,583	2,132,552	48,119	.023

[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, xylene, and naphthalene from all sources are given in tables 1 and 1B of the report "Tar and Tar Crudes, 1972."

[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, miscellaneous cyclic hydrocarbons and sales of naphthenic acid.

[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, 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_6-C_7; 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.

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

TABLE 2.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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, APR, ASH, ATR, CCP, CSP, CSD, CSO, CSP, DLH, ENJ, GOC, GRS, MOC, MON, PLC, PPR, SHC, SHO, SKO, SM, SNT, SOG, SUN, TOC, TX, UCC, UOC.
*Benzene, 2°	CPI, DOW, SHO, SOC.
Cresylic acid, crude	PRD.
*Naphthalene, all grades	ASH. COL, MON. SUN, TID.
*Naphthenic acids:	
Acid number lower than 150	SOC, 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°	ASH, ATR, CCP, CSD, CSP, DLH, ENJ, GOC, 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, CPI, CSD, ELP, GRS, GYR, PLC, PPR, SHO, SM, SOC.
*Xylenes, mixed:	
Aviation grade	CSO.
*3° grade	CSD, DLH, GOC, MOC, PPR, SHO, SUN, UOC.
*5° grade	ASH, ATR, 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, ELP, ENJ, FG, GOC, JCC, MOC, MON, OMC, PLC, SHC, SOC, SOG, TX, UCC.
ALIPHATIC HYDROCARBONS	
C_1 hydrocarbon: Methane	MON.
*C_2 hydrocarbons:	
*Acetylene	DOW, DUP, MNO, RH, UCC.
*Ethane	ACU, ATR, DOW, ENJ, MON, OMC, PAN, PLC, PUE, SHO, SM, TX, USI.
*Ethylene	ACU, ATR, 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	CCP, CO, CSO, PLC.
*C_3 hydrocarbons:	
*Propane	AMO, ASH, ATR, COR, CPI, CSD, CSO, CSP, ENJ, GOC, GRS, MOC, OMC, PAN, PLC, PUE, SHO, SM, SNT, SOG, SUN, TX, UOC, USI.
*Propane-propylene mixture	GOC.
*Propylene	ACU, AMO, ASH, ATR, BFG, CBN, CCP, COR, CPX, CSO, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, KPP, MOC, MON, NWP, PLC, PUE, SHC, SHO, SIO, SM, SNT, 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, PLC, SHO, UCC.
*n-Butane	ATR, BFG, COR, CPI, CSD, CSP, GRS, 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, 1972--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, CSO, ENJ, GOC, PLC, PTT, SHO, TX.
*Isobutane	ATR, CSP, ELP, GRS, OMC, PAN, PLC, SHO, USI.
*Isobutylene	ENJ, PLC, SHC, SHO, x.
All other	APR, ATR, BFG, CBN, ENJ, GRS, JCC, MON, PLC, PUE, SM, USI.
*C_5 hydrocarbons:	
*Isopentane (2-Methylbutane)	APR, PAN, PLC, SHO, SM.
*Isoprene (2-Methyl-1,3-butadiene)	BFG, ENJ, GYR, MON, SHC.
n-Pentane	APR, PLC.
*Pentenes, mixed	GYR, MON, TX.
All other	CBN, ELP, MON, PLC, SHC, UCC.
*C_6 hydrocarbons:	
*Hexane	APR, ENJ, PLC, SOG, UOC.
Neohexane (2,2-Dimethylbutane)	PLC.
All other	APR, BFG, PLC, SWC.
C_7 hydrocarbons:	
n-Heptane	EKX, PLC, SOG.
*Heptenes, mixed	AIP, ENJ, GOC, SOI, TID.
All other	ENJ, HCR, PLC, UOC.
C_8 hydrocarbons:	
Diisobutylene (Diisobutene)	BFG, PTT, TX.
n-Octane	SOG.
All other	ENJ, PLC.
Hydrocarbons, C_9 and above:	
*Nonene (Tripropylene)	AIP, ATR, CSD, ENJ, SUN, UOC.
*Polybutene	ACC, CSD, SOC.
*Tetrapropylene	ATR, CO, ENJ, SOC, SUN, TX, UOC.
Triisobutylene	x.
All other	ACC, ATR, CO, CPI, ENJ, KPP, PLC, PUE, SOC, TID, TNA, 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	EKX, GOC, SOC, TID, TNA.
*n-Paraffins--Carbon chain length:	
C_6-C_9	SOG.
*C_9-C_{15}	BFG, HCR, SOG.
C_{10}-C_{14}	ENJ, SOG, UCC.
C_{10}-C_{16}	CO.
All other	ATR, PUE, UCC.
*Hydrocarbon derivatives:	
n-Amyl mercaptan	PAS.
tert-Amyl mercaptan (2-Methyl-2-butanethiol)	PLC.
1-Butanethiol	PAS, PLC.
tert-Butyl-mercaptan (2-Methyl-2-propanethiol)	PAS.
Cyclohexyl mercaptan	PAS.
Di-tert-butyl disulfide	PLC.
Di-tert-nonylpolysulfide	PAS.
Ethyl mercaptan (Ethanethiol)	PAS, PLC.
n-Hexadecyl mercaptan	PAS.
Isopropyl mercaptan	PAS.
Methyl mercaptan (Methanethiol)	ACC, PAS.
tert-Nonyl mercaptan	PAS.
n-Propyl mercaptan (1-Propanethiol)	PAS, PLC.
All other	EKX, PAS, PLC, UCC.
Mixtures, not elsewhere classified	ATR, GYR, MON.

TABLE 3.--CRUDE PRODUCTS FROM PETROLEUM AND NATURAL GAS FOR CHEMICAL CONVERSION: DIRECTORY OF MANUFACTURERS, 1972

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. Tariff Commission for 1972 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)
APR	Atlas Processing Co.
ASH	Ashland Oil, Inc.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.
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	Amerada Hess 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.
JCC	Jefferson Chemical Co., Inc.
KPP	Sinclair-Koppers Co.
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 Inudstries, 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.
SM	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	American Oil Co. (Maryland)
STY	Styrochem Corp.
SUN	Sun Oil Co.
SWC	Shell & Commonwealth Chemicals, 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 1972 about 46 percent of the total output of cyclic intermediates was sold; the rest was consumed chiefly by the producing plants in the manufacture of more advanced intermediates and finished products.

Total production of cyclic intermediates in 1972--34,967 million pounds--was the largest on record, and was 16.7 percent larger than the output of 29,953 million pounds reported for 1971. The larger output of cyclic intermediates in 1972 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 1972 were 16,196 million pounds, valued at $1,434 million, compared with 12,971 million pounds, valued at $1,252 million, in 1971.

Production of styrene in 1972 was 5,941 million pounds, or 26.9 percent more than the 4,682 million pounds produced in 1971. Output of ethylbenzene was 5,676 million pounds, an increase of 13.9 percent from the 4,984 million pounds produced in 1971. Other intermediates whose production exceeded 1 billion pounds in 1972 were cyclohexane (2,298 million pounds), cumene (2,293 million pounds), p-xylene (2,208 million pounds), dimethyl terephthalate (2,167 million pounds), phenol (2,096 million pounds), and terephthalic acid (1,929 million pounds). Other large-volume intermediates produced in 1972 were phthalic anhydride (933 million pounds), o-xylene (832 million pounds), cyclohexanone (783 million pounds), isocyanates (702 million pounds), nitrobenzene (551 million pounds), straight chain alkylbenzenes (524 million pounds), 2,4 and 2,6-dinitrotoluenes (434 million pounds), aniline (410 million pounds), and monochlorobenzene (404 million pounds). The above 17 chemicals accounted for 86 percent of the total output of cyclic intermediates in 1972. Production of 15 of the above chemicals increased in 1972 compared to 1971; the output of alkyl benzenes decreased by 4.7 percent and of monochlorobenzene by 1.3 percent.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1972

[Listed below are all cyclic intermediates 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 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	34,967,181	16,195,641	1,433,855	$0.09
Acetanilide, tech	3,228	...	...	...
Acetophenone, tech	...	1,679	477	.28
Alkylbenzenes[2]	524,009	502,995	52,274	.10
1-Aminoanthraquinone and salt	359	...	...	...
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid	19	...	...	...
1-Amino-2-bromo-4-hydroxyanthraquinone	724	...	...	...
1-Amino-5-chloroanthraquinone	36	...	...	...
1-Amino-2,4-dibromoanthraquinone	1,014	...	...	...
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt	45	...	...	...
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide	42	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid	456	...	...	...
Aniline (Aniline oil)	409,820	190,736	16,663	.09
Anilinomethanesulfonic acid and salt	686	...	...	...
o-Anisidine	3,106	...	...	...
o-Anisidinomethanesulfonic acid	664	...	...	...
Anisole, tech	195	...	...	...
Anthra[1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)	64	...	...	...
Benzaldehyde, tech	4,607	4,231	1,443	.34
7H-Benz[de]anthracen-7-one (Benzanthrone)	1,184	...	...	...
Benzoic acid, tech	155,505	14,273	1,989	.14
2-Benzothiazolethiol, sodium salt	9,667	...	...	...
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)-dione (Pyrazoleanthrone yellow)	56	...	...	...
[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione	159	...	...	...
Biphenyl	...	33,935	3,910	.12
1,4-Bis[1-anthraquinonylamino]anthraquinone	93	...	...	...
3-Bromo-7H-benz[de]anthracene-7-one (3-Bromobenzanthrone)	149	...	...	...
2-Bromo-4,6-dinitroaniline	626	85	116	1.36
1-Chloroanthraquinone	114	...	...	...
Chlorobenzene, mono	403,505	85,244	4,817	.06
6-Chlorometanilic acid	6	...	...	...
1-Chloro-2-methylanthraquinone	91	...	...	...
1-Chloro-5-nitroanthraquinone	40	...	...	...
4-Chloro-3-nitrobenzenesulfonamide	507	...	...	...
α-Chlorotoluene (Benzyl chloride)	80,357	18,811	2,419	.13
Cinnamoyl chloride	32	...	...	...
Cresols, total[3]	106,273	104,230	20,358	.20
o-Cresol	49,668	48,591	7,303	.15
(m,p)-Cresol	28,292	29,293	4,438	.15
All other[4]	28,313	26,346	8,617	.33
Cresylic acid, refined[3]	54,981	51,389	7,442	.14
Cumene	2,292,949	1,345,895	46,882	.03
Cyclohexane	2,298,394	2,018,404	60,168	.03
Cyclohexanone	783,440	56,960	7,055	.12
Cyclohexylamine	...	4,227	1,174	.28
1,4-Diaminoanthraquinone	104	...	...	...
2,6-Diaminoanthraquinone	90	...	...	...
1,4-Diamino-2,3-dihydroanthraquinone	952	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid	7,082	...	...	...

See footnotes at end of table.

CYCLIC INTERMEDIATES

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
4,5'-Dibenzamido-1,1'-iminodianthraquinone	55	...	...	...
3,9-Dibromo-7H-benz[de]anthracen-7-one	166	...	...	...
o-Dichlorobenzene	62,386	62,389	7,233	$0.12
p-Dichlorobenzene	77,317	70,704	6,285	.09
3,3'-Dichlorobenzidine base and salts	4,612	4,618	5,792	1.25
Dicyclopentadiene (includes cyclopentadiene)	91,267	71,673	2,802	.04
N,N-Diethylaniline	3,556	2,639	1,417	.54
9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt	249	...	...	...
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt)	997	...	...	...
1,4-Dihydroxyanthraquinone (Quinizarin)	2,095	...	...	...
1,8-Dihydroxyanthraquinone (Chryazin)	107	...	...	...
1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitro chrysazin)	159	...	...	...
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)	141	...	...	...
N,N-Dimethylaniline	...	8,073	1,671	.21
N,N-Dimethylbenzylamine	79	59	90	1.53
2,2-Dimethyl-1,1'-bianthraquinone	38	...	...	...
4,4'-Dinitrostilbene-2,2'-disulfonic acid	9,230	...	...	...
2,4(and 2,6)-Dinitrotoluene	433,885	...	...	...
Diphenylamine	33,845	16,981	3,957	.23
1,4-Di-p-toluidinoanthraquinone	86	...	...	...
Divinylbenzene	3,367	2,698	1,720	.64
N-Ethylaniline, refined	1,866	...	...	...
2-(N-Ethylanilino)ethanol	218	...	...	...
Ethylbenzene[5]	5,675,900	447,259	13,812	.03
N-Ethyl-N-phenylbenzylamine	478	...	...	...
Hydroquinone, tech	11,779	11,616	9,129	.79
3-Hydroxy-2-methylcinchoninic acid	430	...	...	...
6-Hydroxy-2-naphthalenesulfonic acid, sodium salt	637	...	...	...
1,1'-Iminobis[4-aminoanthraquinone]	44	...	...	...
1,1'-Iminodianthraquinone (1,1'-Dianthrimide)	60	...	...	...
Isocyanic acid derivatives, total	701,648	508,847	156,742	.31
Toluene-2,4- and 2,6-diisocyanate (80/20 mixture)	419,404	362,876	101,516	.28
Other isocyanic acid derivatives	282,244	145,971	55,226	.38
4,4'-Isopropylidenediphenol (Bisphenol A)	255,189	77,197	11,957	.15
Leuco quinizarin (1,4,9,10-Anthratetrol)	87	...	...	...
dl-p-Mentha-1,8-diene (Limonene)	9,273	...	...	...
Metanilic acid (m-Aminobenzenesulfonic acid)	1,082	...	...	...
4,4'-Methylenedianiline	...	1,888	830	.44
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	157	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	61	43	61	1.42
α-Methylstyrene	37,398	26,112	1,317	.05
Nitrobenzene	551,169	12,622	804	.06
5-Nitro-o-toluenesulfonic acid [SO_3H=1]	8,017	...	...	...
5-Nitro-o-toluidine [NH_2=1]	397	...	...	...
Nonylphenol	100,295	40,625	4,648	.11
1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthraquinone	292	...	...	...
Phenol, total[3]	2,096,125	1,016,215	65,944	.07
Natural, from coal tar and petroleum	44,298	25,687	1,772	.07
Synthetic, total	2,051,827	990,528	64,172	.07
From cumene	1,810,884	...	...	...
Other synthetic	240,943	...	...	...
1-Phenyl-1,2-propanedione, 2-oxime	238	...	...	...
Phthalic anhydride	932,978	634,050	44,274	.07
Picolines[3]	6,416	...	...	...

See footnotes at end of table.

TABLE 1.--CYCLIC INTERMEDIATES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Piperidine	477	...	...	...
Propiophenone	289	163	160	.98
Salicylaldehyde	4,468	3,547	3,577	1.01
Salicylic acid, tech	47,095	9,136	3,708	.41
Styrene, all grades	5,940,729	2,810,182	160,568	.06
Terephthalic acid	1,928,907	...	...	...
Terephthalic acid, dimethyl ester	2,167,332	1,155,316	150,349	.13
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	54	...	...	...
6,6'-Thiodimetanilic acid	175	...	...	...
Toluene-2,4-diamine (4-m-Tolylenediamine)	167,902	...	...	...
4-(o-Tolyazo)-o-toluidine (C.I. Solvent Yellow 3)	395	...	...	...
1,2,4-Trichlorobenzene	15,552	15,667	2,020	.13
1,3,3-Trimethyl-Δ^2,α-indolineacetaldehyde	338	...	...	...
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)	701	...	...	...
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea)	237	...	...	...
Violanthrone (Dibenzanthrone)	489	...	...	...
o-Xylene	831,782	675,700	16,195	.02
p-Xylene	2,207,556	2,102,848	94,816	.05
All other cyclic intermediates	3,391,402	1,973,680	434,790	.22

[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 U.S. Tariff 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, 1972

[Cyclic intermediates for which separate statistics are given in table 1 are marked with an asterisk (*); cyclic intermediates not so marked do not appear in table 1 because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 3. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 3)
Acenaphthenequinone	BJL.
8-Acetamido-1-(4-acetamido-2-hydroxy-5-nitrophenylazo)-2-naphthol.	TRC.
5-Acetamido-2-aminobenzenesulfonic acid	GAF.
3-[(2-Acetamido-4-aminophenyl)azo]-1,5-naphthalene-disulfonic acid.	TRC.
2,2'-[(5-Acetamido-2-ethoxyphenyl)imino]diethanol	TCH.
2,2'-[(5-Acetamido-2-methoxyphenyl)imino]diethanol	TCH.
4-Acetamido-2-hydroxybenzoic acid	SDW.
α-Acetamido-p-toluenesulfonamide	SDW.
*Acetanilide, tech	CTN, EKT, MRK, SAL.
Acetic acid, phenyl ester	UCC.
Acetoacetanilide	FMP, HST.
o-Acetoacetanisidide	FMP, HST, UCC.
Acetoacet-2,5-dimethoxy-4-chloroanilide	FMP.
o-Acetoacetotoluidide	FMP, HST, UCC.
2',4'-Acetoacetoxylidide	HST.
1'-Acetonaphthone	GIV.
Acetone phenylhydrazone	DUP.
*Acetophenone, tech	ACP, CLK, SKO, UCC.
p-Acetotoluidide	EK.
p-Acetylbenzenesulfonamide	LIL.
p-Acetylbenzenesulfonic acid, sodium salt	LIL.
p-Acetylbenzenesulfonylurethane	LIL.
N-Acetylsulfanilyl chloride	ACY, CTN, MRK, SAL.
*Alkylbenzenes:	
Dodecylbenzene (including tridecylbenzene):	
*Straight chain	BRP, CO, MON, UCC, WTC.
Other	CO, SOC, UCC. UCC.
Alkylphenols, mixed	PRD.
Alkylpiperazines, mixed	AIP.
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	AAP.
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	GAF, TRC.
2'-Aminoacetophenone	EK.
3'-Aminoacetophenone	CTN.
4'-Aminoacetophenone	EK.
5'-Amino-2-(p-aminoanilino)benzenesulfonic acid	TRC, YAW.
1-Amino-4-(3-amino-4-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	AAP, ACY, MAY, SDC, TRC.
2-Aminoanthraquinone and salt	ACY, GAF.
N-(4-Amino-1-anthraquinonyl)anthranilic acid	GAF.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
N-(5-Amino-1-anthraquinonyl)anthranilic acid	DUP.
4-Aminoantipyrine	VPC.
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9).	ACY, CMG.
Aminoazoxylene toluene homologues	ACS.
p-Aminobenzamide	ICC, SDH.
1-Amino-4-benzamidoanthraquinone	MAY, TRC.
1-Amino-5-benzamidoanthraquinone	ACY, TRC.
7-[p-(p-Aminobenzamido)benzamido]-4-hydroxy-2-naphthalenesulfonic acid.	CMG.
*7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid.	CMG, GAF, TRC, VPC.
2-Amino-p-benzenedisulfonic acid [SO_3H=1]	DUP, TRC.
o-Aminobenzenethiol	FIS, FMT.
4-Aminobenzenethiosulfonic acid, sodium salt	SDC.
2-Aminobenzimidazole	EK.
4-Aminobenzophenone	DUP.
2-Amino-6-benzothiazolecarboxylic acid	DUP.
2-(m-Aminobenzoyl)-o-acetanisidide	GAF.
N-(4-Amino-3-bromo-1-anthraquinonyl)-p-toluidine sulfonic acid.	TRC.
5(and 8)-Amino-8(and 5)-bromo-9,10-dihydro-9,10-dioxo-1,6(and 1,7)anthracenedisulfonic acid.	TRC.
*1-Amino-2-bromo-4-hydroxyanthraquinone	AAP, DUP, HN, VPC.
1-Amino-2-bromo-4-p-toluidinoanthraquinone	ACS, TRC.
*1-Amino-5-chloroanthraquinone	ACY, MAY, TRC.
1-Amino-8-chloroanthraquinone	DUP.
2-Amino-1-chloroanthraquinone	DUP, ICI.
2-Amino-3-chloroanthraquinone	GAF.
4-Amino-6-chloro-m-benzenedisulfonamide	ABB.
4-Amino-6-chloro-m-benzenedisulfonamide hydrochloride	ABB.
2-Amino-6-chlorobenzothiazole hydrochloride	DUP.
o-(3-Amino-4-chlorobenzoyl)benzoic acid	AAP.
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.
2-Amino-6-chloropyrazine	ACY.
3-Amino-6-chloropyridazine	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1]	HSC.
6-Amino-4-chloro-m-toluenesulfonic acid [SO_3H=1]	DUP, HSC.
2-Amino-p-cresol	TRC.
*1-Amino-2,4-dibromoanthraquinone	AAP, DUP, HN, TRC, VPC.
1-Amino-2,4-dichloroanthraquinone	TRC.
2-Amino-4,6-dichloro-5-cresol	EK.
4-Amino-2,6-dichorophenol hydrochloride	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt.	AAP, DUP, GAF.
5-Amino-4,5'-dihydroxy-3,4'-[(2-methoxy-5-methyl-p-phenylene)bis(azo)]-di-2,7-naphthalenedisulfonic acid, 5'-benzenesulfonate.	TRC.
3-Amino-9-ethylcarbazole----------	SDC.
N-(2-Aminoethyl)-N-ethyl-m-toluidine----------	WAY.
3-Amino-α-ethylhydrocinnamic acid----------	SDW.
N-[2-(4-Amino-N-ethyl-m-toluidino)ethyl]methane-sulfonamide, hemisulfate.	WAY.
N-Aminohexamethyleneimine----------	FMP.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (H acid), monosodium salt.	ACS.
4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4-acid).	ACY, GAF, 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-nitro-benzoic acid.	TRC.
4-Amino-3-(β-methanesulfoaminoethyl)-N,N-diethylaniline hydrochloride.	EKT.
*N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfon-amide.	AAP, DUP, GAF.
5-Amino-6-methoxy-2-naphthalenesulfonic acid----------	TRC.
4-Amino-5-methoxy-o-toluene sulfonic acid----------	ACS.
m-[(4-Amino-3-methoxypheny1)azo]benzenesulfonic acid-----	DUP, TRC.
8-Amino-6-methoxyquinoline----------	PD.
4-[(4-Amino-5-methoxy-o-tolyl)azo]-5-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
3-[(4-Amino-5-methoxy-o-tolyl)azo]-1,5-naphthalenedisul-fonic acid.	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedi-sulfonic acid.	TRC.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stil-benedisulfonic acid.	TRC.
2-Amino-3-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.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione----------	DUP.
2-Amino-1,5-naphthalenedisulfonic acid----------	ACY, SDH.
3-Amino-1,5-naphthalenedisulfonic acid (C acid)----------	TRC.
3-Amino-2,7-naphthalenedisulfonic acid----------	TRC.
6-Amino-1,3-naphthalenedisulfonic acid (Amino I 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 (Naphthionic acid)----	ACY, DUP.
4-Amino-1-naphthalenesulfonic acid, sodium salt----------	ACY, DUP.
4(and 5)-Amino-1-naphthalenesulfonic acid----------	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	SNA, TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid----------	DUP.
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.
3-Amino-5-(m-nitrobenzamido)-p-toluenesulfonic acid-----	GAF.
2-Amino-5-nitrobenzenesulfonic acid [SO_3H=1]----------	ACS, GAF, TRC.
4-Amino-4'-nitro-3-methoxyazobenzene----------	SDC.
d-2-Amino-1-(p-nitrophenyl)-1,3-propanediol----------	PD.
ℓ-2-Amino-1-(p-nitrophenyl)-1,3-propanediol----------	PD.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid----------	HN, TRC.
2-Amino-5-nitrothiazole----------	PCW.
3'-Aminooxanilic acid----------	CMG, TRC.
4'-Aminooxanilic acid----------	DUP, VPC.
6-Aminopenicillanic acid----------	TRD.
p-Aminophenol----------	MAL.
2-(p-Aminophenoxy)ethanol hydrochloride----------	GAF.
m-[(p-Aminophenyl)azo]benzenesulfonic acid----------	TRC.
*p-[(p-Aminophenyl)azo]benzenesulfonic acid----------	ACY, DUP, TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid----	TRC.
5-Amino-8-(phenylazo)-2-naphthol----------	ALL.
8-Amino-5-(phenylazo)-2-naphthol----------	ALL.
4-[(p-Aminophenyl)azo]-1-naphthylamine----------	ACS.
5-[(p-Aminophenyl)azo]salicylic acid----------	TRC, VPC.
5-[(p-Aminophenyl)azo]salicylic acid, sodium salt--------	ACS.
2,2'-(m-Aminophenylimino)diethanol, diacetate ester-----	DUP, TCH.
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.
4-Amino-2-propoxybenzoic acid----------	SDW.
3-(Aminopropyl)cyclohexylamine----------	ABB.
2-Aminopyridine----------	NEP, RIL.
4-Aminopyridine----------	RIL.
2-Aminopyrimidine----------	ACY.
3-Aminorhodanine----------	EK.
5-Aminosalicylic acid----------	MLS, TRC.
N-(4-Amino-3-sulfo-1-anthraquinonyl)anthranilic acid-----	GAF.
2-Amino-4-(1,1,3,3-tetramethylbutyl)phenol----------	GAF.
2-Amino-4-(1,1,3,3-tetramethylbutyl)phenol hydrochloride.	GAF.
2-Aminothiazole----------	ACY, MRK.
3-Amino-p-toluamide----------	SDH, x.
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.
5-Amino-2-p-toluidinobenzenesulfonic acid----------	TRC.
m-(4-Amino-m-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.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2-Amino-3,5-xylenesulfonic acid [SO_3H=1]	SDH.
5-Amino-2,4-xylenesulfonic acid	DUP.
*Aniline (Aniline oil)	ACS, ACY, DUP, FST, MAL, MOB, RUC, USR.
Aniline hydrochloride	ACY, EK.
2'-Anilino-6-diethylamino-3-methylfluoran	SDH.
2-Anilinoethanol	TCH.
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid).	CMG, TRC.
*Anilinomethanesulfonic acid and salt	ACS, ACY, ATL, DUP, TRC, VPC.
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	DUP, SDC.
8-Anilino-1-naphthalenesulfonic acid, magnesium salt	EK.
m-Anilinophenol	GAF.
p-Anilinophenol	SDC.
o-Anisaldehyde	ASL.
m-Anisidine	EK.
*o-Anisidine	AAP, DUP, x.
p-Anisidine	DUP, MON.
*o-Anisidinomethanesulfonic acid	AAP, ATL, GAF, TRC, VPC.
*Anisole, tech	CTN, DUP, GIV, LIL.
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)	DUP, GAF, TRC.
Anthraquinone, 100%	TRC.
1,5-Anthraquinonedisulfonic acid	CMG.
1,8-Anthraquinonedisulfonic acid	CMG.
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, TRC.
N,N'-(1,5-Anthraquinonylene)dioxamic acid	GAF, SW.
(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt.	DUP, GAF.
4',4'''-Azobis[4-biphenylcarboxylic acid]	DUP, TRC.
Barbituric acid, sodium derivative	ABB.
*Benzaldehyde, tech	BPC, HN, MNR, VEL.
1-Benzamido-4-bromoanthraquinone	AAP.
1-Benzamido-4-chloroanthraquinone	GAF.
1-Benzamido-5-chloroanthraquinone	MAY, TRC.
4-Benzamido-5-hydroxy-2,7-naphthalenedisulfonic acid	TRC.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	TRC.
Benzanilide	DUP.
Benz(a)anthracene-7,12-dione	EK.
*7H-Benz[de]anthracen-7-one (Benzathrone)	AAP, ACY, DUP, GAF, ICI, MAY, SDC, TRC.
m-Benzenedisulfonic acid	KPT, UPF.
Benzenesulfonamide	NES.
Benzenesulfonic acid	NES, UPF.
Benzenesulfonyl chloride	NES.
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 hydrochloride and sulfate	ACS, LAK.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Benzidine sulfate, purified	x.
*Benzoic acid, tech[1]	HK, HN, KLM, MON, PFZ, VEL.
Benzoin	BPC.
Benzoinisobutyl ether	BPC.
α-Benzoin oxime	RSA.
Benzonitrile	VEL.
*2-Benzothiazolethiol sodium salt	ACY, GYR, USR, x.
p-Benzoquinonedioxime	SDC.
1H-Benzotriazole	FMT, 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.
3-[4-N-Benzylamino-N-methylphenylazo]-1,2,4-triazole	TRC.
p-(Benzylamino)phenol	EK.
Benzyl chloroformate	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.
5-(Benzylethylamino)-o-toluenesulfonic acid	ACS.
N-Benzyl-N-ethyl-m-toluidine	ACS, 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.
4,4'-Benzylidinedi-2,5-xylidine	ACS.
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, ICI, MAY.
1,1'-Bi-2-naphthol	EK.
*Biphenyl	CHL, DOW, GOC, MON, SNT.
2,2'-Biquinoline	EK.
Bis-p-aminocyclohexylmethane	DUP.
*1,4-Bis[1-anthraquinonylamino]anthraquinone	ACY, DUP, 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.
Bis(chlorosulfonyl)phthalocyaninedisulfonic acid, copper derivative.	TRC.

See footnotes at end of table.

CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4,4'-Bis[diethylamino]benzhydrol salt, 2,7-naphthalene-disulfonic acid, mixture.	TRC.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalene-disulfonic acid, leuco form.	TRC.
4,4'-Bis[dimethylamino]benzhydrol (Michler's hydrol)-----	SDH, SW.
4,4'-Bis(dimethylamino)benzhydrol,disulfinate----------	SW.
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)---	DSC, DUP, SDH.
Bis[p-(dimethylamino)phenyl]methanesulfonic acid and salt.	ACS.
3,3'-Bis[3',3'-(1'-ethyl-2'-methyl)indolyl]phthalide-----	SDH.
3'-[Bis(2-hydroxyethyl)amino]acetanilide----------	GAF.
3'-[Bis(2-hydroxyethyl)amino]-p-acetoaniside----------	TCH.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester.	DUP, TCH.
3'-[Bis(2-hydroxyethyl)amino]methanesulfoanilide, diacetate ester.	DUP.
4,4'-Bis(p-methoxyphenyl)-3-hexanone----------	LIL.
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.
p-Bromoanisole----------	OPC.
*3-Bromo-7H-benz[de]anthracene-7-one (3-Bromo-benzanthrone).	ACY, DUP, GAF, MAY, TRC.
Bromobenzene, mono----------	DOW.
p-Bromobenzenesulfonyl chloride----------	EK.
p-Bromobenzhydrol----------	PD.
p-Bromobenzoic acid----------	EK.
4-Bromobenzophenone----------	PD.
Bromochlorobenzene----------	DOW.
6-Bromo-5-chlorobenzoxazolone----------	SW.
*2-Bromo-4,6-dinitroaniline----------	AAP, HST, SDC, TRC.
Bromofluorescein----------	ICC.
3-Bromo-2-hydroxy-4,4,5,5-tetramethyl-2-cyclopentene-1-one.	x.
1-Bromo-4-(methylamino)anthraquinone----------	AAP, BDO.
6-Bromo-3-methyl-7H-dibenz[f,ij]isoquinoline-2,7-(3H)-dione.	AAP.
3-(Bromomethyl)thiophene----------	SDW.
1-Bromonaphthalene----------	EK.
2-Bromo-4'-nitroacetophenone----------	GAF.
p-Bromophenol----------	EK.
(p-Bromophenyl)acetonitrile----------	BPC.
4-Bromo-1-phthalamidopentane----------	PD.
α-Bromotoluene----------	EK.
m-Bromotoluene----------	EK.
p-Bromotoluene----------	BPC, EK.
2-Bromo-1,3,5-triethylbenzene----------	DUP.
p-Butoxybenzaldehyde----------	EK.
p-Butoxyphenol----------	ABB.
4-[3-(p-Butoxyphenoxy)propyl]morpholine----------	ABB.
1-(Butylamino)anthraquinone----------	AAP.
p-Butylaniline----------	DUP.
3-(N-Butylanilino)propionitrile----------	TCH.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
2-tert-Butylanthraquinone	DUP.
p-tert-Butylbenzaldehyde	GIV.
n-Butylbenzene	PLC.
sec-Butylbenzene	PLC.
tert-Butylbenzene	EK, MTR, PLC, UOP.
p-tert-Butylbenzoic acid	SHC.
2-tert-Butyl-p-cresol	ACY.
6-tert-Butyl-m-cresol	KPT, PRD.
(n-Butylcyclopentadienyl)cyclopentadienyliron	ARA.
2'-tert-Butyl-4',6'-dimethylacetophenone	GIV.
4-Butyl-α-(dimethylamino)-o-cresol	RH.
2-tert-Butyl-4-ethylphenol	ACY.
N^1-Butyl-4-methoxymetanilamide	ALL.
2-tert-Butyl-5-methylanisole	GIV.
o-sec-Butylphenol	DOW, TNA.
p-sec-Butylphenol	DOW.
o-tert-Butylphenol	TNA.
p-tert-Butylphenol	DOW, PRD, SCN, UCC.
tert-Butylstyrene	DOW.
p-tert-Butyltoluene	GIV, SHC.
5-tert-Butyl-1,2,3-trimethylbenzene	GIV.
5-tert-Butyl-m-xylene	GIV.
6-tert-Butyl-2,4-xylenol	PIT.
d-10-Camphorsulfonic acid	OTC.
Camphosulfonic acid	KF.
Carbazole, refined	SDC.
1-(4-Carbonyl-o-anisyl)-3-methyl-3-(2-sulfoethyl) triazene.	GAF.
4,4'-Carbonylbis [phthalic anhydride]	PCR.
6-Carboxyfluorescein	EK.
[(o-Carboxyphenyl)thio]ethylmercury	LIL.
Cedrene	GIV.
2'-Chloroacetoacetanilide	FMP, HST.
2'-Chloroacetophenone	EK.
3'-Chloroacetophenone	EK.
4'-Chloroacetophenone	LIL.
4'-(Chloroacetyl)acetaniline	DUP.
2'-Chloroacetyl-2,6-dimethyaniline	SDW.
9-Chloroacridine	EK.
m-Chloroaniline	DUP, GAF.
o-Chloroaniline	DUP, MON, USR.
p-Chloroaniline	DUP, MON.
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	GAF.
*1-Chloroanthraquinone	ACY, GAF, MAY, TRC.
2-Chloroanthraquinone	ACY, GAF.
o-Chlorobenzaldehyde	HN, PD.
p-Chlorobenzaldehyde	HN.
4-(p-Chlorobenzamido)anthraquinone-1,2-acridone	GAF.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)	ACY, TRC.
*Chlorobenzene, mono	ACS, DOW, DVC, HK, MON, MTO, PPG, SCC.
p-Chlorobenzenesulfinic acid	TRC.
p-Chlorobenzenesulfonamide	ACY.
p-Chlorobenzenesulfonic acid	MTR, NES.
o-Chlorobenzoic acid	HN.
2-Chlorobenzoxazole	EK.
7-Chlorobenzo[b]thiophen-3(2H)-one	ACS.
5-Chloro-2-benzoxazolinone	SW.
o-(p-Chlorobenzoyl)benzoic acid	ACY.

CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Chlorobenzoyl chloride	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylidine	GAF.
Chloro(p-chlorophenyl)phenylmethane	OPC, UOP.
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.
[(4-Chloro-2,5-dimethylphenyl)thio]acetic acid	ACS.
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	DUP, SDC.
3-Chloro-4,6-dinitrobenzenesulfonic acid	TRC.
4-Chloro-3,5-dinitrobenzenesulfonic acid, potassium salt	x.
4-Chloro-3,5-dinitrobenzoic acid	GAF.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	UOP.
5-Chloro-2,4-disulfonyl-(N-benzyl)aniline	ABB.
N-(2-Chloroethyl)-4-(2-chloro-4-nitrophenylazo)-N-ethylaniline.	GAF.
4-[(2-Chloroethyl)ethylamino]-o-tolualdehyde	GAF.
4-[(2-Chloroethyl)ethylamino]-o-toluidine	AAP.
p-[(2-Chloroethyl)methylamino]benzaldehyde	TRC.
1-Chloro-3-fluorobenzene	EK.
Chloroformic acid, benzyl ester	CTN.
Chloroformic acid, phenyl ester	CTN.
3'-Chloro-4'-hydroxyacetophenone	ABB.
3-Chloro-4-hydroxyphenylacetothiomorpholide	ABB.
7-Chloro-4-hydroxyquinidine	PD.
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	DUP.
5-Chlorometanilic acid	ACS.
*6-Chlorometanilic acid	AAP, GAF, TRC.
N-[(5-Chloro-2-methoxyphenyl)azo]sarcosine	ATL.
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.
Chloronaphthalenes	KPT.
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)	DUP.
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)	DUP.
*1-Chloro-5-nitroanthraquinone	ACY, MAY, TRC.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	DUP, MON.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)	DUP.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	DUP, MON.
2-Chloro-5-nitrobenzenesulfuric acid	TRC.
*4-Chloro-3-nitrobenzenesulfonamide	AAP, 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, GAF, TRC.
4-Chloro-3-nitrobenzenesulfonyl chloride	AAP, SDC.
2-Chloro-4-nitrobenzoic acid	RSA, SAL.
2-Chloro-5-nitrobenzoic acid	TRC.
2-Chloro-5-nitrophenyl methyl sulfone	TRC.
4-Chloro-3-nitrophenyl methyl sulfone	TRC.
2-Chloro-4-nitrotoluene	DUP.
4-Chloro-2-nitrotoluene	DUP.
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.
2-Chloro-1,3-phenylenediamine-5-sulfonic acid	SDC.
2,2'-(m-Chlorophenylimino)diethanol	TCH.
2,2'-(m-Chlorophenylimino)diethanol, diacetate ester	SDC.
2-(o-Chlorophenyl)-2-(methylamine)cyclohexanone	PD.
3-(o-Chlorophenyl)-5-methyl-4-isoxazolecarboxylic acid, acid chloride.	ARS, OTC.
1-(o-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	HST.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	DUP, HST, TRC.
p-Chlorophenyl methyl sulfone	TRC.
2-Chloro-4-phenylphenol	DOW.
o-Chlorophenylphthalimide, potassium salt	PD.
4-Chlorophthalic acid	SW.
3-Chloropropenylbenzene (Cinnamyl chloride-)	SDW.
1-(3-Chloropropyl)-4-methylpiperazine	SK.
7-Chloro-4-quinolinol	SDW.
4-Chlororesorcinol	AAP, GAF.
5-Chlorosalicyaldehyde	EK.
Chlorostyrene, mono	DOW.
2-Chloro-5-sulfamoylbenzoic acid	TRC.
2-Chlorothiophene	FIS.
p-Chlorothiophenol	SFA.
m-Chlorotoluene	HK, HN.
o-Chlorotoluene	HN.
p-Chlorotoluene	HN.
*α-Chlorotoluene (Benzyl chloride)	BPC, MON, VEL.
3-Chloro-o-toluidine [NH_2=1]	DUP.
3-Chloro-p-toluidine [NH_2=1]	DUP.
4-Chloro-o-toluidine [NH_2=1] and hydrochloride	BUC.
5-Chloro-o-toluidine [NH_2=1] (4-Chloro-o-toluidine [CH_3=1]).	DUP.
5-Chloro-o-toluidine hydrochloride [NH_2=1]	ATL, SDH.
N-[(5-Chloro-o-tolyl)azo]sarcosine	ALL, ATL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one	HST.
[(4-Chloro-o-tolyl)thio]acetic acid	GAF.
4-Chloro-α,α,α-trifluoro-3-nitrotoluene	PCW.
6-Chloro-α,α,α-trifluoro-m-toluidine	HK, PCW.
Chlorotriphenylmethane	EK.
α-Chloro-p-xylene	BPC.
2-Chloro-p-xylene	DUP.
4-Chloro-2,5-xylenesulfonyl chloride	ACS.
Cholesteryl nonanoate	EK.
Cholesteryl oleyl carbonate (Mesomorphic)	EK.
Cholestyramine, pure	MRK.
Cholic acid	WIL.
*Cinnamoyl chloride	ARS, UOP, x.
*Cresols:[2]	
m-Cresol	KPT, PRD.
*o-Cresol:	
From coal tar	KPT.
From petroleum	MER, NPC, PRD, SW.
Synthetic	KPT, PIT.
p-Cresol	HPC, SW.
Cresols, mixed:[2]	
*(m,p)-Cresol:	
From coal tar	ACP, KPT.
From petroleum	MER, NPC, PRD.
(o,m,p)-Cresol:	
From coal tar	ACP, KPT.
From petroleum	NPC.
Other	NPC.
*Cresylic acid, refined:[3]	
From coal tar	KPT.
From petroleum	MER, NPC, PRD.
Synthetic	PIT.
Cryptocyanine	EK.
*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.
p-Cyanobenzaldehyde	EK.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde	DUP, GAF.
p-[(2-Cyanoethyl)methylamino]benzaldehyde	DUP, GAF.
α-Cyano-β-methylcinnamic acid, ethyl ester	x.
*Cyclohexane	ASH, CSD, ENJ, 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, DBC, DUP, MON.
Cyclohexanone oxime	ACP, CNP.
Cyclohexene	EK, PLC, USR.
3-Cyclohexene-1-carboxaldehyde-1,2,3,6-tetrahydro-benzaldehyde.	UCC.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Cyclohexene-1,2-dicarboximide	SFC.
4-Cyclohexene-1,2-dicarboxylic anhydride	PTT.
Cyclohexene oxide	USR.
*Cyclohexylamine	ABB, MON RBC, VGC.
N^1-Cyclohexylmetanilamide	CMG.
Cyclohexyl-2-propanone	GIV, LIL.
N-Cyclohexyltaurine, sodium salt	GAF.
Cyclopentadienyliron	ARA.
Cyclopentanol	LIL.
Cyclopentene	ARA, PLC.
p-Cymene	ACS, HN, HPC.
Decabromobiphenyl	MCH.
Deoxycholic acid	WIL.
Diacenaphtho[1,2-j:1,2'-ℓ]fluoranthene (Decacyclene)	SDC.
1,5(and 1,8)-Diacetamidoanthraquinone	AAP.
1,5-Diacetamido-4,8-dibromoanthraquinone	TRC.
3,5-Diacetamido-2,4,6-triiodobenzoic acid	SDW.
3-(Diallylcarbamoyl)-1,2,2-trimethylcyclopentan-carboxylic acid.	WYT.
N^2,N^2-Diallylmelamine	ACY.
Diallylchlorendate	SAR.
*1,4-Diaminoanthraquinone	CMG, DUP, GAF, SDC, TRC.
1,5-Diaminoanthraquinone	GAF, TRC.
1,5(and 1,8)-Diaminoanthraquinone	AAP, TRC.
*2,6-Diaminoanthraquinone	AAP, GAF, TRC.
3,3'-Diaminobenzanilide	TRC.
3,4-Diaminobenzanilide	x.
2,4-Diaminobenzenesulfonic acid [SO_3H=1]	DUP, TRC.
2,5-Diaminobenzenesulfonic acid [SO_3H=1]	TRC.
3,5-Diaminobenzoic acid dihydrochloride	EK.
4,4'-Diamino-1,1'-bianthraquinone-3,3'-disulfonic acid, disodium salts.	TRC.
4,4'-Diamino-2,2'-biphenyldisulfonic acid	ACS, ACY.
1,3-Daiminocyclohexane	DUP.
3,7-Diamino-4,6-dibenzothiophenedisulfonic acid, 5,5-dioxide, disodium salt.	ACY.
1,4-Diamino-2,3-dichloroanthraquinone	CMG, DUP, x.
*1,4-Diamino-2,3-dihydroanthraquinone	AAP, ACY, ATL, DUP, GAF, HSH, ICC, MAY, TRC.
4,8-Diamino-9,10-dihydro-1,5-dihydroxy-9,10-dioxo-2,6-anthracenedisulfonic acid.	TRC.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedi-carboximide.	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone	VPC.
1,8-Diamino-4,5-dihydroxyanthraquinone	AAP.
4,5-Diamino-1,8-dihydroxyanthraquinone	ICI.
1,4-Diamino-5-nitroanthraquinone	GAF.
2,4-Diamino-6-phenyl-s-triazine	RH, VEL.
2,6-Diaminopyridine	NEP, RIL,
*4,4'-Diamino-2,2'-stilbenedisulfonic acid	ACY, CGY, GAF, SDH, TRC, VPC.
3,5-Diamino-p-toluenesulfonic acid [SO_3H=1]	GAF.
3.5-Diamino-2,4,6-triiodobenzoic acid	SDW.
1,4:3,6-Dianhydroglucitol	ICI.
2,5-Dianilinoterephthalic acid	x, x.
Diarylguanidine	DUP.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Diazo-N,N-dimethylaniline-1-amino-8-naphthol-3-sulfonate-6-sulfonic acid, sodium salt.	IDC.
1,5-Dibenzamidoanthraquinone	TRC.
6,11-Dibenzamido-16H-dinaphtho[2,3-α,2',3'-i]carbazole-5,10,15,17-tetrone.	ICI.
*4,5'-Dibenzamido-1,1'-iminodianthraquinone	ACY, GAF, MAY, TRC.
1,5-Dibenzoylnaphthalene	GAF, TRC, VPC.
2-(N,N-Dibenzyl)amino-4-acetamidoanisole	SDC.
Dibenzylazodicarboxylate	KF, WTL.
N,N'-Dibenzylethylenediamine	WYT.
N,N'-Dibenzylethylenediamine diacetate	WYT.
N,N'-Dibenzylidenetoluene-α,α-diamine	SDH.
3',4'-Dibenzyloxy-2-bromobutyrophenone	SDW.
3,4-Dibenzyloxybutyrophenone	SDW.
2,4'-Dibromoacetophenone	EK.
*3,9-Dibromo-7H-benz[de]anthracen-7-one	DUP, GAF, MAY, TRC.
m-Dibromobenzene	EK.
p-Dibromobenzene	DOW.
4,4'-Dibromobenzil	NES.
ar-Dibromoethylbenzene	DOW.
2,6-Dibromo-4-nitroaniline	SDC.
2,6-Dibromo-4-nitrophenol	SW.
α,α-Dibromo-p-nitrotoluene	DUP.
5,13-Dibromo-8,16-pyranthrenedione	ICI.
3,5-Dibromo-3'-trifluoromethylsalicylanilide	PCW.
p-Dibutoxybenzene (DBB)	ALL.
2,5-Dibutoxy-4-morpholinobenzenediazonium sulfate	ALL.
1,1'-Di-n-butyldicyclopentadienyliron	ARA.
2,6-Di-tert-butyl-4-nonylphenol	GAF.
Dibutyltin bis(cyclohexylmaleate)	x.
3',4'-Dichloroacetophenone	EK.
2,4-Dichloroaniline	EK.
3,4-Dichloroaniline	DUP, MON.
2,5-Dichloroaniline and hydrochloride [NH_2=1]	BUC, DUP.
3-(2,4-Dichloroanilino)-1-(2,4,6-trichlorophenyl)-2-pyrazolin-5-one.	EK.
1,5-Dichloroanthraquinone	TRC.
1,5(and 1,8)-Dichloroanthraquinone	AAP.
Dichlorobenzanthrone	ACY.
m-Dichlorobenzene	EK.
*o-Dichlorobenzene	ACS, DOW, DUP, MON, NEV, PPG, SCC, SVT.
o(and p)-Dichlorobenzene	DVC.
*p-Dichlorobenzene	ACS, DOW, DVC, MON, PPG, SCC, SVT.
4,6-Dichloro-m-benzenedisulfonamide	ABB.
2,5-Dichlorobenzenesulfonyl chloride	ACS.
*3,3'-Dichlorobenzidine base and salts	ACS, CWN, LAK, UPJ.
2,2'-Dichlorobenzil	MTO.
2,4-Dichlorobenzoic acid	HN.
4,7-Dichlorobenzo[b]thiophen-3(2H)-one	ACS.
2,4-Dichlorobenzoyl chloride	HN.
Dichlorobenzyl chloride	BPC.
4,4-(2,6-Dichlorobenzylidene)di-2,6-xylidine	DUP.
4,5-Dichloro-3,6-dioxo-1,4-cyclohexadiene-1,2-dicarbonitrile.	ARA.
Dichlorodiphenylsilane	DCC.
2',7'-Dichlorofluorescein	EK.
2-(5,8-Dichloro-1-hydroxy-2-naphthylazo)-1-phenol-4-sulfonamide.	TRC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
5,14-Dichloroisoviolanthrone	ICI.
Di(chloromethyl)diphenyl oxide	BPC.
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene sulfonic acid.	DCC, HST, TRC.
2,6-Dichloro-4-nitroaniline	CWN, SW.
1,2-Dichloro-4-nitrobenzene	DUP, MON.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	DUP.
2,4-Dichlorophenol	DOW, MON.
3,4-Dichlorphenyl isocyanate	OTC.
3-(2',6'-Dichlorophenyl)-5-methyl-isoxazole-4-carbonyl chloride.	OTC.
[(2,5-Dichlorophenyl)thio]acetic acid	ACS.
2,6-Dichloropyrazine	ACY.
3,6-Dichloropyridazine	ACY.
4,7-Dichloroquinoline	PD, SDW.
2,3-Dichloroquinoxaline	EK.
2,5-Dichlorosulfanilic acid [SO_3H=1]	DUP.
2,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
p,α-Dichlorotoluene	HN.
α,α-Dichlorotoluene (Benzal chloride)	BPC.
Dicyclohexylamine	ABB, MON, VGC.
N,N'-3-Dicyclohexyl-2-thiourea	ABB.
*Dicyclopentadiene (includes cyclopentadiene)	ENJ, GOC, MON, UCC, VEL.
Dicyclopentadiene dioxide	VEL.
Didodecylbenzene	CO.
3-Diethanolamine-4-ethoxyacetanilide	HST.
p-Diethanolaminomethoxyacetanilide	HST.
p-Diethoxybenzene	ALL, GAF.
p-(Diethylamino)benzaldehyde	ACS, DUP, TRC.
p-(Diethylamino)benzenediazonium chloride, zinc chloride salt.	HST.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide	PD.
α-[(2-Diethylamino)ethyl]-α-phenylcyclohexanemethanol, hydrochloride.	ACY.
7'-Diethylamino-4-methylcoumarin	GAF.
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)	ACY.
3-[(4'-N,N-Diethylamino)phenylazo]-1H-1,2,4-triazole	TRC.
3-(Diethylamino)propiophenone	ACY.
4-(Diethylamino)-o-tolualdehyde	DUP.
*N,N-Diethylaniline	ACS, ACY, DSC, DUP, SDH.
N,N-Diethyl-m-anisidine	DUP.
Diethylbenzene	DOW, KPP.
N,N-Diethylcyclohexylamine	DUP.
α,α'-Diethyl-4,4'-dimethoxystilbene	LIL.
N,N-Diethylmetanilic acid	DUP.
N^1,N^1-Diethyl-4-methoxymetanilamide	PCW.
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-p-phenylenediamine oxalate	EK.
N,N-Diethyl-m-toluidine	DUP.
N,N-Diethyl-p-toluidine	RSA.
Difurfurylidinepentaerythritol	SDC.
10,11-Dihydro-5H-dibenzo[a,d]cycloheptan-5-one	LIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid (2-Quinizarinsulfonic acid).	AAP, HSH, PAT.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid----	TRC.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt.	GAF, TRC.
9,10-Dihydro-9,10-dioxo-1,5(and 1,8)-anthracenedisulfonic acid and salt.	TRC.
9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid, potassium salt.	GAF, TRC.
*9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt.	AAP, GAF, TRC.
*9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt).	AAP, ACY, MAY, TRC.
9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt (Silver salt).	DUP.
9,10-Dihydro-9,10-dioxo-2,7-anthraquinonedisulfonic acid.	AAP.
[Dihydrogen 3,3''-phthalocyaninedisulfonate(2-)]copper---	ICI.
10,11-Dihydro-5-[3-(methylaminopropyl)]-5H-dibenzo[a,d]-cyclohepten-5-ol.	LIL.
9,10-Dihydro-5-nitro-9,10-dioxo-1-anthracenesulfonic acid.	MAY, TRC.
d-Dihydrophenylglycine----------	KF.
*1,4-Dihydroxyanthraquinone (Quinizarin)----------	AAP, ACY, DUP, GAF, HSH, ICC, MAY, TRC.
1,5-Dihydroxyanthraquinone (Anthrarufin)----------	DUP, 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-Dihydroxybenoic acid----------	ARS.
3,6-Dihydroxybenzonorbornane----------	EK.
2,4-Dihydroxybenzophenone----------	DUP, GAF.
2,4-Dihydroxy-3,3-dimethylbutyrolactone----------	PD.
1,5-Dihydroxy-4,8-dinitroanthraquinone----------	TRC, VPC.
*1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitrochrysazin).	DUP, GAF, ICI, TRC.
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid).	ACS.
6,7-Dihydroxy-2-naphthalenesulfonic acid----------	IDC.
4,5-Dihydroxy-3-(p-sulfophenylazo)-2,7-naphthalenedisulfonic acid, trisodium salt.	EK.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)----	ACY, DUP, ICI, MAY.
m-Diiodobenzene----------	EK.
3,5-Diiodosalicylic acid, lithium salt----------	EK.
Diisopropylbenzene----------	DOW.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
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.
N,N'-[(3,3'-Dimethoxy-4,4'-biphenylylene)bis(azo)]bis (N-methyltaurine).	GAF.
2,5-Dimethoxy-β-methyl-β-nitrostyrene	x.
2,5-Dimethoxy-α-methylphenethylamine	PD, x.
2,5-Dimethoxy-4'-nitrostilbene	x.
4-(2',5'-Dimethoxyphenethyl)aniline hydrochloride	UPJ.
(3,4-Dimethoxyphenyl)acetic acid	LIL.
1-(3,4'-Dimethoxyphenyl)-2-aminopropane	LIL.
2,5-Dimethoxytetrahydrofuran	HEX.
2,5-Dimethoxytoluene	EK.
16,17-Dimethoxyviolanthrone	ICI.
p-(Dimethylamino)benzaldehyde	BJL, GAF.
p-Dimethylaminobenzenediazonium chloride, zinc chloride salt.	HST.
m-(Dimethylamino)benzoic acid	NES, SDH.
5-(p-Dimethylaminobenzylidene)rhodanine	EK.
6-Dimethylamino-2-[2-(2,5-dimethyl-1-phenyl-3-pyrryl)-vinyl]-1-methyl-1-quinolinium methyl sulfate.	x.
m-(Dimethylamino)phenol	ACY.
2,6-Dimethyl-4-aminophenol	x.
*N,N-Dimethylaniline	ACS, ACY, DSC, DUP, SW.
7,12-Dimethylbenz[a]anthracene	EK.
2,5-Dimethylbenzenesulfonic acid	EK.
3,3'-Dimethylbenzidine (o-Tolidine)	CWN.
3,3'-Dimethylbenzidine hydrochloride	CWN, EK.
*N,N-Dimethylbenzylamine	ARS, MLS, RH, SW.
α,α-Dimethylbenzyl hydroperoxide	CLK.
*2,2'-Dimethyl-1,1'-bianthraquinone	ACY, DUP, GAF, TRC.
N,N-Dimethylcyclohexylamine	ABB, DUP.
5,5-Dimethylhydantoin	GLY.
1,1-Dimethyl-3-(m-hydroxyphenyl)urea	CWN.
2,3-Dimethylindole	DUP.
D,L-cis, trans-2,2-Dimethyl-3-isobutenylcyclopropane-1-carboxylic acid, ethyl ester.	BPC.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride.	IDC.
N,N-Dimethyl-1-naphthylamine	EK.
N,N-Dimethyl-p-nitrosoaniline	ACY, EK.
6,6-Dimethyl-2-norpinene-2-ethanol	RDA.
2,4-Dimethylphenol	EK.
N,N-Dimethyl-p-phenylazoaniline	EK.
N,N-Dimethyl-p-phenylenediamine	EKT.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
N,N-Dimethyl-m-phenylenediamine dihydrochloride	EK.
N,N-Dimethyl-p-phenylenediamine dihydrochloride	EK.
N,N-Dimethyl-p-phenylenediamine monohydrochloride	EK.
N,N-Dimethyl-p-phenylenediamine sulfate	EK.
1,4-Dimethylpiperazine	JCC.
N,N-Dimethylsulfanilic acid	AAP.
Dimethyl-5-sulfoisophthalate	x.
N,N-Dimethyl-o-toluidine	RSA.
N,N-Dimethyl-m-toluidine	EK.
N,N-Dimethyl-p-toluidine	EK, RSA.
2,4-Dinitroacetanilide	SDC.
2,4-Dinitroaniline	AAP, SDC.
p-(2,4-Dinitroanilino)phenol	GAF, SDC.
1,5(and 1,8)-Dinitroanthraquinone	AAP, 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-naphthol	TRC.
2,6-Dinitro-4-isopropylphenol	x.
2,4-Dinitrophenol, tech	AAP, SDC.
3,5-Dinitrosalicylic acid	EK, SAL.
*4,4'-Dinitrostilbene-2,2'disulfonic acid	ACY, CGY, DUP, GAF, HN, SDH, TRC.
2,4-Dinitrotoluene	ACS, DUP, RUC.
*2,4(and 2,6)-Dinitrotoluene	AIP, DUP, MOB, UCC.
3,5-Dinitro-p-toluenesulfonic acid	GAF.
Dinonylphenol	GAF, JCC.
Di-tert-pentylphenol	PAS.
Di-tert-amylphenoxyacetyl chloride	EK.
2-(2,4-Di-tert-pentylphenoxy)butyric acid, tech	EK.
1,5-Diphenoxyanthraquinone	VPC.
Diphenylacetonitrile, tech	FIS.
*Diphenylamine	ACY, DUP, ORO, RUC, USR.
2,8-Diphenylanthra[1,2-d:6,5-d']bisthiazole-6,12-dione	GAF.
2,5-Diphenyl-p-benzoquinone	EK.
Diphenyldecyl phosphite	x.
2,2'-Diphenyl-4-dimethylamine	LIL.
N,N'-Diphenylethylenediamine	RPC.
Diphenylmethane	PD.
2,5-Diphenyloxazole	ARA, EK.
4,7-Diphenyl-1,10-phenanthroline	EK.
1,3-Diphenyl-1,3-propanedione	EK.
4,4'-Dithiodianiline	SDC.
2,2'-Dithiodibenzoic acid	LIL, SW.
*1,4-Di-p-toluidinoanthraquinone	ACS, ATL, GAF, TRC.
1,8-Di-p-toluidinoanthraquinone	ICI.
2,5-Di-p-toluidinoterephthalic acid	x, x.
p-Ditolylmercapto-2,5-diethoxybenzenediazonium chloride, zinc chloride salt.	HST.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Divinylbenzene	DOW, FG, KPP.
Dodecylbenzene. (See Alkylbenzenes.)	
Dodecylbenzyl chloride	BPC.
Dodecylmethylbenzyl chloride	RH.
p-Dodecylphenol	GAF, MON, x.
2,2'-(Ethanediylidenedinitrilo)diphenol	EK.
1,2-Epoxy-3-(2-biphenylyl)propane	NES.
p-Ethoxybenzaldehyde	EK.
o-Ethoxybenzoic acid	ACY.
p[p-(Ethoxybenzylidene)amino]benzonitrile	EK.
N-(p-Ethoxybenzylidene)-p-butylaniline	EK.
1-(4-Ethoxy-3-methoxybenzyl)-6,7-dimethoxy-3-methyl-isoquinidine (Dioxyline base).	LIL.
2-Ethoxy-1-naphthoyl chloride	WYT.
m-Ethoxyphenol	BJL.
4-Ethoxy-o-phenylenediamine	TRC.
N'-(6-Ethoxy-3-pyridazinyl)sulfanilamide	ACY.
Ethyl-m-aminobenzoate methanesulfonate	EK.
3-(Ethylamino)-p-cresol	DUP.
α-(N-Ethylamino)-p-toluenesulfonamide	AAP.
3-(Ethylamino)-p-toluenesulfonic acid [SO_3H=1]	DUP.
*N-Ethylaniline, refined	ACS, ACY, DUP.
*2-(N-Ethyanilino)ethanol	DUP, EKT, TCH.
[2-(N-Ethylanilino)ethyl]trimethylammonium chloride	DUP.
3-(N-Ethylanilino)propionitrile	TCH.
α-(N-Ethylanilino)-m-toluenesulfonic acid	GAF, SDH, WJ.
α-(N-Ethylanilino)-p-toluenesulfonic acid	ACS, TRC.
2-Ethylanthraquinone	DUP.
*Ethylbenzene	ATR, CSD, DOW, ENJ, FG, KPP, MCB, MON, SHC, SKC, SNT, SOG, STY, TOC, UCC.
Ethylbenzyl chloride	BPC.
2-(N-Ethyl-N-β-cyanoethyl)-4-acetaminoanisole	SDC.
N-Ethylcyclohexylamine	ABB, USR.
1-Ethylcytosine	PD.
3,3'-Ethylenedioxydiphenol	IDC.
Ethylene glycol dibenzenesulfonate	NES.
3-Ethyl-2-[5-(3-ethyl-2-benzothiazolinylidene)-1,3-pentadienyl]-benzothiazolium iodide.	EK.
Ethyl hydrocaffeate	BJL.
2-[N-Ethyl-p-[(6-methoxy-2-benzothiazolyl)azo]anilino]-ethanol.	TRC.
N-Ethyl-N-(2-methylsulfonamidoethyl)-m-toluidine	WAY.
N-Ethyl-1-naphthylamine	DSC, DUP.
9-Ethyl-3-nitrocarbazole	SDC.
α-Ethyl-3-nitrocinnamic acid	SDW.
N-[2-(N-Ethyl-4-nitroso-m-toluidino)ethyl]methane-sulfonamide.	WAY.
Ethylphenylmalonic acid, diethylester	BPC, MAL.
*N-Ethyl-N-phenylbenzylamine	ACS, DUP, SDH.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)	UCC.
1-Ethylpiperidine	RIL.
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.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3-(N-Ethyl-m-toluidino)propionitrile	DUP, TCH.
α-(N-Ethyl-m-toluidino)-m-toluenesulfonic acid	GAF.
1-Ethynyl-1-cyclohexanol	EKT.
Fluorescein (3',6'-Dihydroxyfluoran)	ICC.
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	QKO.
Furfuryl alcohol	QKO.
Furfurylamine	MLS.
N-Glycolylarsanilic acid, sodium salt	SDW.
Hexabromobenzene	MCH, NES.
Hexabromobiphenyl	MCH.
Hexachlorobenzene	DVC.
Hexachlorocyclopentadiene	MK, 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.
Hexadecachlorophthalocyanine copper complex	TRC.
Hexafluorobenzene	WHC.
1,2,3,4,5,6-Hexahydro-8-hydroxy-cis-6,11-dimethyl-2,6-methano-2-benzazocine.	SDW.
Hexahydro-1-methyl-4-phenyl-1H-azepine-4-carbonitrile	WYT.
Hexamethylenimine	CEL.
Hippuric acid	BPC.
p-Hydrazinobenzenesulfonic acid	GAF, STG, WJ.
2-Hydrazinobenzothiazole	EK.
Hydroquinone, di(β-hydroxyethyl) ether	CTN.
*Hydroquinone, tech	CRS, DA, EKT.
β-Hydroxy-p-acetophenetidide	GAF.
3'-Hydroxyacetophenone	CTN, SDH.
4'-Hydroxyacetophenone	BJL.
6'-Hydroxy-m-acetotoluidide	TRC.
1-(p-Hydroxyanilino)-4-naphthol	TRC.
p-Hydroxybenzaldehyde	DOW.
p-Hydroxybenzenesulfonic acid	DOW, PRD, UPF.
p-Hydroxybenzoic acid	HN.
3'-Hydroxy-2-(N-benzyl-N-methylamino)acetophenone	SDW.
4-Hydroxycoumarin	ABB.
2-Hydroxy-3,5-diiodobenzoic acid	EK.
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.
3-[N-(2-Hydroxyethyl)-m-toluidino]propionitrile	TCH.
3-Hydroxy-N-(2-hydroxyethyl)-2-naphthamide	IDC.
N-[7-Hydroxy-8-[2-hydroxy-5-(methylsulfamoylphenyl)azo]-1-naphthyl]acetamide.	TRC.
6'-Hydroxy-5'-[(2-hydroxy-5-nitrophenyl)azo]-m-acetotoluidide.	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.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Hydroxy-4-isopropylmetanilamide	TRC.
4-Hydroxymetanilamide	DUP, TRC.
4-Hydroxymetanilide	TRC.
3'-Hydroxy-2-(methylamino)acetophenone	CTN.
*3-Hydroxy-2-methylcinchoninic acid	DUP, GAF, ICC, SDC, 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.
6-Hydroxy-2-naphthalenesulfonic acid	SNA, TMS.
8-Hydroxy-1-naphthalenesulfonic acid	VPC.
4-Hydroxy-2-naphthalenesulfonic acid, benzenesulfonate, sodium salt.	GAF.
*6-Hydroxy-2-naphthalenesulfonic acid, sodium salt	ACY, TRC, WJ.
8-Hydroxy-1-naphthalenesulfonic acid, γ-sulfone	TRC.
3-Hydroxy-2-naphthanilide (Naphthol AS)	ATL.
1-Hydroxy-2-naphthoic acid, methyl ester	x.
3-Hydroxy-2-naphthoic acid (B.O.N.)	PCW.
3-Hydroxy-2-naphthoic acid, methyl ester	WAY.
3-Hydroxy-2-naphtho-o-toluidide	ATL.
N-(2-Hydroxy-1-naphthyl)acetamide	ACY.
N-(7-Hydroxy-1-naphthyl)acetamide	GAF, TRC.
N-(7-Hydroxy-1-naphthyl)benzamide	TRC.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
3-[(7-Hydroxy-1-naphthyl)carbamoyl]acetanilide	TRC.
4-Hydroxy-7-(p-nitrobenzamido)-2-naphthalenesulfonic acid.	GAF.
2-Hydroxy-5-nitrometanilic acid	TRC.
1-(2-Hydroxy-4-nitrophenylazo)-2-naphthol	TRC.
2,2'-(2-Hydroxy-4-nitrophenylimino)diethanol	WAY.
2-Hydroxy-4-n-octoxybenzophenone	ACY, CCW.
o-[(p-Hydroxyphenyl)azo]benzoic acid	EK.
3-[(4-(4-Hydroxyphenylazo)2,5-dimethoxyphenylazo)]-benzenesulfonic acid.	TRC.
11α-Hydroxyprogesterone	UPJ.
2'-Hydroxypropiophenone	UOP.
N-Hydroxysuccinimide	BJL, EK.
N-Hydroxysuccinimide, triethylamine salt	BJL.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide inner salt.	ACY.
1-Hydroxy-4-p-toluidinoanthraquinone	GAF, ICI.
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]	TRC.
1,1'-Iminobis[4-nitroanthraquinone]	ACY, TRC.
*1,1'-Iminodianthraquinone (1,1'-Dianthrimide)	ACY, GAF, TRC.
Indole-2,3-dione	TRC.
Indophenol, sodium salt	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
α-Iodotoluene	EK.
Isobutylbenzene	PLC, TNA.
*Isocyanic acid derivatives:	
Bitolylene diisocyanate (TODI)	CWN, UPJ.
p-Chlorophenyl isocyanate	MOB.
Cyclohexylisocyanate	OTC.
Dianisidine diisocyanate (DADI)	CWN, UPJ.
Diphenylmethane-4,4'-diisocyanate (MDI)	ACS, MOB, UPJ.
Phenylisocyanate	MOB, UPJ.
Polyisocyanates (complex)	MOB.
Polymethylene polyphenylisocyanate	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, DUP, MOB, OMC, RUC, UGC, WYN.
p-Toluenesulfonyl isocyanate	CWN.
Other	DUP, MOB, UCC, x.
Isonicotinonitrile	RIL.
2-Isonitrosoacetanilide	TRC, x.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)	ACC.
Isophthalic acid, diallyl ester	FMP.
Isophthalic acid, dimethyl ester	MTR.
Isophthalic acid, diphenyl ester	BJL.
Isophthaloyl chloride	DUP.
p-Isopropylbenzoic acid	EK.
4,4'-Isopropylidenebis [2,6-dibromophenol] (Tetrabromobisphenol A).	DOW.
4,4'-Isopropylidenebis[2,6-dichlorophenol] (Tetrachlorobisphenol A).	DVC.
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	TNA.
Isopropylphenols, mixed	FMP, KPT.
4-Isopropyl-m-phenylenediamine	DUP.
Isoviolanthrone (Isodibenzanthrone)	MAY, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)	EKT, HSH, TRC.
2,4-Lutidine	KPT, RIL.
2,6-Lutidine	RIL.
3,4-Lutidine	UCC.
3,5-Lutidine	RIL.
Malonanilide	PCW.
Mandelonitrile	KF.
Melamine	ACY, PPC.
p-Mentha-1,4(8)-diene	GIV.
*dl-p-Mentha-1,8-diene (Limonene)	ARZ, GIV, HN, 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.
6-Methoxy-8-nitroquinoline	PD.
(p-Methoxyphenyl)acetic acid	UOP.
6-Methoxy-2-(phenylthio)quinoline	EK.
m-Methoxyphenolisocyanate	EK, OTC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4'-Methoxypropiophenone	LIL.
1-(Methylamino)anthraquinone	AAP, ACY, ICI.
1-(Methylamino)-4-p-toluidinoanthraquinone	BDO, GAF, ICI.
N-Methylaniline	ACY, DUP.
2-(N-Methylanilino)ethanol	TCH.
3-(N-Methylanilino)propionitrile	DUP.
5-Methyl-o-anisidine [NH_2=1]	SW.
m-Methylanisole	GIV.
2-Methylanthraquinone	ACY.
3-Methylbenzo[f]quinoline	ACY.
2-Methylbenzothiazole	FMT.
N-Methylbenzylamine	MLS, SDW.
Methylbenzyl ether	UCC.
5-(1-Methylbutyl)barbituric acid	LIL.
N-Methyl-N-carboxyanthranilic anhydride	SW.
3-Methylcholanthrene	EK.
Methylcyclohexane	PLC.
2-Methylcyclohexanone	EK.
1-Methyl-4-cyclohexene-1,2-dicarboxylic anhydride	UCC.
Methylcyclopentadiene	ENJ.
N-Methyldicyclohexylamine	ABB.
4-Methyl-α,α-diphenyl-1-piperazineethanol, dihydrochloride.	ABB.
N-Methyleneaniline	PCW.
4,4'-Methylenebis[2-chloroaniline]	DUP.
4,4'-Methylenebis[N,N-diethylaniline]	ACY, TRC.
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)	ACY, DUP, SDH.
4,4'-Methylenebis(3-hydroxy-2-naphthoic acid) disodium salt.	EK, PD.
2,2'-Methylenebis(4-methyl-6-nonyl-p-cresol)	ACY.
*4,4'-Methylenedianiline	ACS, DOW, MOB, RUC.
5,5'-Methylenedisalicylic acid	HN.
Methylhydroquinone	ARS, EKT.
2-Methylindole	TRC.
2-Methylindole-3-carboxaldehyde	GAF.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazolesulfonic 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	ALD, EK.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	VEL.
Methylnorbornene-2,3-dicarboxylic anhydride, isomers	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.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,5-naphthalenedisulfonic acid.	TRC.
6-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,3-naphthalenedisulfonic acid.	TRC.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO_3H=1].	CMG, TRC.
2-Methyl-5-phenylbenzoxazole	EK.
1-Methyl-1-phenylhydrazine	EK.
1-Methyl-4-phenylisonipecotic acid	SDW.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid	ARS.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid hydrochloride.	ARS.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	ACY, DUP, GAF, SDH, VPC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Methyl-1-piperazine acetic acid, methyl ester	ABB.
3-Methyl-2-pyrazolin-5-one	DUP.
1-Methylpyrrole	DUP.
*α-Methylstyrene	ACP, CLK, DOW, HPC, SKO, USS.
ar-Methylstyrene (Vinyltoluene)	DOW.
2-(Methylsulfonyl)-4-nitroaniline	TRC.
4-(Methylthio)-m-cresol	CRZ.
3-Methylthiophene	SDW.
3-Methyl-1-(thiosulfophenyl)-2-pyrazolin-5-one, sodium salt.	SDC.
3-Methyl-6-p-toluidino-7H-dibenz[f,ij]isoquinoline-2,7(3H)-dione.	ICI.
3-Methyl-1-p-tolyl-2-pyrazolin-5-one	HST.
16-A-Methyltriene carbethoxylate	SCH.
Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	KPT, WTC.
1,4-Naphthalenediol	EK.
1-Naphthalenesulfonic acid	TRC.
2-Naphthalenesulfonic acid	ACY, EK, FIN, 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-3,6-disulfonic acid, monosodium salt	HN.
1-Naphthol-2-sulfonic acid, potassium salt	EK.
1,2-Naphthoquinone	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-Naphthyl acetate	EK.
1-Naphthylamine (α-Naphthylamine)	DUP.
2-(1-Naphthylamino)ethanol	TCH.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	SDC.
N-(1-Naphthyl)ethylenediamine dihydrochloride	RSA.
(2-Naphthyloxy)acetic acid	EK.
(2-Naphthyloxy)acetic acid, sodium salt	BKL.
(2-Naphthylthio)acetic acid	ACY.
Nicotinonitrile (3-Cyanopyridine)	NEP, RIL.
4'-Nitroacetanilide	GAF, TRC.
2'-Nitro-p-acetanisidide	DUP.
4'-Nitro-o-acetanisidide	DUP.
2-Nitro-p-acetophenetidide	AAP.
3'-Nitroacetophenone	SDH.
m-Nitroaniline	x.
o-Nitroaniline	MON.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
p-Nitroaniline	AAP, 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.
p-Nitrobenzamide	ICC.
3'-Nitrobenzanilide	AAP.
*Nitrobenzene	ACS, ACY, DUP, FST, MOB, MON, RUC.
p-Nitrobenzenediazonium tetrafluoroborate	EK.
m-Nitrobenzenesulfonic acid	ACY, DUP.
m-Nitrobenzenesulfonic acid, sodium salt	GAF, MON, MRA, SAL.
p-Nitrobenzenesulfonyl chloride	EK.
5-Nitro-2-benzimidazolinone	DUP.
m-Nitrobenzoic acid	SAL, SDH, WAY.
o-Nitrobenzoic acid	SAL, WAY.
p-Nitrobenzoic acid	DUP.
m-Nitrobenzoic acid, sodium salt	SAL, WAY.
o-Nitrobenzoic acid, sodium salt	WAY.
2-(m-Nitrobenzoyl)-o-acetanisidide	GAF.
p-Nitrobenzoyl azide	EK.
m-Nitrobenzoyl chloride	ARS.
p-Nitrobenzoyl chloride	HK.
p-Nitrobenzyl chloroformate	EK.
4-(p-Nitrobenzyl)pyridine	EK.
4'-Nitro-4-biphenylcarboxylic acid	DUP, TRC.
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	FIS, 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, SDC, UOP.
p-Nitrophenol, sodium salt	DUP.
4'-(p-Nitrophenyl)acetophenone	DUP, FIS.
4-[(p-Nitrophenyl)azo]-o-anisidine	AAP.
4-Nitro-o-phenylenediamine	DUP, FMT.
2-(o-Nitrophenylazo)-p-cresol (OH=1)	TRC.
(p-Nitrophenyl)hydrazine	EK.
2,2'-[(m-Nitrophenyl)imino]diethanol	DUP.
p-Nitrophenyl isocyanate	EK.
2-(p-Nitrophenyl)-2H-naphthol[1,2-d]triazole-6,8-disulfonic acid.	TRC.
1-(m-Nitrophenyl-5-oxo-2-pyrazoline-3-carboxylic acid.	DUP, VPC.
3-Nitrophthalic acid	EK.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3-Nitrophthalic anhydride	EK.
4-Nitrophthalimide	SDC.
2-Nitroresorcinol	EK.
5-Nitrosalicylaldehyde	EK.
1-Nitroso-2-naphthol	EK.
p-Nitrosophenol	ACY, SDC.
4-Nitrostilbene	GAF.
β-Nitrostyrene	CWN.
4-Nitro-4'-(5-sulfo-2H-naphthol[1,2-d]triazol-2-yl)-2,2'-stilbenedisulfonic acid.	TRC.
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]	ACS, ACY, DUP, GAF, SDH, TRC.
3-Nitro-p-toluenesulfonic acid [SO_3H=1]	CMG, TRC.
2-Nitro-m-toluic acid	SAL.
3-Nitro-p-toluic acid, methyl ester	SDH.
*5-Nitro-o-toluidine [NH_2=1]	BUC, DUP, PCW, SDH.
2-Nitro-p-toluidine [NH_2=1]	DUP, GAF, SW.
5-Nitro-2-p-toluidinobenzenesulfonic acid	TRC.
16-Nitroviolanthrone	ICI.
4-Nitro-m-xylene	DUP.
*Nonylphenol	GAF, JCC, MON, RH, UCC.
5-Norbornene-2,3-dicarboxylic anhydride	VEL.
Oxalacetic acid, diethylester, (p-sulfophenyl)-hydrazone.	TRC.
Oxanilide	EK.
*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-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T).	STG.
5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid, ethyl ester.	STG.
4,4'-Oxydianiline	x.
Penicillin G, N-ethylpiperidine salt	MRK.
Pentachloropyridine	DOW.
1,1,3,3,5-Pentamethylindan	GIV.
p-Pentylaniline	EK.
p-Pentyloxybenzoyl chloride	EK.
o-Pentylphenol (o-Amylphenol)	PAS.
p-tert-Pentylphenol	PAS.
3,4,9,10-Penylenetetracarboxylic-3,4:9,10-diimide	ACS.
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.
82%-84%	ACP.
All other	ACP, KPT.
*From petroleum	MER, NPC, PRD.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*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, MON, SHC, SKO, SOC, UCC, USS.
Other	KLM.
Phenolsulfonaphthalein, sodium salt	EK.
Phenolsulfonic acid, lithium salt	SAL.
Phenoxyacetic acid, sodium salt	BPC.
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, OPC, UOP.
4'-Phenylacetophenone	DUP.
Phenylacetyl chloride	BJL.
N-Phenylanthranilic acid	SDW.
Phenylarsine oxide	EK.
p-Phenylazoaniline (C. I. Solvent Yellow 1) and hydrochloride.	ACS, ACY, DUP.
4-(Phenylazo)diphenylamine	EK.
4-(Phenylazo)-1-naphthylamine	DUP.
5-(Phenylazo)salicylic acid	TRC.
1-Phenylbiguanide hydrochloride	SDC.
4-Phenyl-3-buten-2-one	SDW.
Phenyl chloroformate	EK.
α-Phenyl-o-cresol	RBC.
1-Phenylcyclopentanecarboxylic acid	SK.
m-Phenylenediamine	ACY, DUP.
o-Phenylenediamine	DUP, SW, TRC.
p-Phenylenediamine	ACY, DUP, SDC.
p-Phenylenediamine dihydrochloride	EK.
d-Phenylephrine	SDW.
dl-Phenylephrine	SDW.
1-Phenylethanol	UCC.
Phenyl ether (Diphenyl oxide)	DOW.
d(-)Phenylglycine	BKL, KF, OTC, UPJ.
dl-Phenylglycine (racemic)	KF.
N-Phenylglycine	EK.
Phenylglycol ethers	UCC.
d(-)Phenylglycyl chloride hydrochloride	KF, OTC, x.
5-Phenylhydantoin	ABB.
Phenylhydrazine hydrochloride	EK.
Phenyl-1-hydroxy-2-naphthoate	EK.
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanolamine)	TCH.
2,2'-[(Phenyl)imino]diethanol, diacetate ester	SDC.
3,3'-[(Phenyl)imino]dipropionitrile	DUP.
Phenylmalonic acid, diethyl ester	BPC.
3-Phenyl-5-methylisoxazole-4-carbonyl chloride	ARS.
Phenyl-α-naphthylamine	UCC.
o-Phenylphenol	DOW, RCI.
p-Phenylphenol	DOW.
o-Phenylphenol, chlorinated	DOW.
o-Phenylphenol, sodium salt	DOW.
N-Phenyl-p-phenylenediamine	USR.
Phenylphosphinic acid	x.
Phenylphosphonothioic dichloride	SFA.

CYCLIC INTERMEDIATES

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
Phenylphosphorous dichloride	SFA.
*1-Phenyl-1,2-propanedione, 2-oxime	NEP, ORT, PD.
Phenyl-2-propanone	ORT.
1-Phenyl-5-pyrazolone-3-carboxylic acid, ethyl ester	HST.
dl-Phenylsuccinic acid	PD.
Phenyl sulfide	EK.
Phenyl sulfone	NES.
1-Phenyl-2-thiourea	EK.
Phenylundecanoic acid	EK.
Phloroglucinol	MRT.
1(2H)-Phthalazinone	x.
Phthalaldehyde	EK.
Phthalic acid	EK.
Phthalic acid, diallyl ester	FMP.
*Phthalic anhydride	ACP, ENJ, KPT, MON, PTO, RCI, SOC, STP, UCC, USS, WYN.
Phthalide	ACS, FMT.
Phthalimide	DUP, SW.
Phthalimide, potassium salt	EK.
[Phthalocyaninato(2-)]copper	GAF.
Phthalocyanine, copper complex, di-(and tri-)chloromethyl.	TRC.
Phthaloyl chloride (Phthalyl chloride)	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.
Picolinonitrile (2-Cyanopyridine)	NEP.
3-Picolylamine	RIL.
Picric acid (Trinitrophenol)	SDC.
2,5-Piperazinedione	EK.
*Piperidine	ABB, DUP, RIL.
3-Piperidinopropiophenone hydrochloride	ACY, SDW.
Polyethylbenzene	UCC.
Poly-m-phenoxylene	EK.
Potassium cyclohexanebutyrate	EK.
Primuline base	DUP.
Primulinesulfonic acid	ATL.
*Propiophenone	ORT, PD, UCC, UOP.
8,16-Pyranthrenedione	ICI, TRC.
Pyridine, refined:[2]	
2° Pyridine	KPT, NEP, RIL.
Other grades	KPT, NEP.
Pyridine hydrochloride	EK.
3-Pyridinemethanol	RIL.
2(1H)-Pyridone	FMT.
2-Pyrimidinol	CGY.
2(1H)-Pyrimidinone	VAL.
2-Pyrrolidinone	GAF.
Quinaldine	ACS, ACY.

See footnotes at end of table.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
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, UPF.
Resorcinol, monoacetate (non-medicinal grade)[1]	AAP.
β-Resorcylic acid	KPT, UPF.
*Salicylaldehyde	DOW, MTR, RDA.
Salicylaldehyde oxime	EK.
*Salicylic acid, tech	DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex	TRC.
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	ACS, ACY, DUP.
4-Sulfoanthranilic acid	CMG, TRC.
5-Sulfoisophthalic acid, 1,3-dimethyl ester, sodium salt.	PCW.
5-Sulfoisophthalic acid, lithium salt	PCW.
5-Sulfoisophthalic acid, sodium salt	PCW.
2,4' and 4,4'-Sulfonyldiphenol	UPF.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)	MON, UPF.
4-Sulfophthalic acid	CWN, HSC.
*Terephthalic acid	ACC, DUP, EKT, SM.
*Terephthalic acid, dimethyl ester	ACC, DUP, EKT, HPC.
Terephthalic acid, diphenyl ester	BJL.
Terephthaloyldiacetic acid, diethyl ester	PCW.
Terphenyl (Phenylbiphenyl)	MON.
3,3',4,4'-Tetraaminobenzophenone	BJL.
3,3',4,4'-Tetraaminobiphenyl	UPJ.
[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, GAF.
1,2,4,5-Tetrachlorobenzene	DOW, HK.
1,2,4,5-Tetrachloro-3-nitrobenzene	SDH.
Tetrachlorophthalic anhydride	MON.
3,3',4',5-Tetrachlorosalicylanilide	EK.
Tetrachloroviolanthrone	GAF.
Tetrahydrofuran	DUP, QKO.
Tetrahydrofurfuryl methacrylate	SAR.
*1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	ACS, 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.
N,N,N',N'-Tetramethylbenzidine	EK.
p-(1,1,3,3-Tetramethylbutyl)phenol	GAF, PRD, RII, SCN.
N,N,N',N'-Tetramethyl-p-phenylenediamine dihydrochloride.	EK.
[4,4',4'',4'''-Tetranitrophthalocyaninato(2)]copper	SDC.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
3,3'-Thiobis[7H-benz[de]anthracen-7-one]	MAY, TRC.
2,2'-Thiobis[5-nitrobenzenesulfonic acid]	GAF.
4,4'-Thiodianiline	ACY.
*6,6'-Thiodimetanilic acid	ACS, ATL, GAF, LIL.
2-Thiopheneacetic acid	BPC.
2-Thiopheneacetonitrile	BPC.
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, SW.
o-Toluenesulfonamide	MON.
p-Toluenesulfonamide	MON.
o(and p)-Toluenesulfonic acid	MON, NES, UPF.
p-Toluenesulfonic acid	TEN, MON, UPF.
p-Toluenesulfonic acid-2-chloroethyl ester	GAF.
p-Toluenesulfonic acid, methyl ester	ICI.
p-Toluenesulfonic acid, monohydrate	NES.
p-Toluenesulfonyl chloride	MON.
α-Toluenesulfonyl fluoride	EK.
m-Toluic acid	BPC.
o-Toluic acid	BPC.
p-Toluic acid	BPC.
m-Toluidine	DUP.
o-Toluidine	DUP, FST.
p-Toluidine	DUP.
o-Toluidine hydrochloride	AAP, ACY.
p-Toluidine hydrochloride	EK.
Toluidines, mixed	DUP.
2-o-Toluidinoethanol	TCH.
m-Toluidinomethanesulfonic acid	VPC.
o-Toluidinomethanesulfonic acid	GAF, TRC, VPC.
o-(p-Toluoyl)benzoic acid	ACY, DUP.
N-(p-Tolylazo)sarcosine	BUC, GAF.
*4-(o-Tolylazo)-o-toluidine (C. I. Solvent Yellow 3)	ACY, ALL, DUP, GAF, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride	GAF.
1-p-Tolyldodecane	x.
2,2'-(m-Tolylimino)diethanol	EKT, TCH.
2,2'-(m-Tolylimino)diethanol, diacetate ester	SDC.
o-Tolylisocyanate	EK.
p-Tolylisocyanate	EK.
p-Tolylmercuric chloride	EK.
Tolyltriazole	SW.
N,N,N-Tribenzylamine	MLS.
1,2,3(and 1,2,4)-Trichlorobenzene	PPG.
*1,2,4-Trichlorobenzene	DOW, DVC, HK, 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.
Trichlorophenylsilane	DCC, UCC.
Trifluoropropylmethylsiloxane	DCC.
α,α,α,-Trichlorotoluene (Benzotrichloride)	HK, VEL.
α,2,4-Trichlorotoluene	HN.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	CGY, NIL.

TABLE 2.--CYCLIC INTERMEDIATES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
1,3,5-Triethylbenzene	DUP.
α,α,α-Trifluorotoluene	HK.
1,2,4-Trihydroxyanthraquinone	GAF.
4,5,7-Trihydroxyisoflavone	EK.
Trimellitic anhydride, acid chloride	ARS.
1,2,3-Trimethylbenzene (Hemimellitene)	SNT.
1,2,4-Trimethylbenzene (Pseudocumene)	SNT.
1,3,5-Trimethylbenzene (Mesitylene)	SNT.
2,3,3-Trimethyl-3H-indole	GAF.
*1,3,3-Trimethyl-Δ^2,α-indolineacetaldehyde	ACS, ATL, DUP, GAF, TRC, VPC.
*1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)	DUP, GAF, TRC, VPC.
Trimethylphenylammonium chloride	x.
2,4,6-Trimethylpyridine	KPT.
1-(Trimethylsilyl)imidazole	EK.
2,4,6-Trinitrobenzenesulfonic acid	EK.
2,4,7-Trinitrofluoren-9-one	EK, WAY, x.
Triphenylamine	EK.
Triphenylmethane	EK.
Triphenylmethanol	EK.
α,α',α''-Tris(dimethylamino)mesitol	RH.
Tris(2-methyl-1-aziridinyl)phosphine oxide	ARS, ICC.
Tris(1,10-phenanthroline)iron(II) sulfate	EK.
*7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea).	ATL, CMG, GAF, TRC, VPC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	GIV, SLV.
p-Vinylbenzenesulfonic acid, sodium salt	DUP.
Vinylcyclohexane	BFG.
2-Vinylcyclohexene	UCC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine	MAY, RIL.
4-Vinylpyridine	RIL.
Vinyl toluene	FG.
*Violanthrone (Dibenzanthrone)	ACS, ACY, DUP, GAF, ICI, MAY, SDC, TRC.
Xanthene-9-carboxylic acid	MAL.
m-Xylene	ATR, 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.
m-Xylenesulfonic acid	NES.
Xylenol crystals	NES.
2,6-Xylenol, synthetic	GE, KPT.
Xylenols:	
Low b.p	NPC.
Medium b.p	NPC.
Xylidines:	
2,4-Xylidine	DUP.
2,6-Xylidine	DUP.
Original mixture	DUP.
4-(2,4-Xylylazo)-o-toluidine	ACS.
4-(2,5-Xylylazo)-o-toluidine	ACY.
4-(2,4-Xylylazo)-2,5-xylidine	ACS.
4-(Xylylazo)xylidines, mixed	GAF.
All other cyclic intermediates	AAP, ABB, ALL, ALD, ARS, ATL, BJL, BKL, BPC, CMG, CTN, DUP, EK, FMP, GAF, HEX, JCC, KF, LIL, MRK, PCW, PD, PRD, RH, SW, TCH, TKL, UCC, UOP, WYT, x, x, x, x, x.

[1] See report on Medicinal Chemicals for data on medicinal grade of this item.

[2] Does not include manufacturers' identification codes for producers that report to the Division of Fossil Fuels, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Mineral Industry Survey *Coke Producers in the United States in 1972, Nov. 27, 1973.*

CYCLIC INTERMEDIATES

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of cyclic intermediates to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
AAP	American Aniline Products, Inc.
ABB	Abbott Laboratories
ACC	Amoco Chemical Corp.
	Allied Chemical Corp.:
ACP	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.
ARA	Arapahoe Chemical Division of Syntex Corp.
ARK	Armstrong Cork Co.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
ASH	Ashland Oil, Inc.
ASL	Ansul Chemical Co.
ATL	Atlantic Chemical Corp.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.
BDO	Benzenoid Organics, Inc.
BFG	B.F. Goodrich Co., B.F. Goodrich Chemical Co. Div.
ATL	Atlantic Richfield Co., ARCO Chemical Co. Div.
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 Div., 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.
CHP	C. H. Patrick Co., Inc.
CLK	Clark Chemical Corp.
CMG	Nyanza, Inc.
CNP	Nipro, Inc.
CO	Continental Oil Co.
CPI	Commonwealth Petrochemicals, Inc.
CRS	Carus Corp., Carus Chemical Co.
CRZ	Crown Zellerbach Corp., Chemical Products Div.
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.
FG	Foster Grant Co., Inc.
FIN	Fine Organics, Inc.
FIS	Fisher Chemical Co., Inc.
FMP	FMC Corp., Industrial Chemical Div. Business Group
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.
GOC	Gulf Oil Corp., Gulf Oil Co. Chemical Co.- U.S.
GRS	Champlin Petroleum Co.
GYR	Goodyear Tire & Rubber Co.
HCR	Hercor Chemical Corp.
HEX	Hexagon Laboratories, Inc.
HK	Hooker Chemical Corp.
HN	Tenneco Chemicals, Inc.
HPC	Hercules, Inc.
HSC	Chemetron Corp., Pigments Division
HSH	Harshaw Chemical Co., Division of Kewanee Oil Co.
HST	American Hoechst Corp.
ICC	Inmont Corp.
ICI	ICI America, Inc. & Specialty Chemicals Div.
IDC	Industrial Dyestuff Co.
JCC	Jefferson Chemical Co., Inc.
KF	Kay-Fries Chemicals, Inc.
KLM	Kalama Chemical Co.
KPP	Sinclair-Koppers Co.
KPT	Koppers Co., Inc., Organic Materials Division
LAK	Lakeway Chemicals, Inc.
LIL	Eli Lilly & Co. & 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.
MET	M and T Chemicals, Inc.
MLS	Miles Laboratories, Inc., Marschall 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 Divisio
NCI	Union Camp Corp., Chemicals Division
NEP	Nepera Chemical Co., Inc.
NES	Nease Chemical Co., Inc.
NEV	Neville Chemical Co.
NIL	Nilok Chemicals, Inc.
NOR	Norwich Pharmacal Co.
NPC	Northwest Petrochemical Corp.

TABLE 3.--CYCLIC INTERMEDIATES: DIRECTORY OF MANUFACTURERS, 1972--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 Div.
PAS	Pennwalt Chemicals 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	Phılllips 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	Rhom & 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 Div.
	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.
SNA	Sun Chemical Corp.
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	Shell & Commonwealth Chemicals, Inc.
TCH	Emery Industries, Inc., Trylon Chemical Div.
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	Trade Enterprises, Inc.
TX	Texaco, Inc.
UCC	Union Carbide Corp.
UOC	Union Oil Co. of California
UOP	Universal Oil Products Co., UOP Chemical Div.
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 Div.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Division
WCC	Witco Chemical Corp., Witfield Chemical Div.
WHC	Whittaker Corp., Research & Development
WIL	Wilson & Co., Inc., Wilson Laboratories Div.
WJ	Warner-Jenkinson Manufacturing Co.
WTC	Witco Chemical Co., Inc.
WYN	BASF-Wyandotte Corp.
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 1 of the Appendix.

DYES

Domestic 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 dying 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 1972 amounted to 263 million pounds, or 8.0 percent more than the 244 million pounds produced in 1971 (table 1).[1] Sales of dyes in 1972 amounted to 255 million pounds, valued at $480 million, compared with 230 million pounds, valued at $423 million, in 1971. In terms of quantity, sales of dyes in 1972 were 10.9 percent larger than in 1971 and in terms of value, 13.5 percent larger. The average unit value of sales of all dyes in 1972 was $1.88 per pound, compared with $1.84 per pound in 1971.

For many important dyes, production was larger in 1972 than in 1971. Vat Yellow 2 production increased 49.4 percent from 2,211,000 pounds in 1971 to 3,304,000 pounds in 1972. Basic Yellow 11 production increased by 45.5 percent from 1,174,000 pounds in 1971 to 1,708,000 pounds in 1972. Other important dyes whose output in 1972 was substantially larger than in 1971 were Acid Red 88 (43.0 percent increase), Direct Yellow 44 (28.0 percent increase), Disperse Yellow 54 (27.0 percent increase), Direct Black 38 (26.8 percent increase), and Disperse Red 60 (19.0 percent increase).

On the other hand, the production of several important dyes was smaller in 1972 than in 1971. Production of Vat Green 1 was 1,800,000 pounds in 1972, or 54.6 percent less than the 3,966,000 pounds produced in 1971. Production of Vat Green 3 was 1,402,000 pounds in 1972, or 32.3 percent less than the 2,070,000 pounds produced in 1971. The production of Disperse Blue 3 was 29.9 percent less in 1972 than in 1971; that of Disperse Yellow 23 was 29.3 percent smaller; that of FD&C Yellow No. 6 was 20.5 percent smaller; that of Direct Blue 2 was 19.8 percent smaller; and that of Vat Black 25 was 10.4 percent smaller.

Table 1A is a summary of production and sales of dyes in 1972 by class of application. Five application classes of dyes accounted for 72.1 percent of all dyes produced in 1972. Vat dyes accounted for 20.9

[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 the total; disperse dyes for 15.2 percent; direct dyes for 14.3 percent; acid dyes for 11.3 percent; and fluorescent brighteners for 10.4 percent. Of these five classes of dyes, the production of vat dyes was 8.3 percent larger in 1972 than in 1971; the production of disperse dyes was 14.5 percent larger; the production of acid dyes was 11.0 percent larger; the production of direct dyes was 8.5 percent larger; and the production of fluorescent brighteners was 8.4 percent smaller.

1972 production of the remaining classes increased over that of 1971 as follows: Food, drug and cosmetic colors (17.6 percent); solvent dyes (17.2 percent); mordant dyes (13.0 percent); basic dyes (8.6 percent). Production of two classes decreased: Azoic compositions (28.3 percent) and fiber-reactive dyes (0.4 percent).

Table 1B shows production and sales of dyes by chemical class. In 1972, three chemical classes of dyes accounted for about two-thirds of all dyes produced. Azo dyes accounted for 35.0 percent of the total; anthraquinone dyes for 17.7 percent of the total; and stilbene dyes for 11.7 percent. The production of azo dyes was 12.2 percent larger in 1972 than in 1971, that of stilbene dyes was 3.9 percent smaller, and that of the anthraquinone dyes, 1.3 percent smaller.

Of the remaining chemical classes of dyes for which statistics are published five exceeded 1971 production by the following percentages; methine (43.4), quinoline (20.9), triarylmethane (15.4), xanthene (10.1), and cyanine (5.2). Production of five other classes, however, fell below 1971 levels; phthalocyanine (23.7), nitro (5.9), oxazine (5.7), thiazole (4.6) and azoic dyes and components (1.2).

DYES

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972

[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	263,304	254,536	479,688	$1.88
ACID DYES				
Total	29,739	28,039	71,663	2.56
Acid yellow dyes, total	6,860	6,323	16,426	2.60
Acid Yellow 11	53	50	90	1.80
Acid Yellow 17	470	549	1,224	2.23
Acid Yellow 23	280	280	662	2.36
Acid Yellow 36	164	176	318	1.81
Acid Yellow 38	...	118	371	3.14
Acid Yellow 40	100	171	545	3.19
Acid Yellow 42	88	78	151	1.94
Acid Yellow 54	110	77	179	2.32
Acid Yellow 65	78	...	...	...
Acid Yellow 76	38	43	115	2.67
Acid Yellow 99	47	65	170	2.62
Acid Yellow 151	1,322	1,231	2,736	2.22
Acid Yellow 159	469	459	1,285	2.80
All other	3,641	3,026	8,580	2.84
Acid orange dyes, total	4,311	4,323	8,464	1.96
Acid Orange 7	492	570	688	1.21
Acid Orange 8	379	315	465	1.48
Acid Orange 10	288	280	415	1.48
Acid Orange 24	732	870	1,339	1.54
Acid Orange 60	243	222	645	2.91
Acid Orange 64	...	53	158	2.98
Acid Orange 74	89	95	229	2.41
Acid Orange 86	193	182	361	1.98
Acid Orange 116	799	722	1,656	2.29
All other	1,096	1,014	2,508	2.47
Acid red dyes, total	6,072	5,538	14,478	2.61
Acid Red 1	380	363	375	1.03
Acid Red 4	113	102	225	2.21
Acid Red 18	106	115	151	1.31
Acid Red 26	38	...	...	...
Acid Red 37	85	54	199	3.69
Acid Red 73	236	246	789	3.21
Acid Red 85	126	152	349	2.30
Acid Red 88	1,171	975	1,552	1.59
Acid Red 89	42	42	65	1.55
Acid Red 99	169	144	314	2.18
Acid Red 114	424	362	958	2.65
Acid Red 115	39	53	130	2.45
Acid Red 137	200	155	592	3.82
Acid Red 151	981	926	2,014	2.17
Acid Red 182	72	102	305	2.99
Acid Red 186	...	33	69	2.09
Acid Red 266	268	238	1,151	4.84
Acid Red 337	210	207	843	4.07
All other	1,412	1,269	4,397	3.46

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
ACID DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Acid violet dyes, total	584	477	1,224	$2.57
Acid Violet 1	29	26	45	1.73
Acid Violet 3	123	96	194	2.02
Acid Violet 7	136	107	156	1.46
Acid Violet 12	...	26	40	1.54
Acid Violet 17	...	44	107	2.43
Acid Violet 43	24	18	68	3.78
Acid Violet 49	...	120	366	3.05
All other	272	40	248	6.20
Acid blue dyes, total	5,343	5,021	16,472	3.28
Acid Blue 7	35	35	130	3.71
Acid Blue 9	1,535	1,441	1,983	1.38
Acid Blue 25	368	368	1,979	5.38
Acid Blue 27	126	119	446	3.75
Acid Blue 40	532	516	2,253	4.37
Acid Blue 41	24	27	112	4.15
Acid Blue 43	...	35	204	5.83
Acid Blue 45	123	222	841	3.79
Acid Blue 62	51	51	317	6.22
Acid Blue 78	38	36	295	8.19
Acid Blue 113	842	729	1,834	2.52
Acid Blue 118	74	32	70	2.19
Acid Blue 120	34	...	...	...
Acid Blue 158 and 158A	121	168	358	2.13
Acid Blue 230	...	39	264	6.77
All other	1,440	1,203	5,386	4.48
Acid green dyes, total	801	809	2,540	3.14
Acid Green 3	145	157	283	1.80
Acid Green 9	...	11	46	4.18
Acid Green 16	80	67	303	4.52
Acid Green 20	61	53	114	2.15
Acid Green 25	323	342	1,155	3.38
All other	192	179	639	3.57
Acid brown dyes, total	1,570	1,462	3,471	2.37
Acid Brown 14	745	733	1,473	2.01
All other	825	729	1,998	2.74
Acid black dyes, total	4,198	4,086	8,588	2.10
Acid Black 1	1,043	918	1,652	1.80
Acid Black 24	54	45	93	2.07
Acid Black 52	984	828	1,632	1.97
Acid Black 107	319	333	976	2.93
All other	1,798	1,962	4,235	2.16
AZOIC DYES AND COMPONENTS				
Azoic Compositions				
Total	2,515	2,021	3,397	1.68
Azoic Yellow 1	11	9	9	1.00
Azoic Yellow 2	37	...	...	...
Azoic Orange 3	56	...	...	...
Azoic Red 1	459	...	...	...
Azoic Red 2	...	33	64	1.94
Azoic Red 6	264	...	...	...

See footnotes at end of table.

DYES

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
AZOIC DYES AND COMPONENTS--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Azoic Compositions--Continued				
Azoic Blue 3	322	230	371	$1.61
Azoic green dyes	18	15	48	3.20
Azoic brown dyes, total	388	336	614	1.83
Azoic Brown 9	270	229	270	1.18
All other	118	107	344	3.21
Azoic black dyes	509	389	1,073	2.76
All other azoic compositions	451	1,009	1,218	1.21
Azoic Diazo Components, Bases (Fast Color Bases)				
Total	1,226	743	1,352	1.82
Azoic Diazo Component 4, base	196	129	135	1.05
Azoic Diazo Component 10, base	...	17	49	2.88
Azoic Diazo Component 32, base	251	...	...	...
All other azoic diazo components, bases	779	597	1,168	1.96
Azoic Diazo Components, Salts (Fast Color Salts)				
Total	3,569	3,178	3,811	1.20
Azoic Diazo Component 1, salt	400	369	495	1.34
Azoic Diazo Component 3, salt	604	569	473	.83
Aozic Diazo Component 5, salt	477	453	646	1.43
Azoic Diazo Component 8, salt	103	107	113	1.06
Azoic Diazo Component 9, salt	331	308	252	.82
Azoic Diazo Component 10, salt	27	27	41	1.52
Azoic Diazo Component 11, salt	...	31	56	1.81
Azoic Diazo Component 12, salt	418	358	391	1.09
Azoic Diazo Component 13, salt	452	372	331	.89
Azoic Diazo Component 28, salt	...	165	193	1.17
Azoic Diazo Component 49, salt	88	84	267	3.18
All other azoic diazo components, salts	669	335	553	1.65
Azoic Coupling Components (Naphthol AS and Derivatives)				
Total	2,905	2,360	5,693	2.41
Azoic Coupling Component 14	291	146	353	2.42
Azoic Coupling Component 15	...	45	299	6.64
Azoic Coupling Component 18	585	283	410	1.45
Azoic Coupling Component 19	10	10	57	5.70
Azoic Coupling Component 21	179	132	308	2.33
Azoic Coupling Component 29	44	...	...	...
All other azoic coupling components	1,796	1,744	4,266	2.45
BASIC DYES				
Total	17,999	17,824	48,876	2.74
Basic yellow dyes, total	5,395	4,930	13,546	2.75
Basic Yellow 2	404	565	1,179	2.09
Basic Yellow 11	1,708	1,506	4,530	3.01
Basic Yellow 13	201	221	541	2.45
All other	3,082	2,638	7,296	2.77

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
BASIC DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Basic orange dyes, total	1,700	1,936	4,385	$2.26
Basic Orange 2	446	483	774	1.60
Basic Orange 21	873	917	2,398	2.62
All other	381	536	1,213	2.26
Basic red dyes, total	2,536	2,544	7,787	3.06
Basic Red 13	56	41	133	3.24
Basic Red 14	715	664	1,627	2.45
All other	1,765	1,839	6,027	3.28
Basic violet dyes, total	3,736	3,474	8,359	2.41
Basic Violet 1	1,224	930	1,649	1.77
Basic Violet 16	492	450	1,454	3.23
All other	2,020	2,094	5,256	2.51
Basic blue dyes, total	3,163	3,240	11,172	3.45
Basic Blue 5	9	9	55	6.11
All other	3,154	3,231	11,117	3.44
Basic Green 1	61	121	423	3.50
Basic Brown 1	147	144	259	1.80
Basic Brown 4	480	504	806	1.60
All other basic dyes	781	931	2,139	2.30
DIRECT DYES				
Total	37,672	34,519	59,167	1.71
Direct yellow dyes, total	11,595	10,792	19,448	1.80
Direct Yellow 4	498	497	877	1.76
Direct Yellow 6	494	467	844	1.81
Direct Yellow 11	2,439	2,348	2,198	.94
Direct Yellow 12	201	207	673	3.25
Direct Yellow 28	237	234	539	2.30
Direct Yellow 29	32	43	98	2.28
Direct Yellow 44	1,116	911	1,915	2.10
Direct Yellow 50	504	485	973	2.01
Direct Yellow 84	721	720	1,084	1.51
Direct Yellow 105	268	239	554	2.32
Direct Yellow 106	1,068	893	1,592	1.78
All other	4,017	3,748	8,101	2.16
Direct orange dyes, total	2,234	1,862	4,642	2.49
Direct Orange 8	109	117	149	1.27
Direct Orange 15	288	278	363	1.31
Direct Orange 26	70	59	134	2.27
Direct Orange 29	102	78	228	2.92
Direct Orange 34	112	110	303	2.75
Direct Orange 37	26	31	78	2.52
Direct Orange 39	228	154	364	2.36
Direct Orange 72	325	271	608	2.24
Direct Orange 73	113	102	427	4.19
Direct Orange 81	80	...	...	...
Direct Orange 102	415	306	842	2.75
All other	366	356	1,146	3.22
Direct red dyes, total	4,759	4,552	10,923	2.40
Direct Red 1	128	140	278	1.99
Direct Red 2	203	220	474	2.15
Direct Red 4	66	52	176	3.38

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
DIRECT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Direct red dyes--Continued				
Direct Red 16	133	98	220	$2.24
Direct Red 23	244	210	636	3.03
Direct Red 24	361	368	786	2.14
Direct Red 26	105	135	376	2.79
Direct Red 28	174	178	295	1.66
Direct Red 31	...	12	44	3.67
Direct Red 37	107	112	344	3.07
Direct Red 39	162	148	433	2.93
Direct Red 72	271	297	716	2.41
Direct Red 75	17	14	56	4.00
Direct Red 79	225	169	518	3.07
Direct Red 80	671	536	1,002	1.87
Direct Red 81	533	552	1,350	2.45
Direct Red 83	251	200	331	1.66
All other	1,108	1,111	2,888	2.60
Direct violet dyes, total	261	282	924	3.28
Direct Violet 9	151	173	428	2.47
Direct Violet 51	24	14	96	6.86
All other	86	95	400	4.21
Direct blue dyes, total	7,127	6,620	11,896	1.80
Direct Blue 1	378	320	751	2.35
Direct Blue 2	1,025	926	1,109	1.20
Direct Blue 6	288	298	276	.93
Direct Blue 8	234	191	428	2.24
Direct Blue 15	237	158	293	1.85
Direct Blue 22	23	15	35	2.33
Direct Blue 25	65	56	159	2.84
Direct Blue 71	118	118	368	3.12
Direct Blue 76	68	65	102	1.57
Direct Blue 78	133	129	420	3.26
Direct Blue 80	565	476	879	1.85
Direct Blue 86	618	652	1,081	1.66
Direct Blue 98	340	268	426	1.59
Direct Blue 120 and 120A	146	142	381	2.68
Direct Blue 126	144	121	388	3.21
Direct Blue 218	1,099	1,101	2,271	2.06
All other	1,646	1,584	2,529	1.60
Direct green dyes, total	854	714	1,788	2.50
Direct Green 1	234	199	282	1.42
Direct Green 6	404	273	495	1.81
All other	216	242	1,011	4.18
Direct brown dyes, total	1,712	1,681	2,716	1.62
Direct Brown 2	258	249	444	1.78
Direct Brown 31	121	113	356	3.15
Direct Brown 74	66	...	...	...
Direct Brown 95	506	458	630	1.38
Direct Brown 111	30	40	173	4.33
Direct Brown 154	391	460	470	1.02
All other	340	361	643	1.78
Direct black dyes, total	9,130	8,016	6,830	.85
Direct Black 4	99	106	141	1.33
Direct Black 9	...	38	67	1.76
Direct Black 22	853	632	485	.77
Direct Black 38	6,701	6,273	4,566	.73
Direct Black 51	69	60	203	3.38

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
DIRECT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Direct black dyes--Continued				
Direct Black 80	813	403	470	$1.17
All other	595	504	898	1.78
DISPERSE DYES				
Total	39,927	38,327	107,576	2.81
Disperse yellow dyes, total	8,039	8,293	17,019	2.05
Disperse Yellow 3	2,810	3,143	4,425	1.41
Disperse Yellow 5	75	...	...	...
Disperse Yellow 23	820	1,010	1,473	1.46
Disperse Yellow 33	358	296	514	1.74
Disperse Yellow 34	158	160	276	1.73
Disperse Yellow 42	714	660	1,333	2.02
Disperse Yellow 54	1,030	1,048	4,076	3.89
All other	2,074	1,976	4,922	2.49
Disperse orange dyes, total	4,746	4,039	8,632	2.14
Disperse Orange 3	112	99	181	1.83
Disperse Orange 5	50	47	98	2.09
Disperse Orange 17	130	129	166	1.29
Disperse Orange 25	492	470	914	1.94
All other	3,962	3,294	7,273	2.21
Disperse red dyes, total	8,164	7,665	26,234	3.42
Disperse Red 1	262	283	502	1.77
Disperse Red 5	105	70	99	1.41
Disperse Red 11	128	88	634	7.20
Disperse Red 15	76	89	280	3.15
Disperse Red 17	154	169	256	1.51
Disperse Red 55	444	489	3,016	6.17
Disperse Red 60	1,845	1,685	5,698	3.38
Disperse Red 65	230	219	490	2.24
All other	4,920	4,573	15,259	3.34
Disperse violet dyes, total	963	919	3,503	3.81
Disperse Violet 1	136	96	373	3.89
Disperse Violet 4	38	25	93	3.72
Disperse Violet 27	233	230	496	2.16
All other	556	568	2,541	4.47
Disperse blue dyes, total	16,074	15,665	48,679	3.11
Disperse Blue 1	351	330	1,641	4.97
Disperse Blue 3	1,300	1,289	2,266	1.76
Disperse Blue 7	385	376	2,892	7.69
Disperse Blue 64	433	491	946	1.93
Disperse Blue 95	22	...	...	...
All other	13,583	13,179	40,934	3.11
Disperse black dyes, total	1,445	1,268	2,238	1.76
Disperse Black 1	335	273	465	1.70
All other	1,110	995	1,773	1.78
All other disperse dyes	496	478	1,271	2.66

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--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	3,699	3,562	15,582	$4.37
Reactive yellow dyes	481	482	2,099	4.35
Reactive blue dyes	749	739	4,324	5.85
All other reactive dyes	2,469	2,341	9,159	3.91
FLUORESCENT BRIGHTENING AGENTS				
Total	27,321	27,442	38,269	1.39
Fluorescent Brightening Agent 28	1,604	1,580	2,010	1.27
All other fluorescent brightening agents	25,717	25,862	36,259	1.40
FOOD, DRUG, AND COSMETIC COLORS				
Total	4,644	4,609	19,788	4.29
Food, Drug, and Cosmetic Dyes				
Total	4,351	4,323	17,752	4.11
FD&C Red No. 2	971	1,088	2,923	2.69
FD&C Red No. 3	292	265	2,356	8.89
FD&C Yellow No. 5	1,109	1,167	3,601	3.09
FD&C Yellow No. 6	812	890	2,376	2.67
All other food, drug, and cosmetic dyes	1,167	913	6,496	7.12
Drug and Cosmetic and External Drug and Cosmetic Dyes				
Total	293	286	2,036	7.12
D&C Green dyes	23	...	...	...
D&C Orange No. 4	...	4	51	12.75
D&C red dyes, total	191	185	958	5.18
D&C Red No. 7	...	24	102	4.25
D&C Red No. 19	15	14	107	7.64
D&C Red No. 21	13	15	59	3.93
D&C Red 36	9	7	29	4.14
All other	154	125	661	5.29
All other drug & cosmetic and external drug & cosmetic dyes	79	97	1,027	10.59
MORDANT DYES				
Total	1,465	1,711	2,567	1.50
Mordant yellow dyes	80	91	160	1.76
Mordant orange dyes	217	211	353	1.67
Mordant red dyes	76	81	251	3.10
Mordant brown dyes, total	154	225	496	2.20
Mordant Brown 1	40	42	90	2.14
Mordant Brown 33	...	40	96	2.40
All other	114	143	310	2.17
Mordant black dyes, total	895	1,077	1,236	1.15
Mordant Black 11	439	651	857	1.32
Mordant Black 17	151	139	164	1.18
All other	305	287	215	.75

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MORDANT DYES--Continued				
All other mordant dyes	43	26	71	$2.73
SOLVENT DYES				
Total	12,468	11,959	22,319	1.87
Solvent yellow dyes, total	1,617	1,579	3,685	2.33
Solvent Yellow 14	593	614	893	1.45
All other	1,024	965	2,792	2.89
Solvent orange dyes, total	640	568	1,407	2.48
Solvent Orange 3	121	78	154	1.97
All other	519	490	1,253	2.56
Solvent red dyes, total	2,673	2,673	5,027	1.88
Solvent Red 26	262	260	605	2.33
Solvent Red 49	49	51	362	7.10
All other	2,362	2,362	4,060	1.72
Solvent blue dyes, total	1,691	1,662	6,001	3.61
Solvent Blue 38	147	131	669	5.11
All other	1,544	1,531	5,332	3.48
Solvent Green 3	...	84	272	3.24
Solvent Brown 12	33	19	60	3.16
All other solvent dyes	5,814	5,374	5,867	1.09
VAT DYES				
Total	55,140	56,311	63,312	1.12
Vat yellow dyes, total	4,702	4,648	8,041	1.73
Vat Yellow 2, 8-1/2%	3,304	3,319	3,635	1.10
Vat Yellow 4, 12-1/2%	354	218	718	3.29
All other	1,044	1,111	3,688	3.32
Vat orange dyes, total	2,671	2,828	9,017	3.19
Vat Orange 1, 20%	900	999	3,645	3.65
Vat Orange 2, 12%	328	416	904	2.17
Vat Orange 3, 13-1/2%	...	13	115	8.85
Vat Orange 9, 12%	...	92	249	2.71
Vat Orange 15, 10%	520	495	1,317	2.66
All other	923	813	2,787	3.43
Vat red dyes, total	1,295	1,058	3,482	3.29
Vat Red 1, 13%	529	432	1,028	2.38
Vat Red 13, 11%	417	296	1,056	3.57
All other	349	330	1,398	4.24
Vat violet dyes, total	921	1,094	3,000	2.74
Vat Violet 1, 11%	177	267	896	3.36
Vat Violet 9, 12%	186	171	784	4.58
Vat Violet 13, 6-1/4%	373	504	647	1.28
All other	185	152	673	4.43
Vat blue dyes, total	32,038	31,943	19,328	.61
Vat Blue 6, 8-1/3%	2,911	4,430	5,256	1.19
Vat Blue 18, 13%	656	...	...	...
All other	28,471	27,513	14,072	.51

See footnotes at end of table.

TABLE 1.--DYES: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
VAT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Vat green dyes, total	5,381	6,152	6,129	$1.00
Vat Green 1, 6%	1,800	2,187	1,721	.79
Vat Green 3, 10%	1,402	1,887	2,101	1.11
All other	2,179	2,078	2,307	1.11
Vat brown dyes, total	4,818	4,986	9,758	1.96
Vat Brown 1, 11%	826	875	1,549	1.77
Vat Brown 3, 11%	644	808	1,623	2.01
All other	3,348	3,303	6,586	1.99
Vat black dyes, total	3,314	3,602	4,557	1.27
Vat Black 25, 12-1/2%	1,381	1,503	1,746	1.16
Vat Black 27, 12-1/2%	606	688	1,024	1.49
All other	1,327	1,411	1,787	1.27
All other dyes[2]	23,015	21,931	16,316	.74

[1] Calculated from rounded figures.

[2] Includes oxidation bases, ingrain dyes, sulfur dyes, and miscellaneous dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1A.--DYES: U.S. PRODUCTION AND SALES, BY CLASS OF APPLICATION, 1972

Class of application	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	263,304	254,536	479,688	$1.88
Acid	29,739	28,039	71,663	2.56
Azoic dyes and components:				
Azoic compositions	2,515	2,021	3,397	1.68
Azoic diazo components, bases (Fast color bases)	1,226	743	1,352	1.82
Azoic diazo components, salts (Fast color salts)	3,569	3,178	3,811	1.20
Azoic coupling components (Naphthol AS derivatives)	2,905	2,360	5,693	2.41
Basic	17,999	17,824	48,876	2.74
Direct	37,672	34,519	59,167	1.71
Disperse	39,927	38,327	107,576	2.81
Fiber-reactive	3,699	3,562	15,582	4.37
Fluorescent brightening agents	27,321	27,442	38,269	1.39
Food, drug, and cosmetic colors	4,644	4,609	19,788	4.29
Mordant	1,465	1,711	2,567	1.50
Solvent	12,468	11,959	22,319	1.87
Vat	55,140	56,311	63,312	1.12
All other[2]	23,015	21,931	16,316	.74

[1] Calculated from rounded figures.
[2] Includes oxidation bases, ingrain dyes, sulfur dyes, and miscellaneous dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 1B.--DYES: U.S. PRODUCTION AND SALES, BY CHEMICAL CLASS, 1972

Chemical class	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*per pound*
Total	263,304	254,536	479,688	$1.88
Aminoketone	63	29	172	5.93
Anthraquinone	46,589	48,105	125,399	2.61
Azo, total	92,028	87,398	191,561	2.19
Monoazo	39,018	38,431	95,724	2.49
Disazo	29,964	28,403	57,988	2.04
Trisazo	10,540	9,519	10,985	1.15
Polyazo	2,691	2,270	3,641	1.60
Not specified	9,815	8,775	23,223	2.65
Azoic	10,264	8,365	14,316	1.71
Cyanine	916	885	2,168	2.45
Ketone imine	455	611	1,318	2.16
Methine	5,576	5,171	14,752	2.85
Nitro	1,376	1,253	2,429	1.94
Oxazine	480	537	2,004	3.73
Phthalocyanine	1,381	1,474	3,365	2.28
Quinoline	2,705	2,278	7,876	3.46
Stilbene	30,898	30,538	38,122	1.25
Thiazole	352	365	1,032	2.83
Triarylmethane	8,903	8,443	20,386	2.41
Xanthene	1,167	1,052	6,262	5.95
All other[2]	60,151	58,032	48,526	.84

[1] Calculated from rounded figures.
[2] Includes production and sales of azine, coumarin, indigoid, nitroso, oxidation bases, sulfur, thiazine, 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, 1972

[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 4	SDH.
*Acid Yellow 11	ATL, BDO, CMG, VPC.
Acid Yellow 14	TRC.
*Acid Yellow 17	ACS, ATL, BDO, CMG, DUP, HN, PDC, SDH, TRC, VPC.
Acid Yellow 19	BAS, CMG, YAW.
*Acid Yellow 23	AAP, ACS, ACY, GAF, MRX, PDC, TRC, VPC, WJ, YAW.
Acid Yellow 25	GAF.
Acid Yellow 29	GAF, TRC.
*Acid Yellow 34	ACS, ATL, PDC.
*Acid Yellow 36	ACS, DUP, GAF, TRC.
*Acid Yellow 38	ACS, ATL, GAF.
*Acid Yellow 40	ALT, ATL, DUP, TRC, VPC.
*Acid Yellow 42	AAP, ACY, GAF, VPC.
Acid Yellow 44	AAP, GAF, VPC.
Acid Yellow 49	DUP, VPC.
*Acid Yellow 54	ACS, ACY, HN, TRC, VPC.
Acid Yellow 59	VPC.
Acid Yellow 63	AAP, ACS.
*Acid Yellow 65	ALT, FAB, TRC, YAW.
Acid Yellow 73	ACS, SDH.
*Acid Yellow 76	ACS, GAF, TRC.
Acid Yellow 79	VPC.
*Acid Yellow 99	CMG, GAF, TRC, VPC.
Acid Yellow 114	TRC.
Acid Yellow 121	GAF.
Acid Yellow 124	ATL, DUP, HN.
Acid Yellow 127	TRC.
Acid Yellow 128	ALT, TRC.
Acid Yellow 129	TRC.
Acid Yellow 135	GAF.
*Acid Yellow 151	ACY, ATL, DUP, FAB, GAF, HN, TRC, VPC.
Acid Yellow 152	ACY.
*Acid Yellow 159	ACS, ALT, FAB, GAF, HN, TRC, VPC.
Acid Yellow 174	DUP, TRC, VPC.
Acid Yellow 175	DUP.
Acid Yellow 190	HST.
Acid Yellow 198	DUP.
Other acid yellow dyes	ACY, ALT, CMG, GAF, TRC, VPC.
*Acid orange dyes:	
Acid Orange 1	GAF, HN.
Acid Orange 2	ACS.
Acid Orange 5	ACY.
Acid Orange 6	ACS.
*Acid Orange 7	AAP, ACS, ACY, ATL, CPC, DUP, GAF, HN, PDC, TRC, VPC, YAW.
*Acid Orange 8	ACS, ACY, ATL, DUP, GAF, HN, TRC, VPC.
*Acid Orange 10	ACS, ACY, ATL, DUP, GAF, TRC, VPC, YAW.
Acid Orange 12	ACS, PSC.
*Acid Orange 24	ACS, ACY, DUP, GAF, TRC, YAW.
Acid Orange 31	AAP.
Acid Orange 45	ACS, YAW.
Acid Orange 51	CMG, TRC.
Acid Orange 52	ACS, ATL.
Acid Orange 56	GAF.
*Acid Orange 60	ATL, DUP, GAF, HN, TRC, VPC.
Acid Orange 62	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid orange dyes--Continued	
Acid Orange 63	GAF, TRC.
*Acid Orange 64	ACS, ACY, DUP.
Acid Orange 69	ACY.
Acid Orange 72	GAF.
*Acid Orange 74	CMG, GAF, TRC.
Acid Orange 76	TRC.
*Acid Orange 86	ACS, ALT, CMG, TRC.
*Acid Orange 116	ACS, ALT, CMG, FAB, GAF, TRC, VPC, YAW.
Acid Orange 119	TRC.
Acid Orange 128	DUP.
Acid Orange 132	DUP.
Acid Orange 136	DUP.
Other acid orange dyes	ALT, GAF, TRC, VPC.
*Acid red dyes:	
*Acid Red 1	ACS, ACY, ATL, BDO, DUP, GAF, SDH, TRC, VPC, YAW.
*Acid Red 4	AAP, ATL, BDO, GAF, PDC, TRC, VPC, YAW.
Acid Red 14	ACS, ATL, GAF, PDC, YAW.
Acid Red 17	ACS, ATL, TRC.
*Acid Red 18	ACS, ATL, BDO, GAF, TRC.
*Acid Red 26	ACY, ATL, CPC.
Acid Red 27	ACS.
Acid Red 32	GAF.
Acid Red 33	YAW.
Acid Red 35	AAP, GAF.
*Acid Red 37	ACS, ATL, DUP, GAF, HN, TRC.
Acid Red 52	GAF.
Acid Red 57	ATL, TRC.
Acid Red 66	AAP, ATL.
*Acid Red 73	ACS, ACY, ATL, DUP, GAF, PSC, TRC, VPC, YAW.
Acid Red 80	ATL, ICI.
*Acid Red 85	ACS, ALT, DUP, GAF, HN, VPC, YAW.
Acid Red 87	SDH.
*Acid Red 88	ACS, ACY, ATL, DUP, GAF, TRC, SDH, YAW.
*Acid Red 89	AAP, ATL, BDO, GAF, HN.
Acid Red 97	ATL, GAF.
*Acid Red 99	ATL, FAB, HN, TRC, YAW.
Acid Red 106	YAW.
Acid Red 111	ATL.
*Acid Red 114	ACS, ALT, ATL, DUP, GAF, TRC, VPC.
*Acid Red 115	ACS, ATL, GAF.
Acid Red 119	ALT, ATL.
Acid Red 133	GAF.
Acid Red 134	TRC.
*Acid Red 137	ACS, ATL, DUP, GAF, HN, TRC.
Acid Red 138	ALT.
*Acid Red 151	AAP, ACY, ALT, ATL, DUP, HN, TRC, VPC, YAW.
Acid Red 167	ACS, ATL, DUP, TRC.
Acid Red 175	DUP.
Acid Red 178	DUP.
Acid Red 179	TRC.
*Acid Red 182	ACS, ALT, ATL, BDO, CMG, DUP, GAF, HN.
Acid Red 183	TRC.
*Acid Red 186	ATL, 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 266	DUP, TRC, VPC.
Acid Red 277	VPC.
Acid Red 299	ALT, TRC.
Acid Red 309	TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, CMG, DUP, GAF, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1	BDO, CMG, GAF.
*Acid Violet 3	ACS, ACY, TRC, YAW.
*Acid Violet 7	AAP, ACS, ATL, BDO, CMG, GAF, TRC, VPC.
*Acid Violet 12	BDO, CMG, DUP, GAF.
*Acid Violet 17	DUP, GAF, SDH.
Acid Violet 29	HSH.
Aciv Violet 34	ATL, ICI.
Acid Violet 41	CMG.
*Acid Violet 43	ATL, CMG, HSH, ICI.
*Acid Violet 49	ACS, ACY, SDH, TRC.
Acid Violet 56	GAF.
Acid Violet 58	GAF.
Acid Violet 76	ACS.
Other acid violet dyes	CMG, TRC.
*Acid blue dyes:	
Acid Blue 1	ACS, GAF.
*Acid Blue 7	ACS, ACY, ATL, GAF, VPC.
*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, GAF, TRC, VPC.
*Acid Blue 27	ATL, BDO, CMG, GAF.
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.
*Acid Blue 43	ACS, ICI, TRC.
*Acid Blue 45	ACY, ATL, CMG, DUP, GAF, HN, TRC.
*Acid Blue 62	ACS, ALT, BDO, CMG, GAF.
Acid Blue 63	CMG.
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 90	TRC.
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 198	VPC.
Acid Blue 203	VPC.
Acid Blue 221	VPC.
*Acid Blue 230	ACS, DUP, TRC.
Acid Blue 231	TRC.
Other acid blue dyes	ACY, ALT, ATL, GAF, HN, TRC, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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 5	GAF.
*Acid Green 9	ACS, ACY, GAF.
Acid Green 12	GAF.
*Acid Green 16	ACS, GAF, 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	ACY, ALT, VPC.
*Acid brown dyes:	
Acid Brown 1	GAF.
Acid Brown 6	GAF.
*Acid Brown 14	AAP, 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 96	ACY.
Acid Brown 97	ACY.
Acid Brown 98	ACY, TRC, YAW.
Acid Brown 152	GAF.
Acid Brown 158	GAF.
Acid Brown 243	GAF.
Other acid brown dyes	ACY, ALT, DUP, GAF, VPC, YAW.
*Acid black dyes:	
*Acid Black 1	AAP, 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 48	ACY, TRC.
*Acid Black 52	ACS, ATL, 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, DUP, GAF, TRC.
Acid Black 108	GAF.
Acid Black 139	VPC.
Acid Black 140	CMG.
Acid Black 172	VPC.
Other acid black dyes	ALT, ATL, HN, PDC, VPC, YAW.
AZOIC DYES AND COMPONENTS	
Azoic Compositions	
Azoic yellow dyes:	
*Azoic Yellow 1	ALL, ATL, SDH.
*Azoic Yellow 2	ALL, ATL, BUC, x.
Azoic Yellow 3	ATL, BUC.
Other azoic yellow dyes	ATL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
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.
Other azoic violet dyes	ALL.
Azoic blue dyes:	
Azoic Blue 2	ATL.
*Azoic Blue 3	ALL, ATL, BUC, GAF, HST, SDH, x.
Azoic Blue 6	ATL.
Azoic Blue 7	GAF.
Other azoic blue dyes	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	ALL, ATL, GAF, VPC.
*Azoic black dyes:	
Azoic Black 1	HST.
Azoic Black 4	ATL, BUC, GAF.
Azoic Black 15	GAF.
Other azoic black dyes	ALL, ATL, GAF.
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	ALL, 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	AAP.
Azoic Diazo Component 28, base	ALL, BUC, GAF.
*Azoic Diazo Component 32, base	ALL, ATL, BUC.
Azoic Diazo Component 34, base	ALL.
Azoic Diazo Component 44, base	BUC.
Azoic Diazo Component 46, base	ATL.
Azoic Diazo Component 48, base	GAF.
Other azoic diazo components, base	ALL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 2, salt	BUC.
*Azoic Diazo Component 3, salt	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 5, salt	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 6, salt	AAP, BUC, GAF.
*Azoic Diazo Component 8, salt	AAP, ALL, BUC, GAF.
*Azoic Diazo Component 9, salt	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 10, salt	ALL, BUC, GAF.
*Azoic Diazo Component 11, salt	AAP, ALL, BUC.
*Azoic Diazo Component 12, salt	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 13, salt	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 14, salt	AAP.
Azoic Diazo Component 20, salt	ALL, BUC.
*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	BUC, GAF.
Azoic Diazo Component 36, salt	GAF.
Azoic Diazo Component 37, salt	GAF.
Azoic Diazo Component 41, salt	ALL, BUC.
Azoic Diazo Component 42, salt	ALL, GAF.
Azoic Diazo Component 44, salt	ALL, BUC.
Azoic Diazo Component 48, salt	BUC, SDH.
*Azoic Diazo Component 49, salt	AAP, 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, GAF, PCW.
Azoic Coupling Component 3	ALL, BUC, PCW.
Azoic Coupling Component 4	ATL, BUC, GAF.
Azoic Coupling Component 5	BUC.
Azoic Coupling Component 7	BUC, HST, PCW, SDH.
Azoic Coupling Component 8	ATL, BUC, PCW.
Azoic Coupling Component 10	ATL, PCW.
Azoic Coupling Component 11	ATL, 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	ALL, BUC, GAF, PCW.
Azoic Coupling Component 16	BUC.
Azoic Coupling Component 17	ATL, BUC, PCW.
*Azoic Coupling Component 18	ALL, 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	ALL, BUC, HST, PCW.
*Azoic Coupling Component 43	ATL, BUC, GAF.
Azoic Coupling Component 107	HST.
Other azoic coupling components	ATL, GAF, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, DUP.
*Basic Yellow 11	ACS, ACY, ATL, DUP, GAF, TRC, VPC.
*Basic Yellow 13	ACS, ATL, DUP, GAF, VPC.
Basic Yellow 15	DUP.
Basic Yellow 21	ACS, VPC.
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.
Other basic yellow dyes	ATL, BAS, DUP, EKT, GAF.
*Basic orange dyes:	
Basic Orange 1	ACS, ACY, DUP, GAF, PSC, TRC.
*Basic Orange 2	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
*Basic Orange 21	ACS, ALT, ATL, DUP, GAF, TRC, VPC.
Basic Orange 24	DUP.
Basic Orange 25	DUP.
Basic Orange 26	DUP.
Basic Orange 27	VPC.
Basic Orange 28	VPC.
Basic Orange 31	ACY.
Basic Orange 39	DUP.
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, ATL, DUP, FAB, 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 19	DUP.
Basic Red 22	ACY, TRC.
Basic Red 29	BAS.
Basic Red 30	ACY.
Basic Red 46	ACS, TRC.
Basic Red 49	DUP, GAF.
Basic Red 73	DUP.
Other basic red dyes	ATL, DUP, EKT, VPC.
*Basic violet dyes:	
*Basic Violet 1	ACS, ACY, DSC, DUP, HSC.
Basic Violet 2	DSC.
Basic Violet 3	DSC, DUP.
Basic Violet 4	DSC, DUP.
Basic Violet 7	ATL, GAF.
Basic Violet 10	ACY, DUP, GAF.
Basic Violet 11	ACY.
Basic Violet 13	DSC.
Basic Violet 14	DSC.
Basic Violet 15	DUP.
*Basic Violet 16	ATL, DUP, FAB, 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, 1972--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	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, DUP.
Basic Blue 11	DSC, SDH.
Basic Blue 21	DUP.
Basic Blue 22	ACS, DUP.
Basic Blue 26	DSC, DUP.
Basic Blue 35	DUP.
Basic Blue 41	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, TRC.
Basic Blue 87	DUP.
Basic Blue 97	DUP.
Other basic blue dyes	ACS, ALT, BAS, 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, 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 11	ACS, ACY, ALT, DUP, GAF, HN, SDH, TRC, VPC.
*Direct Yellow 12	ACS, ACY, ATL, CMG, DUP, FAB, GAF, HN, TRC.
Direct Yellow 20	TRC.
Direct Yellow 23	DUP.
Direct Yellow 26	ATL, HN, HSH.
Direct Yellow 27	GAF.
*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, DUP, FAB, GAF, HN, HSH, TRC, VPC.
Direct Yellow 59	ATL.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct yellow dyes--Continued	
Direct Yellow 63	DUP.
Direct Yellow 81	ATL.
*Direct Yellow 84	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, 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	VPC.
Other direct yellow dyes	AAP, ACY, ALT, ATL, DUP, FAB, GAF, HSH, TRC, VPC.
*Direct orange dyes:	
Direct Orange 1	AAP, ALT, ATL, BDO.
Direct Orange 6	ACS.
*Direct Orange 8	ACS, DUP, FAB, GAF, YAW.
Direct Orange 10	AAP.
Direct Orange 11	GAF.
*Direct Orange 15	ACS, ACY, DUP, GAF, HN, TRC.
*Direct Orange 26	ACS, ATL, GAF, HSH, TRC.
*Direct Orange 29	ATL, FAB, HN, TRC, VPC.
*Direct Orange 34	ACS, ATL, CMG, DUP, GAF.
*Direct Orange 37	ACY, ATL, CMG, GAF.
*Direct Orange 39	ACY, ALT, ATL, 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 79	DUP.
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.
Direct Orange 110	TRC.
Other direct orange dyes	ALT, ATL.
*Direct red dyes:	
*Direct Red 1	DUP, FAB, GAF, TRC, YAW.
*Direct Red 2	ACS, ATL, DUP, FAB, HN, TRC.
*Direct Red 4	ACS, ATL, TRC, VPC.
Direct Red 7	ATL.
Direct Red 10	AAP.
Direct Red 13	YAW.
*Direct Red 16	ACS, ATL, DUP, TRC.
Direct Red 20	ATL, GAF.
*Direct Red 23	ACS, ATL, DUP, FAB, GAF, HN, TRC, VPC.
*Direct Red 24	AAP, ACS, ATL, FAB, HN, HSH, TRC, VPC.
*Direct Red 26	ACS, ATL, DUP, FAB, GAF, HN, HSH, TRC.
*Direct Red 28	ACS, DUP, FAB, YAW.
*Direct Red 31	ACS, ATL, GAF, HSH.
Direct Red 32	ACS.
*Direct Red 37	ACS, DUP, GAF, YAW.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct red dyes--Continued	
*Direct Red 39	ATL, DUP, GAF, TRC, YAW.
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	ACS, ALT, ATL, FAB, HN, HSH, SDH, TRC, VPC.
*Direct Red 81	ACS, ACY, ALT, ATL, BDO, DUP, GAF, HN, HSH, PDC, TRC, VPC, YAW.
*Direct Red 83	ACS, ALT, ATL, FAB, HN, HSH, TRC, VPC.
Direct Red 84	ATL.
Direct Red 95	VPC.
Direct Red 100	ATL.
Direct Red 117	DUP.
Direct Red 120	CMG.
Direct Red 122	ATL, TRC, VPC.
Direct Red 123	ATL, GAF.
Direct Red 127 and 127A	ATL, CMG.
Direct Red 139	VPC.
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.
Other direct red dyes	ALT, ATL, DUP, GAF, HN, HSH, TRC, VPC.
*Direct violet dyes:	
Direct Violet 7	ACS, ATL.
*Direct Violet 9	ACS, ATL, DUP, GAF, HN, TRC.
Direct Violet 14	ATL.
Direct Violet 22	DUP.
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.
Other direct violet dyes	ALT, VPC.
*Direct blue dyes:	
*Direct Blue 1	AAP, ACS, ACY, ATL, CMG, DUP, FAB, GAF, HN, TRC, VPC, YAW.
*Direct Blue 2	AAP, ACS, DUP, FAB, GAF, HN, HSH, TRC, VPC, YAW.
*Direct Blue 6	AAP, ACS, ACY, DUP, GAF, HN, HSH, YAW.
*Direct Blue 8	ACS, ALT, ATL, DUP, GAF.
Direct Blue 14	ACS, ATL, HN, 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 74	DUP.
Direct Blue 75	TRC.
*Direct Blue 76	ACS, ALT, ATL, GAF, HN, HSH, TRC, VPC.
*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, SDH, TRC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct blue dyes--Continued	
Direct Blue 87	ICI.
Direct Blue 91	TRC.
*Direct Blue 98	ATL, GAF, TRC, VPC.
Direct Blue 100	ALT, FAB, HN.
Direct Blue 104	DUP.
*Direct Blue 120 and 120A	ATL, DUP, FAB, HN, TRC.
*Direct Blue 126	ATL, DUP, 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	AAP, ACS, GAF.
Direct Blue 199	DUP, GAF.
*Direct Blue 218	ACS, ALT, ATL, DUP, FAB, GAF, HN, TRC. VPC.
Direct Blue 224	ATL.
Direct Blue 263	DUP.
Other direct blue dyes	ALT, ATL, DUP, GAF, VPC.
*Direct green dyes:	
*Direct Green 1	AAP, ACS, DUP, FAB, GAF, TRC, YAW.
*Direct Green 6	AAP, ACS, DUP, FAB, GAF, HN, TRC, YAW.
Direct Green 8	TRC.
Direct Green 26	DUP, TRC.
Direct Green 27	DUP, TRC.
Direct Green 28	TRC.
Direct Green 38	DUP, GAF.
Direct Green 39	GAF.
Direct Green 45	ATL, VPC.
Direct Green 47	ATL, DUP, GAF.
Direct Green 51	TRC.
Direct Green 69	TRC.
Other direct green dyes	ACY, ALT, TRC.
*Direct brown dyes:	
Direct Brown 1	HN.
Direct Brown 1A	GAF, TRC, YAW.
*Direct Brown 2	AAP, ACS, ACY, DUP, FAB, GAF, HN, HSH, TRC, YAW.
Direct Brown 6	YAW.
*Direct Brown 31	AAP, ATL, DUP, GAF, YAW.
Direct Brown 32	GAF.
Direct Brown 40	AAP.
Direct Brown 44	GAF, YAW.
Direct Brown 48	AAP.
Direct Brown 59	YAW
*Direct Brown 74	AAP, ACS, DUP.
*Direct Brown 95	ACS, ATL, DUP, FAB, GAF, HN, HSH, TRC, 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, HSH, VPC.
*Direct black dyes:	
*Direct Black 4	ACS, FAB, GAF, HN, YAW.
Direct Black 8	YAW.
*Direct Black 9	ACS, ATL, DUP.
Direct Black 17	GAF.
Direct Black 19	ATL, HN, TRC.
*Direct Black 22	ALT, ATL, GAF, HN, TRC, VPC, YAW.
Direct Black 36	AAP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct black dyes--Continued	
Direct Black 37	AAP.
*Direct Black 38	ACS, FAB, GAF, HN, HSH, YAW.
Direct Black 44	TRC.
*Direct Black 51	ACS, ATL, DUP, GAF, TRC.
Direct Black 56	ACS.
Direct Black 71	ATL.
Direct Black 75	GAF.
Direct Black 78	ACS, FAB, HN.
*Direct Black 80	ACS, ATL, FAB, HN, HSH, YAW.
Direct Black 95	ACS.
Direct Black 190	ACS, HN.
Other direct black dyes	ACY, ALT, ATL, HSH, TRC, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse Yellow 1	GAF.
Disperse Yellow 2	DUP.
*Disperse Yellow 3	AAP, ALT, DUP, GAF, HN, ICC, TRC.
*Disperse Yellow 5	GAF, HN, ICC.
Disperse Yellow 8	TRC.
*Disperse Yellow 23	AAP, ALT, DUP, EKT, GAF, HN, ICC, TRC.
Disperse Yellow 31	GAF.
Disperse Yellow 32	DUP.
*Disperse Yellow 33	AAP, EKT, GAF, ICC, TRC.
*Disperse Yellow 34	AAP, EKT, ICC.
*Disperse Yellow 42	AAP, BUC, DUP, EKT, GAF, HN, ICC, SDC, TRC.
Disperse Yellow 50	TRC.
*Disperse Yellow 54	AAP, ATL, DUP, GAF, HN, ICC, SDC, TRC.
Disperse Yellow 58	HST.
Disperse Yellow 64	BUC, DUP.
Disperse Yellow 67	DUP.
Disperse Yellow 68	HST.
Disperse Yellow 69	ACY.
Disperse Yellow 77	VPC.
Disperse Yellow 85	EKT.
Disperse Yellow 86	AAP, 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	AAP.
Disperse Yellow 125	SDC.
Other disperse yellow dyes	ATL, BUC, EKT, GAF, MAY, SDC, TRC, VPC.
*Disperse orange dyes:	
*Disperse Orange 3	AAP, DUP, GAF, HN, TRC.
*Disperse Orange 5	AAP, BUC, EKT, GAF, SDC.
Disperse Orange 16	AAP.
*Disperse Orange 17	AAP, EKT, GAF, HN, ICC.
Disperse Orange 21	TRC.
*Disperse Orange 25	DUP, EKT, HN, TRC.
Disperse Orange 29	AAP, GAF.
Disperse Orange 30	ICC, TRC.
Disperse Orange 37	TRC.
Disperse Orange 38	TRC.
Disperse Orange 41	DUP.
Disperse Orange 44	DUP.
Disperse Orange 57	EKT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse orange dyes--Continued	
Disperse Orange 58	AAP, EKT.
Disperse Orange 59	EKT, ICC.
Disperse Orange 62	BUC, DUP.
Disperse Orange 65	VPC.
Disperse Orange 75	DUP.
Disperse Orange 78	TRC.
Disperse Orange 89	AAP.
Disperse Orange 90	AAP.
Disperse Orange 94	SDC.
Other disperse orange dyes	ALT, ATL, BUC, EKT, GAF, MAY, SDC.
*Disperse red dyes:	
*Disperse Red 1	AAP, DUP, EKT, GAF, HN, ICC, TRC.
Disperse Red 4	BUC, GAF, TRC.
*Disperse Red 5	AAP, EKT, GAF, ICC.
Disperse Red 7	AAP, GAF.
Disperse Red 9	ATL.
*Disperse Red 11	AAP, BUC, DUP, GAF, ICC.
Disperse Red 13	GAF, ICC.
*Disperse Red 15	CMG, GAF, HSH, ICC, TRC.
*Disperse Red 17	AAP, DUP, EKT, GAF, ICC, TRC.
Disperse Red 21	EKT.
Disperse Red 30	EKT, TRC.
Disperse Red 31	ICC.
Disperse Red 35	EKT.
Disperse Red 54	ICC.
*Disperse Red 55	DUP, GAF, HN, ICC, TRC.
Disperse Red 59	ACY, DUP, GAF.
*Disperse Red 60	AAP, ATL, DUP, EKT, GAF, HN, SDC, TRC, VPC.
*Disperse Red 65	DUP, EKT, ICC, TRC.
Disperse Red 66	AAP.
Disperse Red 73	TRC.
Disperse Red 78	ICC, TRC.
Disperse Red 82	VPC.
Disperse Red 86	EKT, GAF.
Disperse Red 90	VPC.
Disperse Red 96	ACY.
Disperse Red 117	EKT.
Disperse Red 133	VPC.
Disperse Red 135	AAP, DUP.
Disperse Red 136	EKT.
Disperse Red 137	EKT.
Disperse Red 138	EKT.
Disperse Red 139	VPC.
Disperse Red 140	AAP, DUP.
Disperse Red 159	VPC.
Disperse Red 161	DUP.
Disperse Red 162	DUP.
Disperse Red 167	GAF.
Disperse Red 176	ICC.
Disperse Red 177	ICC.
Disperse Red 178	ICC.
Disperse Red 179	ICC.
Disperse Red 180	ICC.
Other disperse red dyes	DUP, EKT, GAF, MAY, SDC, TRC, VPC.
*Disperse violet dyes:	
*Disperse Violet 1	AAP, GAF, HSH, ICC, TRC.
*Disperse Violet 4	AAP, GAF, ICC.
Disperse Violet 8	GAF.
Disperse Violet 17	DUP.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse violet dyes--Continued	
Disperse Violet 26	DUP.
*Disperse Violet 27	AAP, ACY, DUP, EKT, ICC, TRC.
Disperse Violet 28	DUP, TRC.
Disperse Violet 40	VPC.
Disperse Violet 41	EKT.
Disperse Violet 42	EKT.
Disperse Violet 43	EKT.
Disperse Violet 44	EKT.
Disperse Violet 57	TRC.
Other disperse violet dyes	GAF, SDC.
*Disperse blue dyes:	
*Disperse Blue 1	AAP, GAF, ICC, TRC.
*Disperse Blue 3	AAP, DUP, EKT, GAF, HN, HSH, ICC, TRC.
*Disperse Blue 7	DUP, GAF, HN, ICC, TRC.
Disperse Blue 8	HSH.
Disperse Blue 9	GAF.
Disperse Blue 27	EKT, ICC.
Disperse Blue 35	ICI.
Disperse Blue 54	ICC.
Disperse Blue 55	TRC.
Disperse Blue 56	DUP, ICC, TRC, VPC.
Disperse Blue 60	DUP.
Disperse Blue 61	DUP.
Disperse Blue 62	DUP, EKT, GAF, SDC.
*Disperse Blue 64	DUP, EKT, GAF, TRC.
Disperse Blue 70	AAP.
Disperse Blue 71	VPC.
Disperse Blue 72	ICI.
Disperse Blue 73	ACY, ICC, TRC.
Disperse Blue 79	EKT, HST, TRC.
Disperse Blue 81	VPC.
Disperse Blue 85	TRC.
Disperse Blue 94	BAS.
*Disperse Blue 95	GAF, HST, ICC.
Disperse Blue 102	EKT.
Disperse Blue 109	DUP.
Disperse Blue 112	EKT.
Disperse Blue 116	ACY.
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 150	DUP.
Disperse Blue 152	HST.
Disperse Blue 165	VPC.
Disperse Blue 166	ICC.
Disperse Blue 172	DUP, ICC.
Disperse Blue 173	AAP.
Other disperse blue dyes	ALT, ATL, DUP, EKT, GAF, HN, HSH, ICC, MAY, SDC. TRC, VPC.
Disperse green dyes	GAF, VPC.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
Disperse brown dyes:	
Disperse Brown 1	AAP, TRC.
Disperse Brown 2	DUP, EKT, GAF.
Disperse Brown 7	EKT.
Disperse Brown 8	VPC.
Disperse Brown 11	AAP.
Other disperse brown dyes	GAF, ICC, SDC.
*Disperse black dyes:	
*Disperse Black 1	AAP, ATL, DUP, GAF, TRC.
Disperse Black 2	ATL, TRC.
Disperse Black 9	AAP, EKT.
Disperse Black 33	EKT.
Disperse Black 34	EKT.
Other disperse black dyes	ALT, ATL, BUC, DUP, GAF, ICC, SDC.
FIBER-REACTIVE DYES	
*Reactive yellow dyes:	
Reactive Yellow 1	ICI.
Reactive Yellow 2	TRC.
Reactive Yellow 3	TRC.
Reactive Yellow 4	ICI.
Reactive Yellow 6	TRC.
Reactive Yellow 7	ICI.
Reactive Yellow 13	HST
Reactive Yellow 15	HST.
Reactive Yellow 17	HST.
Reactive Yellow 18	ICI.
Reactive Yellow 24	HST.
Reactive Yellow 25	VPC.
Reactive Yellow 31	HST.
Reactive Yellow 37	HST.
Reactive Yellow 42	ICI, HST.
Reactive Yellow 62	ACY.
Reactive orange dyes:	
Reactive Orange 1	ICI.
Reactive Orange 4	ICI.
Reactive Orange 5	TRC.
Reactive Orange 12	ICI.
Reactive Orange 13	ICI.
Reactive Orange 14	ICI.
Reactive Orange 16	HST.
Reactive Orange 49	ACY.
Reactive Orange 50	HST.
Reactive red dyes:	
Reactive Red 1	ICI.
Reactive Red 2	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 58	ICI.
Reactive Red 94	HST.
Reactive Red 105	HST.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
*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 30	VPC.
Reactive Blue 38	HST.
Reactive Blue 71	ICI.
Reactive Blue 89	HST.
Reactive Blue 90	HST.
Reactive Blue 91	HST.
Reactive green dyes: Reactive Green 6	ICI.
Reactive brown dyes:	
Reactive Brown 9	ICI.
Reactive Brown 10	ICI.
Other reactive brown dyes	HST.
Reactive black dyes:	
Reactive Black 5	HST.
Reactive Black 9	ICI.
FLUOROESCENT BRIGHTENING AGENTS	
Fluoroescent Brightening Agent 1	CGY.
Fluoroescent Brightening Agent 6	ACY.
Fluoroescent Brightening Agent 8	ACY.
Fluoroescent Brightening Agent 9	ACY, GAF, SDH.
Fluoroescent Brightening Agent 22	CGY.
Fluoroescent Brightening Agent 24	CGY.
Fluoroescent Brightening Agent 25	GAF.
*Fluoroescent Brightening Agent 28	ACY, CCW, DUP, SDH, VPC.
Fluoroescent Brightening Agent 30	GAF.
Fluoroescent Brightening Agent 33	GAF.
Fluoroescent Brightening Agent 45	GAF.
Fluoroescent Brightening Agent 46	CGY.
Fluoroescent Brightening Agent 49	S.
Fluoroescent Brightening Agent 52	S.
Fluoroescent Brightening Agent 54	CGY.
Fluoroescent Brightening Agent 59	CGY.
Fluoroescent Brightening Agent 61	ACY.
Fluoroescent Brightening Agent 68	CCW, GAF.
Fluoroescent Brightening Agent 71	ACY, GAF.
Fluoroescent Brightening Agent 75	GAF.
Fluoroescent Brightening Agent 102	DUP, VPC.
Fluoroescent Brightening Agent 108	GAF.
Fluoroescent Brightening Agent 109	GAF.
Fluoroescent Brightening Agent 114	VPC.
Fluoroescent Brightening Agent 125	ACY.
Fluoroescent Brightening Agent 126	SDH.
Fluoroescent Brightening Agent 128	SDH.
Fluoroescent Brightening Agent 130	ACY.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
FLUOROESCENT BRIGHTENING AGENTS--Continued	
Fluoroescent Brightening Agent 158	ACY.
Fluoroescent Brightening Agent 159	ACY.
Other fluoroescent 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
FD&C Red No. 40	ACS, 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. 6	ACS, KON.
D&C Green No. 5	ACS, KON.
D&C Green No. 6	ACS, KON.
D&C Green No. 8	KON, SDH.
*D&C Orange No. 4	ACS, KON, SNA, 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	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, TMS.
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.
*D&C Red No. 36	ALT, KON, TMS.
D&C Red No. 37	ACS.
D&C Red No. 39	SDH.
D&C Violet No. 2	ACS.
D&C Yellow No. 5	KON.
D&C Yellow No. 6	KON.
D&C Yellow No. 7	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, 1972--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, KON.
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	ATL, GAF, PDC.
Mordant Yellow 5	TRC.
Mordant Yellow 8	ACS, PDC.
Mordant Yellow 14	ACS, PDC.
Mordant Yellow 16	ACY, ATL.
Mordant Yellow 20	ACS, ATL.
Mordant Yellow 26	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, PDC.
Mordant Orange 6	ATL, GAF, PDC, TRC.
Mordant Orange 8	TRC.
*Mordant red dyes:	
Mordant Red 3	ACY.
Mordant Red 7	ACY, ATL, BDO, GAF, PDC, TRC.
Mordant Red 9	MRX, PDC,
Mordant Red 11	ACY.
Mordant Red 64	PDC.
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.
Mordant Brown 19	GAF.
Mordant Brown 21	GAF, VPC.
*Mordant Brown 33	ACS, GAF, PDC, TRC.
Mordant Brown 40	CMG, GAF.
Mordant Brown 63	TRC.
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, ATL, GAF, TRC, VPC.
Mordant Black 13	HSH.
*Mordant Black 17	ACS, ACY, GAF, TRC.
Mordant Black 19	PDC.
Mordant Black 26	TRC.
Other mordant black dyes	CMG.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
OXIDATION BASES	
Oxidation Base 8 and 8A	ACY.
Oxidation Base 21	PDC.
Oxidation Base 22	ACY.
Oxidation Base 25	ACY.
Other oxidation bases	ACY.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 1	AAP.
Solvent Yellow 2	DUP, GAF, PSC.
Solvent Yellow 3	ACS, PSC.
Solvent Yellow 13	ACY, GAF.
*Solvent Yellow 14	AAP, ACS, ACY, DUP, GAF, PSC.
Solvent Yellow 19	GAF.
Solvent Yellow 29	GAF.
Solvent Yellow 30	ACS.
Solvent Yellow 33	AAP, ACS, ACY.
Solvent Yellow 34	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	AAP, ACS, ACY.
Solvent Yellow 71	ACY.
Solvent Yellow 72	ACY.
Solvent Yellow 87	ACY.
Other solvent yellow dyes	AAP, ATL, DSC, PAT.
*Solvent orange dyes:	
Solvent Orange 2	PSC.
*Solvent Orange 3	AAP, ACS, ACY, DSC, GAF, PSC.
Solvent Orange 5	GAF.
Solvent Orange 7	ACS, ACY, GAF.
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	AAP, ACY, DSC, DUP.
*Solvent red dyes:	
Solvent Red 1	PSC.
Solvent Red 8	GAF.
Solvent Red 22	GAF.
Solvent Red 24	ACY, DUP, GAF.
*Solvent Red 26	AAP, ACS, ACY, PSC.
Solvent Red 27	ACS.
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	AAP, ICI.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Other solvent red dyes	AAP, ACY, ATL, DSC, ICI, PAT.
Solvent violet dyes:	
Solvent Violet 8	ACY, DSC, DUP.
Solvent Violet 9	DSC.
Solvent Violet 13	AAP, ATL, HSH, ICI.
Solvent Violet 14	AAP, ICI.
Solvent Violet 17	ACS.
Other solvent violet dyes	AAP, DSC, PAT.
*Solvent blue dyes:	
Solvent Blue 3	ACY, SW.
Solvent Blue 4	DSC, DUP.
Solvent Blue 5	DSC.
Solvent Blue 6	DSC.
Solvent Blue 7	ACY.
Solvent Blue 9	GAF.
Solvent Blue 11	BDO, GAF, ICI.
Solvent Blue 12	ACS, BDO.
Solvent Blue 16	ACS.
Solvent Blue 36	AAP, DUP.
Solvent Blue 37	DUP.
*Solvent Blue 38	ACS, ACY, ATL, DUP, GAF.
Solvent Blue 43	ACS.
Solvent Blue 57	DUP.
Solvent Blue 58	ACY.
Solvent Blue 59	ACY.
Solvent Blue 74	ACS.
Other solvent blue dyes	ACY, DSC, GAF, PAT, SDH.
Solvent green dyes:	
Solvent Green 1	ACY, DSC.
*Solvent Green 3	AAP, ACS, ATL, GAF, HSH, PAT.
Other solvent green dyes	DSC, GAF.
Solvent brown dyes:	
Solvent Brown 11	GAF.
*Solvent Brown 12	ACY, DSC, GAF.
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.
Solvent Black 12	ACS.
Solvent Black 13	ACS.
Solvent Black 17	DUP.
Solvent Black 26	ACY.
Other solvent black dyes	ATL, DSC, GAF, PAT.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Leuco Sulfur Yellow 15	ACY.
Other sulfur yellow dyes	ACY, SDC.
Sulfur Orange 1	STC.
Sulfur red dyes:	
Leuco Sulfur Red 5	SDC.
Other sulfur red dyes	SDC.
Sulfur blue dyes:	
Sulfur Blue 5	ACY.
Sulfur Blue 7	ACY, SDC.
Leuco Sulfur Blue 7	ACY, SDC, STC.
Solubilized Sulfur Blue 7	SDC.
Sulfur Blue 8	SDC.
Leuco Sulfur Blue 8	SDC.
Sulfur Blue 9	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	ACY, SDC.
Sulfur brown dyes:	
Leuco Sulfur Brown 1	STC.
Solubilized Sulfur Brown 1	STC.
Leuco Sulfur Brown 3	SDC.
Sulfur Brown 10	SDC.
Leuco Sulfur Brown 10	SDC, STC.
Solubilized Sulfur Brown 10	SDC.
Sulfur Brown 12	SDC.
Sulfur Brown 14	SDC.
Leuco Sulfur Brown 14	SDC.
Leuco Sulfur Brown 20	STC.
Sulfur Brown 26	ACY.
Leuco Sulfur Brown 26	STC.
Sulfur Brown 37	SDC.
Solubilized Sulfur Brown 37	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	STC.
Sulfur Black 2	SDC.
Leuco Sulfur Black 2	ACY, SDC.
Solubilized Sulfur Black 2	SDC.
Leuco Sulfur Black 10	ACY.
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, 1972--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%	AAP, ATL, GAF, ICI, TRC, VPC.
Vat Yellow 3, 12-1/2%	DUP.
*Vat Yellow 4, 12-1/2%	ATL, GAF, HST, VPC.
Solubilized Vat Yellow 4, 37-1/2%	HST, ICI.
Vat Yellow 10, 10%	GAF.
Vat Yellow 14, 12-1/2%	TRC.
Vat Yellow 15, 11-1/2%	ACY.
Vat Yellow 21, 9-1/2%	ATL.
Vat Yellow 22, 10%	DUP.
Vat Yellow 33, 15%	TRC, VPC.
Other vat yellow dyes	GAF, MAY, VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%	ACY, ATL, DUP, GAF, HST, ICI, TRC, VPC.
Solubilized Vat Orange 1, 26%	HST.
*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%	GAF, HST, TRC.
*Vat Orange 9, 12%	ACY, DUP, GAF, ICI, TRC.
Vat Orange 11, 6%	DUP.
*Vat Orange 15, 10%	AAP, ACS, ACY, GAF, ICI, TRC, VPC.
Other vat orange dyes	SDC.
*Vat red dyes:	
*Vat Red 1, 13%	AAP, ATL, ACY, HST, ICI.
Solubilized Vat Red 1, 37%	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 23	DUP.
Vat Red 29, 18%	GAF.
Vat Red 32, 20%	DUP, GAF.
Vat Red 41, 20%	HST.
Vat Red 52, 10%	DUP.
Other vat red dyes	TRC.
*Vat violet dyes:	
*Vat Violet 1, 11%	ACY, ATL, DUP, GAF, ICI, MAY, 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 17, 12-1/2%	DUP.
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.

TABLE 2.--DYES FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES--Continued	
*Vat blue dyes--Continued	
*Vat Blue 18, 13%	AAP, ACY, ATL, DUP, GAF, MAY, TRC.
Vat Blue 20, 14%	AAP, ACS, ACY, ATL, DUP, GAF, MAY, SDC. TRC.
Vat Blue 29	GAF.
Vat Blue 39, 12%	GAF.
Vat Blue 43	SDC.
Vat Blue 53, 20-1/2%	GAF.
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, TRC.
Solubilized Vat Green 1, 12-1/2%	ICI.
*Vat Green 3, 10%	AAP, ACY, ATL, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Green 3, 26%	ICI.
Vat Green 8, 8-1/2%	ATL, DUP, GAF.
Vat Green 9, 12-1/2%	ACY, 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, ICI, MAY, TRC.
*Vat Brown 3, 11%	AAP, 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 29, 13%	ACY.
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, TRC.
Vat Black 13, 14%	DUP.
Vat Black 22, 19%	ACY, TRC.
*Vat Black 25, 12-1/2%	AAP, ACY, DUP, GAF, ICI, MAY, TRC.
*Vat Black 27, 12-1/2%	ACY, BDO, DUP, GAF, ICI, MAY, TRC.
Vat Black 34, 16%	ICI.
Vat Black 37	GAF.
Vat Black 38, 20%	GAF.
Vat Black 52, 18-1/2%	ACY.
Other vat black dyes	ATL, GAF, MAY, SDC, TRC.
All other dyes	ACY, DUP, GAF, HSH, PAT, SDC.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 3.--DYES: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of dye manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
AAP	American Aniline Products, Inc.
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 Malacron 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-Norwich Products, 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., Thomasset Colors Div.
TRC	Toms River Chemical Corp.
VPC	Baychem Corp., Verona Div.
WJ	Warner-Jenkinson Manufacturing Co.
YAW	Y. S. Young, 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 1972 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 1972 was 65.9 million pounds--13.0 percent more than the 58.3 million pounds produced in 1971 and 16.6 percent more than the 56.5 million pounds produced in 1970. Total sales of organic pigments in 1972 amounted to 53.2 million pounds, valued at $149.3 million, compared with 47.1 million pounds, valued at $130.0 million, in 1971 and 47.2 million pounds, valued at $123.0 million, in 1970. In terms of quantity, sales of organic pigments in 1972 were 13.1 percent greater than in 1971 and 12.8 percent greater than in 1970; in terms of value, sales in 1972 were 14.9 percent greater than in 1971 and 21.5 percent greater than in 1970.

Production of toners in 1972 amounted to 62.9 million pounds--14.1 percent more than the 55.1 million pounds reported for 1971. Sales in 1972 were 50.5 million pounds, valued at $145.9 million, compared with 44.2 million pounds, valued at $126.6 million, in 1971. Sales in 1972 were thus 14.1 percent more than those in 1971 in terms of quantity, and 15.3 percent more in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1972 were Pigment Yellow 12, 6.5 million pounds; Pigment Blue 15, beta form, 6.0 million pounds; and Pigment Red 49, barium toner, 4.6 million pounds.

Production of lakes totaled 3.0 million pounds in 1972--6.8 percent less than the 3.2 million pounds reported for 1971. Sales of lakes in 1972 amounted to 2.7 million pounds, valued at $3.4 million, compared with sales in 1971 of 2.8 million pounds, valued at $3.4 million. Sales in 1972 were thus 3.4 percent less than those in 1971 in terms of quantity, and substantially unchanged in terms of value.

For each of 15 selected pigments, or groups of pigments, table 1A gives data on sales by commercial forms. Pigment Yellow 12, Pigment Red 53, Pigment Blue 15, beta form, and Pigment Blue 19 were sold principally in the flushed form. The remaining 7 pigments, or groups of pigments, for which statistics are published were sold principally in the dry full-strength form. Statistics on sales by commercial forms could not be published for Pigment Red 49, calcium toner, Pigment Red 49, sodium toner, Pigment Red 90, and Pigment Violet 3, fugitive, without revealing the operations of individual companies.

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

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1972

[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	65,897	53,215	149,343	$2.81
TONERS				
Total	62,878	50,506	145,941	2.89
Yellow toners, total	14,110	10,239	28,982	2.83
Acetoacetarylide yellows:				
Pigment Yellow 1, C.I. 11 680	662	462	979	2.12
Pigment Yellow 3, C.I. 11 710	297	163	391	2.40
Pigment Yellow 74, C.I. 11 741	1,038	600	1,413	2.36
Benzidine yellows, total	10,442	7,477	18,682	2.50
Pigment Yellow 12, C.I. 21 090	6,473	4,103	8,284	2.02
Pigment Yellow 14, C.I. 21 095	2,139	1,961	4,698	2.40
Pigment Yellow 17, C.I. 21 105	573	416	1,224	2.94
Other benzidine yellows	1,257	997	4,476	4.49
All other[2]	1,671	1,537	7,517	4.89
Orange toners, total	1,593	1,463	5,795	3.96
Pigment Orange 5, C.I. 12 075	408	331	594	1.79
Pigment Orange 13, C.I. 21 110	180	177	620	3.50
Pigment Orange 16, C.I. 21 160	319	300	863	2.88
Pigment Orange 34, C.I. 21 115	124	117	452	3.86
All other	562	538	3,266	6.07
Red toners, total	24,260	20,162	43,790	2.17
Naphthol reds, total	1,102	825	3,172	3.84
Pigment Red 2, C.I. 12 310	73	45	124	2.76
Pigment Red 5, C.I. 12 490	82	51	263	5.16
Pigment Red 17, C.I. 12 390	53	55	187	3.40
Pigment Red 22, C.I. 12 315	141	105	347	3.30
Pigment Red 23, C.I. 12 355	276	247	839	3.40
Other naphthol reds	477	322	1,412	4.39
Pigment Red 1, C.I. 12 070, dark	76	73	110	1.51
Pigment Red 1, C.I. 12 070, light	108	91	134	1.47
Pigment Red 3, C.I. 12 120	2,051	1,665	2,949	1.77
Pigment Red 4, C.I. 12 085	360	360	597	1.66
Pigment Red 38, C.I. 21 120	185	165	727	4.41
Pigment Red 48, C.I. 15 865	3,480	2,816	5,816	2.07
Pigment Red 49, C.I. 15 630:				
Barium toner	4,555	4,289	4,880	1.14
Calcium toner	1,328	1,297	1,595	1.23
Sodium toner	56	74	88	1.19
Pigment Red 52, C.I. 15 860	1,559	1,477	2,476	1.68
Pigment Red 53, C.I. 15,585, barium toner	2,799	2,146	3,237	1.51
Pigment Red 54, C.I. 14 830, calcium toner	78	81	208	2.57
Pigment Red 57, C.I. 15 850, calcium toner	1,479	1,236	2,158	1.75
Pigment Red 63, C.I. 15 880	52	45	85	1.89
Pigment Red 81, C.I. 45 160, PMA	572	534	2,147	4.02
Pigment Red 81, C.I. 45 160, PTA	131	107	702	6.56
Pigment Red 90, C.I. 45 380	1,864	1,046	2,190	2.09
Pigment Red 122	115	105	1,418	13.50
All other	2,310	1,730	9,101	5.26

See footnotes at end of table.

ORGANIC PIGMENTS

TABLE 1.--ORGANIC PIGMENTS: U.S. PRODUCTION AND SALES, 1972--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	2,828	2,650	16,382	$6.18
Pigment Violet 1, C.I. 45 170, PMA	68	82	506	6.17
Pigment Violet 1, C.I. 45 170, PTA	88	74	524	7.08
Pigment Violet 3, C.I. 42 535, fugitive	889	831	1,021	1.23
Pigment Violet 3, C.I. 42 535, PMA	347	359	1,156	3.22
Pigment Violet 3, C.I. 42 535, PTA	47	47	222	4.72
Pigment Violet 23, C.I. 51 319	225	215	3,122	14.52
All other	1,164	1,042	9,831	9.43
Blue toners, total	15,518	12,066	36,444	3.02
Pigment Blue 1, C.I. 42 595, PMA	184	153	749	4.90
Pigment Blue 14, C.I. 42 600, PMA	83	116	560	4.83
Pigment Blue 15, C.I. 74 160, alpha form	4,394	3,641	11,466	3.15
Pigment Blue 15, C.I. 74 160, beta form	6,008	4,523	14,145	3.13
Pigment Blue 19, C.I. 42 750A	4,484	3,353	8,022	2.39
Pigment Blue 25, C.I. 21 180	30	...	...	...
All other	335	280	1,502	5.36
Green toners, total	4,216	3,665	14,122	3.85
Pigment Green 1, C.I. 42 040, PMA	15	15	66	4.40
Pigment Green 2, C.I. 42 040 and 49 005, PMA	62	64	348	5.44
Pigment Green 2, C.I. 42 040 and 49 005, PTA	35	42	216	5.14
Pigment Green 7, C.I. 74 260	3,305	2,956	10,991	3.72
Pigment Green 8, C.I. 10 006	153	107	153	1.43
Pigment Green 36, C.I. 74 265	263	271	1,122	4.14
All other	383	210	1,226	5.84
Brown toners, total	132	112	218	1.95
Pigment Brown 5, C.I. 15 800	81	68	125	1.84
All other	51	44	93	2.11
Black toners	221	149	208	1.40
LAKES				
Total	3,019	2,709	3,402	1.26
Yellow lake: (Acid Yellow 23), C.I. 19 140	...	195	346	1.77
Orange lakes	69	68	40	.59
Red lakes:				
Pigment Red 60, C.I. 16 105	296	223	382	1.71
Pigment Red 83, C.I. 58 000	56	53	201	3.79
Violet lake: Pigment Violet 5, C.I. 58 055	127	126	339	2.69
All other lakes[3]	2,471	2,044	2,094	1.02

1 Calculated from rounded figures.
2 Includes "all other" acetoacetarylide yellows.
3 Includes all black, blue, brown, and green lakes, and "all other" red, violet, and yellow lakes.

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, 1972

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	4,103	8,630	$2.10
Dry full-strength toner	1,098	2,240	2.04
Aqueous dispersions[3]	27	63	2.33
Dry extended toner, dry dispersions, and flushed color[4]	2,978	6,327	2.12
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	3,374	10,473	3.10
Dry full-strength toner	2,447	8,064	3.30
Dry extended toner and dry dispersions[4]	52	124	2.38
Aqueous dispersions[3]	651	1,659	2.55
Flushed color	224	626	2.79
Pigment Red 3, C.I. 12 120, total	1,665	3,061	1.84
Dry full-strength toner and dry extended toner[4]	994	1,759	1.77
Aqueous dispersions[3]	118	211	1.79
Flushed color	553	1,091	1.97
Pigment Red 48, C.I. 15 865, total	2,816	5,816	2.07
Dry full-strength toner, dry extended toner, and dry dispersions[4]	2,605	5,382	2.07
Aqueous dispersions[3] and flushed color[4]	211	434	2.06
Pigment Red 49, C.I. 15 630, barium toner, total	4,289	4,993	1.16
Dry full-strength toner, dry extended toner, and aqueous dispersions[4]	3,747	4,223	1.13
Flushed color	542	770	1.42
Pigment Red 53, C.I. 15 585, barium toner, total	2,146	3,281	1.53
Dry full-strength toner and dry dispersions[4]	978	1,456	1.49
Aqueous dispersions[3] and flushed color[4]	1,168	1,825	1.56
Pigment Violet 3, C.I. 42 535, PMA and PTA, total	406	1,520	3.74
Dry full-strength toner	302	1,079	3.57
Dry extended toner and aqueous dispersions[3 4]	14	112	8.00
Flushed color	90	329	3.66
Pigment Blue 15, C.I. 74 160, alpha form, total	3,641	11,467	3.15
Dry full-strength toner	1,421	5,025	3.54
Dry extended toner and dry dispersions[4]	1,085	3,703	3.41
Aqueous dispersions[3]	802	1,903	2.37
Flushed color	333	836	2.51
Pigment Blue 15, C.I. 74 160, beta form, total	4,523	14,231	3.15
Dry full-strength toner	1,410	4,690	3.33
Dry extended toner and dry dispersions[4]	575	2,061	3.58
Aqueous dispersions[3]	961	2,585	2.69
Flushed color	1,577	4,895	3.10

See footnotes at end of table.

TABLE 1A.--U.S. SALES OF SELECTED DRY FULL-STRENGTH COLORS, DRY EXTENDED COLORS, DRY DISPERSIONS, AQUEOUS DISPERSIONS, AND FLUSHED COLORS, 1972--CONTINUED

Selected pigments by commercial forms	Sales		
	Quantity[1]	Value	Unit value[2]
	1,000 pounds	*1,000 dollars*	*Per pound*
Pigment Blue 19, C.I. 45 750A, total	3,353	8,022	$2.39
Dry full-strength toner and aqueous dispersions [3] [4]	286	779	2.72
Flushed color	3,067	7,243	2.36
Pigment Green 7, C.I. 74 260, total	2,956	10,991	3.72
Dry full-strength toner	1,264	4,877	3.86
Dry extended toner	490	1,966	4.01
Dry dispersion	56	275	4.91
Aqueous disperions[3] and flushed color [4]	1,146	3,873	3.38

[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, 1972

[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, ICI, KON, S, SDH, SNA, SW.
*Pigment Yellow 3, C.I. 11 710	ACS, HPC, HSH, HST, KCW, KON, PPG, SW.
Pigment Yellow 4, C.I. 11 665	ACS, HSC.
Pigment Yellow 5, C.I. 11 660	CIK, HPC.
Pigment Yellow 6, C.I. 11 670	HPC.
Pigment Yellow 9, C.I. 11 720	SNA.
Pigment Yellow 49, C.I. 11 765	HPC, ICI.
Pigment Yellow 65	ACS.
Pigment Yellow 73, C.I. 11 738	ACS, CIK, HPC, SNA.
*Pigment Yellow 74, C.I. 11 741	DUP, HPC, HSC, SDH, SNA, SW.
Pigment Yellow 75, C.I. 11 770	HPC.
All other acetoacetarylide yellows	DUP, KCW.
*Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090	ACS, ACY, AMS, APO, CIK, DUP, 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, BUC, CIK, CPC, DUP, GAF, HPC, HSC, HSH, HST, ICC, ROM, S, SDH, SNA, 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 10, C.I. 12 710	HST, SW.
Pigment Yellow 16, C.I. 20 040	HST.
Pigment Yellow 24	ACS.
Pigment Yellow 97	HST.
Pigment Yellow 108, C.I. 68 420	ACS.
Pigment Yellow 123	ACS.
(Basic Yellow 2), C.I. 41 000 fugitive	LVR, MRX
All other	ICC, LVR, S, TRC.
*Orange toners:	
Pigment Orange 1, C.I. 11 725	ACS, HPC, KCW.
Pigment Orange 2, C.I. 12 060	HPC, SNA, UHL.
*Pigment Orange 5, C.I. 12 075	ACY, HSC, HST, SNA, SW.
*Pigment Orange 13, C.I. 21 110	ACS, ACY, AMS, HPC, KON, S, SNA.
Pigment Orange 15, C.I. 21 130	ACS.
*Pigment Orange 16, C.I. 21 160	ACS, DUP, GAF, HPC, HSH, HST, ICC, ROM, SDH, SNA.
*Pigment Orange 34, C.I. 21 115	BUC, ICC, ROM, SDH, SNA.
Pigment Orange 38	HST.
Pigment Orange 43, C.I. 71 105	AGS, HST.
(Vat Orange 3), C.I. 59 300	ACS, HST, TRC.
(Vat Orange 4), C.I. 59 710	ACS.
All other	KON, LVR, S, SNA.
*Red toners:	
*Naphthol reds:	
*Pigment red 2, C.I. 12 310	ACS, HPC, HSH, KCW, SW.
*Pigment Red 5, C.I. 12 490	GAF, HPC, HSH, ICC, ROM, S, SDH.
Pigment Red 7, C.I. 12 420	S.
Pigment Red 9, C.I. 12 460	HPC.
Pigment Red 10, C.I. 12 440	KCW.
Pigment Red 13, C.I. 12 395	HPC, KCW.
Pigment Red 15, C.I. 12 465	DUP.
*Pigment Red 17, C.I. 12 390	ACY, HPC, ICC, S, SNA, SW, UHL.
Pigment Red 18, C.I. 12 350	ACS, HPC.

ORGANIC PIGMENTS

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Red toners--Continued	
*Naphthol reds--Continued	
*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, UHL.
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.
*Pigment Red 1, C.I. 12 070, dark	AMS, HPC, HSC, HSH, SW.
*Pigment Red 1, C.I. 12 070, light	HPC, HSC, HSH, SDH, SW.
*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, SNA, UHL.
Pigment Red 6, C.I. 12 090	DUP, HSH, KCW, KON.
*Pigment Red 38, C.I. 21 120	ACS, DUP, GAF, ICC, SNA, SW.
Pigment Red 41, C.I. 21 200	ACS, GAF.
*Pigment Red 48, C.I. 15 865	ACS, ACY, AMS, DUP, GAF, HPC, HSC, HSH, ICC, IMP, LVY, S, SNA, SW.
Pigment Red 49, C.I. 15 630:	
*Barium toner	ACY, AMS, APO, CIK, HSC, KON, LVY, PPG, SDH, SNA, SW, UHL.
*Calcium toner	ACY, AMS, CIK, HSC, LVY, SDH, SNA, SW.
*Sodium toner	ACY, HSC, KON, SDH, SW.
*Pigment Red 52, C.I. 15 860	AMS, CIK, HPC, HSC, HSH, SNA, SW.
*Pigment Red 53, C.I. 15 585, barium toner	ACY, AMS, APO, CIK, HPC, HSC, KON, LVY, MGR, MRX, SDH, SNA, SW.
Pigment Red 53, C.I. 15 585, sodium toner	KON.
*Pigment Red 54, C.I. 14 830, calcium toner	HPC, HSH, SDH.
Pigment Red 55, C.I. 15 820	HSH.
*Pigment Red 57, C.I. 15 850, calcium toner	AMS, CIK, DUP, HPC, HSC, KON, LVY, MGR, SDH, SNA, SW.
Pigment Red 58, C.I. 15 825	DUP, HPC.
*Pigment Red 63, C.I. 15 880	ACS, HPC, HSH, KON, SNA.
Pigment Red 64, C.I. 15 800	ACS.
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	ACY, AMS, DUP, GAF, HN, HPC, HSC, KCW, KON, MGR, MRX, S, SNA, UHL.
Pigment Red 87, C.I. 73 310	ACS.
Pigment Red 88	ACS.
*Pigment Red 90, C.I. 45 380	AMS, HN, HPC, ICC, LVY, SDH.
Pigment Red 112	HST.
*Pigment Red 122	ACS, ACY, HST, SNA.
Pigment Red 123, C.I. 71 145	ACS,
Pigment Red 146	HST.
Pigment Red 149	HST.
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, HSC.
Pigment Red 198	ACS.
(Vat Red 15)	HST.
All other	DUP, GAF, HN, HSC, LVR, SW, x.
*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	AMS, DUP, GAF, HPC, MGR, MRX, SNA.
*Pigment Violet 3, C.I. 42 535, fugitive	ACY, AMS, HN, HPC, HSC, KON, MGR, UHL.
*Pigment Violet 3, C.I. 42 535, PMA	AMS, CIK, DUP, GAF, HPC, HSC, KON, LVY, MGR, MRX, PPG, SDH, SW, UHL.
*Pigment Violet 3, C.I. 42 535, PTA	ACY, AMS, HN, HPC, HSC, KON, MRX.
Pigment Violet 4, 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.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Violet toners--Continued	
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.
(Basic Violet 2), C.I. 42 520	HN.
All other	BUC, ICC, HPC, ROM.
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA	DUP, GAF, HN, HPC, HSC, KON, LVY, MGR, MRX, SW, UHL.
Pigment Blue 1, C.I. 42 595, PTA	AMS, GAF, 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 7, PTA	LVR.
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	HPC, 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, ICC, MGR, SNA, SW, TMS, TRC.
*Pigment Blue 15, C.I. 74 160, Beta form	ACS, ACY, AMS, BAS, BUC, CIK, DUP, GAF, HPC, HSC, ICC, LVY, 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, HN.
*Pigment Blue 25, C.I. 21 180	ACS, DUP, GAF, ICC, SNA.
Pigment Blue 64, C.I. 69 825	TRC.
(Basic Blue 2)	HPC.
All other	DUP, GAF, SDH, TNI.
*Green toners:	
*Pigment Green 1, C.I. 42 040, PMA	GAF, HPC, MRX, S, UHL.
Pigment Green 1, C.I. 42 040, PTA	HPC, MGR.
*Pigment Green 2, C.I. 42 040 and 49 005, PMA	GAF, HPC, KON, MGR, MRX, UHL.
*Pigment Green 2, C.I. 42 040 and 49 005, PTA	ACY, AMS, DUP, GAF, HPC, KON, S.
Pigment Green 4, C.I. 42 000, fugitive	GAF, MRX.
Pigment Green 4, C.I. 42 000, PMA	KON, MGR.
Pigment Green 4, C.I. 42 000, PTA	ACY, AMS, KON, MGR.
*Pigment Green 7, C.I. 74 260	ACS, ACY, BAS, CIK, DUP, GAF, HPC, HSC, SNA, TMS, TRC.
*Pigment Green 8, C.I. 10 006	HPC, HSH, KCW.
Pigment Green 10, C.I. 12 775	DUP, HPC, SNA.
*Pigment Green 36, C.I. 74 265	ACS, ACY, GAF, SNA.
Pigment Green 38	DUP, SNA.
All other	HPC.
*Brown toners:	
Pigment Brown 1, C.I. 12 480	S.
Pigment Brown 2, C.I. 12 071	HSH.
Pigment Brown 3, C.I. 21 010, PMA	KCW, KON.
*Pigment Brown 5, C.I. 15 800	ACS, BUC, HSH, ICC, ROM, SNA.
Pigment Brown 28, C.I. 69 015	GAF.
All other	GAF, LVR, SDH.
*Black toners	DUP, GAF, UHL.
LAKES	
Yellow lakes: *(Acid Yellow 23), C.I. 19 140	ACS, KON, MGR, MRX.
*Orange lakes:	
Pigment Orange 7, C.I. 15 530	CPC.
Pigment Orange 17, C.I. 15 510	HPC, KCW, KON.
Red lakes:	
*Pigment Red 60, C.I. 16 105	HSH, KON, MRX, 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.

TABLE 2.--ORGANIC PIGMENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Pigment	Manufacturers' identification codes (according to list in table 3)
LAKES--Continued	
*Violet lakes:	
*Pigment Violet 5, C.I. 58 055	ACS, DUP, HPC, HSH, KON, UHL.
All other	SW.
Blue lakes:	
Pigment Blue 17, C.I. 74 180	CPC.
Pigment Blue 24, C.I. 42 090	AMS, KON, LVY, SDH.
(Acid Blue 93), C.I. 42 780	LVR.
(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 phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acid, repectively.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 3.--ORGANIC PIGMENTS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of organic pigment manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 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.
ICI	ICI America, Inc.
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., Sodyeco 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 fermentaiton, 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 pharmacetuical 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 semisynthetic 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 1972 amounted to 234 million pounds, or 5.0 percent more than the 223 million pounds produced in 1971 and 9.3 percent more than the 214 million pounds produced in 1970. Total sales of bulk medicinal chemicals in 1972 amounted to 163 million pounds, valued at $490 million, compared with sales in 1971 of 152 million pounds, valued at $487 million, and sales in 1970 of 155 million pounds, valued at $510 million. In terms of quantity, sales in 1972 were thus 7.2 percent larger than in 1971 and 5.6 percent larger than in 1970. In terms of value, sales in 1972 were 0.7 percent larger than in 1971 and 3.9 percent smaller than in 1970.

Production of the more important groups of medicinal chemicals in 1972 was as follows: Antibiotics, 16.6 million pounds (7.1 percent smaller than in 1971), of which 9.8 million pounds was for medicinal use and 6.8 million pounds was for other uses; anti-infective agents other than antibiotics, 34.4 million pounds (8.3 percent larger than in 1971; central

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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 Tariff 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.

nervous system depressants and stimulants, 52.4 million pounds (13.2 percent larger); gastrointestinal agents and therapeutic nutrients, 99.9 million pounds (10.6 percent larger); and vitamins, 30.0 million pounds (15.1 percent larger). Production of some of the more important individual products listed in table 1 was as follows: Choline chloride, 54.5 million pounds (19.2 percent larger than in 1971); aspirin, 35.0 million pounds (10.5 percent larger); salicylic acid, 8.7 million pounds (52.9 percent smaller); ascorbic acid, 12.3 million pounds (10.0 percent larger); anti-infective sulfonamides, 6.1 million pounds (0.2 percent larger); penicillins (except semi-synthetic), 3,827 trillion units (18.1 percent smaller); tetracyclines, 1.8 million kilograms (19.0 percent smaller); vitamin A, 1,005 trillion units (4.5 percent smaller); and vitamin E, 1,502 billion units (53.0 percent larger).

MEDICINAL CHEMICALS

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1972

[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	234,333	163,210	490,137	$3.00
Acyclic	101,747	82,128	56,878	.69
Benzenoid[3]	111,444	68,279	319,665	4.68
Cyclic nonbenzenoid[4]	21,142	12,803	113,594	8.87
Antibiotics, total[5]	16,637	5,384	139,212	25.86
Bacitracin, for medicinal use	19	20	1,390	69.50
Erythromycin, for medicinal use	641	250	6,269	25.08
Neomycin, for all uses	...	199	2,473	12.43
Penicillins (except semisynthetic), total	5,898	2,545	22,791	8.96
Penicillin G, potassium, for medicinal use	2,174	...	...	...
Penicillin G, procaine, for medicinal use	837	...	...	...
All other, for all uses	2,887	2,545	22,791	8.96
Semisynthetic penicillins, for medicinal use, total	931	332	32,708	98.52
Ampicillin	779	302	29,226	96.77
Ampicillin, sodium	20	...	...	...
All other	132	30	3,482	116.07
Tetracyclines, for all uses	3,899	790	17,735	22.45
Other antibiotics, total	5,249	1,248	55,846	44.75
For medicinal use[6]	1,857	608	47,315	77.82
For nonmedicinal uses[7]	3,392	640	8,531	13.33
Antihistamines, total	483	330	7,878	23.87
Antinauseants	78	...	...	...
Chlorpheniramine maleate	30	10	292	29.20
All other	375	320	7,586	23.71
Anti-infective agents (except antibiotics), total	34,364	22,017	77,672	3.53
Anthelmintics, total	12,914	9,464	43,591	4.61
Piperazine	3,581	...	...	...
Piperazine dihydrochloride	1,824	1,915	1,420	.74
Piperazine hydrochloride	352	240	165	.69
All other	7,157	7,309	42,006	5.75
Antifungal agents	875	...	...	...
Antiprotozoan agents, total	10,233	7,292	16,380	2.25
Arsenic and bismuth compounds	6,077	4,574	5,633	1.23
All other	4,156	2,718	10,747	3.95
Mercury compounds	14	8	533	66.62
Sulfonamides	6,078	1,928	7,664	3.98
Other anti-infective agents[8]	4,250	3,325	9,504	2.86
Autonomic drugs, total	701	523	9,540	18.24
Parasympatholytic (anticholinergic) tertiary amines	52	35	1,537	43.91
Sympathomimetic (adrenergic) agents, total	602	464	6,268	13.51
Epinephrine hydrochloride (racemic)	1	...	...	...
Phenylephrine base and bitartrate	50	...	...	...
Phenylephrine hydrochloride	71	75	2,538	33.84
Phenylpropanolamine hydrochloride	308	276	1,611	5.84
All other	172	113	2,119	18.75
Other autonomic drugs	47	24	1,735	72.29
Cardiovascular agents, total	1,908	719	15,628	21.74
Vasodilators	188	...	...	...
Other cardiovascular agents	1,720	719	15,628	21.74

See footnotes at end of table.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1972--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	52,430	29,358	55,558	$1.89
Amphetamines	...	7	97	13.86
Analgesics and antipyretics, total	45,950	24,895	28,822	1.16
Aspirin	35,007	...	...	...
Meperidine hydrochloride	28	...	...	...
Salicylates (except aspirin)	3,262	2,541	2,577	1.01
All other	7,653	22,354	26,245	1.17
Antidepressants	110	...	...	...
Barbiturates, total	567	350	1,904	5.44
Pentobarbital, sodium	...	18	116	6.44
All other	567	332	1,788	5.39
Hydrocodone bitartrate	1	1	455	455.00
Hypnotics and sedatives (except barbiturates)	246	...	...	...
Skeletal muscle relaxants	133	...	...	...
Tranquilizers	1,126	...	...	...
Other central depressants and stimulants[9]	4,297	4,105	24,280	5.91
Dermatological agents and local anesthetics, total	10,426	10,575	5,402	.51
Salicylic acid[10]	8,694	9,296	3,879	.42
All other	1,732	1,279	1,523	1.19
Diagnostic agents	924	...	...	...
Expectorants and mucolytic agents, total	2,960	2,673	6,188	2.32
Ethylenediamine dihydriodide	1,335	...	...	...
Guaiacol and its derivatives	...	1,322	2,464	1.86
All other	1,625	1,351	3,724	2.76
Gastrointestinal agents and therapeutic nutrients, total	79,934	67,255	25,295	.38
Amino acids and salts	1,346	707	1,594	2.25
Choleretics and hydrocholeretics	150	...	...	...
Choline chloride (all grades)	54,450	42,793	7,486	.17
All other	23,988	23,755	16,215	.68
Hematological agents, total	91	...	...	...
Sodium heparin	...	3	1,730	576.67
All other	91	...	...	...
Hormones and synthetic substitutes, total	1,598	184	20,041	108.92
Antithyroid agents	7	4	52	13.00
Corticosteroids	57	...	...	...
Estrogens and progestogens	...	17	1,017	59.82
Synthetic hypoglycemic agents	1,325	...	...	...
All other	209	163	18,972	116.39
Renal-acting and edema-reducing agents, total	1,650	222	5,838	26.30
Benzothiadiazine derivatives	...	114	4,443	38.97
Mercurial diuretics	...	(11)	13	40.88
Theophylline derivatives	115	...	...	...
All other	1,535	108	1,382	12.80
Vitamins, total	30,030	23,399	111,434	4.76
Vitamin A alcohol and esters, total[12]	1,037	1,010	18,931	18.74
Vitamin A palmitate (feed grade)	443	552	7,082	12.83
All other	594	458	11,849	25.87
Vitamin B-complex, total	10,344	9,019	35,574	3.94
Niacin and niacinamide (all grades)	5,475	4,920	8,882	1.81
Pantothenic acid and derivatives, total	3,049	2,475	3,599	1.45
Calcium pantothenate (racemic)-calcium chloride complex	1,964	1,732	1,978	1.14
All other	1,085	743	1,621	2.18
Riboflavin (all grades)	1,011	788	10,198	12.94
Other B-complex vitamins	809	836	12,895	15.42
Vitamin C, total	15,588	11,067	20,644	1.87
Ascorbic acid	12,312	8,293	15,006	1.81
All other	3,276	2,774	5,638	2.03

MEDICINAL CHEMICALS .

TABLE 1.--MEDICINAL CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production[1]	Sales[1]		
		Quantity	Sales	Unit Value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Vitamins--Continued				
Vitamin D[12]	13	9	1,404	$156.00
Vitamin E, total[12]	2,905	2,220	34,333	15.47
d-and dl-Alpha tocopheryl acetate (all grades)	2,268	1,623	20,336	12.53
All other	637	597	13,997	23.45
Vitamin K	143	74	548	7.41
Miscellaneous medicinal chemicals[13]	197	568	8,721	15.35

[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 444,430 grams of tetracycline base.) For inclusion in the main statistical table, all quantities were converted from grams of antibiotic base to pounds of antibiotic base (453.6 grams = 1 pound) or from U.S.P. units to pounds (22.7 million units of bacitracin, 458 million units of procaine pencillin 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	
Bacitracin, for medicinal use	-----BU---	437	459	1,390	$3,028.32
Erythromycin, for medicinal use	-----Kg---	290,582	113,424	6,269	55.27
Neomycin, for all uses	-----Kg---	...	90,119	2,473	27.44
Penicillins (except semisynthetic), total	-----BU---	3,827,078	1,506,738	22,791	15.13
Penicillin G, potassium, for medicinal use	-----BU---	1,572,130	...	...	...
Penicillin G, procaine, for medicinal use	-----BU---	383,202	...	...	...
All other, for all uses	-----BU---	1,871,746	1,506,738	22,791	15.13
Semisynthetic penicillins, for medicinal use total	-----Kg---	422,353	150,448	32,708	217.40
Ampicillin	-----Kg---	353,302	137,104	29,226	213.17
Ampicillin, sodium	-----Kg---	8,852	...	...	...
All other	-----Kg---	60,199	13,344	3,482	260.94
Tetracyclines, for all uses	-----Kg---	1,768,797	358,477	17,735	49.47

[6] Production of all antibiotics for medicinal use amounted to 9,817,000 pounds; sales amounted to 3,484,000 pounds, valued at $115,855,000.

[7] Production of all antibiotics for animal feeds and other nonmedicinal uses amounted to 6,820,000 pounds; sales amounted to 1,900,000 pounds, valued at $23,357,000.

[8] Includes sales of antifungal agents.

[9] Includes production of amphetamines and production and sales of anticonvulsants, antitussives, general anesthetics and stimulants; also includes sales of antidepressants, hypnotics and sedatives (except barbiturates), skeletal muscle relaxants, and tranquilizers.

[10] Data published for 1971, and possibly for earlier years as well, includes some production and sales of technical grade salicylic acid erroneously reported as medicinal grade.

Footnotes for table 1--Continued

[11] Sales of mercurial diuretics amounted to 318 pounds.

[12] All quantities for vitamin 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 these vitamins, except for B_{12}, which was not separately publishable, in terms of million of international units (MU) or billion of U.S.P. units (BU):

Vitamin	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
				1,000 dollars	
Vitamin A, total	-----BU---	1,005,425	944,556	18,931	$20.04
Vitamin A palmitate (feed grade)	-----BU---	365,303	454,540	7,082	15.58
All other	-----BU---	640,122	490,016	11,849	24.18
Vitamin D	-----BU---	233,391	158,558	1,404	8.85
Vitamin E, Total	-----MU---	1,501,785	1,168,840	34,333	29.37
d-and dl-Alpha tocopheryl acetate (all grades)	-----MU---	1,131,189	817,079	20,336	24.89
All other	-----MU---	370,596	351,761	13,997	39.79

[13] Includes production and sales of antineoplastic agents, smooth-muscle relaxants, and unclassified medicinal chemicals; also includes sales of diagnostic agents and "all other" hematological agents.

MEDICINAL CHEMICALS

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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]	
*Bacitracin	COM, PEN, PFZ, PMP.
*Erythromycin	ABB, LIL, UPJ.
*Neomycin:	
For medicinal use	OMS, PEN, PFZ, UPJ.
For nonmedicinal uses	PFZ.
*Penicillins (except semisynthetic):	
*Penicillin G, potassium	LIL, OMS, PFZ, WYT.
*Penicillin G, procaine	LIL, OMS, PFZ, WYT.
*All other:	
Penicillin G, benzathine	WYT.
Penicillin G, procaine, 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, for medicinal use:	
*Ampicillin	BEE, BOC, BRS, TRD, WYT.
*Ampicillin, sodium	BEE, OMS, WYT.
Carbenicillin	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.
Tetracycline	ACY, BRS, PFZ, RLS.
*Other antibiotics:	
*For medicinal use:	
Amphotericin B	OMS.
Candicidin	PEN.
Cephalexin	LIL.
Cephaloridine	LIL.
Cephalothin	LIL.
Chloramphenicol	PD, RLS.
Clindamycin	x.
Cycloserine	COM.
Dihydrostreptomycin	MRK, PFZ.
Fumagillin	ABB.
Gentamycin	SCH.
Gramicidin	PEN.
Kanamycin	BRS.
Lincomycin	UPJ.
Novobiocin	MRK, UPJ.
Nystatin	ACY, OMS.
Oleandomycin	PFZ.
Paromomycin	MRK.
Polymyxin B	PFZ.
Spectinomycin	ABB, UPJ.
Streptomycin	LIL, MRK, PFZ.
Thiostrepton	OMS.
Troleandomycin	PFZ.
Vancomycin	LIL.
Viomycin	PFZ.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Antibiotics[1]--Continued	
*Other antibiotics--Continued	
*For nonmedicinal uses:	
Bacitracin	COM, GPR, PEN, PMP.
Cycloheximide	UPJ.
Hygromycin B	LIL.
Lincomycin	UPJ.
Monensin, sodium	LIL.
Novobiocin	UPJ.
Nystatin	OMS.
Spectinomycin	UPJ.
Streptomycin	MRK, PFZ.
Tylosin	LIL.
*Antihistamines:	
*Antinauseants:	
Cyclizine hydrochloride	BUR.
Dimenhydrinate	HEX, SRL.
Meclizine hydrochloride	PFZ.
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 fumarate	ABB.
Methapyrilene hybenzate	LIL.
Methapyrilene hydrochloride	ABB.
Methdilazine	BJL.
Methdilazine hydrochloride	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	CGY.
Tripelennamine citrate	CGY.
Tripelennamine hydrochloride	CGY.
Triprolidine hydrochloride	BUR.
*Anti-infective agents (except antibiotics):	
*Anthelmintics:	
2,2-Dichlorovinyl dimethyl phosphate (DVPP)	SHC.
Diethylcarbamazine citrate	ACY.
2,6-Diiodo-4-nitrophenol	RSA.
Gentian violet	SDH.
Hexylresorcinol	NRK.
Phenothiazine	WAG.
*Piperazine	DOW, FLM, JCC, UCC.
Piperazine citrate	BUR.
*Piperazine dihydrochloride	DOW, FLM, JCC, WHL.
Piperazine hexahydrate	JCC.
*Piperazine hydrochloride	DOW, FLM, JCC.
Piperazine phosphate	BUR, JCC.
Piperazine sulfate	JCC, SAL.

See footnotes at end of table.

MEDICINAL CHEMICALS

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Fuchsin, basic	ACS.
Sodium caprylate	LEM.
Sodium undecylenate	NTL.
Undecylenic acid	NTL.
Zinc undecylenate	NTL, WTL.
*Antipropozoan agents:	
Aklomide	SAL.
Amodiaquin	PD.
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.
Glycobiarsol	SDW.
Nitarsone	SAL.
Roxarsone	SAL.
Roxarsone, sodium	SAL.
Sodium arsanilate	SAL.
Chloroquine phosphate	SDW.
Dimetridazole	RDA.
Diiodohydroxyquin	SRL.
3,5-Dinitro-o-toluamide	DOW.
Furazolidone	NOR.
Hydroxychloroquine sulfate	SDW.
Iodochlorhydroxyquin	CGY.
Metronidazole	RDA.
Nifuroxime	NOR.
Nifursol	LEM.
Nihydrazone	NOR.
Nithiazide	MRK.
Nitromide	PEN, SAL.
Nitrophenide	ACY.
Primaquine phosphate	PD.
Pyrimethamine	BUR.
*Mercury compounds:	
Merbromin	HYN.
Mercuric salicylate	MRK.
Nitromersol	ABB
Phenylmercuric acetate	WRC.
Phenylmercuric borate	MRK.
Phenylmercuric chloride	WRC.
Phenylmercuric nitrate	MRK, WRC.
Thimerosal	LIL.
*Sulfonamides:	
Acetyl sulfamethoxypyridazine	ACY.
Acetyl sulfisoxazole	HOF.
Dinsed	SAL.
Mafenide acetate	SDW.
Mafenide hydrochloride	SDW.
Phthalylsulfacetamide	CTN.
Phthalylsulfathiazole	MRK.
Succinylsulfathiazole	MRK.
Sulfabenzamide	ACY.
Sulfabenzamide, sodium	ACY.
Sulfabromomethazine, sodium	MRK.
Sulfacetamide	CTN.
Sulfacetamide, sodium	CTN.
Sulfachloropyrazine, sodium	ACY.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Sulfamethazine, sodium	ACY.
Sulfamethizole	ACY, CTN.
Sulfamethoxazole	HOF.
Sulfamethoxypyridazine	ACY.
Sulfanilamide	MRK, SAL.
Sulfanitran	SAL.
Sulfapyridine	ACY, CTN.
Sulfapyridine, sodium	ACY, CTN.
Sulfaquinoxaline	MRK.
Sulfathiazole	ACY, MRK.
Sulfathiazole, sodium	MRK, SAL.
Sulfisoxazole	HOF.
Sulfisoxazole, sodium	HOF.
*Other anti-infective agents:	
Acriflavine	ACS.
Aminacrine	SDW.
Aminacrine hydrochloride	SDW.
Antileprotic and antitubercular agents:	
Aminosalicylic acid	MLS.
Ethionamide	RDA.
Isoniazid	RIL.
Sodium aminosalicylate[1]	MLS.
Sodium sulfoxone	ABB.
Antiviral agent: Amantadine hydrochloride	DUP.
Benzalkonium chloride	SDH.
Bromoform	DOW.
Camphor, monobromated	PEN.
Carbadox	PFZ.
Cetalkonium chloride	FIN, SDW.
Cetylpyridinium chloride[1]	FIN, HEX.
Chlorobutanol	BPC, PD.
Furamazone	NOR.
8-Hydroxy-5-quinolinesulfonic acid	MRK.
Iodoform[2]	MAL.
Nalidixic acid	SDH.
Nitrofurathiazide	SCH.
Nitrofurazone	NOR.
Oxolinic acid	NEP.
Oxyquinoline	FIS, MRK.
Oxyquinoline benzoate	FIS.
Oxyquinoline citrate	FIS, MRK.
Oxyquinoline sulfate	FIS, MRK.
Phenolic antiseptics and disinfectants:	
Biothionol	SDH.
Chlorothymol	ACY.
Resorcinol[3]	KPT.
Thymol	GIV.
Thymol iodide	MAL.
Povidine - iodine complex	GAF.
Trimethoprim	BUR.
Urinary antiseptics:	
Mandelic acid	MAL.
Methenamine base and salts:	
Methenamine	ARN.
Methenamine hippurate	RIK.
Methenamine mandelate	MAL, NEP.
Methylene blue	ACY.
Nitrofurantoin	NOR, RLS.
Phenazopyridine hydrochloride	HOF, NEP.

See footnotes at end of table.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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	BKC.
Orphenadrine citrate	RIK.
Orphenadrine hydrochloride	RIK.
Oxyphencyclimine hydrochloride	PFZ.
Piperidolate hydrochloride	LKL.
Thiphenamil hydrochloride	BJL.
Trihexyphenidyl hydrochloride	ACY, SDW.
*Sympathomimetic (adrenergic) agents:	
Cinnamedrine hydrochloride	SDW.
Cyclopentamine hydrochloride	LIL.
Epinephrine bitartrate (levo)	SDW.
*Epinephrine hydrochloride (racemic)	ECL, VB. x.
&-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 and bitartrate:	
Phenylephrine	CTN, GAN, SDW.
Phenylephrine bitartrate	GAN.
*Phenylephrine hydrochloride	CTN, GAN, HEX, SDW.
*Phenylpropanolamine hydrochloride	ARS, BKL, GAN, HEX, NEP, ORT, PD.
Propylhexedrine	HEX, SK.
Protokylol hydrochloride	LKL.
Pseudoephedrine hydrochloride	BUR, GAN.
Pseudoephedrine sulfate	GAN.
Tetrahydrozoline hydrochloride	PGZ.
*Other autonomic drugs:	
Ganglionic blocking agents:	
Hexamethonium chloride	RSA.
Tetraethylammonium chloride	RSA.
Parasympatholytic (anticholinergic) quaternary ammonium compounds:	
Ambutonium bromide	BJL.
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 hydrobromide	CTN.
Homatropine methylbromide	CTN, HEX.
Homatropine terephthalate	EN.
Parasympathomimetic (cholinergic) agents:	
Neostigmine bromide	HEX, HOF.
Neostigmine methylsulfate	HOF.
Physostigmine salicylate	PEN.
Pyridostigmine bromide	HOF.
Sympatholytic (antiadrenergic) agent: Ergonovine maleate.	LIL.
*Cardiovascular agents:	
*Vasodilators:	
Amyl nitrite	MAL.
Clonitrate	ICI.
Cyclandelate	WYT.
Dioxyline phosphate	LIL.
Ethyl nitrite	MAL.
Isosorbide dinitrate	ICI.
Mannitol hexanitrate	ICI.
Nicotinyl alcohol tartrate	HOF.
Pentaerythritol tetranitrate	ICI.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Cardiovascular agents--Continued	
*Other cardiovascular agents:	
Antihypertensive agents:	
Guanethidine sulfate	CGY.
Hydralazine hydrochloride	CGY.
Methyldopa	MRK.
Pargyline hydrochloride	ABB.
Rauwolfia and veratrum alkaloids:	
Alkavervir	RIK.
Raunormine	PEN.
Reserpine	PEN.
Bioflavonoids:	
Hesperidin	SKG.
Lemon bioflavonoids	SKG.
Naringin	SKG.
Cardiac drugs:	
Procainamide hydrochloride	OMS, PD.
Quinidine sulfate	HEX.
Colestipol	UPJ.
*Central depressants and stimulants:	
*Amphetamines:	
Amphetamine (racemic)	ORT.
Amphetamine sulfate (racemic)	HEX.
Dextroamphetamine hydrochloride	ARN.
Dextroamphetamine phosphate	ARN.
Dextroamphetamine sulfate	ARN, HEX.
Levamphetamine succinate	ARN.
Methamphetamine hydrochloride (dextro)	ARN, HEX.
Methamphetamine saccharate	RSA.
*Analgesics and antipyretics:	
*Aspirin	DOW, MLS, MON, NOR, SDG.
*Meperidine hydrochloride	PEN, SDW, WYT.
*Salicylates (except aspirin):	
Aluminum aspirin	ABB, SCH.
Phenyl salicylate	DOW.
Potassium salicylate	HN.
Salicylamide	PEN.
Salicylsalicylic acid	PD.
Sodium salicylate	DOW, HN.
*Other analgesics and antipyretics:	
Acetaminophen	ATP, MAL, NEP, PEN.
p-Aminobenzoic acid and salts:	
Aminobenzoic acid	LEM, PD.
Calcium aminobenzoate	GAN.
Potassium aminobenzoate	GAN.
Sodium aminobenzoate	GAN.
Anileridine hydrochloride	MRK.
Calcium succinate	LEM.
Dextropropoxyphene napsylate	LIL.
Ethoheptazine citrate	WYT.
Indomethacin	MRK.
Mefenamic acid	PD.
Methadone hydrochloride	LIL, MAL, PEN.
Oxycodone hydrochloride	EN.
Oxycodone terephthalate	EN.
Oxyphenbutazone	CGY.
Pentazocine	SDW.
Pentazocine hydrochloride	SDW.
Phenacetin	MON.
Phenylbutazone	CGY.
Propoxyphene hydrochloride	LIL, RLS.
*Antidepressants:	
Amitriptyline	MRK.
Desipramine hydrochloride	CGY.
Doxepin hydrochloride	PFZ.
Imipramine hydrochloride	CGY.
Isocarboxazid	HOF.
Nialamide	PFZ.
Nortriptyline	LIL.
Phenelzine sulfate	NEP.

MEDICINAL CHEMICALS

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Barbiturates:	
Allylbarbituric acid, sodium	GAN.
5-Allyl-5-(2-cyclopenten-1-yl)barbituric acid	GAN.
Amobarbital	GAN, LIL.
Amobarbital, sodium	GAN, LIL.
Barbital	GAN.
Barbital, sodium	ABB, GAN.
Butabarbital	ABB, GAN.
Butabarbital, sodium	ABB, GAN.
5-sec-Butyl-5-ethyl-2-thiobarbituric acid, sodium derivative	ABB.
Hexobarbital	GAN, 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.
Vinbarbital	x.
*Hydrocodone bitartrate	EN, MAL, MRK, PEN.
*Hypnotics and sedatives (except barbiturates):	
Carbromal	PD.
Ethchlorvynol	ABB.
Ethinamate	LIL.
Glutethimide	BKL, CGY.
Methyprylon	HOF.
*Skeletal muscle relaxants:	
Carisoprodol	BKL.
Chlorphenesin carbamate	UPJ.
Mephenesin	HEX.
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.
Methaqualone	x.
Molindone hydrochloride	PD.
Oxazepam	WYT.
Phenothiazine derivatives:	
Acetophenazine maleate	SCH.
Chlorpromazine hydrochloride	SK.
Fluphenazine hydrochloride	OMS, SCH.
Perphenazine	SCH.
Prochlorperazine edisylate	SK.
Prochlorperazine maleate	SK.
Promazine hydrochloride	WYT.
Promethazine hydrochloride	WYT.
Triflupromazine hydrochloride	OMS.
Thiothixene hydrochloride	PFZ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Other central depressants and stimulants:	
Anticonvulsants:	
Diphenylhydantoin	PD.
Diphenylhydantoin, sodium	PD, RLS.
Ethosuximide	PD.
Ethotoin	ABB.
Methsuximide	PD.
Phenacemide	ABB.
Phensuximide	PD.
Antitussives:	
Benzonatate	CGY.
Caramiphehen edisylate	SK.
Carbetapentane citrate	PFZ.
Codeine	MRK.
Dextromethorphan hydrobromide	HOF.
Ethylmorphine hydrochloride	MAL, MRK.
Thebaine	MRK
General anesthetic:	
Ketamine hydrochloride	PD.
Vinyl ether	MRK.
Stimulants:	
Benzphetamine hydrochloride	UPJ.
Caffeine:	
Natural	GNF.
Synthetic	PFZ.
Caffeine, citrated	MAL.
Caffeine, sodium benzoate	GAN, MAL.
Chlorphentermine hydrochloride	NEP.
Deanol acetamidobenzoate	RIK.
Diethylpropion	BKC.
Naloxone hydrochloride	MAL.
Nikethamide	CGY.
Phentermine	HEX.
*Dermatological agents and local anesthetics:	
Dermatological agents:	
Allantoin	HFT.
Aluminum phenolsulfonate	MAL, SAL.
Ammonium phenolsulfonate	SAL.
Bismuth subgallate	MAL.
Glycol salicylate	RDA.
*Salicylic acid [3]	DOW, HN, MON, SDH.
Sodium phenolsulfonate	SAL.
Zinc phenolsulfonate	MAL, SAL.
Local anesthetics:	
Butacaine sulfate	ABB.
Butamben picrate	ABB.
Butyl aminobenzoate (Butamben)	ABB.
Dibucaine	CGY.
Dibucaine hydrochloride	CGY.
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.
*Diagnostic agents:	
Roentgenographic contrast media:	
Acetrizoate, sodium	MAL.
Diatrizoate, meglumine	OMS, SDW.
Diatrizoate, sodium	OMS, SDW.
Iodipamide, meglumine	OMS.

See footnotes at end of table.

MEDICINAL CHEMICALS

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Diagnostic agents--Continued	
Roentgenographic contrast media--Continued	
Iodipamide, sodium	OMS.
Iodohippurate, sodium	MAL.
Iopanoic acid	SDW.
Iophendylate	x.
Iothalamate, meglumine	MAL.
Iothalamate, sodium	MAL.
Methiodal, sodium	SDW.
Other diagnostic agents:	
Betazole hydrochloride	LIL.
Indocyanine green (cardiac output test)	x.
Metyrapone (pituitary function test)	CGY.
Phenolphthalein monophosphate, dicyclohexalamine salt	NEP.
Phenolsulfonphthalein (kidney function test)	EK.
*Expectorants and mucolytic agents:	
*Ethylenediamine dihydriodide	HFT, MAL, WAG, WHL.
*Guaiacol and its derivatives:	
Glyceryl guaiacolate	GAN, HEX, PEN.
Guaiacol	MON.
Potassium guaiacolsulfonate	HN.
Iodinated glycerol	x.
Lobeline sulfate	ABB.
Terpin hydrate	PEN.
Thonzonium bromide	NEP.
*Gastrointestinal agents and therapeutic nutrients:	
*Amino acids and salts:	
Amino acid mixtures	MDJ.
Aspartic acid	HEX.
Beta-alanine	DA, HFT.
Glutamic acid and salts:	
Glutamic acid hydrochloride	LEM.
Potassium glutamate	LEM.
Lysine hydrochloride	MRK.
L-Tyrosine	MDJ.
*Choleretics and hydrocholeretics:	
Bile acids, oxidized	SRL. WIL.
Dehydrocholic acid	WIL.
Florantyrone	SRL.
Iron bile salts	LIL, WIL.
Ox bile extracts	ABB, WIL.
Sodium dehydrocholate	WIL.
Tocamphyl	x.
*Choline chloride:	
Feed grade	COM, DA, DOW, HFT, TMH.
Medicinal grade	HFT.
*Other gastrointestinal agents and therapeutic nutrients:	
Gastrointestinal agents:	
Cathartics:	
Magnesium citrate	MAL.
Phenolphthalein	MON.
Podophyllin	ABB, PEN.
Sodium tartrate	MAL
Lipotropic agents:	
Betaine base	HFT.
Betaine hydrochloride	HFT.
Choline bicarbonate	COM.
Choline bitartrate	ACY, HFT.
Choline citrate (Tricholine citrate)	ACY, HFT.
Choline dihydrogen citrate	ACY, HFT.
Methionine, hydroxy analogue, calcium salt	DUP, MON.
Sitosterols	LIL, UPJ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Gastrointestinal agents and therapeutic nutrients--Continued	
*Other gastrointestinal agents and therapeutic nutrients--Continued	
Gastrointestinal agents--Continued	
Other gastrointestinal agents:	
Dihydroxyaluminum aminoacetate	CHT.
Pectin	SKG.
Therapeutic nutrients:	
Calcium glucoheptonate	PFN
Calcium gluconate	PFZ, WHL.
Copper gluconate	PFZ.
Ferrous gluconate	PFZ.
Liver concentrate	WIL.
Liver, desiccated	WIL.
Magnesiun gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
Zinc glucoheptonate	PFN.
*Hematological agents:	
Anticoagulants:	
Ammonium heparin	ABB, WIL.
Anisindione	SCH.
Bishydroxycoumarin	ABB.
Diphenadione	UPS.
*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 acetate	MRK, UPJ.
Dexamethasone	MRK, SCH.
Dexamethasone phosphate	MRK.
Fludrocortisone acetate	UPJ.
Fluorometholone	UPJ.
9α-Fluoroprednisolone acetate	UPJ.
Fluprednisolone	UPJ.
Hydrocortisone	MRK, PFZ, UPJ.
Hydrocortisone acetate	MRK, UPJ.
Medrysone	UPJ.
Methylprednisolone	UPJ.
Prednisolone	MRK, UPJ.
Prednisolone acetate	UPJ.
Prednisone	MRK, SCH, UPJ.
Triamcinolone	ACY, OMS, x.
Triamcinolone acetonide	OMS.
*Estrogens and progestogens:	
Chlorotrianisene	BJL, BKC.
Dienestrol diacetate	SCH.
Diethylstilbestrol	CTN, LIL.
Diethylstilbestrol diphosphate	x.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Hormones and synthetic substitutes--Continued	
*Estrogens and progestogens--Continued	
Estrogenic substances, conjugated	ORG.
Medroxyprogesterone acetate	UPJ.
Melengestrol acetate	UPJ.
Natural estrogenic substance	ORG.
Norgestrel	WYT.
Progesterone	UPJ.
*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)	ORG.
Glucagon	LIL.
Insulin	LIL.
Thyroid	LIL.
*Renal-acting and edema-reducing agents:	
*Benzothiadiazine derivatives:	
Bendroflumethiazide	OMS.
Benzthiazide	PFZ
Chlorothiazide	MRK.
Cyclothiazide	LIL.
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.
Oxtriphylline	NEP.
Theophylline sodium glycinate	CHT.
*Other renal-acting and edema-reducing agents:	
Acetazolamide	ACY.
Chlorthalidone	CGY.
Dichlorphenamide	MRK.
Ethacrynic acid	MRK.
Probenecid	MRK.
Triamterene	ACY, SK.
*Vitamins:	
*Vitamin A alcohol and esters:	
Beta-carotene (Provitamin A)	EKT, HOF.
Vitamin A acetate (feed grade)	HOF, PFZ.
Vitamin A acetate (medicinal grade)	HOF, PFZ.
Vitamin A alcohol	HOF, PFZ.
*Vitamin A palmitate (feed grade)	EKT, HOF, PFZ.
Vitamin A palmitate (medicinal grade)	EKT, HOF, PFZ.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Vitamins--Continued	
*Vitamin B-complex:	
*Niacin and niacinamide (all grades):	
Niacin (nicotinic acid) (feed grade)	DA, MRK, 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, PHF.
Calcium pantothenate (racemic) (medicinal grade)	DA, HFT.
*Calcium pantothenate (racemic) - calcium chloride complex.	CKL, DA, DLI, HFT.
Choline pantothenate	DLI.
Dexpanthenol	HFT, HOF.
Panthenol (racemic)	HOF.
Sodium pantothenate	PD.
*Riboflavin (all grades):	
Riboflavin (feed grade)	GPR, HOF, MRK, PMP.
Riboflavin (medicinal grade)	DA, HOF, MRK.
*Other B-complex 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, MRK.
Riboflavin-5-phosphate, sodium	HOF.
Thiamine hydrochloride	HOF, MRK.
Thiamine mononitrate	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, PHF, VTM.
Ergocalciferol (Vitamin D_2)	SCR, VTM.
*Vitamin E:	
d-Alpha tocopherol	CW, EKT.
dl-Alpha tocopherol	HOF.
*d- and dl-Alpha tocopheryl acetate (all grades):	
d-Alpha tocopheryl acetate	CW, EKT.
dl-Alpha tocopheryl acetate:	
Feed grade	HOF.
Medicinal grade	DA, EKT, HOF.
Technical grade	DA.
d-Alpha tocopheryl acid succinate	CW, EKT.
*Vitamin K:	
Menadiol sodium diphosphate	HOF.
Menadione	ABB, HET, WHL.
Menadione sodium bisulfite	ABB, DA, DLI, HET, HFT, WHL.
Phytonadione	MRK.
*Miscellaneous medicinal chemicals:	
Antineoplastic agents:	
Azathioprine	BUR.
Mercaptopurine	BUR.
Thioguanine	BUR.
Vinblastine sulfate	LIL.
Vincristine sulfate	LIL.
Smooth muscle relaxants:	
Alverine	CTN.
Alverine citrate	x.
Alverine hydrochloride	CTN.
Papaverine hydrochloride	LIL, MAL, PEN.
Sodium benzyl succinate	FIN.

TABLE 2.--MEDICINAL CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
*Miscellaneous medicinal chemicals--Continued	
Unclassified medicinal chemicals:	
Allopurinol	BUR.
Berberine hydrochloride	PEN.
Dopamine hydrochloride	SDW.
Hydrastine hydrochloride	PEN.
Levodopa	BID, HOF.
Penicillamine (copper chelating agent)	MRK.
Other	ALD.

[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, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of medicinal chemicals to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ABB	Abbott Laboratories
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACY	American Cyanamid Co.
ALD	Aldrich Chemical Co., Inc.
ARN	Arenol Chemical Corp.
ARS	Arsynco, Inc.
AST	Astra Pharmaceutical Products, Inc.
ATP	Northern Fine Chemicals, 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.
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.
CTN	Chemetron Corp., Organic Chemical Div.
CW	General Mills Chemical, Inc.
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.
FIS	Fisher Chemical Co., 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.
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.
ICI	ICI America, Inc., Atlas Chemical Div.
JCC	Jefferson Chemical Co., Inc.
KPT	Koppers Co., Inc., Organic Materials Div.
LEM	Lemke Chemicals, Inc.
LIL	Eli Lilly & Co.
LKL	Lakeside Laboratories Div. of Colgate-Palmolive Co.
MAL	Mallinckrodt Chemical Works
MDJ	Mead Johnson & Co.
MLS	Miles Laboratories, Inc., Marschall 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.
PHF	Thompson-Hayward Chemical Co., Peter Hand Div.
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.
TMH	Thompson-Hayward Chemical Co.
TRD	Trade Enterprises, Inc.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Div.
UPJ	Upjohn Co.
VB	Vermilye-Bell
VTM	Vitamins, Inc.
WAG	West Agro-Chemicals, Inc.
WHL	Whitmoyer Laboratories, Inc.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.
WRC	Ventron Corp., Ventron 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 1972 amounted to 110.5 million pounds--an increase of 14.6 percent compared to 96.4 million pounds produced in 1971 (table 1).[1] Sales of these materials in 1972 amounted to 104.0 million pounds, valued at $88.4 million, compared with 84.8 million pounds, valued at $84.0 million in 1971.

Production of cyclic flavor and perfume materials in 1972 amounted to 51.8 million pounds; sales amounted to 48.2 million pounds, valued at $54.1 million. The individual chemical in the cyclic group produced in the greatest volume in 1972 again was benzyl alcohol (10.4 million pounds).

U.S. output of acyclic flavor and perfume materials in 1972 amounted to 58.5 million pounds; sales of these materials amounted to 55.7 million pounds, valued at $34.1 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.

Domestic production of essential oils, chemically modified, in 1972 amounted to 119 thousand pounds; sales amounted to 93 thousand pounds and were valued at $220 thousand. Both cyclic and acyclic compounds were represented among the group, however, the totals above for cyclic and acyclic flavor and perfume materials do not include items of this group.

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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.

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1972

[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	Sale		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	110,473	103,992	88,402	$0.85
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total	51,809	48,166	54,058	1.12
Benzenoid and Naphthalenoid				
Total	43,756	41,311	41,134	1.00
4-Allyl-2-methoxyphenol (Eugenol)	473	380	1,044	2.75
p-Anisaldehyde	1,065	1,261	1,683	1.34
Benzophenone[2]	449	300	407	1.36
Benzyl acetate	1,414	1,678	657	.39
Benzyl alcohol[2]	10,440	13,444	3,922	.29
Benzyl benzoate	408	621	350	.56
Benzyl butyrate	...	11	16	1.52
Benzyl cinnamate	...	7	30	4.24
Benzyl propionate	34	34	40	1.19
Benzyl salicylate	419	450	411	.91
Cinnamaldehyde	1,565	1,127	790	.70
Cinnamyl acetate	11	9	25	2.66
Cinnamyl alcohol	339	277	431	1.56
Cinnamyl anthranilate	1	1	8	11.61
Ethyl phenylglycidate	16	...	...	...
Hydrocoumarin	37	...	...	...
Isobutyl phenylacetate	18	18	21	1.20
Isobutyl salicylate	...	18	14	.80
Isopentyl salicylate	403	453	313	.69
Methyl anthranilate	...	185	269	1.45
α-Methylbenzyl acetate (Styralyl acetate)	98	95	83	.87
Methyl phenylacetate	29	23	43	1.90
Methyl salicylate	5,828	5,774	2,706	.47
Phenethyl acetate	80	64	76	1.20
2-Phenethyl phenylacetate	35	21	48	2.31
3-Phenyl-1-propanol (Hydrocinnamic alcohol)	...	33	61	1.89
Piperonal (Heliotropin)	...	124	337	2.71
p-Propenylanisole (Anethole)	2,650	2,540	1,537	.61
p-Tolualdehyde	...	42	103	2.45
All other benzenoid and naphthalenoid materials	17,944	12,321	25,709	2.09
Terpenoid, Heterocyclic, and Alicyclic				
Total	8,053	6,855	12,924	1.89
Cedryl acetate	214	174	448	2.57
α-Ionone	84	57	280	4.92
p-Menthan-3-one (Methone)	16	10	46	4.46
Menthol, synthetic, U.S.P	553	497	1,874	3.77
Methylionones	574	378	1,665	4.40

See footnotes at end of table.

FLAVOR AND PERFUME MATERIALS

TABLE 1.--FLAVOR AND PERFUME MATERIALS: U.S. PRODUCTION AND SALES, 1972--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--Continued				
Terpineols	3,017	2,778	1,163	$0.42
α-Terpinyl acetate	585	527	403	.77
Vetivenyl acetate	35	28	560	20.27
All other terpenoid, heterocyclic, and alicyclic materials	2,975	2,406	6,485	2.70
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
Total	58,545	55,733	34,124	.61
Allyl hexanoate	15	14	36	2.46
Citronellyl acetate	18	...	...	...
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)	53	36	119	3.28
3,7-Dimethyl-trans-2,6-octadienal (Citral a; Geranial)	...	29	137	4.67
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	1,196	876	1,473	1.68
3,7-Dimethyl-6-octen-1-ol (Citronellol)	1,004	587	966	1.65
Ethyl butyrate	532	468	302	.65
Ethyl heptanoate	12	10	15	1.45
Ethyl hexanoate (Ethyl caproate)	6	5	10	1.98
Geranyl acetate	149	100	201	2.00
Geranyl butyrate	5	4	11	2.98
Geranyl formate	14	9	29	3.20
Glutamic acid, monosodium salt (Monosodium glutamate)	47,324	48,136	21,646	.45
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	432	442	2,440	5.52
Isopentyl butyrate	88	90	70	.78
Isopentyl formate	4	5	8	1.56
Isopentyl isovalerate	17	...	...	...
Rhodinol	15	...	...	...
All other acyclic materials	7,661	4,922	6,661	1.35
ESSENTIAL OILS, CHEMICALLY MODIFIED				
Total	119	93	220	2.36
Ethyl oxyhydrate	37	28	26	.94
Guaicwood acetate	45	43	118	2.72
All other chemically modified essential oils	37	22	76	3.45

[1]Calculated from the unrounded figures.
[2]Includes some technical grade.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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 2 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-ethnylcyclohexane	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)	IFF.
*p-Anisaldehyde	GIV, OPC, UOP.
Anisole (Methyl phenyl ether)	GIV.
Anisyl acetate	ELN, GIV, UOP.
*Benzophenone	GAF, GIV, NEO, PD, UOP.
*Benzyl acetate	GIV, MON, OPC, UOP.
*Benzyl alcohol	BPC, HN, MNR, UOP, VEL.
*Benzyl benzoate	MON, OPC, PFZ, UOP, VEL.
*Benzyl butyrate	ELN, FB, GIV.
*Benzyl cinnamate	FB, GIV, UOP
Benzyl ether	UOP, VEL.
Benzyl formate	GIV, UOP.
Benzyl glyceryl acetal	GIV.
Benzyl isobutyrate	GIV.
Benzyl isopentyl ether	GIV.
Benzyl isovalerate	FB.
Benzyl laurate	GIV.
1-(Benzyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether).	GIV, UOP.
Benzyl phenylacetate	ELN, GIV.
*Benzyl propionate	ELN, FB, GIV, OPC.
*Benzyl salicylate	GIV, MON, UOP.
α-Bromostyrene	UOP.
2-sec-Butylcyclohexanone	GIV.
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, UOP.
p-tert-Butyl-α-methylhydrocinnamaldehyde	GIV, UOP.
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene (Musk Tibetene).	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)	GIV.
Carvacrol	CI, FB, UOP.
*Cinnamaldehyde	BPC.
Cinnamic acid	ELN, FB, GIV.
*Cinnamyl acetate	FB, GIV, NEO, UOP.
*Cinnamyl alcohol	FEL, GIV, RT.
*Cinnamyl anthranilate	FB.
Cinnamyl butyrate	FB.
Cinnamyl cinnamate	FB, GIV.
Cinnamyl propionate	FB.
Cinnamyl tiglate	DOW, RDA.
Coumarin	

FLAVOR AND PERFUME MATERIALS

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
Cuminyl alcohol	GIV.
Cyclohexylcychohexanone	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.
p-α-Dimethylbenzyl alcohol	GIV.
3,7-Dimethyl-1,6-octadien-3-yl, anthranilate (Linalyl anthranilate).	FMT.
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.
trans-3,7-Dimethyl-2,6-octadien-1-ol, benzoate (Geranyl benzoate).	GIV.
α,α-Dimethylphenethyl acetate	IFF.
α,α-Dimethylphenethyl alcohol	IFF.
α,α-Dimethylphenethyl alcohol, butyrate	IFF.
α,α-Dimethylphenethyl alcohol, tech	IFF.
Diphenylmethane (Benzylbenzene)	ARA, UOP.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)	GIV.
p-Ethoxy benzaldehyde	GIV.
2-Ethoxynaphthalene	GIV.
Ethyl anthranilate	FB.
Ethyl benzoate	ELN.
Ethyl cinnamate	ELN, GIV.
Ethyl α,β-epoxy-β-methylhydrocinnamate	ELN, GIV.
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.
	GIV, UOP.
Ethylvanillin (4-Hydroxy-3-ethoxybenzaldehyde)	MON, SLV.
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta-gamma-2-benzopyran (Galaxolide 50).	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-(4-Hydroxy-3-methoxyphenyl)-2-butanone	GIV.
Indole	GIV.
Isoamyl phenylacetate	GIV.
Isobutyl benzoate	ELN.
p-Isobutyl-α-methylhydrocinnamaldehyde (Rhodial)	RDA.
*Isobutyl phenylacetate	ELN, FB, GIV.
Isobutylquinoline	IFF.
*Isobutyl salicylate	FB, GIV, UOP.
Isohexenyl tetrahydrobenzaldehyde (Myrac aldehyde)	IFF.
Isopentyl benzoate	GIV.
*Isopentyl salicylate	FB, GIV, MON, OPC, UOP.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
p-Isopropyl benzaldehyde (Cumaldehyde)	GIV.
p-Isopropylcyclohexanol	GIV.
p-Isopropyl-α-methylhydrocinnamaldehyde (Cyclamenaldehyde)	GIV, RDA.
Isovanillin (3-Hydroxy-4-methoxybenzaldehyde)	SLV.
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)	CI, GIV.
2-Methoxy-4-propenylphenol, acetate	UOP.
4'-Methylacetophenone	GIV, UOP.
p-Methylanisole	GIV, UOP.
*Methyl anthranilate	FB, OPC, PFW, SW, UNG.
Methyl anthranilidene-p-isopropyl methylhydrocinnamaldehyde (Orangeol N).	RDA.
Methyl benzoate	HN.
*α-Methylbenzyl acetate (Styralyl acetate)	CI, ELN, GIV, UNG.
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 N-methylanthranilate	GIV, OPC.
*Methyl phenylacetate	ELN, GIV, OPC.
*Methyl salicylate	DOW, HN, MON.
1H-Naphtho-[2,3-c]pyran-3,4,6,7,8,9-hexahydro-4,6,6,9,9-pentamethyl (Musk 89).	IFF.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan	GIV.
α-Pentylcinnamaldehyde	CI, FB, GIV, UOP.
*Phenethyl acetate	GIV, IFF, NEO.
Phenethyl alcohol	IFF, NEO.
Phenethyl formate	ELN, IFF.
Phenethyl isobutyrate	ELN, GIV, IFF.
Phenethyl isovalerate	GIV, OPC.
*2-Phenethyl phenylacetate	CI, ELN, GIV, IFF.
Phenethyl propionate	GIV.
Phenethyl salicylate	GIV.
2-Phenoxyethyl isobutyrate	GIV.
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.
3-Phenylpropyl cinnamate	FB.
*Piperonal (Heliotropin)	AMB, GIV, UOP.

FLAVOR AND PERFUME MATERIALS

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
Piperonal bisulfite (Heliotropin bisulfite)	AMB.
*p-Propenylanisole (Anethole)	ARZ, GLD, HN, HPC, NCI, UOP.
p-Propylanisole (Dihydroanethole)	FB, GIV.
N-Propylphenylethyl alcohol	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)	MON, SW.
Saccharin, ammonium salt	SW.
Saccharin, calcium salt	MON, SW.
Saccharin, sodium salt	MON, SW.
*p-Tolualdehyde	GIV, HN, TCC.
p-Tolylacetaldehyde	GIV.
p-Tolyl acetate	FB, GIV.
p-Tolyl phenylacetate	GIV.
α-(Trichloromethyl) benzyl acetate (Rosetone)	NEO.
Vanillin (4-Hydroxy-3-methoxybenzaldehyde)	MON, SLV.
Terpenoid, Heterocyclic, and Alicyclic	
~~Acetyl cedrene (Vertofix)~~	IFF.
Cadinene	FB.
β-Caryophyllene	CI, GIV.
Caryophyllene oxide	GIV.
α-Cedrene epoxide (Andrane)	IFF.
Cedrenol	GIV.
Cedrol	ELN, GIV, IFF, NEO.
*Cedryl acetate	ELN, GIV, IFF, NEO, UNG, UOP.
Cedryl formate	IFF.
Cyclopentanone	ARA.
Dihydronordicyclopentadienyl acetate	GIV, IFF
Dihydronordicyclopentadienyl propionate	GIV, IFF
Dihydroterpinyl acetate	GIV.
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.
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, MYW, NEO, UNG.
Isoborneol	RDA.
Isobornyl acetate	FB, OPC, RDA.
Isobornyl propionate	GIV, OPC.
Isojasmone	FB.
Isomenthone	GIV.
4-Isopropylcyclohexanol	UOP.
Jasmal	IFF.
p-Mentha-6,8-dien-2-ol (l-Carveol)	FB.
p-Mentha-6,8-dien-2-one (Carvone; Carvol)	FB.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
p-Mentha-6,8-dien-2-ol, acetate (ℓ-carvyl acetate)	FB.
p-Mentha-1,3-diene (α-Terpinene)	GLD.
p-Mentha-1,4-diene (γ-Terpinene)	GLD.
*p-Menthan-3-one (Menthone)	GIV, HN, 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, HN.
*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, UNG.
γ-Methylionone	GIV.
Nopyl acetate	CI, FEL, NEO, RDA.
3-Pentyl-tetrahydro-4-pyranol (Jessemal)	IFF.
Santalol	GIV.
Santalyl acetate	GIV.
*Terpineols:	
α-Terpineol	GLD, HPC, NCI.
Terpineol (α- and β-)	GIV. NEO.
Terpinol hydrate (Terpin hydrate), tech	HPC.
*α-Terpinyl acetate	GIV, NEO, PFW, UNG.
Terpinyl acetate (mixed α- and β-)	RDA.
α-Terpinyl propionate	ELN, GIV.
Tetrahydropseudo ionone	CI.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl-α-ionone).	IFF.
3,3,5-Trimethyl cyclohexanol (Homomenthol)	ARS.
Vetivenol	GIV, UOP.
*Vetivenyl acetate	ELN, FB, GIV, IFF, NEO, UOP.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Acetylbutyryl (2,3-Hexanedione)	FB.
Acetylpropionyl	FB.
Acetylvaleryl (2,3-Heptanedione)	FB.
Allyl disulfide	RT.
Allyl heptanoate	FB.
*Allyl hexanoate	ELN, FB, GIV, PFW.
Allyl isothiocyanate (Synthetic mustard oil)	MRT.
Allyl octanoate (Allyl caprylate)	RT.
Allyl sulfide	RT.
Amyl propionate	GIV.
Butyl butyryl lactate	ARS.
1-Chloro-2-methyl-butene-2	RDA.
Citral dimethyl acetal	GIV, IFF.
*Citronellyl acetate	ELN, GIV, IFF.
Citronellyl butyrate	GIV.
Citronellyl formate	ELN, GIV, IFF.
Citronellyl isobutyrate	ELN, GIV.
Citronellyl methyl acetal	IFF.
Citronellyl oxyacetaldehyde	IFF.
Citronellyl propionate	IFF.

FLAVOR AND PERFUME MATERIALS

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Decanal (Capraldehyde)	CI, GIV, IFF.
Decen-9-ol-1 (Rosalva)	IFF.
Decyl acetate	GIV.
Diethyl acetal	FB.
Diethyl sebacate	ELN, FEL, UOP.
Diethyl succinate	UCC.
Dihydromyrcenol	IFF.
Dihydromyrcenyl formate (Dimyrceto1)	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 linalool)	HOF.
3,7-Dimethyl-1,6-nonadien-3-ol, acetate	HOF.
3,7-Dimethyl-2,6-nonadienenitrile	GIV.
3,7-Dimethyl-2,6-octadienal (Citral)	HOF.
*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, UOP.
3,7-Dimethyl-trans-2,6-octadienal dimethyl acetal	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, UNG.
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate).	ELN, FB, GIV, GLD, HOF, NEO, UNG.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate).	HOF.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate).	HOF.
3,7-Dimethyloctan-1-al	HOF.
3,7-Dimethyloctan-3-ol	HOF.
3,7-Dimethyl-1,7-octanediol	GIV.
3,7-Dimethyl-1-octanol (Dihydrocitronellol)	GIV.
3,7-Dimethyl-6-octen-1-al (Citronellal)	FB, GIV, IFF, NEO, UOP.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)	CI, ELN, FB, GIV, IFF, NEO, SCM.
3,7-Dimethyl-6-octen-1-ol, cis, trans mixture	CI.
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, FEL, RT, UOP.
*Ethyl hexanoate (Ethyl caproate)	ELN, FB, NW, PFW, RT.
2-Ethyl-1-hexanol	GIV.
Ethyl isohexanoate	PFW.
Ethyl isovalerate	FB, PFW.
Ethyl laurate	ELN.
Ethyl myristate	RT.
Ethyl nonanoate	FEL, GIV.
Ethyl octanoate	FB, RT.
Ethyl propionate	FB, NW.
Ethyl valerate	PFW.
Geranic acid	FB.
Geranonitrile	IFF.
*Geranyl acetate	CI, ELN, FEL, GIV, IFF, UNG.
*Geranyl butyrate	CI, ELN, GIV.
Geranyl dimethylacrylate	FMT.
*Geranyl formate	CI, ELN, GIV.
Geranyl isobutyrate	IFF.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Geranyl isovalerate	FB.
Geranyl neryl formate	IFF.
Geranyl propionate	FB, IFF.
Geranyl tiglate	FB.
*Glutamic acid, monosodium salt (Monosodium glutamate)	COM, GRW, UDW.
γ-Heptalactone	FB.
Heptanal (Enanthaldehyde)	NTL.
Heptyl alcohol (1-Heptanol)	NTL, UCC.
Hexanoic acid (Caproic acid)	FB.
2-Hexanol	FB.
2-Hexenal	FB, GIV.
cis-3-Hexen-1-ol	GIV, x.
cis-3-Hexen-1-yl acetate	GIV.
cis-3-Hexen-1-ol lactate	RT.
3-Hydroxy-2-butanone (Acetoin)	FMT.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	GIV, GLD, IFF, NEO, UOP.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal).	GIV, UOP.
Isoamyl propionate	FB.
Isoamyl undecylenate	GIV.
Isobutyl acetate	FB.
Isodihydro lavandulol	FB.
Isodihydro lavandulylaldehyde	FB.
Isodihydro lavandulyl acetate	FB.
*Isopentyl butyrate	FB, GIV, NW, PFW, UOP.
*Isopentyl formate	ELN, GIV, RT.
*Isopentyl isovalerate	ELN, FB, PFW.
Lauraldehyde	CI, GIV.
3-Methyl-5-heptanone oxime	GIV.
2-Methyl-2-hepten-6-one methyl hexenyl ketone and 6-methyl-5-hepten-2-one.	RDA.
Methyl isobutyrate	PFW.
3-Methyl-2-(and 3) nonenitrile	GIV.
Methyl-2-nonenoate	GIV.
Methylol methyl hexyl ketone	GIV.
2-Methylundecanal	GIV.
Mugual and tetrahydro muguol	IFF.
Myrcenyl acetate	IFF.
Myristaldehyde	GIV.
Neryl acetate	GIV.
Nonanal	GIV.
Nonane diacetate	CI.
Nonane-1,3-diol monoacetate	GIV.
Nonanol	GIV.
Nonyl acetate	GIV.
Ocimenol	IFF.
Ocimenyl acetate	IFF.
Octanal	GIV, IFF.
Octanal, tech	IFF.
3-Octanone (Ethyl amyl ketone)	GIV.
Octyl acetate	FB.
n-Octyl acetate	GIV.
n-Octyl alcohol	GIV.
Pentyl acetate	UOP.
Propionic acid ethyl ester	UOP.
Pseudo linalyl acetate	IFF.
Pyrolysate ester	GIV.
*Rhodinol	FB, FEL, GIV, IFF, NEO.

TABLE 2.--FLAVOR AND PERFUME MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Rhodinyl acetate	GIV.
Sodium allyl sulfonate	UOP.
Tepyl acetate	UOP.
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.
9-Undecenal	GIV.
γ-Valerolactone	GIV.
ESSENTIAL OILS, CHEMICALLY MODIFIED	
Amyris acetate	GIV.
Clove leaf oil terpenes	CI, UOP.
*Ethyl oxyhydrate	FEL, FLO, PFW, RT, VND.
*Guaiacwood acetate	ELN, FB, GIV, NEO.
Guaiene	FB.
Lavandin, acetylated	FEL, UNG.
Rose oxide	FB.
Sassafrass oil, hydrogenated	GIV.

TABLE 3.--FLAVOR AND PERFUME MATERIALS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of flavor and perfume materials to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of Company
ABB	Abbott Laboratories
AMB	American Bio-Synthetics Corp.
ARA	Arapahoe Chemicals Div. of Syntex Corp.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
BPC	Stauffer Chemical Co., Specialty Chemical Division, Benzol Products
CI	Chem-Fleur, Inc.
COM	Commercial Solvents Corp.
DOW	Dow Chemical Co.
ELN	Elan Chemcial Co.
FB	Fritzsche, Dodge & Olcott, Inc.
FEL	Felton International, Inc.
FLO	Florasynth, Inc.
FMT	Fairmount Chemical Co., Inc.
GAF	GAF Corp., Chemical Division
GIV	Givaudan Corp.
GLD	SCM Corp., Glidden-Durkee Division
GRW	Great Western Sugar Co.
HN	Tenneco Chemicals, Inc.
HOF	Hoffman-LaRoche, Inc.
HPC	Hercules, Inc.
IFF	International Flavor & Fragrances, Inc.
MNR	Monroe Chemical Co.
MON	Monsanto Co.
MRT	Morton Chemical Co., Div of Morton-Norwich Products, Inc.
MYW	Stepan Chemical Co.
NCI	Union Camp Corp., Chemical Division
NEO	Norda Essential Oil & Chemical Co., Inc.
NTL	NL Industries, Inc.
NW	Northwestern Chemical Co.
OPC	Orbis Products Corp.
PD	Parke, Davis & Co.
PEN	CPC International, Inc., Penick Division
PFW	Polak's Frutal Works, Inc.
PFZ	Pfizer, Inc.
RDA	Rhodia, Inc.
RT	F. Ritter & Co.
SKG	Sunkist Growers, Inc.
SLV	Sterwin Chemicals, Inc.
SW	Sherwin-Williams Co.
TCC	Tanatex Chemical Corp.
UCC	Union Carbide Corp.
UDW	William Underwood Co.
UNG	Ungerer & Co.
UOP	Universal Oil Products Co., UOP Chemical Division
VEL	Velsicol Chemical Corp.
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 semifinished or finished solid forms. Resin materials may be in the form of solutions, pastes or emulsions for applications such as protective coatings, adhesives, or paper and textile treatment.

Statistics on U.S. production and sales of synthetic plastics and resin materials for 1972 are given in table 1.[1] U.S. production of plastics and resin materials in 1972 totaled 25,921 million pounds, or 23.0 percent more than the 21,070 million pounds produced in 1971. Sales in 1972 totaled 22,946 million pounds, valued at $4,258 million compared with 18,473 million pounds, valued at $3,507.

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 4,484 million pounds in 1972 compared with 3,615 million pounds in 1971. Production of the most important products in 1972 included phenolic resins (1,441 million pounds), amino (or urea and melamine) resins (929 million pounds), polyester resins (930 million pounds), and alkyd resins (636 million pounds).

Thermoplastic materials are those which can be repeatedly softened by heat and shaped. U.S. production of thermoplastic materials totaled 21,437 million pounds in 1972 compared with 17,455 million pounds in 1971. Production of the most important products in 1972 included polyethylene (7,656 million pounds), vinyl resins (5,122 million pounds), and styrene type materials (4,890 million pounds).

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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, 1972

[Quantities and values are given in terms of the total weight of the materials (dry basis). Listed below are all plastics and resin 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 plastics and resin materials for which data on production or sales were reported and identifies the manufacturers of each]

Material	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds dry basis[3]	*1,000 pounds dry basis*[3]	*1,000 dollars*	*Per pound*
Grand total	25,920,662	22,946,075	4,258,440	$0.19
Plastics and resin materials, benzenoid[4]	8,946,997	7,807,933	1,715,579	.22
Plastics and resin materials, nonbenzenoid	16,973,665	15,138,142	2,542,861	.17
THERMOSETTING RESINS				
Total	4,483,501	3,591,609	833,113	.23
Alkyd resins, total	635,916	323,250	89,839	.28
Phthalic anhydride type	597,181	300,281	83,685	.28
Polybasic acid type	38,735	22,969	6,154	.27
Polyester resins, unsaturated[5]	930,384	845,767	158,962	.19
Styrene alkyd polyesters	12,493	5,109	1,786	.35
Amino resins, total	928,767	759,934	153,551	.20
Melamine-formaldehyde resins	199,473	152,831	51,924	.34
Urea-formaldehyde resins	729,294	607,103	101,627	.17
Dicyandiamide resins	2,102	2,080	1,341	.64
Epoxy resins:[6]				
Unmodified	[7] 179,000	[7] 179,000	[7] 81,000	.45
Modified and "advanced"	[8] (43,159)	[8] (26,554)	[8] (21,466)	.81
Furfuryl type resins	4,449	2,683	719	.27
Phenolic and other tar acid resins	1,440,513	1,226,665	260,024	.21
Polyurethane and diisocyanate resins (excluding foam and elastomers)	99,427	48,546	22,331	.46
Polyether and polyester polyols for urethanes	149,191	107,773	23,647	.22
Silicone resins	13,424	10,856	20,314	1.87
Other thermosetting resins[9]	87,835	79,946	19,599	.25
THERMOPLASTIC RESINS				
Total	21,437,161	19,354,466	3,425,327	.18
Acrylic resins[10]	758,589	626,856	283,377	.45
Cellulosic plastics and resins[10]	256,811	251,538	132,071	.52
Coumarone-indene resins	49,024	...	...	...
Petroleum hydrocarbon resins	245,359	233,241	29,342	.13
Polyamide resins, nylon type[10]	122,987	119,009	97,043	.82
Polyamide resins, non-nylon type	27,328	25,716	15,353	.60
Polyester resins, saturated	114,969	43,496	26,373	.61
Polyethylene and copolymers, total	7,656,249	6,932,020	834,641	.12
Density 0.940 and below[11]	5,360,310	4,877,879	594,050	.12
Density over 0.940	2,295,939	2,054,141	240,591	.12
Polypropylene resins	1,730,857	1,684,507	265,539	.16
Polytetrafluoroethylene (PTFE)	13,248	9,635	31,804	3.30
Rosin modifications, total	128,344	121,399	27,586	.23
Rosin and rosin esters, unmodified (ester gums)	35,981	29,170	7,684	.26
Other	92,363	92,229	19,902	.22

See footnotes at end of table.

PLASTICS AND RESIN MATERIALS

TABLE 1.--PLASTICS AND RESIN MATERIALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Material	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds dry basis[3]	*1,000 pounds dry basis*[3]	*1,000 dollars*	*Per pound*
THERMOPLASTIC RESINS--Continued				
Styrene plastics materials, total	4,890,161	4,557,156	833,328	$0.18
Acrylonitrile-butadiene-styrene (ABS) resins	863,725	809,934	235,195	.29
Styrene-acrylonitrile resins (SAN)	[7] 106,000	100,838	22,888	.23
Styrene and styrene copolymer resins	3,920,436	3,646,384	575,245	.16
Vinyl resins, total[12]	5,122,238	4,434,989	657,610	.15
Polyvinyl chloride and copolymers	4,322,000	3,865,000	503,048	.13
Polyvinyl acetate[13]	527,839	404,481	94,331	.23
Polyvinyl alcohol	78,564	64,918	20,407	.31
Other vinyl and vinylidene resins[14]	193,835	100,590	39,824	.40
All other thermoplastic resins[10 15]	320,997	314,904	191,260	.61

[1] Starting with 1972, data is reported only by type of resin and is no longer broken down by end use.

[2] Calculated from rounded figures.

[3] 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.

[4] Includes benzenoid plastics and resin materials as defined in part I of schedule 4 of the Tariff Schedules of the United States.

[5] 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.

[6] 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.

[7] Partially estimated.

[8] Data shown for modified and "advanced" epoxy resins are that part of the unmodified epoxy resins which is further processed; therefore, the totals in parentheses are not included in the grand total.

[9] Includes polycarbamate resins, toluenesulfonamide resins, acetone-formaldehyde resins, and other thermosetting resins and their precursors.

[10] Does not include production or sales for fiber use.

[11] Includes data for ethylene copolymers. Sales do not include sales by primary producers to other primary producers; sales do include resales of purchased material by primary producers.

[12] 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.

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

[14] Includes polyvinylidene chloride, polyvinyl butyral, polyvinyl formal, and other vinyl resins.

[15] Includes acetal resins, fluorocarbon resins except PTFE, α-methylstyrene resins, polybutylene type resins, polycarbonate resins, polyimide-type resins, polyphenylene oxide type resins, polyterpene resins, other thermoplastics, and sales of coumarone-indene resins.

Note.--Data reported to the Tariff Commission does not necessarily coincide with that reported to the Society of the Plastics Industry due to differences in both the reporting instructions (e.g., polyvinyl alcohol) 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, 1972

[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.
*Alkyd resins, domestic:	
*Phthalic anhydride type	ACY, APT, ASH, AZS, BAL, BEN, BRU, CEL, CGL, CM, COM, DAV, DEG, DSO, DUP, EW, FAR, FCD, FLW, FOC, FSH, GIL, GLD, GRV, HAN, ICF, IPC, JOB, JSC, JWL, KMC, KMP, KPT, MCC, MID, MNP, NCI, NPV, OBC, PER, PPG, PRT, PRX, RCI, RED, REL, RH, SCN, SED, SIP, SKT, SM, SW, x.
*Polybasic acid type	ACY, ASH, BEN, COM, DEG, EW, FCD, FOC, GRV, HAN, ICF, IPC, KMC, KMP, MCC, MID, MOB, NPV, PFP, PPG, RCI, RED, REL, RH, SCN, SKT, SM, SW, WIC.
*Polyester resins, unsaturated	ACP, ACR, ACY, APT, ASH, AZS, CGL, CPV, DA, DEG, DSO, ENJ, EPC, EW, FLW, FMP, FOM, FRE, GEI, GLD, GNT, GRG, HAN, HKD, ICF, ICI, IPC, KMC, KPT, MFG, MID, MMM, MRB, MRO, OCF, ORO, PFP, POL, PPG, PPL, RCI, REL, RH, SCN, SHA, SHC, SIC, SM, SW, TXT, WLN.
*Styrene-alkyd polyesters	APT, ASH, CGL, DSO, EW, FLW, GLD, GRV, HAN, MID, PPG, REL, SM.
*Amino resins:	
*Melamine-formaldehyde resins	ACP, ACY, AMR, BOR, CBD, CEL, CGL, DAN, DSO, DUP, ENJ, FOM, GLD, GRV, HAN, JSC, KPT, MON, MRA, PMC, PPG, PPL, QCP, RCI, REL, RH, SBC, SED, SNW, STC, SW, VAL, WRD.
*Urea-formaldehyde resins	ACP, ACY, AMR, APX, ASH, BOR, CBD, CEL, CGL, CMP, CPV, DAN, DUP, EFH, GAF, GLD, GP, GRV, HAN, HNC, HPC, HRT, IRI, 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.
*Dicyandiamide resins	CGY, ECC, JSC, MID, MRA, RPC, S, SBC, VAL, WIC.
Epoxy resins:	
*Unmodified	CEL, CGY, DOW, RCI, RSY, SHC, UCC.
*Modified and "advanced"	ACP, ASH, BEN, DSO, EW, FAR, GLD, GRV, HAN, HYC, ICF, JOB, MCC, MID, MMM, MRB, MRT, NPV, OCF, POL, PPG, PRX, RCI, REL, REZ, RSY, SCN, SED, SKT, SM.
*Furfuryl-type resins	ACR, HVG, SM, TXT, UNO, WRD.
*Phenolic and other tar acid resins	ABS, ACP, ACR, AMR, ASH, BME, BOR, CBD, CBM, CD, CGL, CLK, DSO, ENJ, EW, FOM, GE, GEI, GLD, GP, GRG, HER, HKD, HVG, ICF, INL, IRI, KPT, KYN, MCA, MID, MMM, MON, MRB, NCI, NTC, OCF, PAI, PGU, PLS, PPL, PRX, PYZ, RAB, RCD, RCI, REL, RGC, RH, RPC, SCN, SHA, SIM, SKT, SM, SPL, SW, UCC, UNO, UPL, USR, VSV, WCA, WRD.
Polycarbamate resins	ASH, DAN, PPG.
*Polyurethane and diisocyanate resins	APT, ARK, ASH, BAL, CEL, CGL, DSO, DUP, EW, FAR, FRE, GLD, GPM, HAP, ICI, JOB, JWL, KMC, MCC, MID, MOB, MRT, NPV, PEL, PPG, PVI, QUN, RCI, REZ, RUB, SCN, SKT, SW, UPJ, WLN.
*Polyether and polyester polyols for urethanes	APT, DSO, ICI, MID, MOB, PFZ, PPG, RCI, UCC, UNO, UPJ, WLN, WTC.
*Silicone resins	ASH, CGL, DCC, GLD, MCC, MID, PPG, SFS, SPD, UCC.
All other thermosetting resins	ACP, AMR, ASH, CGY, DSO, ENJ, EW, FLW, GLD, HYC, IOC, MID, MON, PPG, RCD, S, SM, UCC, USR, VAL.

PLASTICS AND RESIN MATERIALS

TABLE 2.--PLASTICS AND RESIN MATERIALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

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

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of plastics and resin materials to the U.S. Tariff Commission for 1972 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
APX	Apex Chemical Co., Inc.
ARK	Armstrong Cork Co.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.
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	Beech-Nut, 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., Coated Abrasives Division
CBN	Cities Service Co., Columbian Div.
CBY	Crosby Chemicals, Inc.
CD	Budd Co., Polychem Division
CEL	Celanese Corp.:
	Celanese Coatings Co.
	Celanese Plastics Co.
CGL	Cargill, Inc.
CGY	Ciba-Geigy Corp.
CLK	Clark Chemical Corp.
CM	Carpenter-Morton Co.
CMP	Commercial Products Co., Inc.
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.
DA	Diamond Shamrock Corp.
DAN	Dan River, Inc.
DAV	Conchemco, Inc., H.B. Davis Co. Division
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., Exxon Chemical Co.USA
EPC	Epoxylite Corp.
EW	Westinghouse Electric Corp., Industrial Plastics Div., Chemical Products Plant
FAR	Farnow, Inc.
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. Organic Business Group
FOC	Handschy Chemical Co., Farac Oil & Chemical Co. Div.
FOM	Formica Corp.
FRE	Freeman Chemical Corp.
FRP	FRP Company
FSH	Frisch & Co., Inc.
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	Electro-Seal Glasflex Corp.
GNM	General Mills Chemicals, Inc.
GNT	General Tire & Rubber Co., Chemical Division
GOC	Gulf Oil Corp., Gulf Oil Co. Chemicals Dept.-United States
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.
HAP	Applied Plastics Co., Inc.
HER	Heresite & Chemical Co.
HKD	Hooker Chemical Corp., Durez Division
HLM	U.S. Industries, Inc., E. Helman Co. Division
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

PLASTICS AND RESIN MATERIALS

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1972--CONTINUED

Code	Name of company
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.
JNS	S.C. Johnson & Son, Inc.
JOB	Jones-Blair Paint Co.
JSC	Jersey State Chemical Co.
JWL	Jewel Paint & Varnish Co.
KMC	Kohler-McLister Paint Co.
KMP	Kelly-Moore Paint Co.
KPP	Sinclair-Koppers Co.
KPT	Koppers Co., Organic Materials Division
KYN	Kyanize Paints, Inc.
KYS	Keysor Chemical Corp.
MCA	Masonite Corp., Alpine Division
MCB	Borg-Warner Corp., Marbon Chemical Division
MCC	McCloskey Varnish Co.
MFG	North American Rockwell Corp.
MID	Dexter Corp., Midland Division
MMM	Minnesota Mining & Manufacturing Co.
MNP	Minnesota Paints, Inc.
MOB	Mobay Chemical Co.
MON	Monsanto Co.
MR	Benjamin Moore & Co.
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.
NPV	Norris Paint & Varnish Co., Inc.
NSC	National Starch & Chemical Corp.
NTC	National Casein Co.
NVT	Novamont Corp., Neal Works
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.
PFZ	Pfizer, Inc.
PGU	Gulf Oil Corp., Gulf Adhesives
PII	Polymer Industries, Inc.
PLA	Richardson Co.
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., Washburn-Lanson Co. Div.
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.
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	Relsan 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.
SCF	Guardsman Chemical Coatings, Inc., Louisville Division
SCN	Schenectady Chemicals, Inc.
SCO	Scholler Bros., Inc.
SED	Conchemco, Inc., Kansas City Division
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.
SIP	Sipes Chemical Coatings Co.
SKP	Shakespeare Co., Industrial Products Division
SKT	Textron Inc., Spencer Kellogg Division
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.
SPE	Petrochemical Investment Corp.
SPL	Spaulding Fibre Co., Inc.
STC	Sou-Tex Chemical Co., Inc.
SW	Sherwin-Williams Co.
TNA	Ethyl Corp.
TX	Texaco, Inc.
TXT	Textilana Corp.

TABLE 3.--PLASTICS AND RESIN MATERIALS: DIRECTORY OF MANUFACTURERS, 1972--CONTINUED

Code	Name of company	Code	Name of company
UBS	A.E. Staley Manufacturing Co., Staley Chemicals Division	VAL	Valchem
		VEL	Veliscol Chemical Corp.
UCC	Union Carbide Corp.	VPC	Baychem Corp., Verona Div.
UNO	United-Erie, Inc.	VSV	Valentine Sugars, Inc.
UOC	Union Oil Co. of California		
UPJ	Upjohn Co.	WCA	West Coast Adhesives Co.
UPL	U.S. Plywood, WCM Operations, Shasta Area	WCL	Wright Chemical Co.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.	WIC	Wica Chemical Inc.
		WLN	Wilmington Chemical Corp.
USI	National Petro Chemical Corp.	WRD	Weyerhaeuser Co., Wood Products Division
USO	U.S. Oil Co.	WTC	Witco Chemical Co., Inc.
USR	Uniroyal, Inc., Chemical Division		
USS	USS Chemicals, Div. of U.S. Steel Corp.	ZGL	Carolina Processing Corp.

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

RUBBER-PROCESSING CHEMICALS

Rubber-processing chemicals 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 1972 are given in table 1.[1]

Production of rubber-processing chemicals as a group in 1972 amounted to 361 million pounds, or 11.6 percent more than the 323 million pounds reported for 1971. Sales of rubber-processing chemicals in 1972 amounted to 280 million pounds, valued at $178 million, compared with 246 million pounds, valued at $159 million, in 1971. The increased production and sales of rubber-processing chemicals in 1972 is attributable principally to the increased production and sales of cyclic antioxidants, antiozonants, and stabilizers.

The output of cyclic rubber-processing chemicals in 1972 amounted to 310 million pounds, or about 12.2 percent more than was reported for 1971. Sales in 1972 were 240 million pounds, valued at $158 million, compared with 211 million pounds, valued at $143 million, in 1971. Of the total output of cyclic rubber-processing chemicals in 1972, accelerators accounted for 32.1 percent and antioxidants for 63.1 percent. Production of antioxidants, which amounted to 195.6 million pounds in 1972, included 129.5 million pounds of amino compounds and 66.1 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants in 1972 were 100.6 million pounds, valued at $68.7 million; sales of phenolic and phosphite antioxidants were 47.9 million pounds, valued at $27.2 million.

Production of acyclic rubber-processing chemicals in 1972 amounted to 51.1 million pounds, an increase if 8.0 percent from the 47.3 million pounds reported for 1971. Sales in 1972 totaled 40.2 million pounds, valued at $19.7 million, compared with 34.9 million pounds, valued at $16.8 million, in 1971. Accelerators accounted for 56.3 percent of the output of acyclic rubber-processing chemicals for 1972 and dodecyl mercaptans accounted for 29.8 percent.

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

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1972

[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]

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	361,021	280,243	177,649	$0.63
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total	309,930	240,044	157,944	.66
Accelerators, activators, and vulcanizing agents, total	99,484	78,846	50,874	.65
Aldehyde-amine reaction products	2,256	1,302	1,266	.97
Dithiocarbamic acid derivatives	419	236	597	2.53
Thiazole derivatives, total	86,338	67,001	40,150	.67
N-Cyclohexyl-2-benzothiazolesulfenamide	8,819	5,241	4,852	.93
2,2'-Dithiobis(benzothiazole)	21,272	11,675	6,221	.53
2-Mercaptobenzothiazole	6,030	4,682	1,784	.38
2-Mercaptobenzothiazole, zinc salt	4,006	4,132	2,192	.53
All other thiazole derivatives	46,211	41,271	25,101	.61
All other accelerators, activators, and vulcanizing agents[2]	10,471	10,307	8,861	.86
Antioxidants, antiozonants, and stabilizers, total	195,642	148,444	95,822	.65
Amino compounds, total	129,515	100,584	68,663	.68
Substituted p-phenylenediamines, total	70,537	48,502	42,646	.88
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	6,049	...	...	...
N,N'-Diphenyl-p-phenylenediamine	1,790	1,761	1,795	1.02
All other substituted p-phenylenediamines	62,698	46,741	40,851	.87
Octyldiphenylamine	3,614	3,300	1,751	.53
N-Phenyl-2-naphthylamine	4,511	...	...	...
All other amino compounds[3]	50,853	48,782	24,266	.50
Phenolic and phosphite compounds, total	66,127	47,860	27,159	.57
Polyphenolics (including bisphenols)	15,314	14,481	16,100	1.11
Phenol, alkylated	...	3,031	1,569	.52
Phenol, styrenated	1,581	1,601	444	.28
All other phenolic and phosphite compounds	49,232	28,747	9,046	.31
Retarder: N-Nitrosodiphenylamine	2,018	1,108	702	.63
All other cyclic rubber-processing chemicals[4]	12,786	11,646	10,546	.91
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total	51,091	40,199	19,705	.49
Accelerators, activators, and vulcanizing agents, total	28,779	20,599	12,563	.61
Dithiocarbamic acid derivatives, total[5]	10,042	...	...	...
Dibutyldithiocarbamic acid, zinc salt	3,989	3,644	3,185	.87
Diethyldithiocarbamic acid, zinc salt	1,887	2,007	1,132	.56
Dimethyldithiocarbamic acid, zinc salt	2,380	2,067	957	.46
All other dithiocarbamic acid derivatives	1,786	...	...	...

See footnotes at end of table.

RUBBER-PROCESSING CHEMICALS

TABLE 1.--RUBBER-PROCESSING CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	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--Continued				
Thiurams, total[6]	...	11,596	5,226	$0.45
Bis(dimethylthiocarbamoyl) disulfide	13,079	8,476	3,050	.36
Bis(dimethylthiocarbamoyl) sulfide	2,618	2,006	1,534	.76
All other thiurams	...	1,114	642	.58
All other accelerators, activators, and vulcanizing agents[7]	3,040	1,285	2,063	1.61
Polymerization regulators: Dodecyl mercaptans	15,243	14,750	5,322	.36
Shortstops: Dimethyldithiocarbamic acid, sodium salt	4,575	2,070	533	.26
All other acyclic rubber-processing chemicals[8]	2,494	2,780	1,287	.46

[1] Calculated from rounded figures.
[2] Includes guanidines.
[3] Includes aldehyde- and acetone-amine reaction products.
[4] Includes blowing agents, peptizers, and other uses not separately shown.
[5] Data on dithiocarbamates included in this table are for materials used chiefly in the processing of natural and synthetic rubbers. Data on dithiocarbamates which are used chiefly as fungicides are included in the report "Pesticides and Related Products."
[6] Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.
[7] Includes xanthates, disulfides, other dithiocarbamic acid derivatives (sales only) and other thiurams (production only).
[8] 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, 1972

[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.
α-Ethyl-β-propylacrylanilide	RCI.
Heptaldehyde-aniline condensate	USR.
Triethyltrimethylenetriamine	USR.
*Dithiocarbamic acid derivatives:	
Dibenzyldithiocarbamic acid, sodium salt	USR.
Dibenzyldithiocarbamic acid, zinc salt	USR.
Dibutyldithiocarbamic acid, N,N-dimethylcyclohexylamine salt.	MON.
Dibutyldithiocarbamic acid, diphenylguanidine salt	RCI.
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.
1,3-Bis(2-benzothiazolylmercaptomethyl) urea	MON.
N-tert-Butyl-2-benzothiazolesulfenamide	ACY, MON.
*N-Cyclohexyl-2-benzothiazolesulfenamide	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide	ACY.
N-(2,6-Dimethylmorpholino)-2-benzothiazolesulfenamide.	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, MON.
Thiazoline-2-thiol	ACY.
All other cyclic accelerators, activators, and vulcanizing agents:	
p-Benzoquinonedioxime	CTN.
Bis(p-aminocyclohexyl)methane carbamate	DUP.
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, RBC.
m-Phenylenebismaleimide	DUP.
Poly-p-dinitrosobenzene	DUP.
Toluene-2,4-diisocyanate adduct of dimethylethanolamine.	DUP.
*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.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC--CONTINUED	
*Antioxidants, antiozonants, and stabilizers--Continued	
*Amino compounds--Continued	
Aldehyde- and acetone-amine reaction products--Continued	
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-phenylenediamine	MON, x.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine	BFG, MON, 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-phenylenediamine	GYR, USR.
N,N'-1,4-Dimethylhexyl-p-phenylenediamine	x.
N,N'-Di-2-naphthyl-p-phenylenediamine	BFG, DUP.
*N,N'-Diphenyl-p-phenylenediamine	BFG, DUP, SDC, USR.
N-Isopropyl-N'-phenyl-p-phenylenediamine	USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine	x.
N-(1-Methylpentyl)-N'-phenyl-p-phenylenediamine	USR.
Nitroso-N-phenyl-p-phenylenediamine	USR.
All other substituted p-phenylenediamine	MON.
Other amino compounds:	
p-Anilinophenol	BFG.
4'-Bis(α,α-dimethylbenzyl)diphenylamine	WSN.
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	DA, RCI.
N,N'-Diphenyl-1,3-propanediamine	RCI.
N,N'-Di-o-tolylethylenediamine	RCI.
p-Hydroxydiphenylamine	USR.
4,4'-Methylenedianiline	USR.
Nonyldiphenylamine mixture (mono-, di-, and tri-)	USR.
*Octyldiphenylamine	ACY, NPI, 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.
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.
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.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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	
Other phenolic compounds:	
p-Benzyloxyphenol	BFG.
o-Cresol, alkylated	PIT.
N-Lauroyl-p-aminophenol	MLS.
*Phenol, alkylated	ACY, BFG, GYR, NEV, PIT, RCI.
Phenol, hindered	DUP, GYR.
*Phenol, styrenated	BFG, GYR, NEV, USR.
N-Stearoyl-p-aminophenol	MLS.
*Phosphite compounds:	
Alkylaryl phosphites	WES.
Nonyl phenyl phosphites, mixed	NPI, USR.
Polymeric phosphite	NPI.
Polyphenolic phosphite, alkylated	BFG.
Triaryl phosphates	WES.
Blowing agents:	
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.
Dicresyl disulfide	USR.
2',2'''-Dithiobis(benzanilide)	ACY.
Dixylyl disulfides, mixed	PIT.
2-Naphthalenethiol	DUP.
Pentachlorobenzenethiol	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	MON, RCI.
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, RBC, USR, VNC.
Diethyldithiocarbamic acid, selenium salt	VNC.
Diethyldithiocarbamic acid, sodium salt	ALC, 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.
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, RBC, USR, VNC, WRC.
All other	VNC.
*Thiurams:	
Bis(dibutylthiocarbamoyl) sulfide	USR.
Bis(diethylthiocarbamoyl) disulfide	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide	DUP, GYR, PAS, VNC.

TABLE 2.--RUBBER-PROCESSING CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, ACYCLIC--CONTINUED	
*Accelerators, activators, and vulcanizing agents--Continued	
*Thiurams--Continued	
*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.
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 mercaptan	HK, PAS, PLC.
n-Octyl mercaptan	PAS.
tert-Octyl mercaptan	PAS.
Tridecyl mercaptan	PAS.
Shortstops:	
Dimethyldithiocarbamic acid, potassium salt	GYR, 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, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of rubber-processing chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 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., Niagara Chemical Div.
GYR	Goodyear Tire & Rubber Co.
HK	Hooker Chemical Corp.
ICI	ICI America, Inc.
MLS	Miles Laboratories, Inc., Marshall Div.
MON	Monsanto Co.
NEV	Neville Chemical Co.
NPI	Stepan Chemical Co., National Polychemicals Div.
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.
UPM	Universal Oil Products Co.
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 1972 are shown in table 1.[1]

Total U.S. production of synthetic elastomers in 1972 was 4,914 million pounds, an increase of 6 percent from that produced in 1971. The sales of these elastomers amounted to 4,136 million pounds (valued at $1,095 million) in 1972, an increase of 3 percent over 1971.

Styrene-butadiene rubber (SBR or S-type rubber) in 1972 continued to be the synthetic elastomer produced in the greatest quantity as it has been for more than 25 years. U.S. production of SBR, including 38 million pounds of its vinylpyridine sub-type, amounted to 2,648 million pounds in 1972. Solution polymerized butadiene rubber, a stereo type elastomer, was produced domestically in 1972 in the next largest amount--666 million pounds; production of isoprene and ethylene-propylene rubbers, the other stereo types, amounted to 295 million and 200 million pounds, respectively. Total U.S. production of these stereo type elastomers amounted to 1,161 million pounds in 1972--an increase of 8 percent over 1971. Other principal types of synthetic elastomers for which U.S. production and sales data are reported separately are isobutylene-isoprene (butyl) rubber, production of which was 290 million pounds in 1972, and acrylonitrile-butadiene (N-type) rubber, production of which was 160 million pounds.

U.S. production and sales data on synthetic organic chemicals are reported in terms of cyclic and acyclic structured compounds for purposes of better correlation with other statistical reporting systems. In 1972, U.S. production of cyclic elastomers amounted to 2,706 million pounds, an increase of nearly 4 percent over 1971; sales of cyclic elastomers amounted to 2,177 million pounds (valued at $471 million[2]), a decrease in volume of 3 percent compared with 1971. U.S. production of acyclic elastomers in 1972 amounted to 2,208 million pounds, an increase of 10 percent over 1971; sales of acyclic elastomers amounted to 1,959 million pounds (valued at $624 million), an increase in volume of 9 percent from the previous year.

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

[2]The value of sales in 1971 and 1972 for styrene-butadiene (S-type) rubber, which comprise about 90 percent of the sales value of cyclic elastomers, was calculated on a somewhat different basis than in previous years. The value of sales in 1971 for S-type elastomers is believed to have increased slightly over that in 1970, although the published figures showed a decrease.

TABLE 1.--ELASTOMERS (SYNTHETIC RUBBERS):[1] U.S. PRODUCTION AND SALES, 1972

[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	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	4,913,959	4,136,263	1,094,806	$0.26
ELASTOMERS, CYCLIC*				
Total	2,705,599	2,177,303	470,549	.22
Styrene-butadiene type (S-type)[3]	2,610,142	[4]2,118,686	[5]415,783	.20
Styrene-butadiene-vinylpyridine type	38,161	21,720	11,829	.54
Urethane type	57,296	36,897	42,937	1.16
ELASTOMERS, ACYCLIC				
Total	2,208,360	1,958,960	624,257	.32
Acrylonitrile-butadiene type (N-type)	159,745	135,489	59,884	.44
Isobutylene-isoprene type (Butyl)	289,746	...	...	...
Silicone type	26,752	27,214	64,899	2.38
Stereo elastomers, total	1,160,849	887,229	176,402	.20
Butadiene (solution polymerized) type	666,427	466,315	86,365	.19
Ethylene-propylene type	199,558	183,165	47,795	.26
Isoprene type	294,864	237,749	42,242	.18
All other acyclic elastomers[6]	571,268	909,028	323,072	.36

[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 so stretched and the stress removed, will return with force to approximately their original length.

[2] Calculated from rounded figures.

[3] Elastomer-content basis.

[4] Partly estimated.

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

[6] Includes production and sales data for acrylic ester, polysulfide, chloroprene, epichlorohydrin, and isobutylene elastomers, butadiene emulsion polymers, chlorosulfonated polyethylene, halogenated elastomers, thermoplastic rubber, miscellaneous elastomers and sales data for the isobutylene-isoprene type elastomer. Also includes miscellaneous cyclic elastomers, among which are carboxylated SBR latex, certain solution polymers, and thermoplastic rubber.

Note.--Statistics on the production of S-type, butyl, neoprene, and stereo elastomers were compiled in cooperation with the U.S. Bureau of the Census.

TABLE 2.--ELASTOMERS (SYNTHETIC RUBBERS) FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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)
ELASTOMERS, CYCLIC	
*Styrene-butadiene type (S-type)	ASH, ASY, BFG, CPY, FIR, FRS, GNT, GYR, MCB, PLC, RUB, SBI, SHC, TUS, USR, WIC.
*Styrene-butadiene-vinylpyridine type	BFG, FIR, FRS, GNT, GYR, USR.
*Urethane type	ACY, BFG, CNI, DA, DNS, DUP, EPI, GNT, INP, MOB, PFP, PLN, PRC, RUB, TKL, USR, WTC, x, x.
Other cyclic elastomers	ASY, DUP, PLC, PRC, SHC, UCC.
ELASTOMERS, ACYCLIC	
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, PRC, SPD, SWS, UCC.
*Stereo elastomers:	
*Butadiene (solution polymerized) type	ASY, ATR, BFG, FRS, GNT, GYR, PLC, SHC, TUS.
*Ethylene-propylene type	BFG, CPY, DUP, ENJ, USR.
*Isoprene type	BFG, GYR, SHC.
All other acyclic elastomers	ASY, BFG, DUP, ENJ, HDM, MMM, PLC, SHC.

TABLE 3.--ELASTOMERS (SYNTHETIC RUBBERS): DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of elastomers manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 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 Chemical Co.
ASY	American Synthetic Rubber Corp.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.
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., Rubber Products 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.
ICI	ICI America, Inc.
INP	INDPOL
MCB	Borg-Warner Corp., Marbon Chemical Div.
MMM	Minnesota Mining & Manufacturing Co.
MOB	Mobay Chemical Co.
PFP	Midwest Manufacturing Corp.
PLC	Phillips Petroleum Co.
PLN	Pellon Corp., Disogrin Industries, Div.
PRC	Products Research & Chemical Corp., Chemical and Sealant Div.
PTT	Petro-Tex Chemical Corp.
RUB	Hooker Chemical Corp., Ruco Div.
SBI	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.
USR	Uniroyal, Inc., Chemical Div.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
WIC	Wica Chemicals, Inc.
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 1,708 million pounds in 1972, an increase of 14.3 percent from the 1,494 million pounds reported for 1971. Sales of plasticizers totaled 1,637 million pounds, valued at $291 million, in 1972, compared with 1,404 million pounds, valued at $258 million, in 1971.

Production of cyclic plasticizers in 1972, which consisted chiefly of the esters of phthalic anhydride and phosphoric acid, amounted to 1,302 million pounds, an increase of 15.2 percent from the 1,130 million pounds reported for 1971. Sales of cyclic plasticizers in 1972 totaled 1,273 million pounds, valued at $180 million, compared with 1,075 million pounds, valued at $158 million, in 1971. The most important cyclic plasticizer was di(2-ethylhexyl) phthalate, with production of 435 million pounds, in 1972.

Production of acyclic plasticizers in 1972 totaled 406 million pounds, an increase of 11.7 percent from the 364 million pounds reported for 1971. Sales of acyclic plasticizers totaled 364 million pounds, valued at $111 million, in 1972, compared with 330 million pounds, valued at $100 million, in 1971. Epoxidized soya oils were the most important acyclic plasticizer in 1972, with production of 85 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, 1972

[Listed below are plasticizers for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 2 lists all 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	1,708,313	1,637,497	290,564	$0.18
Benzenoid[3]	1,393,499	1,354,410	201,340	.15
Nonbenzenoid	314,814	283,087	89,224	.32
PLASTICIZERS, CYCLIC				
Total	1,301,955	1,273,191	180,051	.14
Phosphoric acid esters, total	88,772	...	...	...
Cresyl diphenyl phosphate	14,556	15,152	4,074	.27
Tricresyl phosphate	50,221	51,982	17,042	.33
All other phosphoric acid esters	23,995	...	...	...
Phthalic anhydride esters, total	1,145,693	1,138,493	138,238	.12
Butyl octyl phthalates (including butyl 2-ethylhexyl phthalate, isobutyl 2-ethylhexyl phthalate, and butyl n-octyl phthalate)	11,353	14,214	1,774	.12
Dibutyl phthalate	29,080	33,562	5,418	.16
Diethyl phthalate	19,044	...	...	...
Diisodecyl phthalate	153,270	162,183	19,129	.12
Dimethyl phthalate	9,683	8,766	1,594	.18
Dioctyl phthalates:				
Di(2-ethylhexyl) phthalate	435,032	441,776	48,655	.11
Diiso-octyl phthalate	32,296	29,774	3,506	.12
n-Hexyl n-decyl phthalate	16,048	9,365	1,161	.12
All other phthalic anhydride esters	439,887	438,853	57,001	.13
Trimellitic acid esters, total	12,122	9,680	2,732	.28
Triiso-octyl trimellitate	4,231	3,281	888	.27
Tri-n-octyl n-decyl trimellitate	2,165	1,050	320	.30
Trioctyl trimellitate	2,967	2,848	802	.28
All other trimellitic acid esters	2,759	2,501	722	.29
All other cyclic plasticizers[4]	55,368	57,884	17,965	.31
PLASTICIZERS, ACYCLIC				
Total	406,358	364,306	110,513	.30
Adipic acid esters, total	63,856	57,068	12,029	.21
Di[2-(2-butoxyethoxy)ethyl] adipate	1,325	1,342	703	.52
Di(2-ethylhexyl) adipate	44,857	39,716	7,509	.19
Diisodecyl adipate	2,838	2,188	460	.21
Dioctyl adipates (including diiso-octyl adipate)	...	1,364	308	.23
n-Hexyl n-decyl adipate	1,504	1,031	202	.20
n-Octyl n-decyl adipate	8,763	8,912	1,932	.22
All other adipic acid esters	4,569	2,515	915	.36
Complex linear polyesters and polymeric plasticizers[5]	53,183	46,306	17,442	.38
Di(2-ethylhexyl) azelate	11,334	...	...	...

See footnotes at end of table.

PLASTICIZERS

TABLE 1.--PLASTICIZERS:[1] U.S. PRODUCTION AND SALES, 1972--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:				
Epoxidized soya oils	85,132	75,028	18,236	$0.24
Octyl epoxytallates (including 2-ethylhexyl epoxy tallates)	31,348	26,140	6,267	.24
Glyceryl monoricinoleate	320	306	129	.42
Isopropyl myristate	4,843	6,065	3,037	.50
Isopropyl palmitate	6,455	5,192	1,998	.38
Oleic acid esters, total	11,564	10,535	2,418	.23
Butyl oleate	2,404	2,501	577	.23
Methyl oleate	3,057	2,912	544	.19
Propyl oleates (including n-propyl oleate and isopropyl oleate)	1,670	1,052	248	.24
All other oleic acid esters	4,433	4,070	1,049	.26
Phosphoric acid esters	29,361	24,349	11,559	.47
Sebacic acid esters, total	8,221	6,723	4,103	.61
Dibutyl sebacate	4,483	3,029	1,895	.63
Di(2-ethylhexyl) sebacate	3,520	3,479	1,971	.57
All other sebacic acid esters	218	215	237	1.10
Stearic acid esters, total	13,556	12,119	3,554	.29
n-Butyl stearate	8,290	7,732	1,995	.26
All other stearic acid esters	5,266	4,387	1,559	.36
Triethylene glycol di(caprylate-caprate)	2,290	2,133	717	.34
All other acyclic plasticizers[6]	84,895	92,342	29,024	.31

[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 data for alkylated naphthalene, glycol dibenzoates, hydrogenated terphenyls, isopropylidenediphenoxy propanol, all other phosphoric acid esters (sales only), toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

[5] Adipic acid polyesters account for most of the production of complex linear polyesters and polymeric plasticizers.

[6] Includes data for azelaic, citric and acetylcitric, lauric, myristic, palmitic, pelargonic, ricinoleic, and sebacic 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, 1972

[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's 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	MON.
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.
Methyl diphenyl phosphate	FMP, MON.
*Tricresyl phosphate	FMP, MON, MTR, SFS.
Triphenyl phosphate	EK, MON, SFS.
*Phthalic anhydride esters:	
Alkyl benzyl phthalates	MON.
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	ACS, CPS.
*Butyl octyl phthalates:	
Butyl 2-ethylhexyl phthalate	ACP, GRH, MON, TEK, UCC.
Butyl n-octyl phthalate	RCI, USS.
Di(2-butoxyethyl) phthalate	ARC, FMP.
*Dibutyl phthalate	ACP, COM, EKT, GRH, HAL, MON, RCI, RUB, SW, UCC, USS, WTC.
Dicyclohexyl isodecyl phthalate	GRH.
Dicyclohexyl phthalate	FMP, MON, PFZ.
Diethyl isophthalate	PFZ.
*Diethyl phthalate	EKT, KF, MON, PFZ.
Dihexyl phthalate	USS.
*Diisodecyl phthalate	ACP, CO, EKT, ENJ, GRH, MON, RCI, TEK, UCC, USS, WTC.
Di-iso-hexyl phthalate	ENJ.
Diisononyl phthalate	ENJ, PFZ.
Di(2-methoxyethyl) phthalate	EKT, FMP, SFS.
Dimethyl isophthalate	PFZ.
*Dimethyl phthalate	EKT, KF, MON, TCC.
Dinonyl phthalate	RCI.
Dioctyl phthalates:	
Dicapryl phthalate	WTH.
Di(2-ethylhexyl) isophthalate	UCC.
*Di(2-ethylhexyl) phthalate	ACP, BFG, CO, EKT, ENJ, GRH, MON, PFZ, RCI, RUB, TEK, UCC, USS, WTC.
*Diiso-octyl phthalate	ACP, ENJ, GRH, MON, RCI, TEK, UCC, USS.
Di-n-octyl phthalate	EK.
Mixed dioctyl phthalates	TEK.
Diphenyl phthalate	MON.
*Di-tridecyl phthalate	ACP, CO, ENJ, GRH, MON, RCI, RUB, TEK, UCC, USS.
2-(Ethylhexyl)isobutyl phthalate	GRH.
Glycol phthalate esters:	
Butyl phthalyl butyl glycolate	MON.
Ethyl (and methyl) phthalyl ethyl glycolate	MON.
Polypropylene glycol bis(amyl) phthalate	UCC.
All other glycol phthalate esters	HPC, WTC.

PLASTICIZERS

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, CYCLIC--Continued	
*Phthalic anhydride esters--Continued	
*n-Hexyl n-decyl phthalate	ACP, CO, ENJ, TEK, UCC.
Hexyl isodecyl phthalate	GRH.
Isodecyl tridecyl phthalate	TEK.
Iso-octyl isodecyl phthalate	ACP, GRH.
n-Octyl n-decyl phthalate	ACP, CO, GRH, MON, RCI, TEK, UCC, USS.
All other phthalic anhydride esters	ACP, FMP, PFZ, RUB, TEK, UCC, USS.
Polyethylene glycol dibenzoate	VEL.
Tetrahydrofurfuryl oleate	EMR.
Toluenesulfonamide o-, p- mixtures	ACY, LAK, MON.
*Trimellitic acid esters:	
Tri(2-ethylhexyl) trimellitate	GRH, PFZ, RCI.
Tri-n-hexyl trimellitate	CO, RUB.
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, TEK, USS.
*Trioctyl trimellitate	CO, RUB, TEK, USS.
All other trimellitic acid esters	x.
Trimethylpentanediol dibenzoate	VEL.
All other cyclic plasticizers	MON, NEV, SFS.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
*Di[2-(butoxyethoxy)ethyl] adipate	FMP, RCI, TKL, WTH.
*Di(2-ethylhexyl) adipate	CO, DA, EKT, ENJ, GRH, MON, PFZ, RCI, RH, RUB, TEK, UCC, USS.
Diisobutyl adipate	GRH, HAL.
*Diisodecyl adipate	ACP, ENJ, GRH, MON, PFZ, RCI, RH, RUB, UCC, USS.
Diisononyl adipate	ENJ, RUB.
Diisopropyl adipate	SBC, VND.
*Dioctyl adipates:	
Diiso-octyl adipate	GRH, RH, RUB, USS.
Di-n-octyl adipate	ACP.
Di-tridecyl adipate	GRH.
*n-Hexyl n-decyl adipate	GRH, TEK, USS.
Iso-octyl isodecyl adipate	GRH, PFZ.
*n-Octyl n-decyl adipate	ACP, CO, GRH, MON, RCI, RH, USS.
All other adipic acid esters	ARC, EK, GRH, PFZ, UCC, WTH.
Azelaic acid esters:	
*Di(2-ethylhexyl) azelate	EKT, EMR, PFZ, RCI, UCC.
Diisobutyl azelate	HAL.
Diiso-octyl azelate	EMR, PFZ.
All other azelaic acid esters	EMR.
1,4-Butanediol dicaprylate	RUB.
Butoxyethyl pelargonate	HAL.
Castor oil maleate	RH.
Citric and acetylcitric acid esters	GLY, PFZ.
*Complex linear polyesters and polymeric plasticizers	ASH, EKT, EMR, GRH, HAL, MON, PFZ, RCI, RH, RUB,TEK, WTH
Di[(butoxyethoxy)ethoxy]methane	TKL.
Dibutyl tartrate	ARC.
Diethylene glycol dipelargonate (Dinonanoate)	EMR.
Diiso-octyl diglycolate	CCA.

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

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

PLASTICIZERS

TABLE 2.--PLASTICIZERS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
*Stearic acid esters--Continued	
Methyl dichlorostearate	HK.
Methyl pentachlorostearate	HK.
Methyl stearate	CHL.
All other stearic acid esters	ARC, DA, HPC, TCH, WM.
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.
Triethylene glycol dipelargonate	RUB.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	EKX.
All other acyclic plasticizers	EMR, HAL, HPC, SCP, SM, WTH.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 3.--PLASTICIZERS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of plasticizers manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 are listed below in the order of their identification codes as used in table 2]

Code	Name of company
ACC	Amoco Chemicals Corp.
ACP	Allied Chemical Corp., Plastics Div.
ACY	American Cyanamid Co.
ARC	Armak Co.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.
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.
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 Chemical Corp.
HPC	Hercules, Inc.
HUM	Kraftco Corp., Humko Plastics Div.
KF	Kay-Fries Chemicals, Inc.
LAK	Lakeway 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.
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., Industrial Chemical Div.
SW	Sherwin-Williams Co.
TCC	Tanatex Chemical Corp.
TCH	Emory Industries, Inc., Trylon Chemicals Div.
TEK	Teknor Apex Co.
TKL	Thiokol Chemical Corp.
UCC	Union Carbide Corp.
USS	USS Chemicals Div. of U.S. Steel Corp.
VEL	Velsicol Chemical Corp.
VND	Van Dyk & Co., Inc.
WM	Wilson Pharmaceutical & Chemical Corp., Wilson-Martin Div.
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.

Table 1 shows statistics for production and sales of surface-active agents grouped by ionic class and by chemical class and subclass; table 2 lists these products and identifies the manufacturers.[1] 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 1972 amounted to 4,039 million pounds, or 5.5 percent greater than the 3,828 million pounds reported for 1971. Sales of bulk surface-active agents in 1972 amounted to 2,258 million pounds, valued at $451 million, compared with sales in 1971 of 2,186 million pounds, valued at $422 million. In terms of quantity, sales in 1972 were thus 3.3 percent larger than in 1971; in terms of value, sales in 1972 were 6.7 percent larger than in 1971.

Production of anionic surface-active agents in 1972 amounted to 2,747 million pounds, or 68.0 percent of the total output reported for 1972 and 5.9 percent greater than the anionic output reported for 1971. Sales of anionics in 1972 amounted to 1,274 million pounds, valued at $195 million. Of the total anionic output, 894 million pounds consisted of potassium and sodium salts of fatty, rosin, and tall oil acids, of which 466 million pounds was the sodium salt of tallow acids and 131 million pounds was the sodium salt of coconut oil acids; 688 million pounds consisted of alkylbenzenesulfonates, of which 364 million pounds was sodium dodecylbenzenesulfonate, 143 million pounds was dodecylbenzenesulfonic acid, and 150 million pounds was sodium tridecylbenzenesulfonate; 522 million pounds consisted of ligninsulfonates, of which 327 million pounds was the calcium salt; and 207 million pounds consisted of sulfated ethers.

Production of nonionic surface-active agents in 1972 amounted to 1,048 million pounds, or 26.0 percent of the total output reported for 1972 and

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

2.7 percent more than the nonionic output reported for 1971. Sales of nonionics in 1972 amounted to 787 million pounds, valued at $174 million. Of the total nonionic output, 314 million pounds consisted of alkylphenol ethoxylates and other benzenoid ethers, of which 178 million pounds was nonylphenol ethoxylate; 423 million pounds consisted of alcohol ethoxylates and other nonbenzenoid ethers, of which 324 million pounds was mixed linear alcohol ethoxylate; 102 million pounds consisted of glycerol esters; and 88 million pounds consisted of alkanolamides.

Production of cationic surface-active agents in 1972 amounted to 229 million pounds, or 5.7 percent of the total output reported for 1972 and 12.9 percent greater than the cationic output reported for 1971. Sales of cationics in 1972 amounted to 183 million pounds, valued at $72 million. Of the total cationic output, 60 million pounds consisted of quaternary ammonium salts not containing oxygen, and 68 million pounds consisted of amines not containing oxygen.

Production of amphoteric surface-active agents in 1972 amounted to 14.4 million pounds, or 0.4 percent of the total output reported for 1972 and 45.8 percent greater than the amphoteric output reported for 1971. Sales of amphoterics in 1972 amounted to 14.1 miliion pounds, valued at $9.4 million.

The difference between production and sales reflects inventory changes and captive consumption of soaps and surface-active agents by synthetic rubber producers, and by manufacturers of cosmetics, packaged detergents, bar soaps, and other formulated consumer products. In some instances the difference may also reflect quantities of surface-active agents used as chemical intermediates, e.g., nonionic alcohol and alkylphenol ethoxylates which may be converted to anionic surface-active agents by phosphation or sulfation.

SURFACE-ACTIVE AGENTS

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972

[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	4,038,787	2,257,546	450,768	$0.20
Benzenoid[4]	1,119,229	547,259	111,093	.20
Nonbenzenoid[5]	2,919,558	1,710,287	339,675	.20
Amphoteric Surface-Active Agents				
Total	14,411	14,057	9,403	.67
Anionic Surface-Active Agents				
Total	2,747,075	1,273,841	194,569	.15
Carboxylic acids (and salts thereof), total	907,011	...	...	...
Amine salts of fatty rosin, and tall oil acids	771	444	148	.33
Carboxylic acids having amide, ester, or ether linkages, total	12,711	9,300	6,213	.67
N-Lauroylsarcosine, sodium salt	3,823	...	...	...
All other	8,888	9,300	6,213	.67
Potassium and sodium salts of fatty, rosin, and tall acids, total	893,529	...	...	...
Castor oil acids, potassium salt	...	48	10	.21
Coconut oil acids, potassium and sodium salts, total	142,944	3,642	931	.26
Potassium salt	11,825	...	...	...
Sodium salt	131,119	...	...	...
Corn oil acids, potassium and sodium salts	801	787	287	.37
Mixed vegetable oil acids, potassium salt	2,814	2,841	2,576	.91
Oleic acid, sodium salt	1,473	...	...	...
Palm oil acids, sodium salt	...	229	37	.16
Soybean oil acids, potassium and sodium salts	714	643	131	.20
Stearic acid, potassium and sodium salts	982	528	162	.31
Tall oil acids, potassium salt	19,543	16,782	3,779	.23
Tall oil acids, sodium salt	10,720	2,561	348	.14
Tallow acids, sodium salt	465,550	10,258	1,263	.12
All other	247,988	...	...	...
Phosphoric and polyphosphoric acid esters (and salts thereof), total	26,514	21,030	9,509	.45
Alcohols and phenols, ethoxylated and phosphated, total	18,028	14,826	6,190	.42
Dinonylphenol, ethoxylated and phosphated	759	...	...	...
Mixed linear alcohols, ethoxylated and phosphated	3,602	3,434	1,520	.44
Nonylphenol, ethoxylated and phosphated	7,410	6,101	1,923	.32
Phenol, ethoxylated and phosphated	728	...	...	...
Tridecyl alcohol, ethoxylated and phosphated	1,412	1,094	428	.39
All other	4,117	4,197	2,319	.55
Alcohols, phosphated or polyphosphated, total	8,486	6,204	3,319	.54
2-Ethylhexyl phosphate, sodium salt	447	...	...	...
All other	8,039	6,204	3,319	.54
Sulfonic acids (and salts thereof), total	1,334,612	774,160	78,386	.10
Alkylbenzenesulfonates, total	688,476	174,613	32,317	.19
Dodecylbenzenesulfonic acid	143,391	50,823	7,100	.14
Dodecylbenzenesulfonic acid, calcium salt	12,412	9,500	4,098	.43
Dodecylbenzenesulfonic acid, isopropylamine salt	2,221	3,425	1,068	.31

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972--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				
Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt	121	...	...	...
Dodecylbenzenesulfonic acid, sodium salt	364,067	89,867	15,606	$0.17
Dodecylbenzenesulfonic acid, triethanolamine salt	6,905	7,795	1,723	.22
Tridecylbenzenesulfonic acid, sodium salt	149,870	...	...	...
All other	9,489	13,203	2,722	.21
Benzene-, cumene-, toluene-, and xylenesulfonates, total	64,009	54,731	5,211	.10
Cumenesulfonic acid, ammonium salt	3,730	3,714	425	.11
Xylenesulfonic acid, ammonium salt	4,962	...	...	...
Xylenesulfonic acid, sodium salt	37,409	28,289	2,600	.09
All other	17,908	22,728	2,186	.10
Ligninsulfonates, total	522,323	505,981	18,699	.04
Ligninsulfonic acid, calcium salt	326,626	307,655	7,688	.02
Ligninsulfonic acid, sodium salt	58,662	61,094	6,038	.10
All other	137,035	137,232	4,973	.04
Naphthalenesulfonates, total	7,508	7,005	2,657	.38
Butylnaphthalene sulfonic acid, sodium salt	301	297	71	.24
All other	7,207	6,708	2,586	.39
Sulfonic acids having amide linkages, total	4,954	2,800	2,281	.82
Sulfosuccinic acid derivatives	1,526	1,132	888	.78
Taurine derivatives	3,428	1,668	1,393	.84
Sulfonic acids having ester or ether linkages, total	41,828	23,781	15,379	.65
Sulfosuccinic acid esters, total	16,060	11,987	6,935	.58
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt	559	...	...	...
Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt	12,387	9,230	5,500	.60
All other	3,114	2,757	1,435	.52
Other sulfonic acids having ester or ether linkages	25,768	11,794	8,444	.72
All other sulfonic acids	5,514	5,249	1,842	.35
Sulfuric acid esters (and salts thereof), total	...	225,701	52,479	.23
Acids, amides, and esters, sulfated, total	22,866	18,571	4,379	.24
Coconut oil acids - ethanolamine condensate, sulfated, potassium salt	29	29	21	.72
Esters of sulfated oleic acid, total	5,013	4,824	1,526	.32
Butyl oleate, sulfated, sodium salt	1,540	1,589	395	.25
Isopropyl oleate, sulfated, sodium salt	520	434	150	.35
Propyl oleate, sulfated, sodium salt	235	227	101	.44
All other	2,718	2,574	880	.34
Oleic acid, sulfated, disodium salt	12,221	11,863	2,296	.19
Other acids, amides, and esters, sulfated	5,603	1,855	536	.29
Alcohols, sulfated, total	...	44,107	18,403	.42
Decyl sulfate, sodium salt	196	192	68	.35
Dodecyl sulfate salts, total	60,988	34,169	14,843	.43
Dodecyl sulfate, ammonium salt	...	2,670	1,331	.50
Dodecyl sulfate, magnesium salt	545	...	...	...
Dodecyl sulfate, sodium salt	26,841	20,433	8,595	.42
Dodecyl sulfate, triethanolamine salt	16,050	...	...	...
All other	17,552	11,066	4,917	.44
Other alcohols sulfated	...	9,746	3,492	.36
Ethers, sulfated, total	206,980	125,790	21,404	.17
Alkylphenols, ethoxylated and sulfated, total	4,207	3,786	1,155	.31
Nonylphenol, ethoxylated and sulfated, sodium salt	419	311	71	.23
All other	3,788	3,475	1,084	.31
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	2,687	2,657	557	.21

See footnotes at end of table.

SURFACE-ACTIVE AGENTS

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972--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*
Sulfuric acid esters (and salts thereof)--Continued				
Ethers, sulfated--Continued				
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	8,965	8,058	3,068	$0.38
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	103,763	...	...	...
Mixed linear alcohols, ethoxylated and sulfated, sodium salt	...	17,557	3,326	.19
All other	87,358	93,732	13,298	.14
Natural fats and oils, sulfated, total	38,526	37,233	8,293	.22
Castor oil, sulfated, sodium salt	8,271	8,311	2,654	.32
Coconut oil, sulfated, sodium salt	1,023	925	243	.26
Cod oil, sulfated, sodium salt	2,028	2,001	289	.14
Herring oil, sulfated, sodium salt	869	860	125	.15
Lard oil, sulfated, sodium salt	255	245	80	.33
Mixed fish oils, sulfated, sodium salt	4,256	...	...	...
Neat's-foot oil, sulfated, sodium salt	3,198	2,573	544	.21
Peanut oil, sulfated, sodium salt	59	69	43	.62
Ricebran oil, sulfated, sodium salt	67	53	13	.25
Soybean oil, sulfated, sodium salt	184	141	37	.26
Sperm oil, sulfated, sodium salt	1,374	1,338	318	.24
Tallow, sulfated, sodium salt	10,005	10,000	1,538	.16
All other	6,937	10,717	2,409	.23
Other anionic surface-active agents [6]	149,382	204,887	38,310	.19
Cationic Surface-Active Agents				
Total	229,076	182,789	72,389	.40
Amine oxides and oxygen-containing amines (except those having amide linkages), total	50,623	23,841	10,229	.43
Acyclic, total	45,731	19,113	8,291	.43
(Coconut oil alkyl)amine, ethoxylated	4,368	3,985	1,362	.34
(Tallow alkyl)amine, ethoxylated	2,191	1,913	830	.43
All other	39,172	13,215	6,099	.46
Cyclic (except imidazoline and oxazoline derivatives)	1,778	1,964	574	.29
Imidazoline and oxazoline derivatives, total	3,114	2,764	1,364	.49
2-Heptadecyl-1-(2-hydroxyethyl)-2-imidazoline	266	235	123	.52
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline	444	523	269	.51
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	791	337	132	.39
All other	1,613	1,669	840	.50
Amines and amine oxides having amide linkages, total	27,669	25,499	7,225	.28
Carboxylic acid - diamine and polyamine condensates, total	22,839	22,006	5,067	.23
Mixed fatty acids - polyalkylenepolyamine condensate	2,308	...	...	...
Tall oil acids - diethylenetriamine and polyalkylene polyamine condensate	17,764	17,474	2,427	.14
All other	2,767	4,532	2,640	.58
Other amines and amine oxides having amide linkages	4,830	3,493	2,158	.62
Amines, not containing oxygen (and salts thereof), total	67,675	...	...	...
Amine salts	3,112	2,102	782	.37
Diamines and polyamines, total	13,383	12,240	3,444	.28
N-(Coconut oil alkyl)trimethylenediamine	430	465	220	.47
Imidazoline derivatives	2,590	1,904	548	.29
N-(9-Octadecenyl)trimethylenediamine	2,342	2,243	868	.39
All other	8,021	7,628	1,808	.24
Primary monoamines, total	27,910	27,708	9,742	.35
(Hydrogenated tallow alkyl)amine	3,789	3,729	1,175	.32
9-Octadecenylamine	4,866	4,113	1,565	.38
Octadecylamine	541	...	...	...
(Tallow alkyl)amine	5,225	5,522	1,481	.27
All other	13,489	14,344	5,521	.39

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production[2]	Sales[2]		
		Quantity[1]	Value	Unit value[3]
Cationic Surface-Active Agents--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Amines, not containing oxygen (and salts thereof)--Continued				
Secondary and tertiary monoamines, total	23,270	...	...	...
Bis(hydrogenated tallow alkyl)amine	...	454	112	$0.25
N,N-Dimethyldodecylamine	586	477	288	.60
N,N-Dimethylhexadecylamine	552	588	332	.56
N,N-Dimethyloctadecylamine	1,513	1,291	639	.49
N-Methylbis(hydrogenated tallow alkyl)amine	2,233	2,150	598	.28
All other	18,386	...	...	...
Oxygen-containing quaternary ammonium salts	23,233	...	...	...
Quaternary ammonium salts, not containing oxygen, total	59,876	51,953	23,962	.46
Acyclic, total	45,451	39,708	14,039	.35
Bis(coconut oil alkyl)dimethylammonium chloride	3,273	2,956	1,204	.41
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	31,383	28,322	7,004	.25
Hexadecyltrimethylammonium chloride	904	874	685	.78
Trimethyl(tallow alkyl)ammonium chloride	866	780	409	.52
All other	9,025	6,776	4,737	.70
Benzenoid, total	14,425	12,245	9,923	.81
Benzyl (coconut oil alkyl)dimethylammonium chloride	434	409	274	.67
Benzyldimethyl(mixed alkyl)ammonium chloride	6,068	6,098	5,233	.86
Benzyldimethyloctadecylammonium chloride	1,580	...	...	...
Benzyltrimethylammonium chloride	...	239	82	.34
All other	6,343	5,499	4,334	.79
Groups listed above for which separate sales data may not be shown[7]	...	34,486	15,036	.44
Nonionic Surface-Active Agents				
Total	1,048,225	786,859	174,407	.22
Carboxylic acid amides, total	87,717	60,044	17,686	.30
Diethanolamine condensates (amine/acid ratio=2/1), total	26,477	21,043	6,444	.31
Capric acid	84	147	57	.39
Coconut oil acids	15,361	13,643	4,206	.31
Coconut oil and tallow acids	3,029	2,258	494	.22
Lauric acid	2,020	417	160	.38
Oleic acid	932	724	227	.31
Stearic acid	827	781	359	.46
Tall oil acids	413	73	22	.30
All other	3,811	3,000	919	.31
Diethanolamine condensates (other amine/acid ratios), total	36,676	29,414	8,470	.29
Coconut oil acids (amine/acid ratio=1/1)	21,462	19,131	4,786	.25
Lauric acid (amine/acid ratio=1/1)	10,344	...	...	...
Oleic acid (amine/acid ratio=1/1)	424	315	96	.30
Stearic acid (amine/acid ratio=1/1)	540	...	...	...
All other	3,906	9,968	3,588	.36
Ethanolamine and isopropanolamine condensates, total	24,564	9,587	2,772	.29
Coconut oil acids - ethanolamine condensate (amine/acid ratio=2/1)	1,468	1,122	331	.30
Coconut oil acids - ethanolamine condensate (amine/acid ratio=1/1)	11,359	3,298	782	.24
All other	11,737	5,167	1,659	.32
Carboxylic acid esters, total	223,597	193,630	56,898	.29
Anhydrosorbitol esters, total	24,667	15,761	5,538	.35
Anhydrosorbitol monoester of tall oil acids	231	149	41	.28
Anhydrosorbitol monolaurate	5,926	3,512	1,335	.38
Anhydrosorbitol monopalmitate	2,042	1,536	480	.31
Anhydrosorbitol monostearate	7,946	4,011	1,332	.33
All other	8,522	6,553	2,350	.36

See footnotes at end of table.

SURFACE-ACTIVE AGENTS

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[3]
Nonionic Surface-Active Agents--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Carboxylic acid esters--Continued				
Diethylene glycol esters, total	2,098	2,002	653	$0.33
Diethylene glycol distearate	452	421	126	.30
Diethylene glycol monolaurate	52	54	19	.35
Diethylene glycol monostearate	450	409	128	.31
Diethylene glycol sesquilaurate	354	347	110	.32
All other	790	771	270	.35
Ethoxylated anhydrosorbitol esters, total	25,075	21,367	8,143	.38
Ethoxylated anhydrosorbitol mono-oleate	7,023	6,502	2,422	.37
Ethoxylated anhydrosorbitol monostearate	5,436	4,609	1,856	.40
Ethoxylated anhydrosorbitol tristearate	2,536	...	...	...
All other	10,080	10,256	3,865	.38
Ethylene glycol esters	4,786	4,610	1,296	.28
Glycerol esters, total	102,320	100,498	25,437	.25
Complex glycerol esters	6,376	5,312	1,846	.35
Glycerol esters of chemically defined acids, total	31,410	33,956	6,823	.20
Glycerol monolaurate	60	52	22	.42
Glycerol mono-oleate	2,768	2,355	768	.33
Glycerol monoricinoleate	83	75	44	.59
Glycerol monostearate	27,191	29,962	5,295	.18
All other	1,308	1,512	694	.46
Glycerol esters of mixed acids, total	64,534	61,230	16,768	.27
Glycerol monoester of hydrogenated cottonseed oil acids	4,176	...	...	...
Glycerol monoester of hydrogenated soybean oil acids	13,126	14,174	4,124	.29
All other	47,232	47,056	12,644	.27
Natural fats and oils, alkoxylated, total	11,258	10,169	2,908	.29
Castor oil, ethoxylated	5,668	4,967	1,607	.32
Hydrogenated castor oil, ethoxylated	3,736	3,508	835	.24
All other	1,854	1,694	466	.28
Polyethylene glycol esters, total	31,502	23,320	8,231	.35
Polyethylene glycol esters of chemically defined acids, total	23,435	17,385	6,624	.38
Polyethylene glycol dilaurate	1,159	944	336	.36
Polyethylene glycol dioleate	4,402	1,196	401	.34
Polyethylene glycol monolaurate	3,838	3,475	1,257	.36
Polyethylene glycol mono-oleate	3,630	3,199	1,110	.35
Polyethylene glycol monostearate	5,345	4,680	1,990	.43
All other	5,061	3,891	1,530	.39
Polyethylene glycol esters of rosin and tall oil acids	6,521	4,505	1,122	.25
Polyethylene glycol esters of other mixed acids, total	1,546	1,430	485	.34
Polyethylene glycol sesquiester of coconut oil acids	395	414	179	.43
All other	1,151	1,016	306	.30
Polyglycerol esters	4,891	...	...	...
Propanediol esters, total	3,573	1,909	678	.36
1,2-Propanediol monostearate	2,593	1,481	554	.37
All other	980	428	124	.29
Other carboxylic acid esters[8]	13,427	13,994	4,014	.29
Ethers, total	736,911	533,185	99,823	.19
Benzenoid ethers, total	313,851	272,514	47,649	.18
Alkylphenol - formaldehyde condensates, alkoxylated	9,429	3,032	722	.24
Dodecylphenol, ethoxylated	17,352	17,223	2,491	.14
Nonylphenol, ethoxylated	177,897	163,099	24,857	.15
All other	109,173	89,160	19,579	.22
Nonbenzenoid ethers, total	423,060	260,671	52,174	.20
Linear alcohols, alkoxylated, total	358,196	210,442	36,528	.17
Decyl alcohol, ethoxylated	1,293	...	...	...
Dodecyl alcohol, ethoxylated	9,175	7,722	1,667	.22
Hexadecyl alcohol, ethoxylated	1,152	664	298	.45
Mixed linear alcohols, ethoxylated	323,725	183,363	28,451	.16
Mixed linear alcohols, ethoxylated and propoxylated	14,687	11,779	2,459	.21
9-Octadecenyl alcohol, ethoxylated	2,899	2,485	1,661	.67
Octadecyl alcohol, ethoxylated	1,336	372	256	.69
All other	3,929	4,057	1,736	.43

See footnotes at end of table.

TABLE 1.--SURFACE-ACTIVE AGENTS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Unit value[3]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Nonionic Surface-Active Agents--Continued				
Ethers--Continued				
Nonbenzenoid ethers--Continued				
Other ethers and thioethers, total	64,864	50,229	15,646	$0.31
Tridecyl alcohol, ethoxylated	4,501	3,569	974	.27
Trimethylnonyl alcohol, ethoxylated	2,145	...	...	...
All other[9]	58,218	46,660	14,672	.31

[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-aciive 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 "all other" secondary and tertiary monoamines not containing oxygen (and salts thereof) and all oxygen-containing quaternary ammonium salts.
[8] Includes ethoxylated sorbitol esters and miscellaneous esters
[9] Includes "other" nonionic surface-active agents.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, ammonium salt.	x.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, sodium salt.	x.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt.	VAC.
(1-Carboxyundecyl)trimethylammonium hydroxide, inner salt.	DUP.
N-(Coconut oil alkyl)-β-alanine, sodium salt	GNM, VAC.
N-(Coconut oil alkyl)-β-alanine, partial 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.	RH.
(Mixed alkyl)sulfobetaine	DUP, 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	SEY, x.
Cyclic:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt.	MIR, UVC.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR, UVC.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR, TCH, UVC, VAC.
Heptadecylmethylbenzimidazolinesulfonic acid, sodium salt.	CGY.
3-[2-(2-Undecyl-2-imidazolin-1-yl)ethoxy]-propionic acid, sodium salt.	UVC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, palmitic, and stearic acids, triethanolamine salt.	SBP.
Oleic acid, n-butylamine salt	DYS.
Oleic acid, triethanolamine salt	DA.
Stearic acid, N,N,N',N'-tetrakis(2-hydroxyethyl)-ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt	GLY.
Tall oil acids, diethanolamine salt	ACE, SOP.
Tallow acids, triethanolamine salt	SBP.
*Carboxylic acids having amide, ester, or ether linkages:	
Butoxyethoxypropionic acid	UVC.
N-(Coconut oil acyl)sarcosine, sodium salt	HMP.
Diisobutylene - maleic anhydride copolymer, ammonium and sodium salts.	RH.
Epoxidized oleic acid, ammonium salt	SCP.
*N-Lauroylsarcosine, sodium salt	CP, HMP, ONX.
N-(Mixed alkylsulfonyl)glycine, sodium salt	GAF.
N-Oleoylpolypeptide, sodium salt	LMI, x.
N-Oleoylsarcosine, sodium salt	GAF.
Phthalic acid, octadecyl ester, potassium salt	CGY.
Stearoyl-2-lactylic acid	GLY.
Tridecyloxypoly(ethyleneoxy)acetic acid, sodium salt.	UVC.
Unspecified sarcosine derivatives	HMP.
All other	x.
*Potassium and sodium salts of fatty, rosin, and tall oil acids:	
Animal grease, sodium salt	NMC.
*Castor oil acid, potassium salt	NTL, PEK, SEA.
Castor oil acid, sodium salt	HEW, MRV, NTL.
Cocoa butter acids, sodium salt	HEW.
*Coconut oil acids, potassium and sodium salts:	
*Potassium salt	ACE, AES, CON, DA, DYS, ESS, GRC, GRL, HEW, HNT, JRG, MCP, NMC, PCH, PEK, PG, SOP, VAL.
*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 and myristic acids	PG.
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, SNW, USR, WBG.
*Oleic acid, sodium salt	BSW, DA, LEV, LUR, MRV, NMC, USR, WBG, WTC.
Olive oil acids, sodium salt	HEW, HNT, LUR.
Palm kernel acids, sodium salt	NMC.
*Palm oil acids, sodium salt	HEW, LUR, NMC, PRX.
Peanut oil acids, potassium salt	KAL, SLC.
Peanut oil acids, sodium salt	NMC.
Rosin acids, potassium salt	USR, x.
Rosin acids, sodium salt	CRT, PRX, SLM, x.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, NMC, PEK, PNX, SOP, VAL, x.
*Tall oil acids, sodium salt	ASY, CON, GRC, GYR, MRV, PRX, SOP, UNP, x.
Tallow acids, potassium salt	AES, ASY, GYR, PG, USR.
*Tallow acids, sodium salt	AGP, ASY, BSW, CON, CP, DA, GRC, GYR, HEW, JRG, LEV, LUR, NMC, NPR, PG, PRX.
All other	GYR.
*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, NLC, TXT, WTC.
Dodecyl alcohol, ethoxylated and phosphated	GAF, WIC, WTC.
Dodecylphenol, ethoxylated and phosphated	GAF.
2-Ethylhexanol, ethoxylated and phosphated	FNX, WAY.
Hexylphenol, ethoxylated and phosphated	ICI.
Iso-pentyl alcohol, ethoxylated and phosphated	GAF.
*Mixed linear alcohols, ethoxylated and phosphated	CHP, CRT, CST, FNX, GAF, TCH, TXT, WTC, WYN.
*Nonylphenol, ethoxylated and phosphated	ARL, CHP, CRT, DEX, GAF, HDG, NLC, SCP, SEY, SNW, SOP, TCC, TXN, TXT, VAC, WAY, WTC.
Nonylphenol, ethoxylated and phosphated, barium salt.	GAF.
9-Octadecenyl alcohol, ethoxylated and phosphated	GAF.
9-Octadecyl alcohol, ethoxylated and phosphated	GAF.
Octylphenol, ethoxylated and phosphated	ARL, RH, WAY.
Octylphenol, ethoxylated and phosphated, magnesium salt.	x.
*Phenol, ethoxylated and phosphated	FNX, GAF, WTC, x.
Polyhydric alcohol, ethoxylated and phosphated	NLC.
*Tridecyl alcohol, ethoxylated and phosphated	ARL, FNX, GAF, LUR, NLC, TCC, WAY, WTC.
All other	GAF, WTC.
*Alcohols, phosphated or polyphosphated:	
Decyl, dodecyl, and octyl phosphate, morpholine salt.	DUP.
Decyl and octyl phosphate	DUP, TXN.
Decyl polyphosphate, sodium salt	WTC.
2-Ethylhexyl phosphate	WAY.
*2-Ethylhexyl phosphate, sodium salt	CHP, FNX, GAF, MRA, SEY, UCC, UVC.
2-Ethylhexyl phosphate, triethanolamine salt	SYL.
2-Ethylhexyl polyphosphate	TCC, UVC, 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.
Mixed alkyl phosphate, diethanolamine salt	DUP.
9-Octadecenyl phosphate	DUP.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Octyl phosphate, alkylamine salt	DUP, NLC, TXT.
Octyl phosphate, potassium salt	DUP, SNW.
Octyl polyphosphate	DEX.
Octyl polyphosphate, potassium salt	x.
All other	DUP, TCH, x.
*Sulfonic acids (and salts thereof):	
*Alkylbenzenesulfonates:	
Dodecylbenzenesulfonates:	
*Dodecylbenzenesulfonic acid	ACS, ATR, CO, CRT, CTL, EMK, FNX, HLI, ICI, LAK, LEV, PIL, PLX, PRX, RCD, STP, TCI, TEN, TXT, WTC.
Dodecylbenzenesulfonic acid, ammonium salt	ARL, FNX, TXN, WTC.
Dodecylbenzenesulfonic acid, butylamine salt	WTC.
*Dodecylbenzenesulfonic acid, calcium salt	ICI, NLC, RCD, RH, STP, TMH, WTC.
Dodecylbenzenesulfonic acid, diethanolamine salt	FNX, WTC.
Dodecylbenzenesulfonic acid, dimethylamine salt	PIL.
Dodecylbenzenesulfonic acid, ethylenediamne salt.	ICI.
Dodecylbenzenesulfonic acid, isopropanolamine salt.	ARD, CTL, WTC.
*Dodecylbenzenesulfonic acid, isopropylamine salt	AAC, CHP, CIN, CTL, FNX, ICI, RCD, SNW, STP.
*Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt.	ECC, FNX, NLC, TCH, WTC.
Dodecylbenzenesulfonic acid, potassium salt	RCD, SOP, STP, VAL.
*Dodecylbenzenesulfonic acid, sodium salt	AAC, ACS, ARD, ARL, ATR, BLA, CHP, CO, CP, CRT, CTL, DA, ECC, HLI, HRT, LEV, NMC, PG, PIL, PLX, PRX, QCP, RCD, SOP, STP, TEN, TXT, UCC, WTC.
*Dodecylbenzenesulfonic acid, triethanolamine salt.	AAC, ACS, ARD, ARL, ATR, CIN, CTL, ECC, ESS, FNX, HLI, PIL, RCD, SOP, SOS, STP, TXN, WTC.
Other alkylbenzenesulfonates:	
Decylbenzenesulfonic acid, sodium salt	LAK.
Didodecylbenzenesulfonic acid	CO.
Didodecylbenzenesulfonic acid, sodium salt	ATR.
Pentadecylbenzenesulfonic acid, potassium salt	STP.
Tridecylbenzenesulfonic acid	CO, RCD.
*Tridecylbenzenesulfonic acid, sodium salt	BLA, CO, CP, NPR, PG, RCD, WTC.
Undecylbenzenesulfonic acid	TXT.
Undecylbenzenesulfonic acid, ammonium salt	TXT.
Undecylbenzenesulfonic acid, sodium salt	TXT.
Undecylbenzenesulfonic acid, triethanolamine salt.	TXT.
All other	USR.
*Benzene-, cumene-, toluene-, and xylenesulfonates:	
Benzenesulfonic acid, sodium salt	NES.
*Cumenesulfonic acid, ammonium salt	NES, PRX, STP, WTC.
Cumenesulfonic acid, sodium salt	NES.
Hydroquinonesulfonic acid, potassium salt	NES.
Toluenesulfonic acid	RCD.
Toluenesulfonic acid, potassium salt	NES, STP, TXN.
Toluenesulfonic acid, sodium salt	CO, NES, PRX, WTC.
Xylenesulfonic acid	HLI.

SURFACE-ACTIVE AGENTS

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, HLI, NES, STP, TXN, WTC.
Xylenesulfonic acid, potassium salt	NES.
*Xylenesulfonic acid, sodium salt	ATR, CO, HLI, ICI, NES, PIL, PRX, SDC, STP, TXN, WTC.
*Ligninsulfonates:	
Ligninsulfonic acid, aluminum salt	MAR.
Ligninsulfonic acid, ammonium salt	CPP, CRZ, SPA, WVA.
*Ligninsulfonic acid, calcium salt	CRZ, CWP, LKY, MAR, PSP, WVA.
Ligninsulfonic acid, chromium salt	MAR, RAY.
Ligninsulfonic acid, copper salt	WVA.
Ligninsulfonic acid, iron salt	CRZ, WVA.
Ligninsulfonic acid, magnesium salt	MAR, WVA.
Ligninsulfonic acid, manganeses salt	WVA.
*Ligninsulfonic acid, sodium salt	CRZ, MAR, RAY, WVA.
Ligninsulfonic acid, zinc salt	WVA.
All other	PSP.
*Naphthalenesulfonates:	
*Butylnaphthalenesulfonic acid, sodium salt	DA, ECC, PFZ.
Dibutylnaphthalenesulfonic acid	GAF, S.
Didodecylnaphthalenesulfonic acid, sodium salt	PFZ.
Diisopropylnaphthalenesulfonic acid, sodium salt	DA, GAF, 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-(tallow alkyl)sulfo-succinamic acid, disodium salt.	SCP.
N-Octadecylsulfosuccinamic acid, disodium salt	ACY.
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.
All other	ACT.
*Taurine derivatives:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt	FNX, GAF, LIL, TNI.
N-Cyclohexyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-oleoyltaurine, sodium salt	DA, DEP, FNX, GAF, HRT, MCP.
N-Methyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt	CRT, FNX, GAF, MRA, WTC.
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, GAF, MOA.
*Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt.	ACY, CGY, CHP, CRT, CST, DA, DAN, ECC, EMK, FNX, HDG, HRT, MCP, MOA, MRA, PC, SBC, SCO, UVC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, diisobutyl ester, sodium salt.	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.
*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----------	ACS.
Dodecyl sulfoacetate, sodium salt----------	STP.
Herring oil, sulfonated----------	SLM.
Iso-octylphenol, ethoxylated and sulfonated, sodium salt.	CRT, RH.
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.
All other----------	x.
*Sulfuric acid esters (and salts thereof):	
*Acids, amides, and esters, sulfated:	
*Coconut oil acids - ethanolamine condensate, sulfated, potassium salt.	DEX, EMK, ONX.
*Esters of sulfated oleic acid:	
2-Butoxyethyl oleate, sulfated, sodium salt--------	S.
Butyl and propyl oleate, sulfated, sodium salt-----	MCP.
*Butyl oleate, sulfated, sodium salt----------	AKS, EFH, ICI, MCP, ONX, PC, SEY.
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, FNX, HRT, LEA, SCP.
Methyl oleate, sulfated, sodium salt----------	ICI.
Mixed oleic acid esters, sulfated, sodium salt-----	EFH.
*Propyl oleate, sulfated, sodium salt----------	ACY, AKS, CHP, MRV.
*Oleic acid, sulfated, disodium salt----------	ACT, ACY, CHP, CRT, DA, GAF, LEA, SCO, TEN, WTC.
Other acids, amides, and esters, sulfated:	
Castor oil and oleic acid, sulfated, ammonium salt-	SCO.
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, 1972--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	
9-Octadecenyl acetate, sulfated, sodium salt-------	DUP.
Oleic acid, sulfated, triethanolamine salt---------	WAY.
Tall oil, sulfated, sodium salt-------------------	APX, BAO, DA, FNX, ICI, SEA, WHI, WHW.
All other---	DA, EMR.
*Alcohols, sulfated:	
Coconut and sperm oil alkyl sulfate, sodium salt-----	DA, DUP, FNX.
Decyl and octyl sulfate, sodium salt----------------	TCH, WTC.
*Decyl sulfate, sodium salt-------------------------	APX, CTL, DUP, HLI, SCP.
3,9-Diethyl-6-tridecyl sulfate, sodium salt----------	UCC.
*Dodecyl sulfate salts:	
2-Amino-2-methylpropanol salt----------------------	DUP.
*Ammonium salt-------------------------------------	AAC, CTL, HLI, JRG, ONX, PG, RCD, SCP, STP, TCH, WTC.
Diethanolamine salt--------------------------------	DUP, HLI, JRG, ONX, SCP, STP.
Diethylamine salt----------------------------------	AAC.
N,N-Diethylcyclohexylamine salt--------------------	DUP.
Isopropanolamine salt------------------------------	JRG, TCH.
*Magnesium salt------------------------------------	AAC, HLI, ONX, STP.
Potassium salt-------------------------------------	GYR, HLI, PG.
*Sodium salt---------------------------------------	AAC, CTL, DUP, HLI, JRG, ONX, PG, RCD, SCP, STP, TCH, WTC.
*Triethanolamine salt------------------------------	AAC, CTL, DUP, HLI, ONX, PG, RCD, SCP, STP, TCH, TXT.
2-Ethylhexyl sulfate, sodium salt-------------------	AAC, SCP, TCH, UCC.
Hexadecyl sulfate, sodium salt----------------------	AAC, DUP, SCP.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt------	UCC.
Hexyl sulfate, potassium salt----------------------	DEX.
Mixed linear alcohol sulfate, ammonium salt----------	CP, LAK, NTL, S, SCP, UCC.
Mixed linear alcohol sulfate, sodium salt-----------	LAK, SCP, SEY, TXT.
Mixed linear alcohol sulfate, triethanolamine salt.	LAK, SCP.
Nonyl sulfate, sodium salt-------------------------	TEN, TXT.
9-Octadecenyl sulfate, 2-(diethylamino)ethanol salt--	AAC.
Octadecyl sulfate, sodium salt----------------------	DUP, EMK, ONX, PG.
Octadecyl sulfate, triethanolamine salt-------------	DUP.
Octyl sulfate, sodium salt-------------------------	AAC, DUP.
Tridecyl sulfate, sodium salt----------------------	AAC, SCP.
All other---	LEV.
*Ethers, sulfated:	
*Alkylphenols, ethoxylated and sulfated:	
Nonylphenol, ethoxylated and sulfated, ammonium salt.	CGY, GAF, STP, TXT, WTC.
*Nonylphenol, ethoxylated and sulfated, sodium salt.	CRT, DEX, GAF.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	ARL.
Octylphenol, ethoxylated and sulfated, sodium salt.	RH.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	AAC, AKS, CTL, STP, TXT, WTC.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, CTL, HLI, ONX, RCD, SCP, STP, TCH, WTC.
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, TXT.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt.	AAC, CO, DA, LAK, PG, PIL, RCD, SCP, SHC, STP, TCI, TXT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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	
Sperm oil alcohol, ethoxylated and sulfated, sodium salt.	DUP, WAW.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, ARL, PRX, RCD.
All other	DUP.
*Natural fats and oils, sulfated:	
*Castor oil, sulfated, sodium salt	ACT, ACY, AKS, APX, ARL, BAO, BSW, CRT, DA, DEX, EFH, FNX, GAF, HRT, ICI, KAL, KNG, LEA, LUR, MCP, MRD, MRV, S, SCO, SCP, SLC, SLM, WHI, WHW.
*Coconut oil, sulfated, sodium salt	ACY, BAO, DA, LUR, MRD, SEA, SLC, 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, SLM, WAW.
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.
Mustard seed oil, sulfated, sodium salt	DA, LUR.
*Neat's-foot oil, sulfated, sodium salt	ACT, BAO, CRT, DA, KAL, LUR, MRD, PC, SEA, SLM, WHW.
*Peanut oil, sulfated, sodium salt	ACY, CHP, DA, LEA, LUR.
*Ricebran oil, sulfated, sodium salt	DA, EFH, KNG, LUR, SEA, WHI.
*Soybean oil, sulfated, sodium salt	CRT, HRT, KAL, MRD, ONX, WHW.
*Sperm oil, sulfated, sodium salt	ACT, CLD, CRT, DA, FNX, KAL, ONX, SCO, SEA, WHI, WHW.
*Tallow, sulfated, sodium salt	ACT, ACY, BSW, DA, ECC, LUR, MCP, MRD, PC, SCP, SID, SLM, SOS, WHI.
Other anionic surface-active agents:	
Lignin (non-sulfonated) 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, SEY.
All other	QCP, 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	AAC, ARC, ASH, BRD, ICI, NLC, TCH, VAC.
(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.
Ethylenediamine, ethoxylated and propoxylated	ICI.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, TCH.
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----------	CGY, 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, TCH.
(Soybean oil alkyl)amine, ethoxylated----------	ARC, VAC.
*(Tallow alkyl)amine, ethoxylated----------	ARC, CGY, DUP, GAF, TCH.
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, WTC, WYN.
Triethanolamine, ethoxylated----------	TCH.
All other----------	ARC, GLY, SCP.
*Cyclic (except imidazoline and oxazoline derivatives):	
Aniline and m-toluidine, ethoxylated----------	TCH.
Lignin amine----------	WVA.
Rosin amine, ethoxylated----------	HPC, NLC, WTC.
Imidazoline and oxazoline derivatives:	
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline.	COM.
2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline.	DA, ONX, UVC.
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline.	CGY, COM, UVC.
*2-(Heptadecyl)-1-(2-Hydroxyethyl)-2-imidazoline------	CGY, CHP, MOA, UVC.
*1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline.	CGY, MOA, UVC.
*1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline.	HDG, MOA, NLC, TCH, UVC.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride.	CGY, WTC.
2-Hydroxypropyl 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, TXT, WTC.
Mixed dicarboxylic acids - polyalkylenepolyamine condensate.	TXT.
*Mixed fatty acids - polyalkylenepolyamine condensate.	GRD, NLC, QCP, TCH.
Oleic acid - 1-(2-aminoethyl)piperazine condensate---	TXT.
Oleic acid - diethylenetriamine condensate----------	ICI, TXT.
Oleic acid - N,N-dimethyltrimethylenediamine condensate.	CCW.
Pelargonic acid - tetraethylenepentamine condensate.	ICI
Stearic acid, diethanolamine condensate, methyl sulfate.	DUP.
Stearic acid - diethylenetriamine condensate---------	CHP, CST, FNX, ONX, S.
Stearic acid - N,N-diethylethylenediamine condensate.	CGY, S.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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 - tetraethylenepentamine condensate	ONX.
*Tall oil acids - diethylenetriamine and polyalkylene polyamine condensates:	
Tall oil acids - diethylenetriamine condensate	AZS, DA, FNX, NCW, NLC, RTF, WTC.
Tall oil acids - polyalkylenepolyamine condensate	AZS, QCP, WTC.
All other	NLC, VND.
Other amines and amine oxides having amide linkages:	
Coconut oil acids - diethylenetriamine condensate, polyethoxylated.	SOP, 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.
Rosinpolyamidoimidazoline	UVC.
Stearic acid - diethylenetriamine condensate, polyethoxylated.	TCC.
*Stearic acid - ethylenediamine condensate, monoethoxylated.	CST, DA, DEX, ICI, MRV, S, SCP.
Stearic acid - ethylenediamine condensate, polyethoxylated.	ICI.
Tall oil acids - ethylenediamine condensate, monoethoxylated.	SCP.
*Amines, not containing oxygen (and salts thereof):	
*Amine salts:	
(Coconut oil alkyl)amine acetate	ARC, WTC.
(Hydrogenated tallow alkyl)amine acetate	ARC, ASH.
(9-Octadecenyl)amine acetate	GNM.
Octadecylamine acetate	ACY, 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	SM
*Diamines and polyamines:	
*N-(Coconut oil alkyl)trimethylenediamine	ARC, ENO, GNM.
N-(Docosyl- and eicosyl)trimethylenediamine	ENO.
*Imidazoline derivatives:	
1-[3-(2-Aminoethyl)naphth-1-yl]-2-(8-heptadecenyl)-2-imidazoline.	NLC.
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline.	NLC, UVC, WTC.
2-Heptadecyl-2-imidazoline	EMR, SCO.
Tall oil imidazoline	AZS.
N-(Mixed alkyl)polyethylenepolyamine	CCW.
*N-(9-Octadecenyl)trimethylenediamine	ARC, ASH, GNM.
N-(Soybean oil alkyl)trimethylenediamine	ENO.
N-(Tall oil alkyl)trimenthylenediamine	ARC.
N-(Tallow alkyl)dipropylenetriamine	ARC, GNM.
N-(Tallow alkyl)trimethylenediamine	ARC, ASH, ENO, GNM.
*Primary monoamines:	
(Coconut oil alkyl)amine	ARC, ENO, GNM.
Dodecylamine	ARC, ASH, GNM.
Docosyl- and eicosylamine	ENO.
Hexadecylamine	ARC, 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, 1972--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:	
*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, ASH, BRD, ENO.
N,N-Dimethyldecylamine	BRD.
N,N-Dimethyl (Docosyl- and eicosyl)amine	ENO.
*N,N-Dimethyldodecylamine	ARC, BRD, ENO, 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, ONX.
*N,N-Dimethyloctadecylamine	ARC, ASH, BRD, ENO.
N,N-Dimethyloctylamine	BRD.
N,N-Dimethyl(soybean oil alkyl)amine	ARC, ENO.
N,N-Dimethyltetradecylamine	ARC, BRD, ONX.
N-Methylbis(coconut oil alkyl)amine	ENO, GNM.
*N-Methylbis(hydrogenated tallow alkyl)amine	ARC, ASH, ENO, GNM, SCO.
N-Methyldioctadecylamine	ASH.
Trioctylamine	BRD, GNM.
*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.
(3-Lauramidopropyl)trimethylammonium methyl sulfate.	ACY.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride.	WTC.
Tall oil acid - polyalkylenepolyamine condensate, quaternary sulfate.	NLC.
Trimethyl(3-oleamidopropyl)ammonium methyl sulfate.	CGY.
All other	ARC, X.
Other oxygen-containing quaternary ammonium salts:	
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2-hydroxyethyl)ammonium ethyl sulfate.	LUR.
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)-ammonium chloride.	CGY, NLC.
Benzyl(coconut oil alkyl, ethoxylated)dimethyl-ammonium chloride.	GAF.
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium chloride.	UVC.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imadazolinium chloride.	NLC, MOA.
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, 1972--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, VAC.
(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, UVC.
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.
Quaternarized propoxylated tallow diamine----------	ARC.
All other----------	ARC.
*Quaternary ammonium salts, not containing oxygen:	
*Acyclic:	
*Bis(coconut oil alkyl)dimethylammonium chloride------	ARC, ASH, ENO, GNM, VAC.
Bis(coconut oil alkyl)dimethylammonium nitrate-------	ARC.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride.	ARC, ASH, ENO, GNM, VAC.
Bis(hydrogenated tallow alkyl)dimethylammonium methyl sulfate.	PRX.
(Coconut oil alkyl)trimethylammonium chloride--------	ARC, ASH.
Didecyldimethylammonium chloride----------	BRD.
Didodecyldimethylammonium bromide----------	ONX.
Dimethylbis(mixed alkyl) and trimethyl(mixed alkyl)ammonium chloride.	GNM.
Dimethylbis(9-octadecenyl)ammonium chloride----------	GNM.
Dimethylbis(soybean oil alkyl)ammonium chloride------	ARC.
Dimethyldioctadecylammonium chloride----------	ASH, ONX, PG.
Dimethyldioctadecylammonium methyl sulfate----------	ONX.
Dioctyldimethylammonium chloride----------	BRD.
Dodecyltrimethylammonium bromide----------	DUP.
Dodecyltrimethylammonium chloride----------	ARC, CHP, GNM, WTC.
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, VAC.
Hexadecyltrimethylammonium p-toluenesulfonate--------	FIN.
(Hydrogenated tallow alkyl)trimethylammonium chloride.	ENO.
Methyltrioctylammonium chloride----------	GNM.
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, ENO.
*Trimethyl(tallow alkyl)ammonium chloride----------	ARC, ASH, ENO, GNM.
Trimethyltetradecylammonium bromide----------	FIN.
All other----------	BRD, GNM, ICI, STC.
*Benzenoid:	
1-(2-Aminoethyl)-1-ethyl-2-(8-heptadecenyl-2-imidazolinium bromide.	EFH.
Benzylalkylpyridinium ammonium chloride----------	WTC.
*Benzyl(coconut oil alkyl)dimethylammonium chloride.	ARC, CRT, DEP, ENO, HLI, LUR, TXT, WTC.
*Benzyldimethyl(mixed alkyl)ammonium chloride---------	AAC, BRD, FIN, ONX, RH, TXT, VAC.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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, HLI, ONX, RH, TNI, VAC.
Benzyldimethyl(tallow alkyl)ammonium chloride	ENO.
Benzyldimethyltetradecylammonium chloride	FIN, SNW.
Benzyldodecyldimethylammonium chloride	FIN, ONX, SDH.
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, TCC.
(3,4-Dichlorobenzyl)dodecyldimethylammonium chloride.	ONX, VAC.
(Dodecylbenzyl)triethylammonium chloride	PC.
(Dodecylbenzyl)trimethylammonium chloride	VAC, WTC.
2-Dodecylisoquinolinium bromide	ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride	RH.
1-Dodecylpyridinium chloride	HK.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride.	BRD, ONX.
1-(Mixed alkyl)quinolinium ethylsulfate	x.
1-Phenethyl-2-picolinium bromide	FIN.
Nonionic Surface-Active Agents	
*Carboxylic acid amides:	
*Diethanolamine condensates (amine/acid ratio=2/1):	
*Capric acid	CGY, SCP, TCH.
Castor oil acids	CLI, FNX, NTL.
*Coconut oil acids	ACT, AKS, ARD, ARL, AZS, BSW, CHP, CLI, CTL, DA, DEP, EFH, FNX, HLI, HRT, JOR, KNP, LUR, MCP, MOA, MRV, ONX, PC, PG, PNX, PVO, SBC, SCP, SEY, STP, TCH, TXC, TXN, UNN, UVC, VAC, VAL, VND, WTC, x.
*Coconut oil and tallow acids	ACT, CLI, CRT, ECC, ESS, MOA, PG, PVO, SOS.
*Lauric acid	ARD, CLI, DA, ECC, HLI, ONX, PG, WON.
Lauric and myristic acids	FNX, HLI, MOA, PVO, STP.
Linoleic acid	VND.
Mixed vegetable oil acids	HLI.
*Oleic acid	CCW, CLI, EMR, FNX, PVO, STP.
Pelargonic acid	EMR, TCH.
*Stearic acid	CLI, DA, EMR, ECC, JOR, MRV, ONX, SCO, TXC, VAL.
*Tall oil acids	EFH, MCP, MOA, MRV, SOS.
Tallow acids	SOS, WTC.
*Diethanolamine condensates (other amine/acid ratios):	
*Coconut oil acids (amine/acid ratio=1/1)	ARD, AZS, CCL, CGY, CIN, CLI, CTL, FNX, HLI, JRG, MOA, MRV, ONX, PIL, SBC, SEY, STP, TCC, TCH, TXN, TXT, VAC, WTC.
Coconut oil acids (amine acid ratio unspecified)	CON, JRG.
*Lauric acid (amine/acid ratio=1/1)	ARD, CLI, CTL, EMK, HLI, LEV, MOA, ONX, SBC, TCH, TXN, VAC, WTC.
Lauric and myristic acids (amine/acid ratio=1/1)	CLI, TXT.
Linoleic acid (amine/acid ratio=1/1)	MOA, SBC.
*Oleic acid (amine/acid ratio=1/1)	CGY, HLI, SBC, SCP, TCC, TCH, TXT.
Palmitic and stearic acid (amine/acid ratio=1/1)	MCP.
Rapeseed oil acids (amine/acid ratio=2.6/1)	EFH.
*Stearic acid (amine/acid ratio=1/1)	CGY, ECC, EMR, FNX, MRV, RPC, UVC.
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, 1972--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, FNX, MRV.
Tall oil acids (amine/acid ratio=2.7/1)----------	EFH.
Tallow acids (amine/acid ratio=1/1)----------	RPC, TCH.
All other----------	ORO, STP.
*Ethanolamine and isopropanolamine condensates:	
*Coconut oil acids - ethanolamine condensate (amine/acid ratio=2/1).	CTL, PRX, STP, TCH, VAC, VND, WTC.
*Coconut oil acids - ethanolamine condensate (amine/acid ratio=1/1).	ARD, CLI, HLI, HUM, MOA, PG, STP, UVC.
Coconut oil acids - ethanolamine condensate, ethoxylated.	DA, STP.
Coconut oil acids - isopropanolamine condensate------	STP, MOA.
Hydrogenated castor oil acids - ethanolamine condensate (amine/acid ratio=2/1).	GLY, NTL.
Hydrogenated tallow acids - ethanolamine condensate (amine/acid ratio=2/1).	GLY.
Lauric acid - ethanolamine condensate (amine/acid ratio=2/1).	ARC, CTL, PRX.
Lauric acid - ethanolamine condensate (amine/acid ratio=1/1).	ARD.
Lauric acid - isopropanolamine condensate----------	CLI, MOA.
Lauric and myristic acids - ethanolamine condensate (amine/acid ratio=1/1).	MOA.
Lauric and myristic acids - isopropanolamine condensate.	LEV, TXT.
Oleic acid - ethanolamine condensate (amine/acid ratio=1/1).	VPC.
Oleic acid - ethanolamine condensate, ethoxylated----	ARD, DA, GAF.
Stearic acid - ethanolamine condensate (amine/acid ratio=2/1).	CLI.
Stearic acid - ethanolamine condensate (amine/acid ratio=1/1).	MOA, VND.
Stearic acid - ethanolamine condensate (amine/acid ratio=1/2).	HAL, SEY.
Tallow acids - ethanolamine condensate (amine/acid ratio=1/1).	SCP.
All other----------	ROB, MCP, 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, TCH.
*Anhydrosorbitol monopalmitate----------	GLY, HDG, ICI, TCH.
*Anhydrosorbitol monostearate----------	GLD, GLY, HDG, ICI, PVO.
Anhydrosorbitol sesquioleate----------	GLY, HDG.
Anhydrosorbitol triester of tall oil acids----------	GLY.
Anhydrosorbitol trioleate----------	GLY, ICI, TCH.
Anhydrosorbitol tristearate----------	GLY, ICI, PVO.
*Diethylene glycol esters:	
Diethylene glycol dioleate----------	GLY.
*Diethylene glycol distearate----------	ARC, ECC, GLY, VAL.
Diethylene glycol monoester of coconut oil acids-----	AAC, DA.
Diethylene glycol monoester of tallow acids----------	QCP.
*Diethylene glycol monolaurate----------	CCW, GLY, HAL, HDG.
Diethylene glycol mono-oleate----------	ARC, EMR.
Diethylene glycol monoricinoleate----------	GLY.
*Diethylene glycol monostearate----------	ARC, CHP, CLI, DA, HAL, HDG, MCP, TCH, VND, WTC.
Diethylene glycol sesquiester of tall oil acids------	ECC, WTC.
*Diethylene glycol sesquilaurate----------	ARC, GLY, WM.
Diethylene glycol sesquistearate----------	WM.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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 monolaurate	AAC, GLY, HDG, ICI, 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 monotallate	WTC.
Ethoxylated anhydrosorbitol triester of castor oil acids.	ARC.
Ethoxylated anhydrosorbitol triester of tall oil acids.	ICI, TCH.
Ethoxylated anhydrosorbitol trioleate	AAC, GLY, ICI, TCH.
*Ethoxylated anhydrosorbitol tristearate	AAC, GLY, HDG, ICI, PVO, TCH.
*Ethoxylated sorbitol esters:	
Ethoxylated sorbitol beeswax ester	ICI.
Ethoxylated sorbitol distearate	ICI.
Ethoxylated sorbitol heptaoleate	ICI.
Ethoxylated sorbitol hexaester of tall oil acids	ICI, TCH.
Ethoxylated sorbitol hexaoleate	GLY, ICI, TCH.
Ethoxylated sorbitol lanolin ester	ICI.
Ethoxylated sorbitol mono-oleate	ICI.
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.
Ethylene glycol mono-oleate	EFH.
Ethylene glycol monostearate	ARC, CLI, GLY, HAL, HDG, KNP, TCH, VND, WM.
Ethylene glycol sesquistearate	WM.
All other	EMR.
*Glycerol esters:	
*Complex glycerol esters:	
Glycerol ester ethoxylated	GLY.
Glycerol lactate esters of fatty acids	GLD.
Glycerol mannitan laurate	GLY.
Glycerol monoester of mixed fatty acids, acetylated.	EKT.
Glycerol mono-oleate, acetylated	x.
Glycerol monostearate, succinylated	EKT.
Glycerol trilaurate myristate	GLY.
*Glycerol esters of chemically defined acids:	
Glycerol dioleate	ARC, HAL.
Glycerol dilaurate	VND.
Glycerol distearate	ARC, ICI, WTC.
Glycerol monocaprylate	ARC, PVO.
*Glycerol monolaurate	ARC, GLY, HAL.
*Glycerol mono-oleate	ARC, CCW, CHP, DA, EFH, EMR, GLY, HAL, HDG, PVO, TCH, WM, WTC.
*Glycerol monoricinoleate	CCW, DA, HDG.
*Glycerol monostearate	ARC, ASH, BLS, CHL, DA, EFH, EMR, FNX, GLY, GRO, HAL, HDG, HRT, LUR, PG, PVO, SCP, SOS, TCC, TCH, VND, WM, WTC.
*Glycerol esters of mixed acids:	
Glycerol monoester of coconut oil acids	PVO, WM.
Glycerol monoester of cottonseed oil acids	EKT.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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.
Glycerol monoester of hydrogenated tallow acids----	TCH.
Glycerol monoester of lard acids----------	EKT, GLD.
Glycerol monoester of peanut oil acids----------	PVO.
Glycerol monoester of tall oil acids----------	EFH.
Glycerol monoester of tallow acids----------	BFP.
Glycerol sesquiester of hydrogenated tallow acids--	JRG.
Glycerol sesquiester of tall oil acids----------	SLM.
All other----------	EKT, GLD, ICI, LEV.
*Natural fats and oils, alkoxylated:	
*Castor oil, ethoxylated----------	AAC, DA, DUP, GAF, ICI, NLC, NTL, PVO, SYL, TCH, TMH, WTC.
Castor oil, propoxylated----------	TCH.
Corn oil, ethoxylated----------	TCH.
*Hydrogenated castor oil, ethoxylated----------	DA, ICI, SYL, TCH.
Lanolin, ethoxylated----------	AAC, CRD, CRN, ICI, PRX, TCH.
All other----------	ARC, DA.
*Polyethylene glycol esters:	
*Polyethylene glycol esters of chemically defined acids:	
*Polyethylene glycol dilaurate----------	ARC, DA, EFH, GLY, HAL, HDG, TCH, WM.
*Polyethylene glycol dioleate----------	ARC, CGY, CLD, DA, EFH, GLY, HAL, HDG, NLC, TCH, UVC, VND, WM.
Polyethylene glycol distearate----------	ARC, EFH, FNX, GLY, HAL, HDG, TCH.
Polyethylene glycol methylcarbitol maleate---------	CCA.
Polyethylene glycol monoisostearate----------	TCH.
*Polyethylene glycol monolaurate----------	AAC, ARC, CCA, CGY, DA, GLY, HAL, HDG, ICI, JOR, KNP, MCP, TCH, UVC.
*Polyethylene glycol mono-oleate----------	AAC, ARC, CCA, CGY, CHP, CLD, CRT, DA, DEX, EFH, GAF, GLY, HAL, HDG, ICI, ONX, PVO, SCP, TCH, UVC, VAC, WM, WTC.
Polyethylene glycol mono-oleate, ethoxylated-------	ICI.
Polyethylene glycol monopalmitate----------	ICI.
Polyethylene glycol monopelargonate----------	EMR, TCH.
*Polyethylene glycol monostearate----------	AAC, AKS, ARC, CGY, CHP, CRT, DA, DEP, DEX, EFH, EMR, GAF, GLY, HAL, HDG, HRT, ICI, KNP, ONX, PC, PVO, TCC, TCH, VND.
Polyethylene glycol sesquioleate----------	ICI, TCH, WTC.
All other----------	SEY.
*Polyethylene glycol esters of rosin and tall oil acids:	
Polyethylene glycol diester of tall oil acids------	EFH, GLY.
Polyethylene glycol ester of tall oil acids--------	TCH.
Polyethylene glycol monoester of tall oil acids----	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 ester of palmitic, stearic, and coconut oil acids.	MCP.
Polyethylene glycol monoester of coconut oil acids.	GLY.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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 sesquiester of castor oil acids.	CGY.
*Polyethylene glycol sesquiester of coconut oil acids.	ARL, MRT, PG, VND.
Polyethylene glycol sesquiester of tallow acids----	SOS.
All other----------	ACT, ECC, EMR, SM, WTC.
*Polyglycerol esters:	
Polyglycerol ester of tall oil acids----------	AZS.
Polyglycerol mono-oleate----------	HDG, PVO, TCH, VND.
Polyglycerol monostearate----------	ASH, PVO, TCH.
*Propanediol esters:	
1,2-Propanediol dioleate----------	x.
1,2-Propanediol distearate----------	ARC.
1,3-Propanediol monoester of coconut oil acids-------	WM.
1,2-Propanediol monolaurate----------	ARC, HAL, PVO, SBC.
1,2-Propanediol monomyristate----------	ICI.
1,2-Propanediol mono-oleate----------	EFH, HAL.
*1,2-Propanediol monostearate----------	ARC, CCW, EKT, GLD, GLY, HAL, ICI, PVO, TCH.
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 monostearate----------	ICI.
2-Hydroxymethyl-2-butene-1,4-diol monopelargonate---	ICI.
Lauric acid esters of glycerol and ethoxylated nonylphenol.	TCC.
Methylglucoside laurate----------	HDG.
Mixed esters of stearic acid----------	EMR.
Mixed polyhydric alcohols triester of tall oil acids.	ICI.
Oleic acid esters of ethoxylated nonylphenol---------	EFH.
Pentaecrythritol distearate----------	GLY, QCP, VAL.
Polyalkylene glycol adipate----------	NLC.
Polyalkylene glycol difumarate----------	WTC.
Polypropylene glycol monoester----------	SOS.
Polypropylene glycol mono-oleate----------	HDG.
Polypropylene glycol monostearate----------	HDG.
All other----------	CCW, TCH, WM.
*Ethers:	
*Benzenoid ethers:	
*Alkylphenol - formaldehyde condensates, alkoxylated:	
Alkylphenol, ethoxylated----------	WTC.
(Mixed alkyl)phenol - formaldehyde, alkoxylated----	NLC, NTL.
Nonylphenol - formaldehyde, alkoxylated----------	NLC, WTC.
tert-Octylphenol - formaldehyde, ethoxylated-------	DA, SDW.
All other----------	PVO, WTC.
Derivatives of ethoxylated phenols----------	RH.
Diisobutylphenol, ethoxylated----------	GAF.
Dinonylphenol, ethoxylated----------	ARD, GAF, STP, TCH.
*Dodecylphenol, ethoxylated----------	ACC, GAF, MON, TCH, TMH, UCC.
Iso-octylphenol, ethoxylated----------	APX, DA, OMC, RH.

TABLE 2.--SURFACE-ACTIVE AGENTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--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	NTL, PRX, TCH.
(Mixed alkyl)phenoxypoly(ethyleneoxy)ethyl chloride.	GAF, NTC.
*Nonylphenol, ethoxylated	CGY, DA, GAF, HDG, ICI, JCC, MON, OMC, RH, STP, TCH, TMH, UCC, VAC, WTC.
Nonylphenoxypoly(ethyleneoxy)ethyl iodide	GAF.
n-Octylphenol, ethoxylated	TCH.
Phenol, ethoxylated	CLY, DA, GAF, ICI, JCC, TCH, UCC.
Styrenated phenol, ethoxylated	DA.
Tetradecylphenol, ethoxylated	ORO.
Tridecylphenol, ethoxylated	TCH.
Xylenol, ethoxylated	NLC.
All other	GAF, SYL.
*Nonbenzenoid ethers:	
*Linear alcohols, alkoxylated:	
Coconut oil alcohol, ethoxylated	GLY.
*Decyl alcohol, ethoxylated	GAF, ICI, TCH.
Decyl and octyl alcohols, ethoxylated	GAF, GLY, TCH.
Decyl and octyl alcohols, ethoxylated and propoxylated.	GAF.
Decyloxypoly(ethyleneoxy)ethyl chloride	GAF.
Derivative of ethoxylated primary alcohol	RH.
*Dodecyl alcohol, ethoxylated	AAC, DUP, GAF, HDG, ICI, OMC, PVO, SNW, UCC, WTC.
*Hexadecyl alcohol, ethoxylated	AAC, CGY, ICI, VAC, TCH.
*Mixed linear alcohols, ethoxylated	AAC, CO, DA, GAF, HDG, JCC, NLC, RH, SHC, STP, TCH, UCC, WTC.
*Mixed linear alcohols, ethoxylated and propoxylated.	JCC, STP, TCH, UCC, WYN.
*9-Octadecenyl alcohol, ethoxylated	AAC, ABC, CGY, CRN, DA, DUP, GAF, GLY, ICI, TCH, VPC.
*Octadecyl alcohol, ethoxylated	CGY, DA, DUP, GAF, ICI, HDG.
Sperm oil alcohol, ethoxylated	CRD, DUP.
Tallow alcohol, ethoxylated	AAC.
Wool wax alcohols, ethoxylated	CRD.
*Other ethers and thioethers:	
*Poly(ethylene and propylene)glycols:	
Poly(mixed ethylene, propylene)glycol	NLC, UCC.
Polypropylene glycol, ethoxylated	NLC, VAC, WTC, WYN.
tert-Dodecyl mercaptan, ethoxylated	AAC, UCC, WTC.
Ethylhexanol, ethoxylated	TCH.
Glucose, ethoxylated	RH.
Glycerol, alkoxylated	NLC.
Isodecyl alcohol, ethoxylated	TCH.
Iso-octyl alcohol, ethoxylated	GAF.
Methylglucoside, propoxylated	STP.
Mixed alcohols, ethoxylated	CRN, PVO.
Rosin alcohol, ethoxylated	NLC, VAC.
Sorbitol, ethoxylated	TCH.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated.	GAF.
*Tridecyl alcohol, ethoxylated	AAC, DA, DUP, GAF, ICI, JCC, MON, NLC, OMC, PVO, SYL, TCH, UCC, WTC.
Tridecyl alcohol, propoxylated and ethoxylated	ICI, JCC.
Trimethylheptanol, ethoxylated	TCH.
*Trimethylnonyl alcohol, ethoxylated	HDG, UCC, VAC.
Trimethylolpropane, alkoxylated	HDG, VAC, WTC, WYN.
All other	TCH.
Other nonionic surface-active agents:	
Dodecylbenzenesulfonic acid - diethanolamine condensate, fatty acid monoester.	ACT.
Dodecyl alcohol, ethoxylated and phosphated	DUP.
Octyl phosphate, ethoxylated	DUP.
Tri(castor oil alkyl)phosphate	GLY.
All other	AIP, STC.

SURFACE-ACTIVE AGENTS

TABLE 3.--SURFACE-ACTIVE AGENTS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers that reported production or sales of surface-active agents to the U.S. Tariff Commission for 1972 are listed below in the order of their identifcation codes as used in table 2]

Code	Name of company
AAC	Alcolac Chemical Corp.
ABC	ARC Chemical Corp.
ACE	Acme Chemical Co.
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACT	Arthur C. Trask Co.
ACY	American Cyanamid Co.
AES	Amerace-Esna 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.
BFP	Breddo Food Products Corp.
BLA	Astor Products, Inc., Blue Arrow Div.
BLS	Beech-Nut, 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.
GAF	GAF Corp., Chemical Div.
GLD	Glidden Durkee Famous Foods
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 Chemical 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. and Specialty Chemicals Div.
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.
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	Crown-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, 1972--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., Ltd.
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.
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 Chemical Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.
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	Magnolia Industries, Inc., Milliken Chemical Div.
TCC	Tanatex Chemical Corp.
TCH	Emery Industries, Inc., Trylon Chemical Div.
TCI	Texize Chemicals, Inc.
TEN	Cities Service Co., Copperhill Operations
TMH	Thompson-Hayward Chemical Co.
TNA	Ethyl Corp.
TNI	Gillette Chemical Co. Div. of Gillette Co.
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.
UVC	Universal Chemicals Corp.
VAC	Northern Petrochemical Co.
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	Wica Chemicals, Inc.
WM	Wilson Pharmaceutical & Chemical Corp., Wilson-Martin Div.
WON	Woonsocket Color & Chemical Co.
WTC	Witco Chemical Co., Inc.
WVA	Westvaco Corp., Chemicals Div., Polychemical Dept.
WYN	BASF-Wyandotte Chemicals Corp.

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

PESTICIDES AND RELATED PRODUCTS

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

U.S. production of pesticides and related products in 1972 amounted to 1,158 million pounds--1.9 percent greater than the 1,136 million pounds reported for 1971 (table 1).[1] Sales in 1972 were 1,022 million pounds, valued at $1,092 million, compared with 946 million pounds, valued at $979 million, in 1971.

The output of cyclic pesticides and related products amounted to 839 million pounds in 1972--1.4 percent greater than the 828 million pounds, produced in 1971. Sales in 1972 were 720 million pounds, valued at $890 million, compared with 669 million pounds, valued at $819 million, in 1971. Production of acyclic pesticides and related products in 1972 amounted to 318 million pounds, compared with the 308 million pounds reported for 1971, an increase of 3.3 percent. Sales in 1972 were 302 million pounds, an increase of about 8.9 percent as compared to the 277 million pounds reported in 1971; the value of sales was $202 million in 1972, compared with $160 million in 1971--an increase of 26.3 percent.

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

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1972

[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	1,157,698	1,021,565	1,091,708	$1.07
Benzenoid	657,092	581,107	681,768	1.17
Nonbenzenoid	500,606	440,458	409,940	.93
PESTICIDES AND RELATED PRODUCTS, CYCLIC				
Total	839,360	719,707	889,613	1.24
Fungicides, total	98,164	88,530	58,192	.66
Mercury fungicides, total	854	781	3,154	4.04
Phenylmercuric acetate (PMA)	307	284	1,382	4.87
Phenylmercuric oleate	279	263	539	2.05
Other mercury fungicides	268	234	1,233	5.27
Naphthenic acid, copper salt	2,206	2,291	717	.31
Pentachlorophenol (PCP)	49,704	48,355	6,783	.14
8-Quinolinol (8-Hydroxyquinoline), copper salt	40	...	...	...
All other cyclic fungicides[2]	45,360	37,103	47,538	1.28
Herbicides and plant hormones, total	371,730	282,094	573,848	2.03
1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)	4,472	...	...	...
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	22,469	24,028	9,311	.39
All other cyclic herbicides and plant hormones[3]	344,789	258,066	564,537	2.19
Insecticides and rodenticides, total	369,466	349,083	257,573	.74
Aldrin-toxaphene group[4]	141,858	140,150	65,919	.47
Organophosphorus insecticides, total	95,461	90,283	96,843	1.07
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (Methyl parathion)	51,076	52,438	23,576	.45
All other organophosphorus insecticides[5]	44,385	37,845	73,267	1.94
All other cyclic insecticides and rodenticides[6]	132,147	118,650	94,811	.80
PESTICIDES AND RELATED PRODUCTS, ACYCLIC				
Total	318,338	301,858	202,095	.67
Fungicides, total	44,648	39,987	23,972	.60
Dithiocarbamic acid salts[7]	40,438	34,899	17,382	.50
All other acyclic fungicides[8]	4,210	5,088	6,590	1.30
Herbicides and plant hormones, total	79,581	71,489	55,110	.77
Methanearsonic acid salts[9]	30,698	34,857	9,370	.27
All other acyclic herbicides[10]	48,883	36,632	45,740	1.25

See footnotes at end of table.

PESTICIDES AND RELATED PRODUCTS

TABLE 1.--PESTICIDES AND RELATED PRODUCTS: U.S. PRODUCTION AND SALES, 1972--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	194,109	190,382	123,013	$0.65
Methyl bromide (Bromomethane)	24,633	23,930	9,349	.39
Organophosphorus insecticides[11]	65,181	59,734	76,507	1.28
1,2-Dibromo-3-chloropropane (DBCP)	...	15,228	6,275	.41
All other acyclic insecticides, rodenticides, soil conditioners and fumigants[12]	104,295	91,490	30,882	.34

1 Calculated from rounded figures.

2 Includes captafol, captan, dinocap, DMTT, folpet, pentachloronitrobenzene, 8-quinolinol (sales only), sodium pentachlorophenate, tri- and tetra-chlorophenols (including 2,4,5-trichlorophenol and its salts), and others.

3 Includes acetanilide compounds, amiben esters and salts, barban, benefin, bensulide, 4-CPA potassium salt, 2,4-D, acid, esters, and salts, 2,4-DB, dicamba, dimethylurea compounds, dinitrophenol compounds, isopropyl phenylcarbamates (IPC and CIPC), MCPA, MH (sales 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, piperonyl butoxide and other synergists, and others.

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

8 Includes dodine, mercury compounds, PETD, 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, DBCP (production only), 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.

To expedite publication of this report it was necessary to estimate data for two small companies.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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:	
Benzylbromo acetate	MRK.
2,6-Bis(dimethylaminomethyl)cyclohexanone	MRK.
2'-Bromo-4'-hydroxyacetophenone	BKM.
5-Chloro-2-benzothiazolethiol, laurylpyridinium salt	VNC.
Cyanomethylthiobenzothiazole	BKM.
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).	BKM, MRK.
Diphenylammonium propionate	MRK.
5-Ethoxy-3-trichloromethyl-1,2,4-thiadiazole	OMC.
Hexahydro-1,3,5-triethyl-s-triazine	VNC.
Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine	EFH.
2-Mercaptobenzothiazole, monoethanolamine salt	VNC.
*Mercury fungicides:	
Diphenylmercury dodecenylsuccinate	TRO.
*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.
All other mercury fungicides	MAL.
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, HN, MCI, SHP, VAL, WTC.
Pentachloronitrobenzene (PCNB)	OMC.
*Pentachlorophenol (PCP)	DOW, FRO, MON, RCI.
Pentachlorophenol, sodium salt	DOW, RCI.
*8-Quinolinol (8-Hydroxyquinoline), copper salt	FIS, HN, MRK.
N-(1,1,2,1-Tetrachloro-ethylsulfenyl)-cis-Δ^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).	SFC.
N-Trichloromethylthiophthalimide (Folpet)	SFC.
2,4,5-Trichlorophenol acid and salts:	
2,4,5-Trichlorophenol	DOW, HK.
2,4,5-Trichlorophenol, ethanolamine salt	GAF.
2,4,5-Trichlorophenol, sodium salt	DOW.
2,4,6-Trichlorophenol	DOW.
*Herbicides and plant hormones:	
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.
3-tert-Butyl-5-chloro-6-methyluracil (Terbacil)	DUP.
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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
2-Chloro-2',6'-diethyl-N-(n-butoxymethyl)acetanilide	MON.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (Alachlor).	MON.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine (Atrazine).	CGY.
2-Chloro-N-isopropylacetanilide (Propachlor)	MON.
4-Chloro-2-methylphenoxy butyric acid	RDA.
N'-(4-Chlorophenoxy)phenyl N,N-dimethylurea (Chloroxuron).	CGY.
3-(p-Chlorophenyl)-1,1-dimethylurea (Monuron)	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea trichloroacetate	ACN.
2,5-Dichloro-3-aminobenzoic acid, ammonium salt	AMC, GAF.
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.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)	DUP.
2,4-Dichlorophenyl-4-nitrophenyl ether (Nitrofen)	RH.
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, EGR, FMN.
Dinitrobutylphenol, ammonium salt	DOW, FMN.
Dinitrobutylphenol, triethanolamine salt	DOW, FMN.
Dinitrocresol, sodium salt	FMN.
2-Ethylamino-4-isopropylamino-6-methylmercapto-s-triazine (Ametryne).	CGY.
S-Ethyl(cyclohexyl)ethylthiocarbamate	SFA.
S-Ethyl hexahydro-1H-azepine-1-carbothioate (Molinate)	SFA.
Gibberellic acid	ABB, MRK.
3-Indolebutyric acid	ARA.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)	PPG.
Isopropyl N-phenylcarbamate (IPC)	PPG.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	DUP.
4-(Methylsulfonyl)-2,6-dinitro-N,N-dipropylaniline (Nitralin).	SHC.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetamide	AMC.
1-Naphthaleneacetic acid (NAA)	AMC.
1-Naphthaleneacetic acid, sodium salt	AMC, BKL.
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, RIV.
3,5-Dibromo-4-hydroxybenzonitrile, octanoic acid ester (Bromoxynil octanoate).	RDA.
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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
Phenoxyacetic acid derivatives--Continued	
2,4-Dichlorophenoxyacetic acid esters and salts--Continued	
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salt.	DOW.
2,4-Dichlorophenoxyacetic acid, iso-octyl ester	DOW, RDA, RIV.
2,4-Dichlorophenoxyacetic acid, isopropyl ester	DOW, RIV.
2,4-Dichlorophenoxyacetic acid, lithium salt	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt	DOW, RIV.
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	DOW.
2,4,5-Trichlorophenoxyacetic acid esters and salts:	
2,4,5-Trichlorophenoxyacetic acid, 2-butoxyethyl ester.	DOW, RIV.
2,4,5-Trichlorophenoxyacetic acid, butoxypolypropyleneglycol ester.	DOW.
2,4,5-Trichlorophenoxyacetic acid, n-butyl ester	RIV.
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.	RIV.
2-(2,4,5-Trichlorophenoxy)propionic acid, iso-octyl ester.	RIV.
α,α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin).	LIL.
3-(m-Trifluoromethylphenyl)-1,1-dimethylurea (Fluometuron).	CGY.
All other cyclic herbicides	CWN, LIL.
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, VEL.
N,N-Diethyltoluamide (DEET)	HPC, PFZ.
Di-n-propylisocinchomeronate	MGK.
*Insecticides:	
3-sec-Amylphenyl-N-methylcarbamate	x.
Bacillus thuringiensis	ABB, IMC.
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-dimethanonaphthalene (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.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Insecticides--Continued	
Chlorinated insecticides--Continued	
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 (Kepone).	ACN.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane	RH.
4,4'-Dichloro-α-trichloromethylbenzhydrol (Dicofol)	RH.
2,6-Dimethyl-3,5-dichloro-4-pyridinol	DOW.
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).	CHF, DUP, NES.
2,3-Dihydro-2,2-dimethyl-7-benzofuranly methyl-carbamate (Carbofuran).	FMC.
m-[[(Dimethylamino)methylene]amino]phenyl methyl carbamate hydrochloride (Formetanate hydrochloride).	MRT.
m-(1-Ethylpropyl)phenyl methylcarbamate	ORO.
0-Isopropylphenyl N-methylcarbamate	OTC.
m-(1-Methylbutyl)phenyl methylcarbamate	ORO.
1-Naphthyl N-methylcarbamate (Carbaryl)	UCC.
*Organophosphorus insecticides:	
0-(4-Bromo-2,5-dichlorophenyl)0-methyl phenylphosphono-thioate (Leptophos).	VEL.
4-tert-Butyl-2-chlorophenylmethyl methylphos-phoramidite.	DOW.
S-[[(p-Chlorophenyl)thio]methyl] 0,0-diethyl phos-phorodithioate (Carbophenothion).	SFA.
0,0-Diethyl 0-3-chloro-4-methyl-1-oxo-2H-1-benzo-pyran-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] phosphoro-thioate (Fensulfothion).	CHG.
0,0-Diethyl 0-p-nitrophenyl phosphorothioate (Parathion).	AMP, MON, SFA.
0,0-Diethyl 0-3,5,6-trichloro-2 pyridyl phosphoro-thioate.	DOW.
0,0-Dimethyl 0-[4-(methylthio)-m-tolyl]phosphoro-thioate (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 (Azinphosmethyl).	CHG.
0,0-Dimethyl S-phthalimidomethyl phosphorodithioate	SFA.
Dimethyl 2,4,5-trichlorophenyl phosphorothionate (Ronnel).	DOW.
2,3-p-Dioxane S,S-bis(0,0-diethylphosphorodithioate) (Dioxathion).	HPC.
0-Ethyl S-phenylethylphosphonodithioate	SFA.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-crotonate.	SHC.
0,0,0',0'-Tetramethyl 0,0'-thiodi-p-phenylene phosphoro-thioate.	ACY.
All other organophosphorus insecticides	ACY, SHC, VEL.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Insecticides--Continued	
N-(Phenyl-2-nitropropyl)piperidine	MRK.
m-Tolyl-N-methylcarbamate	OTC.
All other cyclic insecticides	OTC.
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, PEN.
2-Diphenylacetyl-1,3-indandione and sodium salt (Diphacinone).	NES.
2-Pivaloyl-1,3-indandione (Pindone)	MOT, PIC.
Synergists and adjuvants:	
α-[2-(2-m-Butoxyethoxy)-ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide).	ALP, BKL, FMN, FMP.
N-(2-Ethylhexyl)bicyclo)2.2.1)-5-heptene-2,3-dicarboximide.	MGK.
1,2-Methylenedioxy-4-[2-(octylsulfinyl)propyl]benzene	PEN.
Piperonal bis[2-(2'-n-butoxyethoxy)ethyl]acetal (Heliotropin acetal).	MGK.
All other cyclic pesticides and related products	CHG, WSN.
PESTICIDES AND RELATED PRODUCTS, ACYCLIC	
*Fungicides:	
Bis-1,4-bromoacetoxy-2-butene	VIN.
N,N-Bis(phosphonomethyl)glycine	MON.
Cadmium succinate	MAL.
1-Chloro-2-nitropropane (Korax)	FMN.
Copper tallate	AMP.
Dimethylthiocarbonyl disulfide	CLY.
Disodium cyanodithioimidocarbamate	BKM.
*Dithiocarbamic acid fungicides:	
Dimethyldithiocarbamic acid, ferric salt (Ferbam)	FMN, MAL, VNC.
Dimethyldithiocarbamic acid, manganese salt	FMN.
Dimethyldithiocarbamic acid, potassium salt	BKM.
Ethylene bis(dithiocarbamic acid), diammonium salt	RBC.
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam).	ALC, FMN, RH, USR.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb).	DUP, RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)	FMN, RH.
N-Methyldithiocarbamic acid, sodium salt (SMDC)	SFA.
All other dithiocarbamic acid fungicides	MAL, VNC.
n-Dodecylguanidine acetate (Dodine)	ACY.
2-Hydroxypropylmethanethiol sulfonate	BKM.
Chloromethoxypropylmercuric acetate	TRO.
Polyethylenethiuram disulfide (PETD)	FMN.
*Herbicides and plant hormones:	
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-Dimethylamino succinamic acid (DMSA)	USR.
Dimethylarsinic acid (Cacodylic acid)	ASL.
Ethyl diisobutyl thiolcarbamated	SFA.
S-Ethyl N,N-dipropylthiolcarbamate (EPTC)	SFA.
Ethyl xanthogen disulfide (EXD)	RBC.

TABLE 2.--PESTICIDES AND RELATED PRODUCTS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Herbicides and plant hormones--Continued	
*Methanearsonic acid, disodium salt (DSMA)	ASL, CLY, DA, VIN.
*Methanearsonic acid, dodecyl- and octylammonium salt	CLY, VIN.
*Methanearsonic acid, monosodium salt (MSMA)	ASL, DA.
S-Propyl butylethylthiocarbamate (Pebulate)	SFA.
S-Propyl dipropylthiocarbamate (Vernolate)	SFA.
S,S,S-Tributyl phosphorotrithioate	PLC.
Tributyl phosphorotrithioite	SM.
Trichloroacetic acid, sodium salt (TCA)	DOW.
S-2,2,3-Trichloroallyl diisopropylthiolcarbamate (Triallate).	MON.
All other acyclic herbicides	LIL.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
S-Methyl N-[(methylcarbamoyl)oxy]thioacetimidate (Methomyl).	DUP.
*Organophosphorus insecticides:	
S-[1,2-Bis(ethoxycarbonyl)ethyl] 0,0-dimethyl phosphorodithioate (Malathion).	ACY.
2-Carbomethoxy-1-propen-2yl dimethyl phosphate (Mevinphos).	SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled).	SHC.
0,0-Diethyl S-2-(ethylthio)ethyl phosphorodithioate (Disulfoton).	CHG.
0,0-Diethyl 0-2-(ethylthio)ethyl phosphorothioate (Demeton 0).	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.
Tetraethyl pyrophosphate (TEPP)	AMP.
0,0,0,0-Tetra-n-propyl dithiopyrophosphate	SFA.
All other acyclic insecticides	BFG.
Nematocides:	
0-Ethyl S,S-dipropyl phosphorodithioate	SM.
2-Methyl-2(methylthio)propionaldehyde 0-(methylcarbamoyl)oxime (Aldicarb).	UCC.
Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt	ACY.
Soil fumigants:	
*1,2-Dibromo-3-chloropropane (DBCP)	BST, DOW, SHC.
1,3-Dichloropropene	DOW.
1,3-Dichloropropene, 1,2-dichloropropane	DOW, SHC.
*Methyl bromide (Bromomethane)	AMP, DOW, GTL, MCH.
Methyl isothiocyanate	MRT.
Trichloronitromethane (Chloropicrin)	DOW.
All other acyclic pesticides and related products	GAF, PCW, TRO.

TABLE 3.--PESTICIDES AND RELATED PRODUCTS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of manufacturers of pesticides and related products that reported production or sales to the U.S. Tariff Commission for 1972 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	Arapahoe Chemical Div. of Syntex Corp.
ASL	Ansul Chemical Co.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.
BKM	Buckman Labs., Inc.
BST	Occidental Chemical Co.
CCA	Cincinnati Milacron Chemicals, Inc.
CGY	Ciba-Geigy Corp. and 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.
FIS	Fisher Chemical Co., Inc.
	FMC Corp.:
FMN	Niagara 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 Chemical 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 Products, Inc.
MTO	Montrose Chemical Corp. of California
NES	Nease Chemical Co., Inc.
OMC	Olin Mathieson Chemical Corp., Agricultural Div.
ORO	Chevron Chemical Co.
OTC	Story Chemical Corp., Ott Chemical Div.
PAS	Pennwalt Chemicals Corp.
PBI	Gordon Corp.
PCW	Pfister Chemicals, Inc.
PEN	CPC International, Inc., Penick Div.
PFZ	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.
	Stauffer Chemical Co.:
SFA	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.
VAL	Valchem
VEL	Velsicol Chemical Corp.
VIN	Vineland Chemical Co.
VNC	Vanderbilt Chemical Corp.
WRC	Ventron Corp., Ventron Chemicals
WSN	Mallinckrodt Chemical Works, Washine Div.
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 1972 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. Table 1 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.[1]

Production of miscellaneous cyclic and acyclic chemicals in 1972 amounted to 90.5 billion pounds, or 13.9 percent more than the output of 79.5 billion pounds reported for 1971. Sales of miscellaneous chemicals in 1972 amounted to 45.2 billion pounds, valued at $4.7 billion, compared with 38.4 billion pounds, valued at $4.1 billion in 1971.

The total output of miscellaneous cyclic chemicals in 1972 was 2.4 billion pounds, or 10.7 percent more than the output of 2.2 billion pounds reported for 1971. Sales in 1972 totaled 1.2 billion pounds, valued at $423 million, compared with 1.0 billion pounds, valued at $379 million, in 1971. In 1972, the most important groups of cyclic compounds were the lubricating oil additives, the output of which was 388 million pounds, and synthetic tanning materials, the output of which was 53 million pounds.

Total production of miscellaneous acyclic chemicals in 1972 was 88.1 billion pounds, or 14.0 percent more than the output of 77.3 billion pounds reported for 1971. Sales in 1972 totaled 44.0 billion pounds, valued at $4.3 billion, compared with 37.3 billion pounds, valued at $3.8 billion, in 1971. 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 1972, 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 20.1 billion pounds. The most important chemicals in this group were dichloroethane (production of 7.8 billion pounds in 1972 compared with

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

7.6 billion pounds in 1971) and vinyl chloride (5.1 billion pounds compared with 4.3 billion pounds). Output of nitrogenous compounds totaled 15.5 billion pounds. The most important chemical in this group was urea (used principally in fertilizers and as a feed additive), production of which was 6.9 billion pounds in 1972 and 6.2 billion pounds in 1971.

Monohydric alcohols, which are used largely as solvents and intermediates, were the third largest group in 1972, with production of 12.8 billion pounds. The most important items in the group in terms of production were synthetic methanol (6.5 billion pounds in 1972, compared with 4.9 billion pounds in 1971), synthetic ethyl alcohol (1.8 billion pounds in 1972, compared with 1.6 billion pounds in 1971) and isopropyl alcohol (1.8 billion pounds in 1972, compared with 1.7 billion pounds in 1971). Aldehydes and ketones, which are also used largely as solvents and intermediates, were the next largest group with production of 11.3 billion pounds. The most important items in this group in 1972 were formaldehyde (5.6 billion pounds), acetone (1.8 billion pounds) and acetaldehyde (1.4 billion pounds).

MISCELLANEOUS CHEMICALS

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972

[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	90,476,062	45,155,471	4,680,222	$0.10
MISCELLANEOUS CHEMICALS, CYCLIC				
Total	2,411,142	1,177,960	422,983	.36
Benzoic acid, sodium salt	13,266	12,185	3,664	.30
Benzoyl peroxide	7,570	7,443	7,002	.94
Butyl benzoate	5,573	5,019	779	.16
tert-Butyl peroxybenzoate	1,542	1,513	1,685	1.11
2,6-Di-tert-butyl-p-cresol:				
Food grade	7,517	8,471	4,166	.49
Tech	17,838	18,151	8,642	.48
Dioxane (1,4-Diethylene oxide)	13,768	6,518	2,159	.33
Enzymes	(2)	(2)	25,147	...
4-Ethylmorpholine	1,595	1,379	1,102	.80
Flotation reagents	13,979	13,432	1,693	.13
Gasoline additives[3]	45,004	...	...	...
Hexamethylenetetramine, tech	95,156	61,724	7,498	.12
p-Hydroxybenzoic acid esters:				
Butyl p-hydroxybenzoate (Butylparaben)	...	23	50	2.17
Methyl p-hydroxybenzoate (Methylparaben)	918	879	1,392	1.58
Propyl p-hydroxybenzoate (Propylparaben)	391	367	690	1.88
Lubricating oil and grease additives, total	388,115	283,867	62,686	.22
Oil-soluble petroleum sulfonates, total	228,162	...	...	...
Oil-soluble petroleum sulfonates, calcium salt	139 458	80,555	16,169	.20
Oil-soluble petroleum sulfonates, sodium salt	42,032	70,062	10,995	.16
All other	46,672	...	...	...
Phenol salts	76,092	68,765	14,120	.21
All other lubricating oil and grease additives	83,861	64,485	21,402	.33
Morpholine	...	23,986	6,976	.29
Naphthenic acid salts, total[4 5]	20,530	18,069	5,320	.29
Calcium naphthenate	1,434	1,366	380	.28
Cobalt naphthenate	3,295	3,210	1,738	.54
Iron naphthenate	...	103	25	.24
Lead naphthenate	11,448	10,717	1,892	.18
Manganese naphthenate	959	967	258	.27
Zinc naphthenate	905	776	199	.26
All other	2,489	930	828	.89
Photographic chemicals:				
2,5-Diethoxy-4-morpholinobenzenediazonium chloride	168	141	801	5.68
p-Diethylaminobenzenediazonium chloride	119	119	240	2.02
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	...	299	898	3.00
p-Dimethylaminobenzenediazonium chloride	74	74	147	1.99
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride	21	21	60	2.86
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride	12	12	41	3.42

See footnotes at end of table

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, CYCLIC--Continued				
α-Pinene	...	19,814	2,106	$0.11
β-Pinene	38,095	29,180	4,638	.16
Tall oil salts:				
Cobalt tallate	1,262	1,256	559	.45
Lead tallate	2,002	2,056	406	.20
Manganese tallate	520	542	143	.26
Tanning materials, synthetic	53,040	53,310	11,207	.20
Textile chemicals	1,585	504	1,091	2.16
All other miscellaneous cyclic chemicals	1,681,482	607,606	259,995	.43
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total	88,064,920	43,977,511	4,257,239	.10
Cellulose Esters and Ethers				
Total	1,032,059	325,012	147,674	.45
Cellulose esters: Cellulose acetate	807,067	...	...	...
Cellulose ethers: Sodium carboxymethylcellulose, 100%	68,962	70,991	31,243	.44
All other cellulose esters and ethers[6]	156,030	254,021	116,431	.46
Lubricating Oil Additives				
Total	500,413	172,547	30,507	.18
Phosphorodithioates (Thiophosphates)	67,009	21,440	6,009	.28
Sulfur compounds: Sulfurized lard oil	3,316	3,128	674	.22
All other	430,088	147,979	23,824	.16
Nitrogenous Compounds				
Total[7]	15,476,414	8,473,038	786,963	.09
Acrylonitrile	1,114,749	459,985	49,259	.11
Amines, total	1,276,277	345,803	68,768	.20
Butylamines:				
n-Butylamine, mono-	4,017	2,374	670	.28
Di-n-butylamine	3,842	3,121	748	.24
Diethylenetriamine	32,390	30,176	9,697	.32
Ethylamines, total	55,437	...	...	...
Diethylamine	11,079	5,467	984	.18
All other	44,358	...	...	...
Ethylenediamine	...	48,610	9,696	.20
1,6-Hexanediamine (Hexamethylenediamine)	854,409	8,449	3,073	.36
Methylamines:				
Dimethylamine	95,973	51,522	4,702	.09
Methylamine, mono-	33,063	23,347	1,984	.08
Trimethylamine	28,815	23,948	2,189	.09
Propylamines:				
Diisopropylamine	...	779	165	.21
Dipropylamine	16,698	14,389	3,501	.24
Propylamine, mono-	...	239	183	.77
Tetraethylenepentamine	...	12,779	6,105	.48
Triethylenetetramine	18,011	15,466	5,218	.34
All other	133,622	105,137	19,853	.19
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	8,788	6,775	2,603	.38
Caprolactam	640,045	546,486	96,615	.18
2-Dimethylaminoethanol	3,533	...	...	...

See footnotes at end of table.

MISCELLANEOUS CHEMICALS

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Nitrogenous Compounds--Continued				
Ethanolamines, total	283,931	234,454	27,413	$0.12
2-Aminoethanol (Monoethanolamine)	82,114	71,788	7,682	.11
2,2'-Aminodiethanol (Diethanolamine)	101,075	71,980	8,058	.11
2,2',2''-Nitrilotriethanol (Triethanolamine)	100,742	90,686	11,673	.13
Hexamethylenediammonium adipate (Nylon salt)	719,550	...	...	...
Nitriloacids and salts, total	121,815	86,840	23,723	.27
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt	3,503	3,062	898	.29
(Ethylenedinitrilo)tetraacetic acid	...	5,056	2,544	.50
(Ethylenedinitrilo)tetraacetic acid, disodium salt	1,292	...	...	...
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	64,317	40,759	8,997	.22
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	4,635	3,658	1,550	.42
All other	48,068	34,305	9,734	.28
Nylon 6 and 6/6 (polymers for fiber, only)	1,547,238	...	...	...
Pentaerythritol tetranitrate	4,099	3,404	2,818	.83
Polyacrylamide	19,106	14,418	12,377	.86
Urea in compounds or mixtures (100% basis), total	[8] 6,933,470	5,999,440	[9] 158,623	.03
In feed compounds	679,816	611,680	15,418	.03
In liquid fertilizer	2,531,235	2,168,443	65,101	.03
In solid fertilizer	2,633,970	2,489,488	64,208	.03
All other	1,088,449	729,829	13,896	.02
All other nitrogenous compounds	2,803,813	775,433	344,764	.44
Acids, Acyl Halides and Anhydrides				
Total	6,668,458	1,781,308	231,875	.13
Acetic acid, synthetic, 100%	2,235,406	570,787	28,903	.05
Acetic anhydride, 100%	1,572,928	...	...	...
Acrylic acid	123,195	30,211	6,596	.22
Adipic acid	1,491,403	143,497	20,039	.14
Dodecenylsuccinic anhydride	...	2,485	1,037	.42
Formic acid, 90%	46,894	35,348	3,574	.10
Fumaric acid	51,455	35,915	6,692	.19
Lauroyl chloride	5,469	...	...	...
Maleic anhydride	274,435	190,571	25,024	.13
Pivaloyl chloride	981	...	...	...
Polyacrylic acid	1,023	927	525	.57
Propionic acid	56,046	38,051	3,331	.09
All other acids, acyl halides and anhydrides	809,223	733,516	136,154	.19
Salts of Organic Acids				
Total	333,370	285,631	105,593	.37
Acetic acid salts, total	31,637	26,728	6,428	.24
Copper acetate	282	271	245	.90
Potassium acetate	5,198	...	...	...
Zinc acetate	457	472	181	.38
Zirconium acetate	...	159	70	.44
All other	25,700	25,826	5,932	.23

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Salts of Organic Acids--Continued				
2-Ethylhexanoic acid (α-Ethylcaproic acid) salts, total	18,715	15,030	6,982	$0.46
Calcium 2-ethylhexanoate	1,792	...	...	...
Cobalt 2-ethylhexanoate	3,362	2,905	2,017	.69
Lead 2-ethylhexanoate	3,469	...	...	...
Manganese 2-ethylhexanoate	996	789	237	.30
Zinc 2-ethylhexanoate	1,233	1,028	498	.48
All other	7,863	10,308	4,230	.41
Formic acid, sodium salt (tech.)	31,992	31,214	1,034	.03
Gluconic acid, sodium salt	8,915	10,765	2,630	.24
Lactic acid salts	1,901	1,829	818	.45
Mercaptoacetic (Thioglycolic) acid, ammonium mercaptoacetate salt	1,099	...	...	...
Oleic acid salts	1,286	1,258	599	.48
Propionic acid salts:				
Calcium propionate	21,395	16,329	3,594	.22
Sodium propionate	4,114	3,616	789	.22
Stearic acid salts, total[10]	70,123	69,722	25,492	.37
Aluminum stearates, total	3,914	4,006	1,690	.42
Aluminum distearate	2,719	2,741	1,122	.41
Aluminum monostearate and tristearate	1,195	1,265	568	.45
Barium stearate	389	382	148	.39
Calcium stearate	37,793	38,018	12,570	.33
Lithium stearate	887	898	474	.53
Magnesium stearate	4,767	5,288	2,211	.42
Zinc stearate	19,374	18,798	7,419	.39
All other	2,999	2,332	980	.42
All other salts of organic acids	142,193	109,140	57,227	.52
Aldehydes and Ketones				
Total	11,286,703	4,823,629	217,780	.05
Acetaldehyde	1,447,566	...	...	...
Acetone, total	1,818,373	1,495,112	54,785	.04
From cumene	1,086,012	929,400	31,439	.03
All other	732,361	565,712	23,346	.04
2-Butanone (Methyl ethyl ketone)	509,025	470,010	37,981	.08
Butyraldehyde	...	50,258	4,870	.10
Formaldehyde (37% by weight)	5,651,807	1,820,047	35,106	.02
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	...	46,482	5,670	.12
4-Methyl-2-pentanone (Methyl isobutyl ketone)	208,263	177,013	18,954	.11
All other aldehydes and ketones	1,651,669	764,707	60,414	.08
Alcohols, Monohydric, Unsubstituted				
Total	12,833,473	7,627,636	371,152	.05
Alcohols, C_9 or lower, unmixed, total	12,092,504	7,004,356	275,478	.04
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)	590,228	354,720	24,513	.07
Isobutyl alcohol (Isopropylcarbinol)	96,386	96,634	4,189	.04
Ethyl alcohol, synthetic[11]	1,850,651	1,395,655	74,912	.05
2-Ethyl-1-hexanol	526,125	332,135	24,309	.07

See footnotes at end of table.

MISCELLANEOUS CHEMICALS

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Alcohols, Monohydric, Unsubstituted--Continued				
Alcohols, C_9 or lower, unmixed--Continued				
Hexyl alcohol	16,296	...	...	...
Iso-octyl alcohols	63,227	47,027	4,201	$0.09
Isopropyl alcohol	1,790,024	911,733	50,753	.06
Methanol, synthetic	6,471,605	3,542,260	51,498	.01
1-(and 2-)Octanol	13,741	10,048	1,856	.18
Propyl alcohol (Propanol)	83,095	77,036	8,272	.11
All other	591,126	237,108	30,975	.13
Alcohols, C_{10} and higher, unmixed, total	204,444	117,346	19,051	.16
Isodecyl alcohol	147,029	63,819	5,564	.09
Stearyl and other octadecyl alcohols	8,005	13,349	3,517	.26
All other	49,410	40,178	9,970	.25
Mixtures of alcohols, total	536,525	505,934	76,623	.15
C_9 and lower, only	44,928	39,763	4,979	.13
C_{10} and higher, only	447,999	361,644	62,114	.17
C_6 to C_{12} and others[12]	43,598	104,527	9,530	.09
Polyhydric Alcohols and Their Esters and Ethers				
Total[13]	7,426,813	5,950,570	596,329	.10
Polyhydric alcohols, total	5,071,613	4,162,791	334,228	.08
Ethylene glycol	3,761,143	3,113,931	186,135	.06
Glycerol, synthetic only	199,216	187,999	37,167	.20
2-Methyl-2,4-pentanediol (Hexylene glycol)	...	38,554	5,408	.14
Pentaerythritol	110,087	94,058	15,787	.17
Propylene glycol (1,2-Propanediol)	562,583	538,037	43,746	.08
Sorbitol	121,370	91,586	19,515	.21
All other	317,214	98,626	26,470	.27
Polyhydric alcohol esters, total	237,961	222,192	42,273	.19
Ethylene glycol diacetate	...	5,363	988	.18
All other	237,961	216,829	41,285	.19
Polyhydric alcohol ethers, total	2,117,239	1,565,587	219,828	.14
2-Butoxyethanol (Ethylene glycol monobutyl ether)	133,305	111,218	15,348	.14
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monoisobutyl ether)	24,779	16,917	2,668	.16
Diethylene glycol	245,492	184,406	11,146	.06
Dipropylene glycol	51,773	50,348	4,338	.09
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	205,413	103,648	11,777	.11
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	41,156	31,366	4,287	.14
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	28,181	...	...	...
2-Methoxyethanol (Ethylene glycol monomethyl ether)	119,106	85,749	9,352	.11
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	12,666	9,862	1,217	.12
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	31,693	11,162	1,560	.14
Polyethylene glycol	52,353	49,276	10,905	.22
Polypropylene glycol	359,238	...	...	...
Tetraethylene glycol	11,813	6,176	899	.15
Triethylene glycol	105,531	84,716	9,330	.11
Tripropylene glycol	...	1,928	300	.16
All other ethers of polyhydric alcohols	694,740	818,815	136,701	.17

See footnotes at end of table.

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Esters of Monohydric Alcohols				
Total	3,221,170	2,031,099	265,586	$0.13
n-Butyl acetate, unmixed	95,664	89,359	8,740	.10
Isobutyl acetate, unmixed	...	27,296	2,964	.11
Butyl acrylate	125,598	69,224	11,809	.17
tert-Butyl peroxypivalate	983	970	1,941	2.00
Dibutyl maleate	9,554	10,161	1,608	.16
Dilauryl 3,3'-thiodipropionate	1,355	1,350	1,022	.76
Dioctyl maleate	6,295	5,652	946	.17
Distearyl 3,3'-thiodipropionate	1,567	1,459	1,125	.77
Ethyl acetate (85%)	221,983	181,148	13,833	.08
Ethyl acrylate	275,344	99,756	15,862	.16
2-Ethyl-1-hexyl acrylate	45,524	39,452	7,980	.20
Iso-octyl mercaptoacetate	8,495	...	...	...
Isopropyl acetate	...	44,897	4,630	.10
Methyl acetate	...	2,176	177	.08
Methyl methacrylate, monomer	598,992	...	...	...
Phosphorus acid esters, not elsewhere specified	59,494	53,238	24,596	.46
Propyl acetate	32,439	32,517	3,844	.12
Vinyl acetate	1,210,703	943,401	65,868	.07
All other	527,180	429,043	98,641	.23
Halogenated Hydrocarbons				
Total	20,071,191	9,566,418	698,471	.07
Carbon tetrachloride	996,687	930,220	54,792	.06
Chlorinated paraffins, total	63,453	65,238	9,112	.14
35-64% chlorine	48,806	50,181	6,248	.12
Other	14,647	15,057	2,864	.19
Chlorodifluoromethane	...	79,982	39,202	.49
Chloroethane (Ethyl chloride)	575,513	194,021	11,654	.06
Chloroform	234,677	202,776	13,449	.07
Chloromethane (Methyl chloride)	453,533	208,020	10,661	.05
1,2-Dibromoethane (Ethylene dibromide)	315,523	173,378	28,795	.17
Dichlorodifluoromethane	439,224	418,537	101,561	.24
1,2-Dichloroethane (Ethylene dichloride)	7,808,938	1,446,707	38,927	.03
Dichloromethane (Methylene chloride)	471,276	443,334	29,474	.07
1,2-Dichloropropane (Propylene dichloride)	...	40,742	527	.01
Iodomethane (Methyl iodide)	18	...	...	...
Tetrachloroethylene (Perchloroethylene)	734,216	723,427	41,565	.06
1,1,1-Trichloroethane (Methylchloroform)	440,681	389,028	35,475	.09
Trichloroethylene	426,684	441,180	29,458	.07
Trichlorofluoromethane	299,583	286,334	52,459	.18
Vinyl chloride, monomer (Chloroethylene)	5,088,511	3,343,209	132,601	.04
All other halogenated hydrocarbons	1,722,674	180,285	68,759	.38
All Other Miscellaneous Acyclic Chemicals				
Total	9,214,856	2,940,623	805,389	.27
2-Butanone peroxide	4,774	4,631	4,597	.99
tert-Butyl peroxide (Di-tert-butyl peroxide)	1,822	1,775	1,447	.82
Carbon disulfide	767,830	527,636	21,002	.04
Epoxides, ethers, and acetals, total	6,229,092	1,152,170	97,962	.09
Ethylene oxide	3,961,757	454,296	30,087	.07
Ethyl ether, tech	69,379	...	...	...
Isopropyl ether	...	9,848	926	.09
Propylene oxide	1,520,174	(14)	...	...
All other epoxides, ethers, and acetals	677,782	688,026	66,949	.10

See footnotes at end of table.

MISCELLANEOUS CHEMICALS

TABLE 1.--MISCELLANEOUS CHEMICALS: U.S. PRODUCTION AND SALES, 1972--CONTINUED

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
All Other Miscellaneous Acyclic Chemicals--Continued				
Organo-silicon compounds, total	189,457	83,803	107,312	$1.28
Silicon fluids	74,722	52,707	53,167	1.01
Other organo-silicon compounds	114,735	31,096	54,145	1.74
Phosgene (Carbonyl chloride)	637,043	11,678	1,423	.12
Sodium methoxide (Sodium methylate)	5,172	8,177	1,797	.22
Tetraethyllead	302,371	310,834	165,463	.53
Other organo-lead compounds	670,105	650,439	349,448	.54
All other	407,190	189,480	54,858	.29

[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 7,096,187 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] Of the total production, about 45 percent consisted of alcohols lower than C_{10} and about 55 percent consisted of alcohols C_{10} and higher.
[13] Some polyols which are used as intermediates for urethanes have been included with "Plastics and Resin Materials."
[14] Sales quantity of propylene oxide in 1971 was 237,710,000 pounds (instead of 37,710,000 pounds).

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972

[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	UCC.
1-(3-Aminopropyl)morpholine	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.
Biological stains	ACS.
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.
2,4-Bis(n-octylthio)-6-(4'-hydroxy-3',5'-di-tert-butylanilino)-1,3,5-triazine.	CGY.
Boron fluoride-phenol complex	ACS.
*Butyl benzoate	CPS, PFZ, TCC, VEL.
p-tert-Butylbenzoic acid, barium bis-salt	CCA.
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	ACS, EK, FIN, GFS, LAM, NEP.
Chloramine B (Sodium derivative of N-chlorobenzenesulfonamide).	NES.
1-(3-Chlorallyl)-3,5,7-triaza-1-azoniaadamantane chloride.	DOW.
o-Chlorobenzamalononitrile	FIS.
Chlorophyllin, sodium-potassium-copper	KCH.
Cumene hydroperoxide	ACP, HPC, RCI.
Cyanuric acid	FMB.
1,3-Cyclohexadiene	ALD.
Cyclohexane sulfamic acid	ABB.
Cyclohexanone peroxide	AZT, NOC, WTL.
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid) disubstituted, polyester salts: Barium and cadmium salts.	RCI.
Cyclohexyl chloride	x.
1,4-Cyclohexylenedimethanol	EKT.
Cyclopropane	OH, TAE.
Cytidine and derivatives	PLB.
Decahydronaphthalene (Decalin)	DUP.
Dehydroacetic acid or sodium salt	GAN, UCC.
2,5-Di-tert-amylhydroquinone	EKT.
1,4-Diazobicyclo(2.2.2)octane	AIP.
Diazodinitrophenol	HPC.
2,5-Di(benzoylperoxy)-2,5-dimethylhexane	WTL.
Di- and tribromosalicylanilide	FIN.
Dibromodimethylhydantoin	ARA.

MISCELLANEOUS CHEMICALS

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
2,6-Di-tert-butyl-p-cresol:	
*Food grade	ASH, HPC, KPT, SHC, USR.
*Tech	ASH, HPC, KPT, PRD, SHC, USR.
2,5-Di-tert-butylhydroquinone	EKT.
Di-tert-butyl diperoxyphthalate	WTL.
1,3-Dichloro-5,5-dimethylhydantoin	GLY.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloroisocyanuric acid), and salts.	FMB.
4,4'-Dichloro-3-(trifluoromethyl)carbanilide	CGY.
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, FMP.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT, GAF.
2,5-Dimethyl-2,4-hexadiene	BPC.
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.
Diphenylisodecyl phosphite	HN.
Dipropylene glycol salicylate	SBC.
4-(Dodecyloxy)-2-hydroxybenzophenone	DUP, EKT.
*Enzymes:	
Hydrolytic:	
Amylases	BAX, CRN, GPR, MLS, PFZ, PMP, RH.
Proteases	BAX, CHH, DOL, MLS, PEN, PFZ, PMP, SPR.
Other	BAX, JFR, MLS, PFZ, RH, WBC.
Nonhydrolytic	MLS, OMS, PLB, SPR.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)	DUP.
Ethyl cellulose phthalate	EK.
Ethyl-α-cyano-β-pentylcinnamate	GAF.
2-Ethylhexyl benzoate	x.
2-Ethylhexyl p-dimethylaminobenzoate	VND.
Ethylidene norbornene	UCC.
*4-Ethylmorpholine	BRD, 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)	DUP, RBC.
Rosin amines	HPC.
Tall oil derived	HN.
Thiocarbanilide (Diphenylthiourea)	ACY.
Furan derivatives:	
2-Furaldehyde (Furfural)	QKO.
Tetrahydrofurfuryl alcohol	QKO.
Gallic acid	MAL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	EKT.
Butylphenols, mixed	DOW, TNA.
N-sec-Butyl-N-phenylphenylenediamine	x.
4,4'-Di-sec-butylaminodiphenylmethane	x.
6-tert-Butyl-o-cresol	TNA.
2,6-Di-tert-butylphenol	TNA.
N,N'-Di-sec-butyl-p-phenylenediamine	DUP, EKT, USR, x.
2,6-Di-tert-butyl-α-dimethylamino-p-cresol	TNA.
N,N'-Dicyclohexyl-p-phenylenediamine	x.
2,6-Diethylaniline	TNA.
N,N'-Diisopropyl-p-phenylenediamine	DUP, EKT, USR.
N,N'-Disalicylidene-1,2-propanediamine	DUP, SM, TX.
Methylcyclopentadienylmanganese tricarbonyl	TNA.
4,4'-Methylenebis(2,6-di-tert-butylphenol)	TNA.
4,4'-Thiobis(6-tert-butyl-o-cresol)	TNA.
2,2'-Thiobis(6-tert-butyl-p-cresol)	ASH.
1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-mesitylene.	TNA.
Other	EKT, SM, TNA, x.
Glyceryl p-aminobenzoate	VND.
Guanosine and derivatives	PLB.
N-Heptyl-p-hydroxybenzoate	WSN.
*Hexamethylenetetramine, tech	BOR, DUP, HKD, HN, HMP, PLS, UCC.
Homomenthyl salicylate	ARS.
Hydrabamine hydrobromide	ABB.
Hydrindantin	HEX.
p-Hydroxybenzoic acid esters:	
Benzyl p-hydroxybenzoate	RSA.
*Butyl p-hydroxybenzoate (Butylparaben)	HN, LEM, WSN.
Ethyl p-hydroxybenzoate (Ethylparaben)	HN, WSN.
n-Heptyl p-hydroxybenzoate (Heptylparaben)	WSN.
*Methyl p-hydroxybenzoate (Methylparaben)	ARS, HN, LEM, WSN.
*Propyl p-hydroxybenzoate (Propylparaben)	ARS, HN, LEM, WSN.
Other	WSN.
N-(Hydroxyethyl)piperazine	UCC.
2-Hydroxy-4-methoxybenzophenone	ACY, GAF.
Hydroxymethyl dimethyl-5,5-hydantoin	GLY.
2-Hydroxy-3-phenoxypropane	TCH.
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole	ACY.
1-Hydroxy-2-pyridine (Omadine)	OMC.
1,2,3-Indantrione monohydrate (Ninhydrin)	HEX, PIC.
Inosine and derivatives	PLB.
2-(p-Iodophenyl)-3-(p-nitrophenyl)-5-phenyl-2H-tetrazolium chloride.	EK.
Isopropyl-o-cresols	CP.
*Lubricating oil and grease additives:	
*Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt	MOR, NTL.
Oil-soluble petroleum sulfonate, barium salt	CO, LUB.
*Oil-soluble petroleum sulfonate, calcium salt	CO, ENJ, LUB, ORO, PAR, TX, WTC, x.
Oil-soluble petroleum sulfonate, magnesium salt	CO, LUB.
*Oil-soluble petroleum sulfonate, sodium salt	CO, ENJ, MOR, PAR, SHC, SOC, SOI, WTC.
*Other	CO, LUB, TX.
*Phenol salts:	
Barium alkylphenolates	TX.
Calcium alkylphenolates	ORO, TX.
Calcium salt of octylphenol-formaldehyde	SHC.
Other	CCA, ENJ, GOC, ORO, TX, x.
All other	ATR, ENJ, GOC, LUB, ORO, PLC, SM, TX, UCC.
p-Menthane	HPC.
8-p-Menthyl hydroperoxide	HN, HPC.
p-Methoxybenzylidenemalonic acid, diethyl and dimethyl esters.	ACY.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
4-Methoxyphenol	ARS, ASL, EKT.
Methyl o-cresotinate	TCC.
2,2'-Methylenebis(4-chlorophenol) (Dichlorophene)	GIV, GLY.
Methylenebis(phenoxypropanol)	JCC.
2,2'-Methylenebis(3,4,6-trichlorophenol) (Hexachlorophene).	GIV.
Methyl gallate	HSH.
Methylglucoside	CRN.
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, WTC.
Barium naphthenate	CCA.
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, CCC, FER, HN, MCI, SHP, TRO, WTC.
Chromium naphthenate	MCI.
Cobalt lead manganese naphthenate	HN.
*Cobalt naphthenate	CCA, CCC, FER, HN, MCI, TRO, WTC.
*Iron naphthenate	CCA, CCC, HN, MCI, TX, WTC.
Lead manganese naphthenate	CCA.
*Lead naphthenate	CCA, CCC, FER, MCI, SHP, TRO, TX, WTC.
Lithium naphthenate	CCA, MCI.
*Manganese naphthenate	CCA, CCC, FER, HN, MCI, SHP, WTC.
Nickel naphthenate	CCA.
Rare earths naphthenates	CCA, SHP.
Sodium naphthenate	CCA.
Strontium naphthenate	CCA.
*Zinc naphthenate	CCA, CCC, FER, HN, MCI, SHP, WTC.
1-Naphthenyl-2-tallow diamine	SM.
Ninhydrin	HEX.
Norcamphor	ALD.
Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate.	CGY.
Organic mercury compounds: Phenylmercuric borate	TRO.
Phenetole	RSA.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	DOW, JCC, TCH.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether).	DOW.
2-Phenoxypropanol	JCC.
2,2'-(p-Phenylene)diethanol	EKT.
m-Phenylene isonaphthalamide	DUP.
Phenyl hydrogen phosphate	HDG, SM.
5-Phosphorylribose-1-pyrophosphate	PLB.
Photographic chemicals:	
N-(o-Acetamidophenethyl)-1-hydroxy-2-naphthamide	EKT.
N-[2-(4-Amino-N-ethyl-m-toluidino)ethyl]methanesulfonamide.	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	RSA.
2-Chloro-N,N-diethyl-p-phenylenediamine hydrochloride	IDC.
3-Chloro-4-diethylaminobenzenediazonium salts (p-Diazo-2-chloro-N,N-diethylaniline salts).	ESA, FMT.
Chlorohydroquinone	EK.
2,4-Diaminophenol dihydrochloride (Amidol)	VPC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
2N-(2,4-Di-tert-amylphenoxyacetamido)-4,6-dichloro-m-cresol.	x.
4-Diazo-2,5-diethoxymorpholinobenzene	FMT.
4-Diazo-3,5-diethoxythiocresol salts	FMT.
*2,5-Diethoxy-4-morpholinobenzenediazonium chloride	ALL, ESA, HST.
*p-Diethylaminobenzenediazonium chloride	ESA, FMT, IDC, MRT.
p-Diethylaminobenzenediazonium fluoborate	IDC.
p-Diethylaminobenzenediazonium fluophosphate	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(p-Dimethylaminostyryl)-5-methylthiadiazole-3-β-hydroxyethochloride.	x.
2,5-Dimethylbenzothiazole	FMT.
4N-(2',6'-Dimethylmorpholinyl)benzenediazonium chloride.	IDC.
p-Diphenylaminediazonium sulfate	FMT.
p-(N-Ethylbenzimido)benzenediazonium chloride	FMT.
*p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride.	ESA, FMT, IDC.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	IDC.
3-(4'-Hexadecenylmonoamidosuccinic acid)-1-hydroxy-4-sulfo-2-N-n-octadecyl)naphthamide.	x.
Hydroquinone (Hydroquinol)	EKT.
*p[(2-Hydroxyethyl)methylamino]benzenediazonium chloride.	ESA, FMT, IDC.
N-(2-Hydroxyethyl)-β-resorcylamide	MRT.
2-Hydroxynaphthoic alkylamide	FMT.
1-(3-Hydroxyphenyl)urea	FMT.
4-Methoxy-1-naphthol	x.
p-Methylaminophenol sulfate	EK.
5-Methylbenzotriazole	EK.
5-Methyl-1,7-dihydroxy-1,3,4-triazaindolizine	FMT.
4-Methyl-2(p-bis-hydroxyethylaminostyryl)thiazole-3-β-hydroxyethochloride.	x.
4-Methyl-1-phenyl-3-pyrazolidinone	WAY.
2-Methylthiazoline	FMT.
4-Morpholinylbenzenediazonium salts	IDC.
p-Morpholinyl-2,5-dibutoxybenzenediazonium chloride	IDC.
6-Nitrobenzimidazole	EK, FMT.
Octylphenyl salicylate	EKT.
N-Phenyl-(p-phenylene)diamine monohydrochloride	EK.
1-Phenyl-3-pyrazolidine	CGY.
1-Phenyl-3-pyrazolidone	WAY.
4-Phenylpyrocatechol	x.
1-Phenyl-2-tetrazoline-5-thione	EK.
2-(Phenylthio)quinoline	EK.
4N-(1-Pyrrolidyl)-m-toluenediazonium chloride	IDC.
2-Resorcylic monoethanolamide	FMT.
2,2',4,4'-Tetrahydroxydiphenyl sulfide	FMT.
4,4'-Thiodiresorcinol	BKC.
1-(2,4,6-Trichlorophenyl)-3-(4-nitroanilino)-2-pyrazolin-5-one.	EKT.
All other	EK, ESA, FMT, IDC, NES, x, x.
Phthalic acid, lead salt, dibasic	NTL.
Picramic acid, sodium salt	SDC.
Pine oil, synthetic	GLD.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*α-Pinene	ARZ, HN, NCI.
*β-Pinene	ARZ, CBY, GLD, HN, HPC, 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, GYR.
Polyphenol esters	MON.
Polyvinyl phthalate	EK.
Propyl gallate	EKT, HSH.
Pyrogallol (Pyrogallic acid)	HSH, MAL.
2-Pyrrolidinone	GAF.
Resorcinol monobenzoate	EKT.
Rosin acid salts:	
Aluminum resinate	JMS.
Calcium resinate	CBY, HN.
Calcium zinc resinate	CBY.
Zinc resinate	HN.
Salicylanilide	FIN, PCW.
Salicylic acid, lead salt	NTL.
Salvenol	HPC.
Sodium cresoxide (Cresylic acid, sodium salt)	DEX, GOC.
Styrene oxide	UCC.
Sucrose benzoate	VEL.
Sulfinol blends	PLC.
Sulfosalicylic acid	MON, MRK.
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.
*Manganese tallate	CCA, CCC, FER, HN, MCI, SHP, WTC.
Zinc tallate	MCI.
All other	WTC.
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.
All other	CGY, HN.
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.
Tetrakis[methylene-3-(3',5'-di-tert-butyl-4'-hydroxyphenol)propionate]methane.	CGY.
1,3,6,8-Tetranitrocarbazole	SDC.
Tetraphenyltin	x.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*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.
Thiophene	PAS.
Thymidine and derivatives	PLB.
o-Toluidine formaldehyde hydrochloride	RBC.
Triallyl cyanurate	ACY.
3,4',5-Tribromosalicylanilide	FIN, PCW, SW.
3,4,4'-Trichlorocarbanilide	MON.
Trimethylaminoethylpiperazine	JCC.
3,5,5-Trimethyl-2-cyclohexen-1-one (Isophorone)	ENJ, UCC.
2,4,6-Trinitroresorcinol and lead derivative	REM.
s-Trioxane	CEL.
Triphenyl phosphite	MON.
Triphenyl sulfonium chloride	FIS.
Triphenyltin	x.
Triphenyltin phosphine	x.
Uridine derivatives	PLB.
Vinyl norbornene	UCC.
1-Vinyl-2-pyrrolidinone, monomer and polymer	GAF.
1-Vinyl-2-pyrrolidinone - acrylic copolymers	GAF.
1-Vinyl-2-pyrrolidinone - ethylacrylate, copolymer	GAF.
1-Vinyl-2-pyrrolidinone - methylacrylic acid - dimethylamine ethyl ester, copolymer.	GAF.
1-Vinyl-2-pyrrolidinone - vinyl acetate copolymer	GAF.
1-Vinyl-2-pyrrolidinone - other copolymers	GAF.
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%	BUK, DUP, KON, WMP, WYN, x.
All other	EK, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Lubricating Oil Additives	
*Phosphorodithioates (Thiophosphates):	
Di-2-ethylhexylphosphorodithioic acid	SFA.
Di-N-propylphosphorodithioic acid	SFA.
Zinc alkyl dithiophosphate	SM.
Zinc dialkyl phosphorodithioate	ENJ.
Zinc di(butylhexyl) phosphorodithioate	ORO.
Zinc dihexyl phosphorodithioate	ATR, MON.
Zinc diisopropyl dihexyl phosphorodithioate	x.
Zinc hydrocarbon dithiophosphate	LUB.
Polybutylene	ENJ.
Sulfur compounds:	
Aliphatic hydrocarbon sulfides	LUB.
Chlorosulfurized sperm oil	CCW.
Phosphosulfurized polybutene	ENJ.
*Sulfurized lard oil	CCW, GOC, QCP, WBG.
Sulfurized sperm oil and substitutes	CCW.
Other sulfur compounds	ATR, CCW, ENJ, HK, SM, TX.
All other	ALX, ATR, ENJ, GOC, LUB, MON, NLC, ORO, SM, SOI, UCC, x.
Nitrogenous Compounds	
Acetamide	ACS.
Acetamidine hydrochloride	MRK.
Acetamidoethanol (N-Acetyl-ethanolamine)	RBC.
Acetonitrile	EKX, MON, SOH.
Acrylomide monomer	ACY, SOH.
*Acrylonitrile	ACY, BFG, DUP, MON, SOH.
Acyclic isocyanates (complex)	MOB.
Adiponitrile	DUP, MON.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea	FMT, IDC.
Allyltrimethylammonium chloride	VAC.
*Amines:	
Allylamines	SHC.
Butylamines:	
*n-Butylamine, mono-	AIP, PAS, UCC, VGC.
*Di-n-butylamine	AIP, PAS, UCC, VGC.
Diisobutylamine	AIP, PAS, VGC.
tert-Butylamine, mono-	MON, RH.
Tri-n-butylamine	PAS, VGC.
n-Butylethylamine	PAS.
Diethylaminoethylamine	PD.
*Diethylenetriamine	DOW, JCC, UCC.
N^1,N^1-Diethyl-1,4-pentanediamine (Novoldiamine)	SDH.
Diethylaminopropylamine	UCC.
Dimethylaminopropylamine	JCC, UCC.
1,3-Dimethylbutylamine	PAS.
Dipropylenetriamine	UCC.
*Ethylamines:	
*Diethylamine	AIP, PAS, UCC.
Diethylamine hydrochloride	BKL, EK.
Ethylamine, mono-	AIP, PAS, UCC.
Triethylamine	AIP, PAS, UCC.
*Ethylenediamine	DOW, JCC, UCC.
Ethylenediamine salts	EK.
(2-Ethylhexyl)amine, mono-	VGC.
*1,6-Hexanediamine (Hexamethylenediamine)	CEL, DUP, ELP, MON.
3,3'-Iminobispropylamine	JCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Amines--Continued	
Isopropylamines:	
*Diisopropylamine	AIP, PAS, UCC.
Isopropylamine, mono-	AIP, PAS, UCC.
Methylamines:	
*Dimethylamine	AIP, COM, DUP, GAF.
Dimethylamine hydrochloride	EK, RSA.
Dimethylamine sulfate	DUP, RH.
*Methylamine, mono-	AIP, COM, DUP, GAF.
Methylamine hydrochloride	EK, RBC.
*Trimethylamine	AIP, COM, DUP, GAF.
n-Octylamine, mono-	VGC.
Oleylamine	x.
Pentaethylenehexamine	JCC, UCC.
Pentylamines (Amylamines):	
Dipentylamine	PAS, VGC.
Pentylamine, mono-	ALB, PAS.
Tripentylamine	PAS.
Polyalkylene polyamines	NLC.
1,2-Propanediamine (Propylenediamine)	UCC.
1,3-Propanediamine (1,3-Diaminopropane)	JCC, x.
Propylamines:	
*Dipropylamine	AIP, PAS, UCC, VGC.
*Propylamine, mono-	PAS, UCC, VGC.
Tripropylamine	PAS, VGC.
*Tetraethylenepentamine	DOW, JCC, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine	UCC.
Tetramethylethylenediamine	RH.
*Triethylenetetramine	DOW, JCC, UCC.
Other amines	ALB, ALD, BKL, CGY, DUP, EK, NES, NTL, ONX, PAS, PIC, SNW, UCC, VGC, x.
2-Amino-1-butanol	COM.
2-Aminoethanol (Monoethanolamine) sulfite	EVN, VND.
Aminoethoxyethanol	JCC.
*2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	DOW, HDG, JCC, UCC.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate).	EVN, HAB.
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.
2-Amino-2-methyl-1-propanol	COM.
2-Amino-2-methyl-1-propanol hydrochloride	VAL.
1,1'-Azobisformamide	FMT, NPI, USR.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile).	DUP.
Bilirubin	PFN.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)	GLY, x.
N,O-Bis(trimethylsilyl)acetamide	PIC.
Biuret	DOW.
N-Bromoacetamide	ARA.
N-Bromosuccnimide (Succinibromimide)	ARA, SDW.
2-Butanone oxime	ACP.
Butyldiethanolamine	PAS.
1-Butyl-3-ethyl-2-thiourea	PAS.
Butyl isocyanate	CWN, OTC, UPJ.
Butyraldehyde oxime	ACP.
n-Butyronitrile	EKX.
*Caprolactam (2-Oxohexamethylenimine)	ACP, CNP, DBC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Chlorocholine chloride	ACY.
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride.	HEX, MCH.
3-Chloro-N,N-dimethylpropylamine	SK.
2-Chloro-N,N-dimethylpropylamine hydrochloride	MCH.
3-Chloro-N,N-dimethylpropylamine hydrochloride	MCH.
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.
Choline base	RH.
Choline bicarbonate	TCH.
Choline bisulfite	WAY.
Coco nitrile	ARC, ASH.
Coconut oil acids - ammonium condensate	PG.
Coconut oil amide	ARC.
Creatine and creatinine	PFN.
Crotononitrile	KF.
Cyanoacetic acid	KF.
2-Dibutylaminoethanol	AAC, PAS.
1,3-Dibutyl-2-thiourea	PAS, RBC.
1,4-Dicyanobutene	DUP.
Diethanolamine polyoxypropylene ether	JCC.
2-Diethylaminoethanol	AAC, DUP, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	PAS.
2-Diethylaminoethyl acrylate	ABC, UCC.
2-Diethylaminoethyl methacrylate	DUP.
N,N-Diethyldodecanamide	EK.
Diethylhydroxylamine	PAS.
1,3-Diethyl-2-thiourea	PAS, RBC.
Diisopropylaminoethanol	PAS, UCC.
N,N-Dimethylacetamide	DUP.
*2-Dimethylaminoethanol	AAC, PAS, RH, UCC.
3-Dimethylaminopropionitrile	ACY.
Dimethylaminoethyl methacrylate	AAC, ABC.
Dimethylamino-2-propanol	COM, PAS.
N,N-Dimethylformamide	AIP, DUP.
1,1-Dimethylhydrazine	FMP.
2,5-Dithiobiurea	ACY.
Erucamide	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.
*2,2'2''-Nitrilotriethanol (Triethanolamine)	DOW, JCC, MAT, OMC, UCC.
Ethanolamine hydrochloride, (60%)	WSN.
Ethoxylated amides	ARC.
Ethoxymethoxypropylamine	JCC.
3-Ethoxypropionitrile	ACY.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS.
Ethyl carbamate	FMP.
Ethyl carbodiimide hydrochloride	OTC.
Ethyl cyanoacetate	KF.
N,N'-Ethylene bis(stearamide)	CTN.
Ethyleneimine, monomer	DOW.
Ethyleneimine, polymer	DOW.
Ethylenethiourea	PAS.
Ethyl isocyanate	OTC.
Ethylmonoethanolamide, mixed	PAS.
Ethyl thiourea	OTC.
Fish oil fatty acid amide	HUM.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Formamide	DUP.
Formamidine disulfide dihydrochloride	WAY.
Glycine (Aminoacetic acid)	CHT.
Glycine ethyl ester hydrochloride	BPC.
Glycolonitrile	ACY, KF.
4-Guanyl-1-nitrosoguanyl-1-tetrazine	REM.
*Hexamethylenediammonium adipate (Nylon salt)	CEL, DUP, MON.
Hydracrylonitrile (Ethylene cyanohydrin)	AAE.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris-(hydroxymethyl)nitromethane).	COM.
N-Hydroxymethylstearamide	ICI.
12-Hydroxystearamide	HUM.
Imino diacetic acid	HMP.
Imino diacetic acid, disodium salt	HMP.
3,3'-Iminodi-1,2-propanediol	DUP.
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.
Isopropyl isocyanate	OTC.
Lactonitrile	MON.
Lauronitrile (Dodecyl nitrile)	ASH.
Methacrylamide	SOH, x.
3-Methoxypropylamine	JCC.
2-Methylaminoethanol (N-Methylethanolamine)	UCC.
Methylcarbamate	BKL, FMP.
Methyl cyanoacetate	KF.
Methyl α-cyanoacrylate	EKT.
N,N'-Methylenebis(acrylamide)	ACY, SOH.
N,N'-Methylenebis(octadecanamide)	ARC.
Methyl isocyanate	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	EK, LIL.
*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 acid, sodium salt	CGY, RPC.
N,N-Dihydroxyethylglycine, sodium salt	DOW, HMP.
Ethanoldiglycine, disodium salt	HMP.
*(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.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate.	CGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	CGY, DOW, HMP.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Nitriloacids and salts--Continued	
(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, HRT, 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, manganese salt.	HMP.
*(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt.	CGY, CRT, DAN, DOW, HMP, RPC.
Nitrilotriacetic acid	HMP.
Nitrilotriacetic acid, disodium salt	HMP.
Nitrilotriacetic acid, trisodium salt	DOW, HMP, MON.
Nitrilotriacetic acid, zinc salt	HMP.
Other	DOW, EK, HMP, WAY.
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, MON.
Octadecyl isocyanate	CWN, MOB, UPJ.
Oleamide (Octadecene amide)	ARC, ASH, FIN, HUM.
Oleic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW, GLY.
Oleic acid - methanolamine condensate, ethoxylated	GAF.
Oleonitrile (Octadecene nitrile)	ARC, ASH.
Oleoylhydroxamic acid	CTN.
Oleoylpalmitamide	FIN.
*Pentaerythritol tetranitrate	COM, DUP, HPC.
Pentyl nitrate (Amyl nitrate) & hexyl nitrate	TNA.
*Polyacrylamide	ACY, DOW, HPC, NLC.
Polyacrylamide polymers other than polyacrylamide	ACY.
Polyacrylonitrile	DUP.
Polyacrylonitrile, hydrolyzed	NLC.
Polyalkylene amine	NLC.
Polyamide resin (flake)	MON.
Polyglycolamine	UCC.
Polyoxypropylenediamine	JCC.
n-Propyl carbamate	BKL.
Propyl isocyanate	OTC.
Ricinolamide	TKL.
Sarcosine (N-Methylaminoacetic acid)	CGY, HMP.
Semicarbazide base	FMT.
Semicarbazide hydrochloride	FMT.
Stearamide (Octadecane amide)	ARC, FIN, HUM.
Stearic acid - ethylenediamine condensate (amine/acid ration=1/2).	CCW, DA, GLY, HUM, ICI.
Stearonitrile (Octadecanenitrile)	ARC, ASH.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Stearylerucamide	FIN.
Succinimide	ASH.
Tall oil diethylenetetramine and acetic acid	ACY.
Tallow amide, hydrogenated	ARC.
Tallow nitrile	ARC, ASH.
Tallow nitrile, hydrogenated	ARC, ASH.
Tetrafunctional ketimine	GNM.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine	WYN.
Tetramethylguanidine	ACY.
Tetramethylurea	OTC.
Thioacetamide	EK, RBC.
3,3'-Thiodipropionitrile	ACY.
Thiosemicarbazide	ACY, FMT.
Trisodiumhydroxyethylethylenediamine triacetate	CGY.
*Urea in compounds or mixtures, 100% basis:	
*In feed compounds	ACN, AGY, FTX, GCC, HKY, ICI, JDC, MSC, PPC, SOH, TER, TRI, VLN, WYC.
*In liquid fertilizer	ACN, AGY, AIP, AKL, CFA, CHN, CNC, FCA, FTX, GCC, HKY, HPC, ICI, JDC, MSC, OMC, PLC, PPC, SHC, SNI, SOH, TER, TRI, VLN, WYC
*In solid fertilizer	ACN, AGY, AKL, ARM, COL, DUP, GCC, HPC, ICI, JDC, MSC, OMC, PPC, SHC, SNO, SOH, TER, TRI, VLN, WYC.
In plastics	ACN, BOR, DUP, TRI.
All other	ACN, AIP, DUP, HPC, SHC, SNO, TER, WYC.
Urea ammonium nitrate solution	WYC.
Urea - urethane copolymer	DUP.
All other nitrogenous compounds	AAC, ALB, ALD, CGY, CHP, COM, CTN, DUP, EK, EVN, FIN, FIS, FMP, FMT, GAF, GNM, HEX, HUM, IDC, JCC, KF, LIL, MAL, MCH, MRK, NES, NOR, PD, PFN, PFZ, PIL, RSA, S, SDW, SM, SNW, TNA, VND, WTH, x.
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, DBC, DUP, ELP, MON, RH.
Azelaic acid	EMR.
Behenic acid	ASH.
Bromoacetic acid	MCH.
Bromobutyric acid	GTL.
2-Bromododecanoic acid	DUP.
α-Bromo (mixed) luric stearic acid	DUP.
1,3-Butylene glycolbiborate hexylene glycol boric anhydride.	USB.
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.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
Chloroacetyl chloride	DOW, WTC.
Citric acid	MLS, PFZ, WTC.
Crotonic acid (2-Butenoic acid)	EKT.
Decanoyl chloride	WTC, WTL.
Dimer acid (C-36 aiphatic dibasic acid)	AZS.
Dimethylpropionic acid	COM.
Di-n-propylacetic acid and chloride	CTN.
Dipropylmalonic acid	CTN.
Dodecanedioic acid	DUP.
*Dodecenylsuccinic anhydride	ACS, HMY, MON.
Dodecylsuccinic anhydride	HN.
Erucic acid	ASH.
Ethyl 3-(Chloroformyl)propionate	ABB.
2-Ethylbutyric acid (Diethylacetic acid)	UCC.
2-Ethylhexanoic acid (α-Ethylcaproic acid)	EKT, UCC.
2-Ethylhexanoyl chloride	WTC, 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, SNW.
n-Hexadecenylsuccinic anhydride	HMY.
n-Hexanoic acid	UCC.
1-Hydroxyethylidene-1,1-diphosphonic acid	WAY.
Isethionic acid (2-Hydroxyethanesulfonic acid)	GAF.
Isoascorbic acid	MRK, PFZ.
Isobutyric acid	EKT.
Isobutyric anhydride	EKT.
Isobutyryl chloride	WTC, WTL.
Iso-octadecenylsuccinic anhydride	HMY.
Iso-octanoic acid	UCC.
Itaconic acid (Methylenesuccinic acid)	PFZ.
2-Keto-D-gluconic acid	MRK.
Lactic acid	CLN, MON.
*Lauroyl chloride	GAF, HK, ONX, TEK, UOP, WTC, WTL.
Levulinic acid	QKO.
Maleic acid	ACS, PFN, PFZ.
*Maleic anhydride	ACS, HN, KPT, MON, PTT, RIC, USS.
Malic acid	ACS, EK.
Malonic acid	KF.
Mercaptoacetic acid (Thioglycolic acid)	EVN, HAB.
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	WTC, WTL.
Neoheptanoic acid	ENJ.
Neopentanoic acid	ENJ.
Nonanoic acid (Pelargonic acid)	EMR, GIV.
Nonenylsuccinic anhydride	HMY.
Octadecenylsuccinic anhydride	HMY.
Octanoyl chloride	HK.
Octenylsuccinic anhydride	HMY.
Oleoyl chloride	GAF, HRT, UOP.
Oxalic acid	ACS, PFZ.
Palmitoyl chloride	GAF, OPC, PD, UOP.
Peroxyacetic acid	FMB, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
*Pivaloyl chloride	AZT, WTC, WTL.
*Polyacrylic acid	AAE, DA, RH.
Polygalacturonic acid	SKG.
*Propionic acid	CEL, COM, EKT, UCC.
Propionic anhydride	EKT, UCC.
Propionyl chloride	EK, UOP.
Sebacic acid	RH, WTH.
Stearoyl chloride	EK, UOP.
Succinic acid	ACS.
Succinic anhydride	ACS, ORO.
Tetrahydroxysuccinic acid (Dioxytartaric acid)	ACY.
Tetrapropenylsuccinic acid	TX.
Thioacetic acid	EVN.
Thiolactic acid	EVN.
3,3'-Thiodipropionic acid	CCW, EVN.
Trichloroacetic acid	DOW.
Valeric acid	UCC.
All other	ALD, CTN, EK, ENJ, EVN, GAF, HMY, LIL, RH, SHA, WAY.
Salts of Organic Acids	
*Acetic acid salts:	
Aluminum acetate	ACY, UCC.
Ammonium acetate	ACS, BKC, MAL.
Barium acetate	ACS, BKC, MAL.
Cadmium acetate	MAL, SHP.
Calcium acetate	ACS, MAL.
Chromium acetate	VAL.
Cobalt acetate	HSH, SHP.
*Copper acetate	ACS, BKC, SHP, UCC.
Lead acetate	BKC, MAL.
Lead subacetate	ACS, BKC, MAL.
Lead tetraacetate	ARA.
Magnesium acetate	ACS, BKC.
Manganese acetate	HSH, NES, SHP.
Mercuric acetate	MAL.
Nickel acetate	BKC, HSH, SHP.
*Potassium acetate	ACS, BKC, MAL, SFI, UCC, WSN.
Silver acetate	MAL.
Sodium acetate	ACS, BKC, DAN, EKT, MAL, UCC, WSN.
Sodium diacetate	UCC.
Strontium acetate	BKC.
*Zinc acetate	ACS, BKC, HSH, MAL, SHP, UCC.
*Zirconium acetate	CHP, HSH, NTL, TZC.
Other acetic acid salts	CCW, LIL, MHI.
Acrylic acid, sodium salt	AAE.
Adipic acid, ammonium salt	FIS.
Allylsulfonic acid, sodium salt	SAL, x.
Chloroacetic acid, sodium salt	DOW.
Citric acid salts:	
Ammonium citrate	MAL, PFZ.
Calcium citrate	PFZ.
Disodium citrate	WSN.
Ferric ammonium citrate	PFZ.
Ferric citrate	MAL.
Potassium citrate	MLS, PFZ.
Sodium citrate	MLS, PFZ, SNW.
Other citric acid salts	CHP, EK, MAL.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Dibutyltin bis(isooctyl thioglycolate)	CCW.
*2-Ethylhexanoic acid (α-Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate	PFZ, WTC.
Barium 2-ethylhexanoate	CCA, PFZ.
Cadmium 2-ethylhexanoate	CCA, PFZ.
*Calcium 2-ethylhexanoate	CCA, CCC, FER, HN, MCI, PFZ, SW, TRO.
*Cobalt 2-ethylhexanoate	CCA, CCC, FER, HN, MCI, SW, TRO, WTC.
Copper 2-ethylhexanoate	CCA.
Iron 2-ethylhexanoate	CCA, HN.
*Lead 2-ethylhexanoate	CCA, CCC, FER, HN, MCI, NTL, SW, WTC.
*Manganese 2-ethylhexanoate	CCA, CCC, HN, MCI, SW, WTC.
Nickel 2-ethylhexanoate	MCI, SW.
Rare earths 2-ethylhexanoate	CCA.
*Zinc 2-ethylhexanoate	CCA, FER, HN, MCI, SW, WTC.
Zirconium 2-ethylhexanoate	CCA, FER, HN, TRO.
Other	CCA, WTC, x.
Formic acid salts:	
Aluminum formate	WSN.
Ammonium formate	ACS, RSA.
Calcium formate	COM.
Chromic formate	GAF.
Lead formate	NTL.
Sodium formate, refined	ACS, BKC.
*Sodium formate, tech	COM, CEL, HPC.
Thallous formate	EK.
Glucoheptonic acid salts:	
Sodium glucoheptonate	PFN.
Gluconic acids salts:	
Ammonium gluconate	PFZ.
*Sodium gluconate	PFZ, PMP, SFI.
Glycolic acid, sodium salt	PMP, SAL.
9H-Hexadecafluorononanoic acid, ammonium salt	DUP.
Humic acids, sodium salt	NLC.
Isoascorbic acid, sodium salt	MRK.
*Lactic acid salts:	
Ammonium lactate	TCC.
Calcium lactate	SHF.
Sodium lactate	REH, PFN.
Other	CCA, CCW, PFN, REH, SNW, WTC.
Lauric acid salts:	
Barium cadmium laurate	CCA.
Dibutyltin dilaurate	CCW, x.
Zinc laurate	SNW.
Linoleic acid salts:	
Calcium linoleate	CCA, SHP.
Cobalt linoleate	SHP.
Copper linoleate	SHP.
Lead manganese linoleate	SHP.
Manganese linoleate	SHP.
Maleic acid salts:	
Dibutyltin maleate	x.
Lead (tribasic) maleate	NTL.
Other maleic acid salts	x.
*Mercaptoacetic acid (Thioglycolic acid) salts:	
Ammonium mercaptoacetate	EVN, HAB, TNI.
Antimony mercaptoacetate	CCA.
Calcium mercaptoacetate	EVN.
Dibutyltin bis iso-octyl mercaptoacetate	x.
Dibutyltin mercaptoacetate	CCA.
Potassium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
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	CCA, MCI.
Lithium neodecanoate	MCI.
Manganese neodecanoate	MCI.
Stannous neodecanoate	MCI.
Vanadium neodecanoate	MCI.
Zinc calcium cobalt 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	WTC.
Ammonium oleate	ARS.
Chromium oleate	SHP.
Copper oleate	SHP, WTC.
Lead oleate	NOC, SHP.
Stannous oleate	CCW, x.
Other oleic acid salts	CHP, TRO, WTC.
Oxalic acid salts:	
Ammonium oxalate	ACS, PFZ.
Ferric ammonium oxalate	PFZ.
Ferric oxalate	PFZ.
Ferrous oxalate	BKL.
Potassium oxalate	BKC, PFZ.
Sodium oxalate	BKC.
Palmitic acid salts:	
Aluminum palmitate	DA, WTC.
Zinc palmitate	ACY, DA, WTC.
Other	DA.
Phosphorodithioic acid salts (Dithiophosphates):	
Potassium dihexyl phosphorodithioate	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate	ACY.
Sodium di-sec-butyl phosphorodithioate	ACY.
Sodium diethyl phosphorodithioate	ACY.
Sodium dihexyl phosphorodithioate	ACY.
Sodium diisopropyl phosphorodithioate	ACY.
Polyacrylic acid salts:	
Ammonium polyacrylate	BFG.
Sodium ammonium polyacrylate and copolyers	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.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Sodium soribitol borate	ICI.
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum distearate	ACY, DA, JTC, MAL, NOC, PEN, SYP, WTC.
*Aluminum monostearate	DA, JTC, MAL, NOC, SYP, WTC.
*Aluminum tristearate	DA, JTC, MAL, NOC, PEN, SYP.
Ammonium stearate	DA, NOC, WTC.
*Barium stearate	DA, NOC, PEN, SYP.
Cadmium stearate	NOC, SYP, WTC.
*Calcium stearate	ACY, DA, HN, JTC, MAL, NOC, PEN, SYP, WTC.
Copper stearate	NOC.
Ferrous stearate	NOC, WTC.
Lead stearate	DA, NOC, WTC.
Lead stearate, dibasic	NTL.
*Lithium stearate	DA, NOC, PEN, SYP, WTC.
*Magnesium stearate	ACY, DA, JTC, MAL, NOC, PEN, SYP, WTC.
Nickel stearate	WTC.
Silver stearate	PEN.
*Zinc stearate	ACY, DA, HN, JTC, MAL, NOC, PEN, SYP, WTC.
All other	DA, NOC, SYP, VAL.
Succinic acid, sodium salt	MAL.
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, CCA, CHP, CRN, CTN, DA, DUP, EK, EVN, JCC, KCH, MCI, NTL, PFN, RSA, SFA, SYP, UCC, x.
Aldehydes and Ketones	
*Acetaldehyde	CEL, DUP, EKT, EKX, PUB, SHC, UCC.
*Acetone:	
*From cumene	ACP, CLK, DOW, GP, MON, SHC, SKO, SOC, UCC, USS.
From isopropyl alcohol	EKT, ENJ, SHC, UCC.
Other	CEL, DIX, HPC.
Acetone, crude	OCC.
Acrolein (Acrylaldehyde)	SHC, UCC.
Aldol (Acetaldol)	UCC.
*2-Butanone (Methyl ethyl ketone)	ATR, CEL, DIX, ENJ, SHC, UCC.
*Butyraldehyde	CEL, EKX, UCC.
Chloral (Trichloroacetaldehyde)	DA, MTO.
5-Chloro-2-pentanone	SDW.
1-Chloro-1-penten-3-one (β-Chlorovinyl ethyl ketone)	ABB.
Chloro-2-propanone (Chloroacetone)	EK, MRK.
Crotonaldehyde	CEL, EKT, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Aldehydes and Ketones--Continued	
1,3-Dihydroxy-2-propanone (Dihydroxyacetone)	BAX.
Diisopropyl ketone (2,4-Dimethyl-3-pentanone)	EKX.
2-Ethylbutyraldehyde	UCC.
Ethyl crotonaldehyde	UCC.
2-Ethylhexanal (α-Ethylcaproaldehyde)	EKX, UCC.
*Formaldehyde (37% by weight)	ACN, 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.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	CEL, SHC, UCC.
Isobutyraldehyde	EKX, UCC.
Isopentaldehyde, mixed isomers	UCC.
Isovalerone (Diisobutyl ketone)	UCC.
Lactide (3,6-Dimethyl-2,5,p-dioxanedione)	CLN.
4-Methoxy-4-methyl-2-pentanone	SHC.
2-Methylbutyraldehyde	UCC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)	EKT, UCC.
Methylhexenone	UCC.
*4-Methyl-2-pentanone (Methyl isobutyl ketone)	EKT, ENJ, SHC, UCC.
Methylpentenal	UCC.
4-Methyl-3-penten-2-one (Mesityl oxide)	SHC, UCC.
2-Methylvaleraldehyde (2-Methylpentaldehyde)	UCC.
3-Octanone (Ethyl amyl ketone)	SHC.
Paraformaldehyde	CEL, HN.
Paraldehyde (Paracetaldehyde)	UCC.
2,4-Pentanedione (Acetylacetone)	UCC.
2-Pentanone (Methyl propyl ketone)	UCC.
3-Pentanone (Diethyl ketone)	HEX, ORT.
Propionaldehyde	EKX, UCC.
Tetrahydropseudoionone	CEL.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
Valeraldehyde	UCC.
All other	ALD, ARC, EK, ORT, UCC.
Alcohols, Monohydric, Unsubstituted	
*Alcohols C_9 or lower, unmixed:	
Allyl alcohol	FMP, SHC.
Amyl alcohols:	
2-Methyl-1-butanol	CPS, UCC.
2-Methyl-2-butanol (tert-Amyl alcohol)	ENJ, SHC.
1-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.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)	UCC.
*Ethyl alcohol, synthetic	EKX, ENJ, GP, 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.
4-Ethyl-1-octyn-3-ol	AIP.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Alcohols, Monohydric, Unsubstituted--Continued	
*Alcohols C_9 or lower, unmixed--Continued	
Heptyl alcohol	EKX.
*Hexyl alcohol	CO, EKX, ENJ, TNA, UCC.
Hexynol	AIP.
Isononyl alcohol	ENJ.
*Iso-octyl alcohols	AIP, ENJ, TID, USS.
*Isopropyl alcohol	ATR, ENJ, SHC, UCC.
*Methanol, synthetic	ACN, AIP, BOR, CEL, DUP, GP, HN, HPC, MON, RH, UCC.
Methyl amyl alcohol	UCC.
3-Methyl-1-butanol	UCC.
2-Methyl-3-butyn-2-ol	AIP.
2-Methyl-1-pentanol	UCC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	SHC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)	AIP.
*1-Octanol	CO, PG, WTH.
*2-Octanol (sec-Capryl alcohol)	RH.
3-Pentanol	EK.
*Propyl alcohol (Propanol)	CEL, EKX, UCC.
2-Propyn-1-ol	GAF.
1-Tetradecanol (Myristyl alcohol)	CO, PG.
All other	ALD, EKX, GYR, LIL.
*Alcohols, C_{10} or higher, unmixed:	
1-Decanol	CO, PG.
Dodecyl alcohol (Lauryl alcohol) (95%)	CO, PG.
*1-Hexadecanol (Cetyl alcohol)(95%)	ASH, CO, GIV, PG.
Hexadecyl alcohols, other	ENJ.
*Isodecyl alcohol	AIP, ENJ, TID, UCC, USS.
*1-Octadecanol (Stearyl alcohol) (95%)	ASH, CO, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)	ASH, DUP.
1-Tridecanol	ENJ, UCC.
2,6,8-Trimethyl-4-nonanol	UCC.
All other	UCC.
*Mixtures of alcohols:	
*C_9 and lower only:	
Amyl alcohols	ENJ.
Other	CEL, EKX, PUB, UCC.
*C_{10} and higher only	ASH, CO, ENJ, PG, SHC, TNA, UCC.
*C_6 to C_{12} and others	CO, EKX, PG, SHC, TNA.
Polyhydric Alcohols and Their Esters and Ethers	
*Polyhydric alcohols:	
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)	EVN.
1,10-Decanediol	FIS.
2,5-Dimethyl-2,5-hexanediol	AIP.
2,5-Dimethyl-3-hexyne-2,5-diol	AIP.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	EKX.
*Ethylene glycol	CAU, CEL, DOW, DUP, EKX, GAF, JCC, MAT, NWP, OMC, PPG, SHC, UCC, WYN.
2-Ethyl-1,3-hexandiol	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylol propane).	CEL.
*Glycerol, synthetic	DOW, FMP, ICI, SHC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and their Esters and Ethers--Continued	
*Polyhydric alcohols--Continued	
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, PNA, RCI.
1,5-Pentanediol	UCC.
*Propylene glycol (1,2-Propanediol)	CEL, DOW, JCC, OCC, OMC, UCC, WYN.
*Sorbitol	BRD, ICI, MRK, PFZ.
2,2,4-Trimethyl-1,3-pentanediol	EKX.
All other	EKX, GLY, ICI, PFN, PHR, PIC, RSA.
*Polyhydric alcohol esters:	
1,3-Butanediol dimethacrylate	SAR.
2,(2-Butoxyethoxy)ethyl acetate	EKT, UCC.
2-Butoxyethyl acetate	SAR, UCC.
Diethylene glycol, borated	GLY, JCC.
Diethylene glycol chloroformate	CTN, PPG.
2-Diisopropylaminoethyl methacrylate	DUP.
2-(2-Ethoxyethoxy)ethyl acetate	EKT, UCC.
2-Ethoxyethyl acetate	DOW, UCC.
*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 trmethacrylate.	SAR.
Glyceryl diacetate (Diacetin)	ARC, HAL.
Glyceryl monoacetate (Monoacetin)	ARC, HAL.
Glyceryl triacetate (Triacetin)	ARC, EKT, UCC.
Glyceryl trioleate	GRO.
Glycol adipate	x.
Hexylene glycol diacetate	UCC.
Lanolin acetate	CRN.
2-Methoxyethyl acetate	UCC.
2-Methoxyethyl carbonate	VAL.
Methoxytriethyleneglycol acetate	RBC.
Pentaerythritol caprylate	PVO.
Pentaerythritol pelargonate	PVO.
Pentaerythritol stearate	GLY.
Pentaerythritol tetrakis(3-mercaptopropionate)	EVN.
Polyethylene glycol dimethacrylate	SAR.
Sorbitol polyoxypropylene ether	JCC.
Sucrose octa-acetate	HFT, PD.
Tetraethylene glycol diacrylate	AAE, SAR.
Tetraethylene glycol dimethacrylate	SAR.
Triethylene glycol diacetate	UCC.
Triethylene glycol diacrylate	AAE.
Triethylene glycol dimethacrylate	SAR.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	EKX.
Trimethylolpropane triacrylate	AAE, SAR.
All other	CCW, EK, EKX, EVN, PFN, SAR SHC, UCC.
*Polyhydric alcohol ethers:	
Allyloxypolyethylene glycol	UCC.
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).	UCC.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether).	UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and Their Esters and Ethers--Continued	
*Polyhydric alcohol ethers--Continued	
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.
Butanol polyoxypropylene ether	JCC.
*2-Butoxyethanol (Ethylene glycol monobutyl ether)	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.
*Diethylene glycol	CAU, CEL, DOW, EKX, JCC, MAT, NWP, PPG, SHC, UCC, WYN.
Diethylene glycol monobutyl ether	OMC.
Diethoxytetraglycol	UCC.
Dimethoxyethane (Ethylene glycol dimethyl ether)	ASL, UCC, WYN.
*Dipropylene glycol	CEL, DOW, JCC, OCC, OMC, UCC.
Di-tributyletherethylene glycol	EKX.
Di-tri-isobutyl ether	EKX.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOW, EKX, JCC, OMC, SHC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoether).	DOW, EKX, JCC, OMC, SHC, UCC.
*2-[2-(Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).	DOW, OMC, UCC.
Glycerol tri(polyoxypropylene) ether	JCC, UCC, WYN.
2-(Hexyloxy)ethanol	UCC.
2-[2-(Hexyloxy)ethoxy]ethanol	UCC.
2-Isobutoxyethanol	EKX, 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	JCC, UCC.
1-Methoxy-2-propanol	DOW, UCC.
3-(3-Methoxypropoxy)propanol	DOW, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol	DOW.
Polybutylene glycol	NLC.
Polyethoxyethyl glycerol	GLY.
Polyethoxyethylsorbitol	GLY.
Polyethoxylated-1,4-butanediol	TCH.
*Polyethylene glycol	DA, DOW, DUP, GAF, HDG, JCC, MAT, NLC, OMC, TCH, UCC, WYN.
Polyethylene glycol, unrefined	WYN.
Polypropoxy ethers:	
Glycerol tri(polyoxypropylene) ether	JCC, UCC, WYN.
Other	DA, JCC, ICI, NWP, UCC, VAL, WYN.
*Polypropylene glycol	DOW, JCC, HDG, NLC, OMC, UCC, WYN.
Polytetramethylene ether glycol	DUP, QKO.
Sorbitol, ethoxylated	ICI.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and their Esters and Ethers--Continued	
*Polyhydric alcohol ethers--Continued	
*Tetraethylene glycol	DOW, EKX, JCC, OMC, UCC.
1,1,3,3-Tetramethoxypropane	KF.
2,2'-Thiodiethanol (Thiodiglycol)	HAB, UCC.
*Triethylene glycol	CAU, CEL, DOW, EKX, JCC, MAT, PPG, SHC, UCC.
*Tripropylene glycol	DOW, HDG, OMC, UCC.
All other	ALD, DOW, EKX, GAF, JCC, PFN, SHC, UCC, x.
Esters of Monohydric Alcohols	
Allyl methacrylate	JCC, SAR.
Amyl acetates, 90%:	
Isopentyl acetate (Isoamyl acetate)	CPS, NW, UCC.
n-Pentyl acetate	PFW, PUB.
Amyl-2-ethylhexyl hydrogen phosphate	SM.
Bis(2-chloroethyl)(2-chloroethyl) phosphonate	GAF.
Butyl acetates:	
*Iso	EKX, ENJ, UCC.
*Normal	CEL, EKT, PUB, SHC, UCC.
Secondary	EKT, ENJ, SHC.
*Butyl acrylate	CEL, DBC, RH, UCC.
Butyl butyryl lactate	RT.
Butyl chloroacetate	MON.
n-Butyl chloroformate	CTN.
sec-Butyl chloroformate	CTN.
Butyl formate	CPS.
Butyl lactate	COM.
Butyl maleate, mono-	TCH, USS.
Butyl methacrylate	x.
tert-Butyl peroxyacetate	AZT, WTL.
tert-Butyl peroxy-2-ethylhexanoate	AZT, WTC, WTL.
tert-Butyl peroxyisobutyrate	AZT, WTC, WTL.
tert-Butyl peroxyisopropylcarbonate	PPG, WTL.
*tert-Butyl peroxypivalate	AZT, WTC, WTL.
Cetyl lactate	VND.
Diallyl maleate	FMP.
Di(sec-butyl) chloroformate	WTL.
Dibutyl fumarate	MON, PFZ, RCI, USS.
*Dibutyl maleate	AIP, MON, RCI, RUB, USS.
Di(sec-butyl) peroxydicarbonate	WTL.
Diethyl sec-butylethylmalonate	ABB.
Diethyl butylmalonate	BPC.
Diethyl sec-butylmalonate	ABB.
Diethyl carbonate (Ethyl carbonate)	CTN, FMP.
Diethyl diallylmalonate	CTN.
Diethyl diethylmalonate (Diethyl malonic ester)	LIL.
Diethyl dipropylmalonate	CTN.
Diethyl (ethoxymethylene)malonate	KF.
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	RUB.
Di(2-ethyl-1-hexyl) peroxydicarbonate	WTL.
Diethyl maleate	ACY, UCC.
Diethyl malonate (Malonic ester)	ABB, KF, LIL.
Diethyl (1-methylbutyl)malonate	ABB, LIL.
Diethyl oxalate (Ethyl oxalate)	FMP.
Diisobutyl maleate	RUB.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
Diisodecyl maleate	RUB.
Di-iso-nonyl 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	WTC.
Dimethyl maleate	AAC, ABC.
Dimethyl malonate	KF.
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.
2-Ethoxyethyl acetate	ENJ.
*Ethyl acetate	CEL, EKT, EKX, ENJ, MON, PUB, UCC.
Ethyl acetoacetate	EKT, UCC.
*Ethyl acrylate	CEL, DBC, RH, SNW, UCC.
Ethyl-2-bromopropionate	BAX.
Ethyl chloroacetate	DOW, KF, MON.
Ethyl chloroformate	CTN, FMP, OTC.
Ethyl chlorothiolformate	SFA.
Ethylene carbonate	JCC.
2-Ethyl-1-hexyl acetate	EKT, UCC.
*2-Ethyl-1-hexyl acrylate	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate	x.
Ethyl silicate (Tetraethoxysilane)	SFS, 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.
Ethyl stearate	ARS.
2-Ethylhexyl palmitate	VND.
Hexadecyl stearate	ICI.
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, PG.
Methyl stearate	DA.
Myristyl myristate	VND.
All other	CRN, ROB, VND.
Glycidyl acrylate	AAE.
Glycidyl methacrylate	AAE.
Hexyl acetate	CPS, ENJ.
Isobutyl acetate & isobutyl isobutyrate, mixture	EKX.
Isobutyl acrylate	DBC, RH, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
Isobutyl chloroformate	CTN, OTC.
Isobutyl isobutyrate	EKX.
Isodecyl acrylate	UCC.
*Iso-octyl mercaptoacetate	CCW, EVN, HAB.
Iso-octyl 3-mercaptopropionate	EVN.
*Isopropyl acetate	EKT, ENJ, UCC.
Isopropyl chloroformate	CTN, PPG.
Lauryl lactate	VND.
Lauryl methacrylate	x.
Lauryl stearyl thiodipropionate	EVN.
Maleic esters and copolymers	GAF, USS.
Methallylidene diacetate	UCC.
*Methyl acetate	EK, GRD, MON, UCC.
Methyl acetoacetate	EKT, UCC.
Methyl acrylate, monomer	CEL, DBC, RH.
Methyl borate	SFS.
Methyl chloroacetate	DOW, KF.
Methyl chloroformate	CTN, FMP.
Methyl dichloroacetate	PD.
Methyl formate	CEL, DUP.
*Methyl methacrylate, monomer	ACY, DUP, RH.
4-Methyl-2-pentyl acetate	PUB, SHC, UCC.
Methyl sulfate (Dimethyl sulfate)	DUP.
Methyl vinyl acetate	UCC.
Myristyl lactate	VND.
Octadecyl 3-mercaptopropionate	EVN.
*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.
Dimethyl methylphosphonate	SM.
Dimethyl phosphorochloridothionate	SFA.
Dioleyl hydrogen phosphite	SM.
2-Ethylhexyl hydrogen phosphate	SM.
Iso-octyl hydrogen phosphate	SM.
Oleyl hydrogen phosphate	SM.
Trialkyl phosphites	WES.
Tri(butoxyethyl)phosphate	HN.
Tributyl phosphate	COM, FMP, HN.
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.

MISCELLANEOUS CHEMICALS

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCYLIC--Continued	
Esters of Monohydric Alcohols--Continued	
*Phosphorus acid esters--Continued	
Tris(2,3-dibromopropyl) phosphate	HN, MCH.
Tris(1,3-dichloro-2-propyl) phosphorothioate	SM.
All other	ALD, DUP, MON, SM, TNA, WES.
Poly(methylvinyl ether/monoethyl maleate)	TNI.
*Propyl acetate	CEL, EKT, PUB, UCC.
Propylene carbonate	JCC.
Stearyl methacrylate	x.
Tetraethyl silicate	UCC.
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.
Bis(1-methyl-3-oxo-1-butenyl) diisopropyl titanate	DUP.
Tetrabutyl titanate	DUP.
Tetraisopropyl titanate	DUP.
Tetrakis(2-ethylhexyl) titanate	DUP.
Other	DUP.
Triethyl orthoacetate	KF.
Triethyl orthoformate	KF.
Triethyl orthopropionate	KF.
Triisodecyl orthoformate	KF.
Trimethyl orthoformate	KF.
*Vinyl acetate, monomer	BOR, CEL, NSC, UCC, USI.
All other	ALD, CEL, CTN, DUP, EFH, EK, EMR, ENJ, EVN, GAF, HUM, PD, PIC, RH, UCC, WTL, ZGL.
Halogenated Hydrocarbons	
1-Bromobutane (n-Butyl bromide)	MCH.
2-Bromobutane (sec-Butyl bromide)	ABB, EK.
Bromochloromethane	DOW.
1-Bromo-3-chloropropane (Trimethylenechlorobromide)	MCH.
2-Bromo-2-chloro-1,1,1-trifluoroethane	ICI.
Bromoethane (Ethyl bromide)	DOW, GTL, MCH.
1-Bromohexane (n-Hexyl bromide)	HMY.
1-Bromo-3-methylbutane	LIL.
1-Bromo-3-methyl-2-butene	SDW.
1-Bromo-octadecane	DUP.
1-Bromo-octane (n-Octyl bromide)	MCH.
2-Bromopentane (1-Methylbutyl bromide)	LIL.
1-Bromopropane (n-Propyl bromide)	EK, SDW.
Bromotrichloromethane	MCH.
Bromotrifluoromethane	DUP.
n-Butyl chloride	BRD.
*Carbon tetrachloride	ACS, DA, DOW, FMB, FRO, PPG, SFI.
Carbon tetrachloride crude	TNA.
*Chlorinated paraffins:	
Less than 35% chlorine	DA, HK.
*35%-64% chlorine	CCH, DA, DVC, HPC, ICI, NEV.
65% or more chlorine	DA, DVC, NEV.
2-Chloro-1,3-butadiene	DUP.
1-Chlorobutane (n-Butyl chloride)	PUB, UCC.
2-Chlorobutane (sec-Butyl chloride)	EK, PLC.
1-Chloro-1,1-difluoroethane	DUP, PAS.
*Chlorodifluoromethane	ACS, DUP, KAI, PAS, RCN.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Halogenated Hydrocarbons--Continued	
*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.
Chlorotrifluoroethylene, polymerized	MMM.
Chlorotrifluoromethane	DUP.
*1,2-Dibromoethane (Ethylene dibromide)	DOW, GTL, MCH, PPG, TNA.
Dibromomethane (Methylene bromide)	DOW.
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, BFG, CO, DA, DOW, FRO, JCC, OMC, PPG, SHC, TNA, UCC, WYN.
*Dichloromethane (Methylene chloride)	ACS, DA, DOW, DUP, FRO, SFI.
*1,2-Dichloropropane (Propylene dichloride)	DOW, JCC, UCC.
2,3-Dichloropropene	DOW.
Dichlorotetrafluoroethane	ACS, DUP.
1,1-Difluoroethane	ACS, DUP.
Diiodomethane (Methylene iodide)	NTB, SDW.
Fluronated ethylene propylene	DUP.
Hexadecyl chloride	BRD.
Hexafluoro-2-propane	DUP.
Hexafluoropropylene, monomer	DUP.
Iodoethane (Ethyl iodide), tech	EK, FMT, RSA.
Iodoform (Triiodomethane)	NTB.
*Iodomethane (Methyl iodide)	EK, FMT, RSA.
1-Iodoperfluorohexane	DUP, TKL.
Lauryl chlorides	AZT, BRD.
Octafluorocyclobutane	DUP.
Octyl chloride	BRD.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)	TTX.
*Tetrachloroethylene (Perchloroethylene)	DA, DOW, DUP, FRO, HK, PPG, SFI, TNA.
Tetrafluoroethylene, monomer	DUP, PAS, TKL.
Tetrafluoromethane	DUP.
*1,1,1-Trichloroethane (Methyl chloroform)	DOW, FRO, PPG, TNA.
1,1,2-Trichloroethane (Vinyl trichloride)	DOW, UCC.
*Trichloroethylene	DOW, DUP, HK, PPG, TNA, TTX.
*Trichlorofluoromethane	ACS, DUP, KAI, PAS, RCN, UCC.
1,2,3-Trichloropropane	DOW, SHC.
1,2,3-Trichloropropene	DOW, PAS.
Trichlorotrifluoroethane	ACS, DUP.
Vinyl bromide (Bromoethylene)	DOW, TNA.
*Vinyl chloride, monomer (Chloroethylene)	ACS, AME, BFG, CO, DOW, HN, MNO, PPG, SHC, TNA.

MISCELLANEOUS CHEMICALS

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Halogenated Hydrocarbons--Continued	
Vinyl fluoride	DUP.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	DOW, FRO.
Vinylidene fluoride	DUP.
All other	ALD, BRD, DUP, EK, HMY, LIL, RSA, SDW.
All Other Miscellaneous Acyclic Chemicals	
Acetyl peroxide	AZT, WTL.
Aluminum isopropoxide (Aluminum isopropylate)	CHT, KCH.
*2-Butanone peroxide	AZT, CAD, NOC, RCI, WTC, WTL.
tert-Butyl hydroperoxide	AZT, CAD, OCC, WTC, WTL.
*tert-Butyl peroxide (Di-tert-butyl peroxide)	AZT, CAD, 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, MCH.
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, SHC.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKL.
Bis(2-chloroethyl) ether (Dichlorodiethyl ether)	DOW.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).	DOW, MOB.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	DOW.
Butylene oxide	DOW.
Butyl ether (Di-n-butyl ether)	PUB, UCC.
Butyl vinyl ether	GAF, UCC.
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.
*Ethylene oxide	CAU, CEL, DOW, EKX, JCC, MAT, NWP, OMC, PPG, SHC, SNO, UCC, WYN.
Ethyl ether:	
Absolute	MAL.
*Tech	ENJ, HPC, USI.
U.S.P	MAL, OMS.
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)	DUP, UCC.
Methyl vinyl ether	GAF.
*Propylene oxide	CEL, DOW, JCC, OCC, OMC, UCC, WYN.
Triglycol dichloride	RH.
Vinyl methoxytriglycol	UCC.
Other	EK, ICI, SHC, UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals--Continued	
Epoxy curing agents	SHC.
2-(Ethylmercapto)ethanol	PLC.
Fats and oils, chemically modified	ABB, DOM.
Glucono-delta-lactone	PFZ.
Glutaraldehyde bis(sodium bisulfite)	IDC.
Hexachlorodimethyl sulfone	x.
n-Hexadecyl disulfide	PAS.
Hydrocarbons:	
1-Butyne (Ethylacetylene)	AIP.
n-Decane	HMY, PLC.
n-Dodecane	HMY, PLC.
1-Dodecene	HMY.
Hexadecane	HMY.
n-Hexane	HMY.
Myrcene	IFF, NCI.
1-Octadecene	HMY.
n-Octane	HMY, PLC.
1(and 2)-Octene	HMY, PLC.
Tri-decane	BLK, HMY.
Other	ALD, CBY, HMY.
Hydrogenated tallow glycerides	CHL.
Lauroyl peroxide	AZT, WTL.
Magnesium methylate	MRT.
Methanethiol(methyl mercaptan)	DOW.
Methylal (Dimethoxymethane)	CEL.
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.
Other	TSA.
Organo-boron compounds:	
Boron fluoride - ethyl ether complex	ACS.
Triethylborane	TSA.
Trimethoxyboroxine	SFS.
Trimethyl borate	MHI.
Organo-lead compounds:	
*Tetraethyllead	DUP, NLC, PPG, TNA.
Tetramethyllead	DUP, NLC, TNA.
Tetra(methyl-ethyl)lead	DUP, PPG.
Other	TNA.
n-Butyllithium	FTE, GAF.
sec-Butyllithium	FTE.
Organo-magnesium halides	ARA.
Organo-mercury compounds	EK, NTB.
*Organo-silicon compounds:	
Chlorotrimethylsilane	DCC, UCC.
Dichlorodimethylsilane	DCC, UCC.
Dichloromethylsilane	DCC, UCC.
Dichloromethylvinylsilane	UCC.

TABLE 2.--MISCELLANEOUS CHEMICALS FOR WHICH U.S. PRODUCTION OR SALES WERE REPORTED, IDENTIFIED BY MANUFACTURER, 1972--CONTINUED

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals--Continued	
*Organo-silicon compounds--Continued	
Trichlorobutylsilane	DCC.
Trichloroethylsilane	DCC.
Trichloromethylsilane	DCC.
Trichlorovinylsilane	UCC.
Silicone greased	SPD.
Other organo-silicon compounds	DCC, SFS, UCC.
Organo-tin compounds:	
Bis(tributyltin) oxide	CCW, x.
Dibutyltin bis lauryl mercaptide	x.
Dibutyltin dichloride	CCW, x.
Dibutyltin oxide	x.
Dioctyltin oxide	x.
Organotin mercaptide	CCW.
Tributyltin chloride	PCW, x.
Tributyltin fluoride	x.
Other	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, VDM.
Pine oil, synthetic	CBY, NCI.
β-Propiolactone	CEL.
Rare sugars	PFN.
Sodium ethoxide	FMP.
Sodium formaldehyde bisulfite	EK, IDC.
Sodium formaldehyde sulfoxylate	DA, RH.
*Sodium methoxide (Sodium methylate)	DA, OMC, RBC.
Sodium succinaldehyde bisulfite	HEX.
Succinyl peroxide	WTL.
Trioctylphosphine oxide	EK.
Zinc formaldehyde sulfoxylate	DA, RH.
Other	ABB, ALD, ALX, CEL, EK, GNM, HMY, NLC, NTB, NTL, PIC, PLC, RSA, SDW, SFS, SHC, TCH, TNA, UCC, WTL, x, x.

SYNTHETIC ORGANIC CHEMICALS, 1972

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1972

ALPHABETICAL DIRECTORY BY CODE

[Names of miscellaneous chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 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	Arc Chemical 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.
ARA	Arapahoe Chemicals Div. of Syntex Corp.
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.
BAX	Baxter Laboratories, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
BFR	Pace National Corp.
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 Co.
CCW	Cincinnati Milacron Chemicals, Inc.
CEL	Celanese Corp.:
	Celanese Chemical Co.
	Celanese Fibers Co.
	Celanese Plastics 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.
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.
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.
FIS	Fisher Chemical Co., Inc.
	FMC Corp.:
FMB	Industrial Chemical Div.
FMP	Industrial Chemical Div., Organic Business Group
FMT	Fairmount Chemical Co., Inc.
FRO	Vulcan Materials Co., Chemicals Div.
FTE	Foote Mineral Co.
FTX	CF Industries, Inc., Fremont Nitrogen Complex

TABLE 3.--MISCELLANEOUS CHEMICALS: DIRECTORY OF MANUFACTURERS, 1972--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 Chemcal 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 Chemical Corp.:
HKD	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.
HUM	Kraftco Corp., Humko Products Chemical Div.
ICI	ICI America, Inc. & Specialty Chemicals Div.
IDC	Industrial Dyestuff Co.
IFF	International Flavors & Fragrances, Inc.
IOC	Ionac Chemical Co.
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	Keystone Chemurgic Corp.
KCU	Kennecott Copper Corp., Utah Copper Div.
KF	Kay-Fries Chemicals, Inc.
KON	H. Kohnstamm & Co., Inc.
KPT	Koppers Co., Inc., Organic Materials Div.
LAM	LaMotte Chemical Products Co.
LEM	Lemke 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.
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.
NPI	Stepan Chemicals Co., National Polychemicals Div.
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	Ott Chemical Co.
OXC	Oxochem Enterprises
PAR	Pennsylvania Refining Co.
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	Fike Chemicals, Inc.
RCI	Reichhold Chemicals, Inc.
RCN	Racon, 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, 1972--CONTINUED

Code	Name of company
RPC	Millmaster Onyx Corp., Refined-Onyx Div.
RSA	R.S.A. Corp.
RT	F. Ritter & Co.
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., Sheffield Chemical 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.
SOI	American Oil Co. (Maryland)
SPD	General Electric Co., Silcon Products Dept.
SPR	Scientific Protein Laboratories
STP	Stepan Chemical Co.
SW	Sherwin-Williams Co.
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	Gillette Chemical Co., Div. of Gillette Co.
TRI	Triad Chemicals
TRO	Troy Chemical Co.
TSA	Texas Alkyls, Inc.
TTX	Detrex Chemical Industries, Inc.
TX	Texaco, Inc.
TZC	Tizon Chemical Corp.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Di
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.
USS	USS Chemicals Div. of U.S. Steel Corp.
USR	Uniroyal, Inc., Chemical Div.
VAC	Northern Petrochemical Co.
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.
VPC	Verona Corp.
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.
WM	Wilson Pharmaceutical & Chemical Corp., Wilson-Martin Div.
WMP	Essex International, Inc., Electro-Mechanical Div.
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.
WYN	Wyandotte Chemicals Corp.
ZGL	Carolina Processing Corp.

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

APPENDIXES

APPENDIX A

DIRECTORY OF MANUFACTURERS

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1972 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 So. Combee Rd., Eaton Park, FL 33840.
	Lancaster Chemcial 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.
ACE	Acme Chemical Co----------	2506 N. 32d St., Milwaukee, WI 53245.
ACR	Acme Resin Co----------	1401 S. Circle Ave., Forest Park, IL 60130.
AGY	Agway, Inc., Olean Nitrogen Div----------	1446 Buffalo St., Olean, NY 14760.
OH	Airco, Inc., Ohio Medical Products Div------	3030 Airco Dr., P.O. Box 1319, Madison, WI 53701.
AIR	Air Products & Chemicals, Inc., Chemicals Group	5 Executive Mall, 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.
	Allied Chemical Corp.:	
ALF	Fibers Div----------	1 Times Square, New York, NY 10036.
ACP	Plastics Div----------	P. O. Box 2365R, Morristown, NJ 07960.
ASC	Semet-Solvay Div----------	P. O. Box 1013R, 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-Esna Corp., Penetone Div----------	74 Hudson Ave., Tenafly, NJ 07670.
DLH	Amerada Hess Corp----------	1 Hess Plaza, Woolridge, NJ 07095.
AAE	American Aniline & Extract Co., Inc---------	Venango and F Sts., Philadelphia, PA 19134.
AAP	American Aniline Products, Inc----------	P. O. Box 3063, Paterson, NJ 07509.
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.
ACY	American Cyanamid Co----------	Wayne, NJ 07470.
HST	American Hoechst Corp----------	129 Quidnick St., Coventry, RI 02816.
SOI	American Oil Co. (Maryland)----------	910 S. Michigan Ave., Chicago, IL 60680.
AMO	American Oil Co. (Texas)----------	910 S. Michigan Ave., Chicago, IL 60680.
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----------	130 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.
HAP	Applied Plastics Co., Inc----------	612 E. Franklin Ave., El Segundo, CA 90245.
ARA	Arapahoe Chemicals Div. of Syntex Corp------	2855 Walnut St., Boulder, CO 80302.
ABC	Arc Chemical Corp----------	P. O. Box 175, Slate Hill, NY 10923.
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., Halby Div----------	600 Terminal Ave., New Castle, DE 19720.
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 60601.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
AGP	Armour-Dial, Inc	P. O. Box 4309, Chicago, IL 60680.
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	5244 Edgewood Ct., Jacksonville, FL 32203.
AST	Astra Pharmaceutical Products, Inc	7-1/2 Neponset St., Worcester, MA 01606.
ATL	Atlantic Chemical Corp	10 Kingsland Rd., Nutley, NJ 07110.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.	260 S. Broad St., Philadelphia, PA 19101.
APR	Atlas Processing Co	P. O. Box 9389, 3546 Midway St., Shreveport, LA 71109.
BAS & WYN	BASF Wyandotte Corp	100 Cherry Hill Rd., Parsippany, NJ 07054.
BRP	BP Oil Corp	398 Midland Bldg., Cleveland, OH 44115.
BKC	J. T. Baker Chemical Co	222 Red School Lane, Philipsburg, NJ 08865.
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.
BLS	Beech-Nut, Inc	Church St., Canajorharie, NY 13317.
BCM	Belding Chemical Industries	1430 Broadway, New York, NY 10018.
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.
BCC	Biocraft Laboratories, Inc	12 Industrial Way, Waldrich, NJ 07463.
BID	Bio-Derivatives Corp	174 E. Industry Ct., Deer Park, NY 11729.
BUC	Blackman Uhler Chemical Co	P. O. Box 5627, Spartanburg, SC 29301.
BOR	Borden, Inc., Borden Chemical Div	50 W. Broad St., Columbus, OH 43215.
MCB	Borg-Warner Corp., Marbon Chemical Div	P. O. Box 68, Washington, WV 26181.
WES	Borg-Warner Corp., Weston Chemical Div	103 Spring Valley Rd., Montvale, NJ 07645.
BFP	Breddo Food Products Corp	18th and Kansas, Kansas City, KS 66105.
BRS	Bristol-Meyers Co., Bristol Laboratories Div.	P. O. Box 657, E. Syracuse, NY 13257.
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	CF Industries, Inc	P. O. Box 87, Harrison, TN 37341.
FTX	Fremont Nitrogen Complex	P. O. Box 68, RFDH3, Fremont, NB 68025.
CRN	CPC International, Inc	International Plaza, Englewood Cliffs, NJ 07632.
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., Coated Abrasives Div	Walmore Rd., 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.
CM	Carpenter-Morton Co	376 3d St., Everett, MA 02149.
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.

APPENDIX A

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
CEL	Celanese Corp.:	
	Celanese Chemical Co	245 Park Ave., New York, NY 10017.
	Celanese Coatings Co	1495 S. 11th St., Louisville, KY 40208.
	Celanese Fibers Co	P. O. Box 1414, Charlotte, NC 28201.
	Celanese Plastics Co	550 Broad St., Newark, NJ 07102.
GRS	Champlin Petroleum Co	P. O. Box 9176, Corpus Christi, TX 78408.
CPP	Charmin Paper Products Co	800 Hoberg St., Green Bay, WI 54305.
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., Chattam 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 Chemical 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.
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.
	Ciba Agrochemical Co	P. O. Box 1142, 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	P. O. Box 1522, Lake Charles, LA 70601.
TEN	Copperhill Operations	Copperhill, TN 37317.
LVY	Levey Div	630 Glendale-Milford Rd., Cincinnati, OH 45215.
CBN	Petrochemicals Group	60 Wall St., New York, NY 10005.
CSO	Cities Service Oil Co	P. O. Box 300, Tulsa, OK 74102.
CLK	Clark Chemical Corp	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLY	W. A. Cleary Corp	P. O. Box 710, Somerset, NJ 08873.
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	461 S. Boyston, Los Angeles, CA 90017.
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., Lenoxa, KS 66215.
SED	Kansas City Div	18th & Garfield Sts., Kansas City, MO 64127.
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	P. O. Box 389, Kansas City, MO 64141.
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, 1972--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 2591, Baton Rouge, LA 70821.
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, LA 39466.
CCP	Crown Central Petroleum Corp	1 No. Charlis St., Baltimore, MD 21201.
MRA	Crown Metro, Inc	12 Dudley St., Providence, RI 02901.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	Camas, WA 98607.
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 07657.
SYP	Synthetic Products Co. Div	1636 Wayside Rd., Cleveland, OH 44112.
DYS	Davies-Young Co	2700 Wagner Place, Maryland Heights, MO 63043.
DLI	Dawe's Laboratories, Inc	450 State St., Chicago Heights, IL 60411.
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.
TTX	Detrex Chemical Industries, Inc	14331 Woodrow Wilson, Detroit, MI 48232.
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., P. O. Box 620, Waukegan, IL 60085.
DPI	Diamond Plastics, Inc	6421 Paramount Blvd., Long Beach, CA 90805.
DA	Diamond Shamrock Corp	100 Superior Ave., Cleveland, OH 44114.
DIX	Dixie Chemical Co	3635 W. Dallas Ave., Houston, TX 77019.
DPP	Dixie Pine Products Co., Inc	P. O. Box 470, Hattiesburg, MS 39401.
DOM	Dominion Products, Inc	882 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Co	W. 15th and Davis Sts., Dover, OH 44622.
DBC	Dow Badische Chemical Co	P. O. Drawer "D", Williamsburg, VA 23605.
DOW	Dow Chemical Co	Hopkins Bldg., 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., Rubber Products Div.	P. O. Box 755, Denton, TX 76201.
EGR	Eagle River Chemical Corp	P. O. Box 665, Marinette, WI 54143.
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.
GLX	Electro-Seal Glasflex Corp	Stirling, NJ 07980.
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., Electro-Mechanical Div.	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 A

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
ENJ	Exxon Corp., Exxon Chemical Co. U.S.A.------	P. O. Box 3272, Houston, TX 77001 and Odenton, MD 21113.
	FMC Corp.:	
AV	Fibers 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., Organic Business Group	633 3d Ave., New York, NY 10017.
FMN	Niagara Chemical Div----------	100 Niagara St., Middleport, NY 14105.
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.
FAR	Farnow, Inc----------	77 Jacobus Ave., S. Kearney, NJ 07032.
FEL	Felton International, Inc----------	599 Johnson Ave., Brooklyn, NY 11237.
	Ferro Chemical Corp.:	
FER	Ferro Chemical Div----------	P. O. Box 46-349, 7050 Krick Rd., Bedford, OH 44146.
FER	Grant Chemical Div----------	P. O. Box 263, Baton Rouge, LA 70821.
RBC	Fike Chemicals, Inc----------	P. O. Box 546, Nitro, WV 25143.
FIN	Fine Organics, Inc----------	205 Main St., Lodi, NJ 07644.
FNX	Finetex Corp----------	418 Falmouth Ave., Elmwood Park, NJ 07407.
	Firestone Tire & Rubber Co.:	
FIR	Firestone Plastics Co. Div----------	P. O. Box 699, Pottstown, PA 19464.
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.
FIS	Fisher Chemical Co., Inc----------	5200 Paul G. Blazer Memorial Pkwy., Dublin, OH 43216.
FLM	Fleming Laboratories, Inc----------	P. O. Box 10373, Charlotte, NC 28201.
FLO	Florasynth Laboratories, 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.
FSH	Frisch & Co., Inc----------	88 E. 11th St., Paterson, NJ 07524.
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----------	1228 Chestnut St., Chattanooga, TN 37402.
	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 135 So. Second 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.
CW & GNM	General Mills Chemicals, Inc----------	4620 W. 77th St., Mann, 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 44309.
GRG	P. D. George Co----------	5200 N. 2d St., St. Louis, MO 63147.
JFR	George A. Jeffreys & Co----------	P. O. Box 709, Salem, VA 24153.
GP	Georgia-Pacific Corp----------	900 S.W. 5th Ave., Portland, OR 97240.
PSP	Bellingham Div----------	P. O. Box 1236, Bellingham, WA 98225.
TID	Getty Oil Co----------	Delaware, DE 19706.
TNI	Gillette Chemical Co. Div. of Gillette Co.--	3500 W. 16th St., N. Chicago, IL 60064.
GIL	Gilman Paint & Varnish Co----------	W. 8th and Pine Sts., Chattanooga, TN 37401.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
GIV	Givaudan Corp	100 Delawanna Ave., Clifton, NJ 07014.
GLD	Glidden Durkee Famous Foods	2333 Logan Blvd., Chicago, IL 60647.
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 44313.
PBI	Gordon Corp	300 S. 3d St., Kansas City, KS 66118.
GOR	Gordon Chemical Co., Inc	88 Webster St., Worcester, MA 01603.
	W. R. Grace & Co.:	
GCC	Agricultural Chemical 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 No. 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.	1945 E. 97th St., Cleveland, OH 44106.
HRT	Hart Products Corp	173 Sussex St., Jersey City, NJ 07302.
HVG	Haveg Industries, Inc	900 Greenback Rd., Wilmington, DE 19808.
HKY	Hawkeye Chemical Co	P. O. Box 899, Clinton, LA 52733.
SCP	Henkel, Inc	1301 Jefferson St., Hoboken, NJ 07030.
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.
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 Chemical 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	161 E. 42d St., New York, NY 10017.
INP	INDPOL	8434 Rochester Ave., Cucamonga, CA 91730.

APPENDIX A

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--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----------	609 Lafayette Ave., Hawthorne, NJ 07506.
ICF	ABI Div----------	5935 Milford Ave., Detroit, MI 48210.
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.
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.
JWL	Jewel Paint & Varnish Co----------	345 N. Western Ave., Chicago, IL 60612.
JNS	S. C. Johnson & Son, Inc----------	1525 Howe St., Racine, WI 53403.
JOB	Jones-Blair Co----------	2728 Proctor, Dallas, TX 75235.
JOR	Jordan Chemical Co----------	1830 Columbia Ave., Folcraft, PA 19032.
	Kaiser Aluminum & Chemical Corp.:	
SNI	Kaiser Agricultural Chemicals Div---------	P. O. Box 246, Savannah, GA 31402.
KAI	Kaiser Chemical----------	P. O. Box 337, 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.
KCH	Keystone Chemurgic Corp----------	R. D. 2, Bethlehem, PA 18017.
KCW	Keystone Color Works, Inc----------	151 W. Gay Ave., York, PA 17403.
KNP	Knapp Products, Inc----------	187 Garibaldi Ave., Lodi, NJ 07644.
MAT	Koch Chemical Co----------	P. O. Box 2256, Wichita, KS 67201.
KMC	Kohler-McLister Paint Co----------	1201 Osage St., 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	Sheffield Chemicals Div----------	2400 Morris Ave., Union, NJ 07083.
KYN	Kyanize Paints, Inc----------	2d and 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.
LEM	Lemke Chemicals, Inc----------	195-203 Main St., Lodi, NJ 07644.
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.
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.
SYL	Magnolis Industries, Inc., Milliken Chemical Div.	P. O. Box 817, Inman, SC 29349.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--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.
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	1715 SE. 5th St., Minneapolis, MN 55414.
MDJ	Mead Johnson & Co	2404 Penna. St., Evansville, IN 47721.
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. and Bluff Rd., Burlington, IA 52601.
MLS	Miles Laboratories, Inc., Marschall 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.
MNP	Minnesota Paints, Inc	1101 S. 3d St., Minneapolis, MN 55415.
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.:	
	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	730 Worcester St., Indian Orchard, MA 01101; 5100 W. Jefferson Ave., Trenton, MI 48183; River Rd., Addyston, OH 45001 and P. O. Box 1311, Texas City, TX 77591.
	Textiles Div	800 N. Lindbergh Blvd., St. Louis, MO 63166.
MTO	Montrose Chemical Corp. of California	500 S. Virgil Ave., Los Agneles, CA 90005.
MCI	Mooney Chemicals, Inc	2301 Scranton Rd., Cleveland, OH 44113.
MCP	Moretex Chemical Products, Inc	314 W. Henry St., P. O. 1799, Spartanbury, 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.
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.

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TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--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.
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 & VAC	Northern Petrochemical Co	2350 E. 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 46627.
BST	Occidental Chemical Co	P. O. Box 198, Lathrop, CA 95330.
OMC	Olin Corp	120 Long Ridge Rd., Stamford, CT 06904.
	Agricultural Chemicals Div	1120 Marshall St., 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.
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, Greensville, SC 29602.
CCH	Pearsall 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.
PLN	Pellon Corp., Disogrin Industries Div	Perimeter Rd., Municipal Airport, Manchaster, NH 07103.
PEL	Pelron Corp	7847 W. 47th St., Lyons, IL 60534.
PAI	Pennsylvania Industrial Chemical Corp	120 State St., Clairton, PA 15025.
PAR	Pennsylvania Refining Co	Union Bank Bldg., Butler, PA 16001.
PAS	Pennwalt Corp	Three Penn Center, Philadelphia, PA 19102.
WTL	Lucidol Div	1740 Military Rd., Buffalo, NY 14240.
PER	Perry & Derrick Co., Inc	2510 Highland Ave., Norwood, OH 45212.
SPE	Petrochemical Investment Corp	P. O. Drawer F, Channelview, TX 77530.
UDI	Petrochemicals Co., Inc	P. O. Box 2199, Fort Worth, TX 76101.
PTT	Petro-Tex Chemical Corp	P. O. Box 2584, Houston, TX 77001.
PFN	Pfanstiehl Laboratories, Inc	1219 Glen Rock Ave., Waukegan, IL 60085.
PCW	Pfister Chemical, Inc	Linden Ave., Ridgefield, NJ 07657.
PFZ	Pfizer, Inc	235 E. 42d St., New York, NY 10017.

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
PHR	Pharmachem Corp	719 Stefko Blvd., Bethlehem, PA 18018.
PLC	Phillips Petroleum Co	7472 Frank 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	1607 Geele Ave., 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	S. Columbia St., 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 Petrochemicl Co	530 N. Witter, Pasadena, TX 77501.
PCR	Princeton Chemical Research, Inc	P. O. Box 651, Princeton, NJ 08540.
PG	Proctor & Gamble Co., Proctor & Gamble Mfg. Co.	301 E. 6th St., Cincinnati, OH 45202.
PRC	Products Research & Chemical Corp., Chemical & Sealants Div.	2912 Empire Ave., Burbank, CA 91504.
PC	Proctor Chemical Co., Inc	P. O. Box 399, Salisbury, NC 28144.
PRD	Productol Chemical Co., Inc	13215 E. Penn St., Whittier, CA 90602.
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., Ltd	5101 Clark Ave., Lakewood, CA 90712.
	Washburn-Lanson Co. Div	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., Raybestos Div	74 E. Main St., Stratford, CT 06497.
RED	Red Spot Paint & Varnish Co., Inc	966 E. Columbia St., Evansville, IN 47708.
REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.	325 Snyder Ave., Berkeley Heights, NJ 07922.
RCI	Reichhold Chemicals, Inc	525 N. Broadway, White Plains, NY 10602.
RIL	Reilly Tar & Chemical Corp	1615 Merchants Bank, 11 S. Meridan St. Indianapolis, IN 46204.
REL	Reliance Universal, Inc. of Texas	6901 Cavalcade St., Houston, TX 77001.
	Resin Div	4730 Crittenden Dr., Louisville, KY 40221.
REM	Remington Arms Co., Inc	939 Barnum Ave., Bridgeport, CT 06602.
RSY	Resyn Corp	1401 W. Blancke St., Linden, NJ 07036.
RDA	Rhodia, Inc	120 Jersey Ave., New Brunswick, NJ 08903.
RCD	Richardson Co	2708 Lake St., Melrose Park, IL 60160 and 345 Morgan Lane, West Haven, CT 06516.
AMS	Ridgway Color & Chemical	75 Front St., Ridgway, PA 15853.
RIK	Riker Laboratories, Inc., Sub. of 3M Co	19901 Nordhoff St., Northridge, CA 91324.
RSN	Rilsan Corp	139 Harristown Rd., Glen Roc, NJ 07452.
RT	F. Ritter & Co	4001 Goodwin Ave., Los Angeles, CA 90039.
RIV	Riverdale Chemical Co	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc	51 Madison Ave., New York, NY 10010.
ORT	Roehr Chemicals, Inc	52-20 37th St., Long Island City, NY 11101.
RGC	Rogers Corp	Main St., Rogers, CT 06263.
RH	Rohm & Haas Co	Independence Mall West, Philadelphia, PA 19105.

APPENDIX A

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--CONTINUED

Identification code	Name of company	Office address
RUC	Rubicon Chemicals, Inc----------	P. O. Box 517, Geismar, LA 70734.
GLD	SCM Corp., Glidden-Durkee Div----------	900 Union Commerce Bldg., Cleveland, OH 44115.
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.
SAR	Sartomer Industries, Inc----------	P. O. Box 56, 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	Shakespeake Co., Industrial Products Div----	P. O. Box 246, Columbia, SC 29202.
SHA	Shanco Plastics & Chemicals, Inc----------	111 Wales St., Tonawanda, NY 14150.
SWC	Shell & Commonwealth Chemicals, Inc---------	Petrochemical Complex, Ponce, PR 00731.
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 44101.
SID	George F. Siddall Co., Inc----------	P. O. Box 925, Spartanburg, SC 29301.
SIM	Simpson Timber Co----------	2301 N. Columbia Blvd., Portland, OR 97217.
KPP	Sinclair-Koppers Co----------	900 Koppers Bldg., Pittsburgh, PA 15219.
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.
SIP	Sipers Chemical Coatings Co----------	P. O. Box 13090, Pittsburgh, PA 15243.
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.
MTR	Sobin Chemicals, Inc., Montrose Chemical Div.	100 Listen Ave., Newark, NJ 07105.
SOL	Solar Chemical Corp----------	P. O. Box 90, Leominster, MA 01453.
SLC	Soluol Chemical Co., Inc----------	Green Hill and 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., 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., Brunswick, NJ 08903.
STA	A. E. Staley Manufacturing Co----------	2200 Elorado St., Decatur, IL 62525.
UBS	Staley Chemicals Div----------	320 Schuyler Ave., Kearny, NJ 07032.
CCL	Textile Div----------	6301 St. John Lane, Charlotte, NC 28210.
SMC	Stamford Chemical Industries----------	4300 Carew Towers, Cincinnatti, OH 45202.
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, 1972--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. 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 Chemical Div	636 California St., San Francisco, CA 94119.
BPC	Specialty Chemical Div., 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	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.
STC	Story Chemical Corp., Ott Div	500 Agard Rd., Muskegon, MI 49945.
STY	Styrochem Corp	Petrochemical Complex, Ponce, PR 00731.
SBP	Sugar Beet Products Co	P. O. Box 1387, Saginaw, MI 48605.
SNA & SNW	Sun Chemical Corp	441 Tompkins Ave., Staten Island, NY 10305 and 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 Chemicl Co	P. O. Box F, Claymount, DE 19703.
SNT	Suntide Refining Co	P. O. Box 2608, Corpus Christi, TX 78403.
TCC	Tanatex Chemical Corp	P. O. Box 388, Lyndhurst, NJ 07071.
CST	Charles S. Tanner Co	1305 Barcelona Dr., Donaldson Center, Greensville, 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, Inc	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 & PHF	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.
TRD	Trade Enterprises, Inc	State Road 3, Ketometer 77.5, P. O. Box 296, Humacao, PR 00661.
ACT	Arthur C. Trask Co	P. O. Box 134, Argo, IL 60501.

APPENDIX A

TABLE 1.--SYNTHETIC ORGANIC CHEMICALS: ALPHABETICAL DIRECTORY OF MANUFACTURERS, BY COMPANY, 1972--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 Hulich & Co., Inc	90 West St., New York, NY 10006.
UNG	Ungerer & Co	161 Avenue of the Americas, New York, NY 10013.
NCI	Union-Camp Corp	P. O. Box 6170, Jacksonville, Fl 32205.
WTH	Harchem Div	P. O. Box 220, Dover, NJ 44622.
UCC	Union Carbide Corp	270 Park Ave., New York, NY 10017.
UOC	Union Oil Co. of California	P. O. Box 7600, Los Angeles, CA 90051.
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 and Colgate Sts., Jersey City, NJ 07302.
UNO	United-Erie, Inc	438 Huron SE., Erie, PA 16512.
ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.	749 Quequechan St., Fall River, MA 02721.
USB	U.S. Borax Research Corp	3075 Wilshire Blvd., Los Angeles, CA 90005.
HLM	U.S. Industries, Inc., E. Helman Co. Div	P. O. Box 5129, Akron, OH 44313.
USO	U.S. Oil Co	P. O. Box 4228, E. Providence, RI 02914.
UPF	U.S. Pipe & Foundry Co	3300 1st Ave., N., Birmingham, AL 35202.
UPL	U.S. Plywood WCM Operations, Shasta Area	P. O. Box 2713, Redding, CA 96001.
UVC	Universal Chemicals Corp	1224 Mendon Rd., Ashton, RI 02864.
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 93721.
VDM	Van De Mark Chemical Co., Inc	N. Transit Rd., Lockport, NY 14094.
VNC	Vanderbilt Chemical Corp	33 Taylor Ave., Bethel, CT 06801.
VND	Van Dyk & Co., Inc	Main & Williams Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp	341 E. Ohio St., Chicago, IL 60611.
MHI	Ventron Corp	12-16 Congress St. Beverly, MA 01915.
WRC	Wood Ridge Chemical	Park Place East, Wood Ridge, NJ 07075.
VB	Vermilye-Bell	21707 Bothell Way, Bothell, WA 98011.
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, 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, 1972--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 55426.
WHC	Research & Development----------	3540 Aero Ct., San Diego, CA 92123.
WHW	Whittemore-Wright Co., Inc----------	62 Alford St., Boston, MA 02129.
WIC	Wica Chemicals, Inc----------	P. O. Box 506, Charlotte, NC 28201.
WLN	Wilmington Chemical Corp----------	P. O. Box 66, Wilmington, DE 19899.
	Wilson Pharmaceutical & Chemical Corp.:	
WIL	Wilson Laboratories Div----------	4221 S. Western Blvd., Chicago, IL 60609.
WM	Wilson-Martin Div----------	Jackson and Swanson Sts., Philadelphia, PA 19148.
WTC	Witco Chemical Co., Inc----------	P. O. Box 305, Paramus, NJ 07652.
WAW	W. A. Wood Co----------	108 Spring St., Everett, MA. 02149.
WON	Woonsocket Color & Chemical Co----------	176 Sunnyside Ave., Woonsocket, RI 02895.
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 8299, Paoli, PA 19101.
YAW	J. S. Young Co., Young Aniline Works Div----	2731 Boston St., Baltimore, MD 21224.

APPENDIX B

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 Tariff Commission annually and published in detail in a separate report.[1] General imports of benzenoid items entered in parts 1B and 1C totaled 322.0 million pounds with a foreign invoice value of $246.7 million in 1972 compared with 219.5 million pounds with a foreign invoice value of $185.0 million in 1971.

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 1972 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 mixture and small quantities of finished products not specially provided for in part 1C (e.g., rubber-processing chemicals). In terms of value, 45.0 percent of all the benzenoid imports under part 1B in 1972 came from West Germany; 21.2 percent, from Japan; 9.6 percent, from Switzerland; and 6.6 percent from Italy.

Finished organic chemical products entered under part 1C include dyes, pigments, medicinals, flavor and perfume materials, pesticides, plastics materia and certain other specified products. In terms of value, 37.2 percent of all finished benzenoid imports under part 1C in 1971 came from West Germany; 19.6 percent, from Switzerland: 15.7 percent, from the United Kingdom; and 11.5 perce from Japan.

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[1] *Imports of Benzenoid Chemicals and Products, 1972*, TC Publication 601, 1973 [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, 1972

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]	708	186,154	100.0	91,433	100.0	$0.49
Competitive:						
Duty based on ASP[2]	394	136,741	73.5	56,603	61.9	.41
Noncompetitive:						
Duty based on U.S. value	247	19,583	10.5	21,272	23.3	1.09
Duty based on export value	52	28,423	15.3	11,556	12.6	.41
Competitive status not available	15	1,407	.7	2,002	2.2	1.42
Schedule 4, Part 1C						
Total[1]	2,166	135,838	100.0	155,271	100.0	1.14
Competitive:						
Duty based on ASP[2]	686	74,714	55.0	58,256	37.6	.78
Noncompetitive:						
Duty based on U.S. value	1,258	33,011	24.3	71,775	46.2	2.17
Duty based on export value	131	17,135	12.6	20,078	12.9	1.17
Competitive status not available	91	10,978	8.1	5,162	3.3	.47
Summary (Schedule 4, Parts 1B and 1C)						
Total[1]	2,874	321,992	100.0	246,704	100.0	.77
Competitive:						
Duty based on ASP[2]	1,080	211,455	65.8	114,859	46.6	.54
Noncompetitive:						
Duty based on U.S. value	1,505	52,594	16.3	93,047	37.7	1.77
Duty based on export value	183	45,558	14.1	31,634	12.8	.69
Competitive status not available	106	12,385	3.8	7,164	2.9	.58

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

Source: Compiled by the U.S. Tariff 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 1972 varies from a low of 74 percent for drugs and flavors and perfumes to almost complete coverage for intermediates, dyes, and pigments.

APPENDIX C

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.
β-Naphthol	2-Naphthol, tech.
Naphthol AS	3-Hydroxy-2-naphthanilide.
α-Naphthylamine	1-Naphthylamine.
Neville & Winther's acid	4-Hydroxy-1-naphthalenesulfonic acid.
Pentaanthrimide	1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone
Phenylbiphenyl	Terphenyl.
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.