UNITED STATES TARIFF COMMISSION

SYNTHETIC ORGANIC CHEMICALS

United States Production and Sales, 1969

TC Publication 412

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UNDER THE PROVISIONS OF
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ACT OF 1930, AS AMENDED

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INTRODUCTION

This is the fifty-third 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. The format of the annual report has been changed somewhat from that used in previous years, but the general contents remain the same. The report is made up of fourteen sections, each covering a specified group (based principally on use) of synthetic organic chemicals as follows: tar and tar crudes; crude products from petroleum and natural gas; intermediates; dyes; benzenoid 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.

This report covers U.S. production and sales of all synthetic organic chemicals for which the volume of production or sales exceeded 1,000 pounds or for which the value of sales exceeded $1,000, and identifies the manufacturers of each.

The data given in this report were supplied by approximately 800 companies. Each reporting company has been assigned an identification symbol consisting of a combination of not more than three capital letters, selected in most instances with the approval of the manufacturer and, whenever possible, bearing some relationship to the company name. The identification symbols are permanently assigned, and except for such changes as may be required, will continue to be used in future reports in this series. The company identification codes and their names and addresses are listed in the Appendix, table 1.

The raw materials referred to in this report are obtained from coal, crude petroleum, natural gas, and certain other materials such as vegetable oils, fats, rosin and grains. With few exceptions, the report does not cover organic chemicals that are derived from natural (vegetable) sources by simple extraction or distillation. Crude organic chemicals are derived from coal by thermal decomposition, from petroleum and natural gas by catalytic cracking and by distillation or absorption, and from other natural sources by fermentation. Production of these crude organic chemicals is the first step in the manufacture of synthetic organic chemicals. From these crudes, intermediates are obtained by synthesis or refining; most of the intermediates are then converted into finished chemical products, such as medicinal chemicals, plastics and resin materials, and dyes. More than half of the total production of intermediates is not sold directly to the ultimate consumer, but is used by the producing companies themselves in their manufacturing processes. The statistics given in this report include data for all known domestic producers of the items covered.

In this report the statistics on production of the individual chemicals reported by manufacturers include the total output of the companies' plants, i.e., the quantities produced for consumption within the producing plants, 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 inventories. As specified in the reporting instructions that the Commission sends to manufacturers, and as used in this report, production and sales (unless otherwise specifically indicated) are defined as follows:

Production is the total quantity of a commodity made available by *original manufacture only*. It is the sum (expressed in terms of 100-percent active ingredient unless otherwise specified) of the quantities of a commodity--

(1) Produced, separated, and consumed in the same plant or establishment (a commodity is considered to be separated when it is isolated from the reaction system and/or when it is weighed, analyzed, or otherwise measured). Byproducts and coproducts not classified as waste materials are also included;
(2) Produced and transferred to other plants or establishments of the same firm;
(3) Produced and sold to other firms (including production for others under toll agreements[1]); and
(4) Produced and held in stock.

[1]A toll agreement is an agreement between two firms, 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.

Production excludes--

(1) Purification of a commodity unless specifically requested in the reporting instructions;
(2) Intermediate products that are formed in the manufacturing process but are not isolated from the reaction system--that is, not weighed, analyzed, or otherwise measured; and
(3) Materials that are used in the process but are recovered for reuse or sale; and waste products that have no economic significance.

Sales are defined as actual sales of commodities by *original manufacturers only*. Sales include--

(1) Shipments of commodities for domestic use and for export, or segregation in a warehouse when title has passed to the purchaser in a bonafide sale;
(2) Shipments of a commodity produced *by others* under toll agreements; and
(3) Shipments to subsidiary or affiliated companies.

Sales exclude--

(1) All intracompany transfers within a corporate entity;
(2) All sales of purchased commodities; and
(3) All shipments of a commodity produced *for others* under toll agreements.

The value of a sale is the net selling price, f.o.b. plant or warehouse, or delivered value, whichever represents the normal industry practice.

Data on the chemicals covered in this report are usually given in terms of undiluted materials. Products of 95 percent or more purity are considered to be 100 percent pure. The principal exceptions are the statistics on dyes and a few solvents, which are reported in terms of commercial concentrations, and the statistics on certain plastics and resins, which are reported on a dry basis. The report specifically notes those products for which the statistics are reported in terms of commercial concentrations.

The average unit values of sales for groups of products shown in the tables accompanying this report are the averages for products which vary widely in unit values and in the quantities sold.

Statistics are presented 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 where 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.[2]

Statistics on tars and tar crudes include data furnished directly to the Tariff Commission by distillers of coal tar, water-gas tar, and oil-gas tar, and data furnished to the Division of Bituminous Coal, U.S. Bureau of Mines, by coke-oven operators.

Statistics on U.S. general imports in 1969 of benzenoid intermediates and finished benzenoid products that entered under schedule 4, parts 1B and 1C, of the Tariff Schedules of the United States are given in the Appendix.

Information on synonymous names of organic chemicals included in this report may be found in the *SOCMA Handbook: Commercial Organic Chemical Names*, published in 1965 by the Chemical Abstracts Service of the American Chemical Society, or the *Colour Index* (2d edition), published in 1956 by the Society of Dyers and Colourists.

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[2]Sec. 5, U.S.C. 139b and sec. 18, U.S.C. 1905.

Combined production of all synthetic organic chemicals, tars, tar crudes, and crude products from petroleum and natural gas in 1969 was 223,803 million pounds--an increase of 12.0 percent over the output in 1968 (see table 1). Sales of these materials in 1969, which totaled 121,616 million pounds, valued at $13,340 million, were 11.8 percent larger than in 1968 in terms of quantity and 5.7 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 1969, production of all synthetic organic chemicals, including cyclic intermediates and finished chemical products, totaled 134,804 million pounds, or 12 percent more than the output in 1968 (see table 1). Production of cyclic intermediates (28,571 million pounds) and plastics and resin materials (18,676 million pounds) was each more than 14 percent larger in 1969 than in 1968. Benzenoid pigments (61 million pounds), medicinal chemicals (200 million pounds) and miscellaneous chemicals (75,720 million pounds) increased in production in 1969 compared with 1968 by more than 12 percent.

The output of other groups of synthetic organic chemicals which increased in 1969 compared with 1968 were dyes (6.1 percent), elastomers (6.0 percent), surface-active agents (4.3 percent), plasticizers (3.8 percent) and flavor and perfume materials (2.5 percent).

Production in 1969 of two groups of synthetic organic chemicals fell below that of 1968. Rubber processing chemicals (303 million pounds) was down 2.9 percent and pesticides and related products (1,104 million pounds) decreased 7.4 percent.

TABLE 1.--*Synthetic organic chemicals and their raw materials: U.S. production and sales, 1968 and 1969*

Chemical	Production			Sales					
				Quantity			Value		
	1968	1969	Increase or decrease (-), 1969 over 1968[1]	1968	1969	Increase or decrease (-), 1969 over 1968[1]	1968	1969	Increase or decrease (-), 1969 over 1968[1]
	Million pounds	*Million pounds*	*Percent*	*Million pounds*	*Million pounds*	*Percent*	*Million dollars*	*Million dollars*	*Percent*
Grand total[2]	199,787	223,803	12.0	108,766	121,616	11.8	12,620	13,340	5.7
Tar	7,608	7,688	1.1	3,580	3,772	5.4	36	37	.7
Tar crudes	9,845	9,996	1.5	6,418	6,644	3.5	138	136	-1.3
Crude products from petroleum and natural gas	62,017	71,315	15.0	34,189	39,240	14.8	920	1,001	8.8
Synthetic organic chemicals, total[2]	120,318	134,804	12.0	64,578	71,961	11.4	11,526	12,166	5.6
Intermediates	25,014	28,571	14.2	11,328	12,398	9.4	1,131	1,208	6.8
Dyes	226	240	6.1	215	221	2.9	370	385	4.1
Pigments	54	61	13.5	46	51	10.9	120	133	11.0
Medicinal chemicals	177	200	12.9	123	145	18.2	415	462	11.3
Flavor and perfume materials	117	120	2.5	109	104	-4.8	97	94	-3.7
Plastics and resin materials	16,360	18,676	14.2	14,397	15,922	10.6	2,907	3,175	9.2
Rubber-processing chemicals	313	303	-2.9	236	229	-2.7	151	144	-4.5
Elastomers (synthetic rubbers)	4,268	4,524	6.0	3,563	3,918	10.0	973	1,060	8.9
Plasticizers	1,331	1,382	3.8	1,239	1,275	2.9	280	266	-5.0
Surface-active agents	3,739	3,901	4.3	1,998	1,988	-0.5	357	370	3.7
Pesticides and related products	1,192	1,104	-7.4	960	929	-3.2	849	851	.2
Miscellaneous chemicals	67,525	75,720	12.1	30,366	34,782	14.5	3,875	4,018	3.7

[1] Percentages calculated from figures rounded to thousands.
[2] Because of rounding, figures may not add to the totals shown.

General

In this report, synthetic organic chemicals are classified on the basis of their principal use as follows: cyclic intermediates, dyes, 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 1969 was 134,804 million pounds, or 12.0 percent more than the output of 120,318 million pounds reported for 1968 (see table 2). Sales of synthetic organic chemicals in 1969 amounted to 71,961 million pounds, valued at $12,166 million, compared with 64,578 million pounds valued at $11,526 million in 1968. Production of all cyclic products (intermediates and finished products combined) in 1969 totaled 43,775 million pounds, or 11.1 percent more than the 39,406 million pounds produced in 1968. The output of acyclic organic chemicals in 1969 amounted to 91,028 million pounds --12.5 percent more than the 80,912 million pounds reported for 1968.

TABLE 2.--Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, 1967, 1968 and 1969

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

Chemical	1967[1]	1968	1969	Increase, or decrease (-)	
				1969 over 1967	1969 over 1968
				Percent	*Percent*
Organic chemicals, cyclic and acyclic, grand total:					
Production	104,711,357	120,317,519	134,803,910	28.7	12.0
Sales	55,176,823	64,578,316	71,960,615	30.4	11.4
Sales value	10,438,453	11,525,618	12,166,311	16.6	5.6
Cyclic, total:					
Production	33,479,469	39,405,527	43,775,481	30.8	11.1
Sales	19,328,628	22,264,656	23,927,329	23.8	7.5
Sales value	4,610,293	5,088,853	5,393,830	17.0	6.0
Acyclic, total:					
Production	71,231,888	80,911,992	91,028,429	27.8	12.5
Sales	35,848,195	42,313,660	48,033,286	34.0	13.5
Sales value	5,828,160	6,436,765	6,772,481	16.2	5.2
1. Intermediates, Cyclic					
Production	20,793,132	25,013,938	28,570,871	37.4	14.2
Sales	9,461,180	11,328,129	12,398,249	31.0	9.4
Sales value	1,000,359	1,131,433	1,208,447	20.8	6.8
2. Dyes					
Production	206,240	226,498	240,208	16.5	6.1
Sales	198,592	214,661	220,886	11.2	2.9
Sales value	332,049	370,196	385,301	16.0	4.1
3. Pigments					
Production	53,322	53,749	61,011	14.4	13.5
Sales	42,867	45,810	50,794	18.5	10.9
Sales value	108,354	119,934	133,149	22.9	11.0
4. Medicinal Chemicals					
Cyclic:					
Production	110,129	113,200	126,418	14.8	11.7
Sales	70,120	77,184	88,113	25.7	14.2
Sales value	348,873	383,570	425,235	21.9	10.9
Acyclic:					
Production	69,941	64,021	73,616	5.3	15.0
Sales	56,804	45,349	56,689	-0.2	25.0
Sales value	36,402	31,354	36,585	0.5	16.7

See footnotes at end of table.

Table 2.--Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, 1967, 1968 and 1969--Continued

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

Chemical	1967[1]	1968	1969	Increase, or decrease (-)	
				1969 over 1967	1969 over 1968
				Percent	*Percent*
5. Flavor and Perfume Materials					
Cyclic:					
Production	57,978	60,271	61,353	5.8	1.8
Sales	47,285	49,708	48,721	3.0	-2.0
Sales value	52,866	52,435	52,873	([2])	0.8
Acyclic:					
Production	53,558	57,188	59,037	10.2	3.2
Sales	49,311	59,058	54,843	11.2	-7.1
Sales value	40,495	44,825	40,753	0.6	-9.1
6. Plastics and Resin Materials					
Cyclic:					
Production	5,033,497	5,898,645	6,554,204	30.2	11.1
Sales	4,224,121	4,901,793	5,386,791	27.5	9.9
Sales value	1,036,940	1,121,366	1,238,301	19.4	10.4
Acyclic:					
Production	8,759,452	10,461,020	12,122,045	38.4	15.9
Sales	7,753,242	9,495,658	10,535,093	35.9	10.9
Sales value	1,635,690	1,785,605	1,936,452	18.4	8.4
7. Rubber-Processing Chemicals					
Cyclic:					
Production	220,139	263,554	254,792	15.7	-3.3
Sales	169,970	199,357	194,012	14.1	-2.7
Sales value	116,318	132,880	127,268	9.4	-4.2
Acyclic:					
Production	43,994	49,093	48,687	10.7	-0.8
Sales	30,878	36,583	35,480	14.9	-3.0
Sales value	15,477	18,388	17,208	11.2	-6.4
8. Elastomers (Synthetic Rubbers)					
Cyclic:					
Production	2,297,637	2,563,065	2,591,720	12.8	1.1
Sales	1,940,099	2,017,026	2,172,843	12.0	7.7
Sales value	439,580	479,058	520,141	18.3	8.6
Acyclic:					
Production	1,524,908	1,705,021	1,932,337	26.7	13.3
Sales	1,321,945	1,545,678	1,744,740	32.0	12.9
Sales value	434,657	494,099	539,365	24.1	9.2
9. Plasticizers					
Cyclic:					
Production	929,871	985,101	1,022,941	10.0	3.8
Sales	865,084	918,482	946,984	9.5	3.1
Sales value	167,827	177,725	164,709	-1.9	-7.3
Acyclic:					
Production	332,908	346,075	359,290	7.9	3.8
Sales	296,767	320,182	327,618	10.4	2.3
Sales value	93,142	102,048	101,161	8.6	-0.9
10. Surface-Active Agents					
Cyclic:					
Production	1,418,444	1,500,310	1,566,958	10.5	4.4
Sales	852,238	887,339	894,017	4.9	0.8
Sales value	95,810	102,658	116,271	21.4	13.3
Acyclic:					
Production	2,060,851	2,239,072	2,334,063	13.2	4.2
Sales	897,786	1,110,878	1,094,098	21.9	-1.5
Sales value	220,877	254,074	253,504	14.8	-0.2

See footnotes at end of table.

Table 2.--Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, 1967, 1968 and 1969--Continued

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

Chemical	1967[1]	1968	1969	Increase, or decrease(-)	
				1969 over 1967	1969 over 1968
				Percent	*Percent*
11. Pesticides and Related Products					
Cyclic:					
Production	823,158	929,548	819,436	-0.5	-11.8
Sales	681,532	722,661	666,038	-2.3	-7.8
Sales value	627,742	697,295	697,167	11.1	([2])
Acyclic:					
Production	226,505	262,812	284,945	25.8	8.4
Sales	215,831	236,970	262,625	21.7	10.8
Sales value	159,301	151,945	153,999	-3.3	1.4
12. Miscellaneous Chemicals					
Cyclic:					
Production	1,535,922	1,797,648	1,905,569	24.1	6.0
Sales	775,540	902,506	859,881	10.9	-4.7
Sales value	283,575	320,303	324,968	14.6	1.5
Acyclic:					
Production	58,159,771	65,727,690	73,814,409	26.9	12.3
Sales	25,225,631	29,463,304	33,922,100	34.5	15.1
Sales value	3,192,119	3,554,427	3,693,454	15.7	3.9

[1] Standard reference base period for Federal Government general-purpose index numbers.
[2] Less than .05 percent.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1969 of one or more of the chemicals included in the groups listed in table 2:

Chemical group	*Number of companies*
Cyclic Intermediates	215
Dyes	48
Benzenoid pigments	35
Medicinal chemicals	106
Flavor and perfume materials	52
Plastics and resin materials	270
Rubber-processing chemicals	34
Elastomers (synthetic rubbers)	32
Plasticizers	59
Surface-active agents	205
Pesticides and related products	88
Miscellaneous chemicals	340

Tars

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 1969 was almost entirely coal tar which amounted to 769 million gallons, or 1.1 percent more than the 761 million gallons produced in 1968 (see table 1[1]). U.S. production of water-gas and oil-gas tars was not reported to the Commission for 1968 or 1969; production of these tars amounted to 21 million gallons in 1968, according to trade publications. Sales of coal tar in 1969 amounted to 377 million gallons valued at $37 million, compared with 358 million gallons, valued at $36 million in 1968.

Consumption of tar in 1969 amounted to 766 million gallons, of which 667 million gallons was consumed in distillation and (by tar distillers only) in other uses. Tar used as fuel amounted to 98 million gallons. A lesser amount, 0.7 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 derived from petroleum are included, for the most part, with the statistics for like materials derived 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 1969 amounted to 1,185 million gallons--18.5 percent more than the 1,000 million gallons reported for 1968. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum operators in 1969 amounted to 675 million gallons, valued at $148 million, compared with 614 million gallons, valued at $130 million, in 1968. In 1969 the output of toluene [2] (including material produced for use in blending in aviation fuel) amounted to 759 million gallons--9.2 percent more than the 695 million gallons reported for 1968. Sales of toluene in 1969 were 418 million gallons, valued at $76 million, compared with 442 million gallons, valued at $76 million, in 1968. The output of xylene [2] in 1969

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list 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.

(including that produced for blending in motor fuels) was 382 million gallons, compared with 537 million gallons in 1968. About 99 percent of the 382 million gallons of xylene produced in 1969 was obtained from petroleum sources.

Production of crude naphthalene in 1969 (including 358 million pounds of petroleum-derived naphthalene) amounted to 854 million pounds, compared with 902 million pounds in 1968. In 1969 the output of creosote oil for wood preservation was 137 million gallons (100 percent creosote basis), compared with 127 million gallons in 1968. Production of road tar in 1969 was 60 million gallons, compared with 56 million gallons in 1968.

Some of the products included in the statistics in table 1 are derived 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. It is estimated, that, after duplication has been eliminated insofar as possible, the net value of the output (from all sources) of these products and of tar burned as fuel was $640 million in 1969, compared with $574 million in 1968 and $597 million in 1967. The total value of sales of those products derived from coke-oven gas and tars, shown in table 1, amounted to $141 million in 1969, compared with $138 million in 1968.

TABLE 1.--Tar and tar crudes: U.S. production and sales, 1969

[Listed below are all tars and 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]	1,000 gal--	768,766	377,229	36,551	$0.10
Crude light oil: [3] Coke-oven operators	1,000 gal--	258,910	98,193	12,226	.12
Intermediate light oil: Coke-oven operators	1,000 gal--	5,019	1,562	126	.08
Light-oil distillates:					
Benzene, specification and industrial grades, total[3 4]	1,000 gal--	1,185,348	675,228	147,752	.22
Coke-oven operators	1,000 gal--	101,695	100,842	21,961	.22
Petroleum operators	1,000 gal--	1,083,653	574,386	125,791	.22
Toluene, all grades, total[3 4]	1,000 gal--	759,458	417,852	75,917	.18
Coke-oven operators	1,000 gal--	19,603	18,689	5,079	.27
Petroleum operators	1,000 gal--	739,855	399,163	70,838	.18
Xylene, all grades, total[3 4]	1,000 gal--	381,842	302,392	53,862	.18
Coke-oven operators	1,000 gal--	5,246	5,381	1,109	.21
Petroleum operators	1,000 gal--	376,596	297,011	52,753	.18
Solvent naphtha: [3] Coke-oven operators	1,000 gal--	3,567	3,539	1,665	.47
Naphthalene, crude (tar distillers and coke-oven operators), total[5]	1,000 lb---	495,863	319,158	15,084	.05
Solidifying at--					
Less than 74° C	1,000 lb---	42,715	32,048	1,146	.04
74° C. to less than 79° C	1,000 lb---	453,148	287,110	13,938	.05
Crude tar-acid oils: [3] Coke-oven operators	1,000 gal--	23,466	20,255	4,684	.23
Creosote oil (Dead oil) (tar distillers and coke-oven operators) (100% creosote basis), total[6]	1,000 gal--	136,914	119,211	24,962	...
Distillate as such (100% creosote basis)	1,000 gal--	118,316	101,588	19,815	.20
Creosote content of coal-tar solution (100% creosote basis)[7]	1,000 gal--	18,598	17,623	[7] 5,147	([7])
All other distillates, total	1,000 gal--	105,613	31,568	5,632	.18
Coke-oven operators, total	1,000 gal--	9,421	6,844	691	.10
From light oil	1,000 gal--	6,172	3,583	406	.11
Other[8]	1,000 gal--	3,249	3,261	285	.09
Tar distillers[9]	1,000 gal--	96,192	24,724	4,941	.20
Tar, road	1,000 gal--	59,612	54,293	6,987	.13
Pitch of tar (tar distillers and coke-oven operators), total	1,000 tons	1,870	1,311	41,504	31.66
Soft (water softening point less than 110° F)	1,000 tons	604	291	6,688	22.98
Medium (water softening point 110° F. to 160° F.)	1,000 tons	216	222	8,673	39.07
Hard (water softening point over 160° F.)[10]	1,000 tons	1,050	798	26,143	32.76

[1] Unit values 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 xylene by tar distillers decreased in 1969, compared with 1968; production of benzene and toluene increased. The annual production statistics for petroleum operators on benzene, toluene, and xylene are not comparable with the combined monthly production figures, due to fiscal year revisions.

[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 1969, production of coal-tar solution containing creosote (100% solution basis) amounted to 29,107 thousand gallons; sales were 28,493 thousand gallons, valued at 5,147 thousand dollars, with a unit value of $0.18 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, methylnaphthalene, and crude and refined tar for other uses.

[10] Includes hard pitch and pitch emulsion.

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.

TABLE 1A.--Tar: U.S. production and consumption, 1968 and 1969

(In thousands of gallons)

Product	1968	1969
PRODUCTION		
Coal tar from coke-oven byproduct plants, total[1]	760,761	768,766
CONSUMPTION		
Total	750,926	765,886
Tar consumed by distillation, total	644,371	667,150
Coal tar distilled or topped by coke-oven operators[1]	301,254	282,785
Coal tar and water-gas tar distilled by tar distillers[2]	343,117	384,365
Tar consumed chiefly as fuel[1]	104,905	98,065
Coal tar consumed at coke-oven plants for roads and upkeep[1]	1,650	671

[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 or as fuel by tar distillers.

TABLE 1B.--Tar and tar crudes: Summary of U.S. production of specified products, 1967-1969

Chemical	Unit of quantity	1967[1]	1968	1969	Increase, or decrease (-)	
					1969 over 1967	1969 over 1968
					Percent	*Percent*
Tar[2]	1,000 gal--	780,334	760,761	768,766	-1.5	1.1
Benzene:[3]						
Coke-oven operators	1,000 gal--	90,642	92,584	101,695	12.2	9.8
Petroleum operators	1,000 gal--	878,704	907,547	1,083,653	23.3	19.4
Total	1,000 gal--	969,346	1,000,131	1,185,348	22.3	18.5
Toluene:[3]						
Coke-oven operators	1,000 gal--	19,357	19,645	19,603	1.3	-.2
Petroleum operators	1,000 gal--	624,454	675,534	739,855	18.5	9.5
Total	1,000 gal--	643,811	695,179	759,458	18.0	9.2
Xylene:[3]						
Coke-oven operators	1,000 gal--	5,488	5,576	5,246	-4.4	-5.9
Petroleum operators	1,000 gal--	[4]449,349	[4]531,482	[4]376,596	-16.2	-29.1
Total	1,000 gal--	454,837	537,058	381,842	-16.0	-28.9
Naphthalene:						
Crude[5]	1,000 lb--	520,991	525,711	495,863	-4.8	-5.7
Petroleum naphthalene, all grades	1,000 lb--	376,679	375,945	357,637	-5.1	-4.9
Total	1,000 lb--	897,670	901,656	853,500	-4.9	-5.3
Creosote oil (Dead oil):[6]						
Distillate as such (100% creosote basis)	1,000 gal--	108,832	106,036	118,316	8.7	11.6
Creosote content of coal-tar solution (100% creosote basis)	1,000 gal--	17,402	20,858	18,598	6.9	-10.8
Total	1,000 gal--	126,234	126,894	136,914	8.5	7.9

[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. 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.
[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 to avoid disclosure of the operations of individual companies. 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.

TABLE 2.--Tar crudes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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 and industrial grades[1]	ACY, KPP.
*Toluene, specification and other grades[1]	ACY, KPP.
*Xylene, all grades[1]	ACY.
*Solvent naphtha[1]	ACY, NEV, PAI.
*All other light-oil distillates[1]	ACP, KPT, PAI.
Pyridine crude bases[1]	ACP, 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	ACP, KPT, RIL.
Methylnaphthalene	KPT.
*Crude tar-acid oils--[1]	
Tar-acid content 5% to less than 24%	ACP, KPT, RIL.
Tar-acid content 24% to 51%	ACP, WTC.
Cresylic acid, crude	ACP, KPT, PRD.
*Creosote oil (Dead oil):	
*Distillate as such[1]	ACP, CBT, COP, HUS, JEN, KPT, RIL, WTC.
*Creosote in coal-tar solution[1]	ACP, KPT, RIL, WTC.
*All other distillate products[1]	ACP, KPT.
*Tar, road	ACP, KPT, RIL.
Tar for other uses:	
Crude	KPT.
Refined[1]	ACP, KPT.
*Pitch of tar:	
*Soft (water softening point less than 110° F.)[1]	ACP, KPT, WTC.
*Medium (water softening point 110° F. to 160° F.)[1]	ACP, CBT, COP, KPT, RIL, WTC.
*Hard (water softening point above 160° F.)[1]	ACP, HUS, JEN, 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, April 21, 1970, entitled "Coke Producers in the U.S. in 1968."

TABLE 3.--Tar and tar crudes: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
ACP	Allied Chemical Corp., Plastics Div.	KPT	Koppers Co., Inc., Organic Materials Div.
ACY	American Cyanamid Co.		
CBT	Samuel Cabot, Inc.	NEV	Neville Chemical Co.
COP	Coopers Creek Chemical Corp.		
HUS	Husky Briquetting, Inc.	PAI	Pennsylvania Industrial Chemical Corp.
		PRD	Productol Chemical Co., Inc.
JEN	Jennison-Wright Corp.	RIL	Reilly Tar & Chemical Corp.
KPP	Sinclair-Koppers Co.	WTC	Witco Chemical Co., Inc.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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. Notwithstanding these duplications, the statistics are sufficiently accurate to indicate trends in the industry and to serve as a basis for general comparison. 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, depending on prevailing economic conditions; but 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 not used directly as fuel but in blending aviation and motor-grade gasolines.

The output of crude products derived from petroleum and natural gas as a group amounted to 71,315 million pounds in 1969, or 15.0 percent more than the 62,017 million pounds reported for 1968 (table 1[2]). The larger output in 1969 is accounted for chiefly by increased production of ethylene, benzene, propane, toluene, and ethane. Sales of crude chemicals from petroleum in 1969 amounted to 39,240 million pounds, valued at $1,001 million, compared with 34,189 million pounds, valued at $920 million, in 1968.

The output of aromatic and naphthenic products from petroleum amounted to 19,134 million pounds in 1969, compared with 18,285 million pounds in 1968. Sales in 1969, which amounted to 11,768 million pounds, valued at $301 million, were 185 million pounds larger, and valued at $30 million more, than those in 1968. The output of 1° and 2° benzene from petroleum amounted to 7,997 million pounds in 1969--19.4 percent more than the 6,698 million pounds produced in 1968. The output of toluene in 1969 was 5,379 million pounds--9.5 percent more than the 4,911 million pounds produced in 1968. Production of xylene was 2,715 million pounds in 1969, compared with 3,832 million pounds in 1968. These figures include toluene and xylene used in blends in aviation and motor-grade gasolines. Production of naphthalene, 358 million pounds in 1969, was 18,308 thousand pounds less than production in 1968. The output of 28.0 million pounds of naphthenic acids in 1969 was 7.8 million pounds more than that produced in 1968.

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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 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 52,182 million pounds in 1969, compared with 43,733 million pounds in 1968. Sales of these products were 27,472 million pounds, valued at $701 million, in 1969, compared with 22,606 million pounds, valued at $649 million, in 1968. The statistics on production of acetylene include only acetylene produced from hydrocarbons and used as a raw material in the production of other chemicals. Total production of acetylene for chemical synthesis is reported to the U.S. Bureau of the Census. In 1969, production of acetylene from hydrocarbon sources, amounted to 529 million pounds. Production of ethylene was 16,436 million pounds in 1969--25.0 percent more than the 13,151 million pounds produced in 1968. The output of propylene and propane-propylene mixture was 7,235 million pounds in 1969--3.0 percent more than the 7,025 million pounds produced in 1968. Production of 1,3-butadiene, one of the principal ingredients of S-type synthetic rubber, was 3,123 million pounds in 1969, compared with 2,929 million pounds in 1968. The output of 1,3-butadiene in 1969 was the largest on record.

Data for 1969 on crude products from petroleum and natural gas for chemical conversion were supplied by 71 companies and company divisions.

TABLE 1.--Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1969

[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 manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	71,315,378	39,239,749	1,001,358	$0.026
AROMATICS AND NAPHTHENES[2]				
Total	19,133,549	11,767,918	300,753	.026
Benzene (1° and 2°), total	7,997,360	4,238,969	125,791	.030
Benzene, 1°	7,183,626	...	...	...
Benzene, 2°	813,734	...	...	...
Naphthalene, all grades	357,637	256,526	17,257	.067
Naphthenic acid, total	27,969	14,325	1,429	.100
Acid number less than 150	5,144	...	...	...
Acid number 150-199	8,154	...	...	...
Acid number 200 and over	14,671	...	...	...
Toluene, all grades, total	5,378,747	2,901,914	70,838	.024
Nitration grade, 1°	3,385,494	2,256,717	57,036	.025
Pure commercial grade, 2°	635,064	...	...	...
Solvent grade, 90%	114,815	...	...	...
All other[3]	1,243,374	645,197	13,802	.021
Xylenes, mixed, total	2,715,258	2,141,450	52,753	.025
Xylene, 3°	565,653	576,072	14,781	.026
Xylene, 5°	374,603	350,593	9,053	.026
All other[3]	1,775,002	1,214,785	28,919	.024
All other aromatics and naphthenes[4]	2,656,578	2,214,734	32,685	.015
ALIPHATIC HYDROCARBONS				
Total	52,181,829	27,471,831	700,605	.026
C_2 hydrocarbons, total	20,935,374	...	...	...
Acetylene[5]	529,330	...	...	...
Ethane	3,969,756	2,872,298	24,465	.009
Ethylene	16,436,288	3,876,938	127,901	.033
C_2 and C_3 hydrocarbons, mixed	2,331,319	2,176,499	20,840	.010
C_3 hydrocarbons, total	14,416,227	9,406,399	140,031	.015
Propane	7,181,004	6,118,139	58,860	.010
Propylene[6]	7,235,223	3,288,260	81,171	.025
C_4 hydrocarbons, total	9,800,140	6,498,606	274,369	.042
1,3-Butadiene, grade for rubbers (elastomers)	3,122,966	1,981,946	167,312	.084
Butadiene and butylene fractions	1,264,239	280,414	8,281	.030
n-Butane	2,159,160	1,188,506	12,515	.011
1-Butene and 2-butene mixture[7]	1,628,721	1,514,959	42,822	.028
Isobutane	653,574	294,059	2,659	.009
Isobutylene	...	290,890	21,872	.075
All other[8]	971,480	947,832	18,908	.020

See footnotes at end of table.

TABLE 1.--Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1969--Continued

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
ALIPHATIC HYDROCARBONS--Continued				
C_5 hydrocarbons, total	750,653	444,340	12,503	$0.028
Isoprene (2-Methyl-1,3-butadiene)	259,879	...	...	...
All other[9]	490,774	444,340	12,503	.028
All other aliphatic hydrocarbons and derivatives, total	3,948,116	2,196,751	100,496	.046
Alpha olefins, total	412,083	341,166	14,076	.041
Molecular weight C_6-C_7	63,734	...	...	
Molecular weight C_{11}-C_{15}	65,594	46,674	3,665	.079
All other[10]	282,755	294,492	10,411	.035
Diisobutylene (Diisobutene)	31,855	...	...	...
Heptenes, mixed	243,658	135,032	5,631	.042
Hexanes and other C_6 hydrocarbons	288,877	242,867	7,093	.029
Nonene (Tripropylene)	303,897	240,268	7,921	.033
Polybutene[11]	121,129	133,116	7,725	.058
Tetrapropylene	459,434	269,478	10,708	.040
Hydrocarbon derivatives[12]	43,233	44,587	10,415	.234
All other[13]	2,043,950	790,237	36,927	.047

1 Calculated from rounded figures.

2 The chemical raw materials designated as aromatics are in some cases identical with those obtained from the distillation of coal tar; however, the statistics given in the table above relate only to such materials as are derived from petroleum and natural gas. Statistics on production or sales of benzene, toluene, xylene, and naphthalene from all sources are given in tables 1 and 1B of the report on "Tar and Tar Crudes, 1969".

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

4 Includes data for 90-percent benzene, crude cresylic acid, alkyl aromatics, distillates, solvents, and miscellaneous cyclic hydrocarbons.

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

6 Includes data for propane-propylene mixture.

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

8 Includes data for 1-butene, 2-butene, mixed butylenes, and mixed olefins.

9 Includes data for pentanes, pentenes, and C_5 hydrocarbon mixtures.

10 Includes data for the following molecular weight ranges: C_6-C_7 (sales only); C_8-C_{10}; 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 acetylene (sales only), ethane-ethylene mixture, heptane, isobutylenes, isopentane, methane, octanes, n-paraffins, and hydrocarbon mixtures.

TABLE 2.--Crude products from petroleum and natural gas for chemical conversion: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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]

Chemical	Manufacturers' identification codes (according to list in table 3)
AROMATICS AND NAPHTHENES	
*Benzene (except motor grade):	
*Benzene, 1°	ACU, APR, ASH, ATR, BRP, CCP, CPI, CSD, CSO, CSP, DLH, ENJ, GOC, GRS, MOC, MON, PLC, PPR, SHC, SHO, SIN, SKO, SM, SNT, SOG, SUN, TOC, TX, UCC, UOC, VPT.
*Benzene, 2°	CO, DOW, SHO, SOC.
Cresylic acid, crude	PRD.
*Naphthalene, all grades	ASH, COL, MON, SUN, TID.
*Naphthenic acids:	
*Acid number lower than 150	ATR, SUN, TX.
*Acid number 150-199	ATR, PRD, SOC, SUN.
Acid number 200-224	ATR, PRD, SOC.
Acid number 225-249	ENJ, PRD, SOC.
Acid number 250 and over	SOC.
Sodium carbolate and phenate, crude	ATR, GOC, SIN.
*Toluene:	
*Nitration grade, 1°	ASH, ATR, CCP, CSD, CSP, DLH, ENJ, GOC, MOC, MON, PLC, PPR, SHC, SHO, SIN, SNT, SOG, SUN, TOC, TX, UCC, UOC, VPT.
*Pure commercial grade, 2°	ATR, CPI, DOW, ENJ, LEN, MON.
*Solvent grade, 90%	CO, FG, SKO.
All other	ACC, GRS, PLC, SM, SOC, SUN, TX.
*Xylenes, mixed:	
Aviation grade	CSD, CSO.
*3° grade	ATR, DLH, MOC, PPR, UOC.
*5° grade	ASH, SIN, SOG, TX.
All other	ATR, CCP, CPI, CSD, CSP, ELP, ENJ, LEN, MON, PPR, SHC, SHO, SNT, SOC, SUN, TOC, UCC, VPT.
All other aromatics, naphthenes, distillates and solvents.	ACC, ACU, CBN, CPI, CPX, DUP, ELP, ENJ, FG, GOC, JCC, LEN, MOC, MON, OMC, PLC, SOC, SOG, SOI, TX, USI, VPT.
ALIPHATIC HYDROCARBONS	
C_1 hydrocarbon: Methane	CCP, MON.
*C_2 hydrocarbons:	
*Acetylene	DOW, DUP, MNO, MON, UCC, x.
*Ethane	ACU, CCP, ENJ, MON, PAN, PLC, SHO, SM, TX, USI.
*Ethylene	ACU, ATR, BFG, CBN, CCP, CO, CPX, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, KPP, MON, OMC, PLC, SHC, SM, SNO, TX, UCC, USI.
*C_2 and C_3 hydrocarbons, mixed	AMO, COR, CSO, CPI, ENJ, PLC.
*C_3 hydrocarbons:	
*Propane	AMO, APR, ASH, ATR, CCP, CO, CSD, CSO, CSP, ENJ, GRS, MOC, OMC, PAN, PLC, SHO, SIN, SM, SNT, SOG, SOI, SUN, TX, UOC, USI.
*Propane-propylene mixture	GOC.
*Propylene	ACU, AMO, ASH, ATR, BFG, CBN, CCP, CPX, CSO, CSP, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, KPP, MOC, MON, PLC, SHO, SIN, SIO, SM, SNT, SOG, SOI, SUN, TX, UCC, UOC.
*C_4 hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)	APL, ATR, CBN, CPY, DOW, ELP, ENJ, FRS, MON, PLC, PTT, SBI, SHO, SM, SOC, TID, TUS, UCC.
*Butadiene and butylene fractions	ACU, ATR, CO, CPX, DOW, EKX, GOC, GYR, KPP, PLC, SHC, SHO, SIN, SOC.
*n-Butane	COR, CPI, CSD, CSP, GRS, OMC, PAN, PLC, PTT, SHO, SM, SNT, SOC, SOG, SUN, USI.
1-Butene	GOC, PLC.
2-Butene	MON, PLC, PTT.

TABLE 2.--Crude products from petroleum and natural gas for chemical conversion: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	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, SHO, SOC, TX, UOC.
*Isobutane	CSP, ELP, OMC, PAN, PLC, SHO, SUN, TX, USI.
*Isobutylene	ENJ, PTT, SHO, SIN, UOC.
All other	APR, BFG, ENJ, JCC, MON, PLC, SM, USI.
*C_5 hydrocarbons:	
Isopentane (2-Methylbutane)	PAN, PLC, SHO, SM.
*Isoprene (2-Methyl-1,3-butadiene)	APL, ENJ, GYR, MON.
n-Pentane	APR.
All other	GYR, MON, PLC, TX, UCC, USI.
*C_6 hydrocarbons:	
Hexane	ENJ, PLC, SOG.
Neohexane (2,2-Dimethylbutane)	PLC.
All other	APR, MON, PLC, UOC.
C_7 hydrocabonns:	
n-Heptane	EKX, PLC, SOG.
*Heptenes, mixed	CSD, ENJ, GOC, HOU, SIN, SOI, TID.
All other	ENJ, TX, UOC.
C_8 hydrocarbons:	
*Diisobutylene (Diisobutene)	ATR, PTT, TX.
n-Octane	PLC, SOG.
2,2,4-Trimethylpentane (Iso-octane)	PLC.
All other	ENJ, PLC.
Hydrocarbons, C_9 and above:	
*Nonene (Tripropylene)	ATR, ENJ, GOC, HOU, UOC.
*Polybutene	ACC, CSD, ENJ, SOC, SOI.
*Tetrapropylene	ATR, CO, COR, ENJ, GOC, SOC, SUN, TX, UOC.
Tridecene concentrate	ENJ.
Triisobutylene	ATR.
All other	ATR, ENJ, GOC, HOU, PLC, SIN, SOC, SUN, TID, UCC, x.
*All other aliphatic hydrocarbons and derivatives:	
Hydrocarbons:	
*Alpha olefins--Molecular weight ranges:	
*C_6-C_7	GOC, GYR, PLC, SOC.
C_8-C_{10}	GOC, SOC.
*C_{11}-C_{15}	ENJ, GOC, SOC.
All other	EKX, GOC, KPP, SOC, TID.
n-Paraffins	CO, ENJ, SOC.
*Hydrocarbon derivatives:	
1-Butanethiol	PAS, PLC.
tert-Butyl-mercaptan (2-Methyl-2-propanethiol)	PAS, PLC.
Cyclohexyl mercaptan	PAS, PLC.
Di-tert-butyl disulfide	PLC.
Di-tert-nonylpolysulfide	PAS.
Ethyl mercaptan (Ethanethiol)	PAS.
Isopropyl mercaptan	PAS.
Methyl mercaptan (Methanethiol)	ACC, PAS.
tert-Nonyl mercaptan	PAS.
tert-Octyl mercaptan	PAS.
n-Propyl mercaptan (1-Propanethiol)	PAS. PLC.
All other	EKX, PAS, PLC.

TABLE 3.--Crude products from petroleum and natural gas for chemical conversion: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
ACC	Amoco Chemicals Corp.	LEN	Leonard Refineries, Inc.
ACU	Allied Chemical Corp., Union Texas Petroleum Div.	MNO	Monochem, Inc.
AMO	American Oil Co. (Texas)	MOC	Marathon Oil Co., Texas Refining Div.
APL	Ameripol, Inc.	MON	Monsanto Co.
APR	Atlas Processing Co.		
ASH	Ashland Oil, Inc.	OMC	Olin Corp.
ATR	Atlantic Richfield Co., ARCO Chemical Co, Div.		
		PAN	Pan American Petroleum Corp.
BFG	B.F. Goodrich Co., B.F. Goodrich Chem. Co. Div.	PAS	Pennwalt Chemical Corp.
BRP	British Petroleum Co.	PLC	Phillips Petroleum Co.
		PPR	Phillips Puerto Rico Core, Inc.
CBN	Columbian Carbon Co., Inc., Chemicals Div.	PRD	Productol Chemical Co., Inc.
CCP	Crown Central Petroleum Corp.	PTT	Petro-Tex Chemical Corp.
CO	Continental Oil Co.		
COL	Collier Carbon & Chemical Corp.	RH	Rohm & Haas Co.
COR	Commonwealth Oil & Refining Co., Inc.		
CPI	Commonwealth Petrochemicals, Inc.	SBI	Standard Brands Chemical Industries, Inc.
CPX	Chemplex Co.	SHC	Shell Oil Co., Sheel Chemical Co. Div.
CPY	Copolymer Rubber & Chemical Corp.	SHO	Shell Oil Co.
CSD	Cosden Oil & Chemical Co.	SIN	Atlantic Richfield Co., Products Div., Mid Continent Area
CSO	Cities Service Oil Co.		
CSP	Coastal States Petrochemical Co.	SIO	Standard Oil Co. of Ohio
		SKO	Skelly Oil Co.
DLH	Amerada Hess, Hess Oil & Chemical Div.	SM	Mobil Chemical Co.
DOW	Dow Chemical Co.	SM	Mobil Oil Corp.
DUP	E. I. duPont de Nemours & Co., Inc.	SNO	SunOlin Chemical Co.
		SNT	Suntide Refining Co.
EKX	Eastman Kodak Co., Texas Eastman Co. Div.	SOC	Standard Oil Co. of California, Chevron Chemical Co.
ELP	El Paso Products Co.		
ENJ	Enjay Chemical Co.	SOG	Signal Oil & Gas Co.
		SOI	American Oil Co. (Maryland)
FG	Foster Grant Co., Inc.	SUN	Sun Oil Co.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.		
		TID	Getty Oil Co.
		TOC	Tenneco Oil Co.
GOC	Gulf Oil Corp., U.S. Gulf Oil Co., Chemicals Div.	TUS	Texas-U.S. Chemical Co.
		TX	Texaco, Inc.
GRS	Pontiac Refining Corp.		
GYR	Goodyear Tire & Rubber Co.	UCC	Union Carbide Corp.
		UOC	Union Oil Co. of California
HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Co. Div.	USI	National Distillers & Chemical Corp., U. S. Industrial Chemicals Co. Div.
JCC	Jefferson Chemical Co., Inc.	VPT	Vickers Refining Co., Inc.
KPP	Sinclair-Koppers Co.		

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 1969 about four-tenths 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 (table 1)[1] in 1969--28,571 million pounds--was the largest on record, and was 14.2 percent larger than the output of 25,014 million pounds reported for 1968. The larger output of cyclic intermediates in 1969 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 1969 amounted to 12,398 million pounds, valued at $1,208 million, compared with 11,328 million pounds, valued at $1,131 million, in 1968. In terms of quantity, sales of cyclic intermediates in 1969 were 9.4 percent larger than those in 1968 and in terms of value, 6.8 percent larger.

Production of ethylbenzene in 1969 was 4,907 million pounds, or 21.6 percent larger than the 4,034 million pounds reported for 1968. Output of styrene in 1969 was 4,648 million pounds, an increase of 25.7 percent over the 3,698 million pounds in 1968. Other intermediates whose production exceeded 1 billion pounds in 1969 were cyclohexane (2,232 million pounds), phenol (1,691 million pounds), cumene (1,687 million pounds), p-xylene (1,628 million pounds), dimethyl terephthalate (1,537 million pounds) and terephthalic acid (1,045 million pounds). The output of other large-volume intermediates in 1969 compared with 1968 were: Ortho-xylene, 850 million pounds (10.0 percent less than in 1968); phthalic anhydride, 760 million pounds (2.2 percent larger); cyclohexanone, 704 million pounds (46.1 percent larger); chlorobenzene, 602 million pounds (4.5 percent larger); straight chain alkylbenzenes, 529 million pounds (no comparable statistics in 1968); and nitrobenzene, 484 million pounds (21.6 percent larger). Production of isocyanates amounted to 421 million pounds (24.2 percent larger than in 1968), and production of aniline was 334 million pounds, an increase of 27.0 percent over 1968. The above 16 chemicals accounted for 84 percent of the total output of cyclic intermediates in 1969.

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[1] See also table 2 of this section which lists these products alphabetically and identifies the manufacturers of each from the list in table 3. Imports of intermediates and related products in 1968 and 1969 are given in table 1 in the Appendix.

Table 1 gives statistics on production and sales of cyclic intermediates in 1969. In general, the classification of a given chemical as an intermediate is determined by the way in which the greater part of its output is consumed. Individual statistics given in the table represent approximately 90 percent of the total quantity of intermediates produced. Since many of the intermediates included in the statistics represent successive steps in production, the totals necessarily include considerable duplication.

TABLE 1.--Cyclic intermediates: U.S. production and sales, 1969

[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	28,570,871	12,398,249	1,208,447	$0.10
Acetanilide, tech	4,270	...	...	...
Acetoacetanilide	3,731	3,492	1,562	.45
o-Acetoacetanisidide	791	650	725	1.12
o-Acetoacetotoluidide	1,138	1,002	549	.55
Acetophenone, tech	...	1,174	349	.30
Alkylbenzenes[2]	529,118	518,128	52,298	.10
3'-Aminoacetanilide	5	...	...	...
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	710	...	...	...
5-Amino-2-(p-aminoanilino)benzenesulfonic acid	11	...	...	...
1-Aminoanthraquinone and salt	951	...	...	...
2-Aminoanthraquinone and salt	1,229	...	...	...
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9)	39	...	...	...
1-Amino-4-benzamidoanthraquinone	41	...	...	...
2-Amino-p-benzenedisulfonic acid [SO_3H=1]	64	...	...	...
1-Amino-2-bromo-4-p-toluidinoanthraquinone	43	...	...	...
1-Amino-5-chloroanthraquinone	57	...	...	...
1-Amino-2,4-dibromoanthraquinone	385	...	...	...
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2-anthracenesulfonic acid, sodium salt	31	...	...	...
4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4-acid)	674	...	...	...
6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt	446	...	...	...
7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt	600	...	...	...
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide	18	...	...	...
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)	906	...	...	...
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	902	...	...	...
4-Amino-1-naphthalenedisulfonic acid (Naphthionic acid)	178	...	...	...
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)	101	...	...	...
2-Amino-5-nitrobenzenesulfonic acid [SO_3H=1]	49	...	...	...
2-Amino-4-nitrophenol	104	...	...	...
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	201	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid	328	...	...	...
4-Amino-m-toluenesulfonic acid [SO_3H=1]	103	...	...	...
6-Amino-m-toluenesulfonic acid [SO_3H=1]	243	182	165	.91
Aniline (Aniline oil)	334,056	204,973	21,624	.11
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid)	40	...	...	...
Anilinomethanesulfonic acid and salt	409	...	...	...
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	226	...	...	...
o-Anisidine	2,271	1,068	729	.68
o-Anisidinomethanesulfonic acid	493	...	...	...
Anisole, tech	333	...	...	...
N,N'-(1,5-Anthraquinonylene)dianthranilic acid	35	...	...	...
1-Benzamido-5-chloroanthraquinone	62	...	...	...
7H-Benz[de]anthracen-7-one (Benzanthrone)	1,922	...	...	...
Benzoic acid, tech	23,884	13,850	2,302	.17
o-Benzoylbenzoic acid	4,457	...	...	...
[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione	393	...	...	...
1,4-Bis[1-anthraquinonylamino]anthraquinone	67	...	...	...
3-Bromo-7H-benz[de]anthracene-7-one (3-Bromobenzanthrone)	201	...	...	...
2-Bromo-4,6-dinitroaniline	147	...	...	...
1-Bromo-4-(methylamino)anthraquinone	24	...	...	...
Camphosulfonic acid	154	...	...	...
1-Chloroanthraquinone	179	...	...	...
2-Chloroanthraquinone	879	...	...	...
Chlorobenzene, mono-	601,959	93,164	5,231	.06
o-(p-Chlorobenzoyl)benzoic acid	1,432	...	...	...

See footnotes at end of table.

TABLE 1.--Cyclic intermediates: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
1-Chloro-2-methylanthraquinone	366	...	...	...
1-Chloro-5-nitroanthraquinone	66	...	...	...
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	...	20,391	1,922	$0.09
4-Chloro-3-nitrobenzenesulfonamide	556	...	...	...
4-Chloro-3-nitrobenzenesulfonyl chloride	487	...	...	...
α-Chlorotoluene (Benzyl chloride)	74,715	19,279	2,731	.14
[(4-Chloro-o-tolyl)thio]acetic acid	10	...	...	...
Cresols, total[3]	96,836	83,630	16,917	.20
o-Cresol	21,871	21,601	3,173	.15
(m,p)-Cresol	46,519	37,467	5,712	.15
All other[4]	28,446	24,562	8,032	.33
Cresylic acid, refined, total[3]	74,364	65,546	10,441	.16
From coal tar	18,354	15,534	2,403	.15
From petroleum	56,010	50,012	8,038	.16
Cumene	1,686,978	908,596	33,392	.04
Cyclohexane	2,231,641	2,061,747	68,768	.03
Cyclohexanol	...	5,288	1,139	.22
Cyclohexanone	704,215	58,874	5,588	.09
1,4-Diaminoanthraquinone	51	...	...	...
2,6-Diaminoanthraquinone	150	...	...	...
1,4-Diamino-2,3-dihydroanthraquinone	438	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid	11,566	...	...	...
4,5'-Dibenzamido-1,1'-iminodianthraquinone	102	...	...	...
1,5-Dibenzoylnaphthalene	583	...	...	...
1,5-Dichloroanthraquinone	97	...	...	...
1,8-Dichloroanthraquinone	67	...	...	...
o-Dichlorobenzene	70,372	53,027	5,532	.10
p-Dichlorobenzene	52,060	53,934	4,991	.09
3,3'-Dichlorobenzidine base and salts	3,702	3,769	4,391	1.16
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	412	...	...	...
3-(2',6'-Dichlorophenyl)-5-methyl-4-isoxazolecarbonyl chloride	...	19	253	13.32
Dicyclopentadiene (includes cyclopentadiene)	56,599	33,887	1,525	.04
p-(Diethylamino)benzaldehyde	40	...	...	...
N,N-Diethylaniline	2,349	1,492	779	.52
9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid	47	30	97	3.23
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt	406	...	...	...
9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid, potassium salt	330	...	...	...
9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt	298	...	...	...
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt)	2,242	...	...	...
1,4-Dihydroxyanthraquinone (Quinizarin)	2,195	314	369	1.18
1,5-Dihydroxyanthraquinone (Anthrarufin)	222	...	...	...
1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitrochrysazin)	343	...	...	...
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)	365	...	...	...
N,N-Dimethylaniline	...	12,817	2,424	.19
N,N-Dimethylbenzylamine	123	73	107	1.47
2,2-Dimethyl-1,1'-bianthraquinone	141	...	...	...
2,4-Dinitroaniline	164	66	49	.74
3',4-Dinitrobenzanilide	16	...	...	...
2,4-Dinitrophenol, tech	...	149	66	.44
4,4'-Dinitrostilbene-2,2'-disulfonic acid	14,682	...	...	...
2,4(and 2,6)-Dinitrotoluene	258,583	...	...	...
Diphenylamine	34,750	34,598	7,172	.21
1,4-Di-p-toluidinoanthraquinone	110	...	...	...
Divinylbenzene	3,262	2,590	1,810	.70
p-Dodecylphenol	10,083	...	...	...
N-Ethylaniline, refined	2,500	...	...	...

See footnotes at end of table.

TABLE 1.--Cyclic intermediates: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Ethylbenzene[5]	4,907,080	457,743	15,930	$0.03
N-Ethyl-N-phenylbenzylamine	721	...	...	...
Hydroquinone, tech	12,341	11,685	9,095	.78
p-Hydroxybenzenesulfonic acid	7,194	8,188	857	.10
4-Hydroxymetanilamide	212	...	...	...
4-Hydroxymetanilic acid	91	...	...	....
3-Hydroxy-2-methylcinchoninic acid	199	...	...	
3-Hydroxy-2,7-naphthalenedisulfonic acid, and disodium salt	2,044	1,123	1,003	.89
6-Hydroxy-2-naphthalenesulfonic acid and sodium salt	670	...	...	...
1,1'-Iminobis[4-aminoanthraquinone]	109	...	...	...
1,1'-Iminobis[5-benzamidoanthraquinone]	49	...	...	...
7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]	9	...	...	...
1,1'-Iminobis[4-nitroanthraquinone]	109	...	...	...
1,1'-Iminodianthraquinone (1,1'-Dianthrimide)	115	...	...	...
Isocyanic acid derivatives, total	421,491	353,515	115,541	.33
Polymethylene polyphenylisocyanate	101,647	60,534	20,236	.33
Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)	258,321	251,558	75,844	.30
Other isocyanic acid derivatives	61,523	41,423	19,461	.47
4,4'-Isopropylidenediphenol (Bisphenol A)	182,061	64,200	12,014	.19
Isoviolanthrone (Isodibenzanthrone)	25	...	...	...
Leuco quinizarin (1,4,9,10-Anthratetrol)	164	...	...	...
dl-p-Mentha-1,8-diene (Limonene)	9,801	...	...	...
Metanilic acid	1,170	...	...	...
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)	738	...	...	...
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	25	...	...	...
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	178	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	84	57	82	1.44
α-Methylstyrene	...	13,980	1,351	.10
Naphthalene, solidifying at 79° C. or above (refined flake (from domestic crude)	2,235	...	...	...
2,7-Naphthalenedisulfonic acid	33	...	...	...
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	566	...	...	...
Nitrobenzene	484,457	9,860	795	.08
m-Nitrobenzenesulfonic acid and sodium salt	3,081	1,447	584	.40
m-Nitrobenzoic acid and sodium salt	911	...	...	...
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	551	...	...	...
p-Nitrophenol and sodium salt	38,837	15,741	5,395	.34
5-Nitro-o-toluenesulfonic acid [SO_3H=1]	12,911	...	...	...
5-Nitro-o-toluidine [NH_2=1]	277	199	313	1.57
16-Nitroviolanthrone	45	...	...	...
Nonylphenol	71,489	30,130	3,466	.12
1-[(7-Oxo-7H-benz[de]anthracene-3-yl)amino]anthraquinone	360	...	...	...
Phenol, grand total[3]	1,691,108	681,548	53,619	.08
Natural, from coal tar and petroleum	54,867	38,712	3,361	.09
Synthetic, total	1,636,241	642,836	50,258	.08
From cumene	955,997	380,544	29,774	.08
Other synthetic	680,244	262,292	20,484	.08
Phenylacetonitrile (α-Tolunitrile)	...	531	271	.51
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochloride	323	...	...	...
1-Phenyl-1,2-propanedione, 2-oxime	208	...	...	...
Phthalic anhydride	760,007	446,419	50,042	.11
Picolines, total[3]	2,634	1,880	716	.38
2-Picoline (α-Picoline)	843	872	312	.36
Other picolines	1,791	1,008	404	.40

See footnotes at end of table.

TABLE 1.--Cyclic intermediates: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*Per pound*
Piperidine	578	...	...	...
Salicylaldehyde	3,920	2,284	2,397	$1.05
Salicylic acid, tech	39,983	8,136	2,609	.32
Styrene, all grades	4,647,868	1,896,755	120,485	.06
Terephthalic acid	1,045,362	...	...	...
Terephthalic acid, dimethyl ester	1,537,036	752,466	113,488	.15
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	128	...	...	...
3,3'-Thiobis[7H-benz[de]anthracen-7-one]	34	...	...	...
Toluene-2,4-diamine (4-m-Tolylenediamine)	114,823	...	...	...
o-(p-Toluoyl)benzoic acid	512	...	...	...
4-(o-Tolylazo)-o-toluidine (C.I. Solvent Yellow 3)	219	...	...	...
1,2,4-Trichlorobenzene	15,217	13,329	1,564	.12
1,3,3-Trimethyl-Δ^2,α-indolineacetaldehyde	268	...	...	...
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)	483	...	...	...
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J acid Urea)	226	...	...	...
Violanthrone (Dibenzanthrone)	317	...	...	...
o-Xylene	850,442	732,523	26,509	.04
p-Xylene	1,628,205	1,206,941	79,960	.07
All other cyclic intermediates	3,147,763	1,429,770	334,364	.23

[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: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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)
8-Acetamido-1-(4-acetamido-2-hydroxy-5-nitrophenylazo)-2-naphthol	TRC.
3-[(2-Acetamido-4-aminophenyl)azo]-1,5-naphthalenedisulfonic acid.	TRC.
2,2'-[(5-Acetamido-2-ethoxyphenyl)imino]diethanol	AAP.
2,2'-[(3-Acetamidophenyl)imino]diethanol	AAP.
α-Acetamido-p-toluenesulfonamide	SDW.
*Acetanilide, tech	CTN, EKT, MRK, SAL.
p-Acetanisidide	EKT.
Acetic acid, phenyl ester	UCC.
*Acetoacetanilide	FMP, HST, UCC.
*o-Acetoacetanisidide	FMP, HST, UCC.
*o-Acetoacetotoluidide	FMP, HST, UCC.
2',4'-Acetoacetoxylidide	HST.
1'-Acetonaphthone	GIV.
Acetone phenylhydrazone	DUP.
*Acetophenone, tech	ACP, SKO, UCC.
2-Acetoxy-3,5-diiodo-4'-chlorobenzanilide	PCW.
N-Acetylanthranilic acid	DUP.
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	ATR, BRP, CO, MON, UCC, WCC.
Other	CO, SOC.
*Other alkylbenzenes: Straight chain	SOC.
Alkylphenols, mixed	GAF, ORO.
Alkylpiperazines, mixed	HOU.
α-dl-5-Allyl-5-(1-methyl-2-pentynyl)-1-methylbarbituric acid.	LIL.
*3'-Aminoacetanilide	AAP, GAF, TRC.
*4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	ACS, DUP, GAF, TRC.
3'-Amino-p-acetanisidide	EKT.
3'-Aminoacetophenone	CTN, SDH.
*5-Amino-2-(p-aminoanilino)benzenesulfonic acid	ACS, TRC, YAW.
1-Amino-4-(3-amino-4-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid.	TRC.
1-Amino-4-(4-amino-3-sulfoanilino)-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid.	TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	ACS, TRC.
3-Amino-p-anisamide	PCW.
3-Amino-p-anisanilide	PCW.
5-Amino-2-o-anisidinobenzenesulfonic acid	TRC.
*1-Aminoanthraquinone and salt	AAP, ACS, ACY, CMG, GAF, ICI, MAY, TRC.
*2-Aminoanthraquinone and salt	ACS, ACY, DUP, GAF, TRC.
5(and 8)-Amino-1-anthraquinonesulfonic acid	ICI.
N-(4-Amino-1-anthraquinonyl)anthranilic acid	GAF.
N-(5-Amino-1-anthraquinonyl)anthranilic acid	DUP.
N-(8-Amino-1-anthraquinonyl)anthranilic acid	DUP.
4-Aminoantipyrine	VPC.
*6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9).	ACS, ACY, TRC.
Aminoazoxylene toluene homologues	ACS.
p-Aminobenzamide	SDH.
*1-Amino-4-benzamidoanthraquinone	ACY, MAY, TRC.
1-Amino-5-benzamidoanthraquinone	GAF, ICI, TRC.
7-[p-(p-Aminobenzamido)benzamido]-4-hydroxy-2-naphthalenesulfonic acid.	CMG, DUP.
7-(m-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid	TRC.
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid	CMG, GAF.
3'-Aminobenzanilide	AAP.
4'-Aminobenzanilide	GAF.
3'-Aminobenzanilide-4'-sulfonic acid	TRC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*2-Amino-p-benzenedisulfonic acid [SO_3H=1]	ACS, DUP, GAF, ICC, TRC.
o-Aminobenzenethiol	FMT.
2-Aminobenzimidazole	EK.
5-Amino-2-benzimidazolinone	DUP.
p-Aminobenzoic acid, tech	DUP.
p-Aminobenzoic acid, 2-(dimethylamino)ethyl ester	SDW.
4-Aminobenzophenone	DUP.
2-Amino-6-benzothiazolecarboxylic acid	DUP.
2-(m-Aminobenzoyl)-o-acetanisidide	GAF.
N-(4-Amino-3-bromo-1-anthraquinonyl)anthranilic acid	TRC.
N-(4-Amino-3-bromo-1-anthraquinonyl)-p-toluidinesulfonic acid.	TRC.
2-Amino-1-bromo-3-chloroanthraquinone	ICI.
5(and 8)-Amino-8(and 5)-bromo-9,10-dihydro-9,10-dioxo-1,6(and 1,7)anthracenedisulfonic acid.	TRC.
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid and sodium salt.	CMG, ICI, TRC.
1-Amino-2-bromo-4-hydroxyanthraquinone	AAP, DUP.
1-Amino-4-bromo-2-methylanthraquinone	ICI.
6-Amino-7-bromonaphth[2,3-c]acridan-5,8,14-trione	TRC.
*1-Amino-2-bromo-4-p-toluidinoanthraquinone	ACS, GAF, ICI, TRC.
7-Aminocephalosporonic acid, p-toluenesulfonate, dihydrate.	LIL.
*1-Amino-5-chloroanthraquinone	ACY, DUP, ICI, MAY, TRC.
1-Amino-5(and 8)-chloroanthraquinone	DUP.
1-Amino-8-chloroanthraquinone	DUP.
2-Amino-1-chloroanthraquinone	DUP.
2-Amino-3-chloroanthraquinone	ICI.
4-Amino-6-chloro-m-benzenedisulfonamide	ABB.
4-Amino-6-chloro-m-benzenedisulfonamide hydrochloride	ABB.
5-Amino-2-chlorobenzoic acid	TRC.
2-Amino-6-chlorobenzothiazole hydrochloride	DUP.
o-(3-Amino-4-chlorobenzoyl)benzoic acid	AAP, ICI.
2-Amino-5-chloro-4-ethylbenzene	ACY.
1-Amino-2-chloro-4-hydroxyanthraquinone	TRC.
3-Amino-5-chloro-2-hydroxybenzenesulfonic acid	TRC.
2-Amino-4-chlorophenol	SW.
2-Amino-6-chloropyrazine	ACY.
3-Amino-6-chloropyridazine	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1]	ACY, HSC.
6-Amino-4-chloro-m-toluenesulfonic acid [SO_3H=1]	DUP, HSC, SW.
2-Amino-p-cresol	TRC.
*1-Amino-2,4-dibromoanthraquinone	AAP, ACS, DUP, ICI, TRC.
5(and 8)-Amino-6,8(and 5,7)-dibromo-9,10-dihydro-9,10-dioxo-1-anthracenesulfonic acid.	ICI.
1-Amino-2,4-dichloroanthraquinone	TRC.
2-Amino-5,6-dichlorobenzothiazole	SDC.
6-Amino-2,4-dichloro-m-cresol	EK.
4'-Amino-2',5'-diethoxybenzanilide	ALL.
1-Amino-9,10-dihydro-9,10-dioxo-2-anthroic acid	DUP.
*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.
2-Amino-4-(α,α-dimethylbenzyl)phenol	TRC.
3-Amino-4-ethoxyacetanilide	AAP.
3-Amino-9-ethylcarbazole	SDC
N-(2-Aminoethyl)-N-ethyl-m-toluidine	WAY.
3-Amino-α-ethylhydrocinnamic acid	SDW.
p-Amino-N-ethyl-N-1-naphthylbenzamide	GAF.
N-[2-(4-Amino-N-ethyl-m-toluidino)ethyl]methanesulfonamide, hemisulfate.	WAY.
2-Amino-3-hydroxyanthraquinone	GAF.
1-Amino-4-hydroxy-2-methoxyanthraquinone	TRC.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
3-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (2R acid) monosodium salt.	ACS.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (H acid), monosodium salt.	ACS, MON.
*4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4 acid)--	ACS, ACY, GAF, TRC, VPC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Amino-5-hydroxy-1-naphthalenesulfonic acid (S acid), sodium salt.	ACS.
*6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt.	ACS, DUP, TCD, TRC.
*7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt.	ACS, DUP, TCD, TRC.
3'-Amino-2'-hydroxy-5'-nitroacetanilide	TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid.	TRC.
1-(6-Amino-1-hydroxy-3-sulfo-2-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
5-Aminoisophthalic acid	GAF.
4-Amino-3-(β-methanesulfonamidoethyl)-N,N-diethylaniline hydrochloride.	EKT.
*N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide.	AAP, DUP, GAF.
5-Amino-6-methoxy-2-naphthalenesulfonic acid	TRC.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid	DUP, TRC.
8-Amino-6-methoxyquinoline	SDW.
4-[(4-Amino-5-methoxy-o-tolyl)azo]-4-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
3-[(4-Amino-5-methoxy-o-tolyl)azo]-1,5-naphthalenedisulfonic acid.	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedisulfonic acid.	ACS, TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-(and 1,5)-naphthalenedisulfonic acid.	DUP.
4'-Amino-N-methylacetanilide	CMG.
1-Amino-2-methylanthraquinone	ICI.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
7-Amino-3-methyl-8-oxo-5-thio-1-azobicyclo[4.2.0]oct-2-en-2-carboxylic acid (2,2,2-trichloroethyl)ester, p-toluenesulfonate.	LIL.
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	ACS, TRC.
2-Amino-5-methyl-1,3,4-thiadiazole	ACY.
1-Amino-2-methyl-4-p-toluidinoanthraquinone	ICI.
1-Aminonaphth[2,3-c]acridan-5,8,14-trione	DUP.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione	DUP.
6-Aminonaphth[2,3-c]acridan-5,8,14-trione	GAF.
9(and 12)-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)	GAF, TCD, TRC.
3-Amino-2,7-naphthalenedisulfonic acid	TRC.
4-Amino-1,5-naphthalenedisulfonic acid	ACS.
4-Amino-1,6-naphthalenedisulfonic acid	DUP.
*6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)	ACS, DUP, TCD, TRC.
*7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	ACS, ACY, DUP, TCD, 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)	ACS, ACY, DUP.
4-Amino-1-naphthalenesulfonic acid, sodium salt	DUP.
4(and 5)-Amino-1-naphthalenesulfonic acid	TRC.
5-Amino-1-naphthalenesulfonic acid (Laurent's acid)	ACS, DUP, TCD.
5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)	ACS, ALL.
5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed).	ACS.
*6-Amino-2-naphthalenesulfonic acid (Broenner's acid)	ACS, SNA, TRC.
8-Amino-1-naphthalenesulfonic acid (Peri acid)	ACS, DUP, TCD.
8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)	ACS.
7-Amino-1,3,6-naphthalenetrisulfonic acid	DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)	ACS.
5(and 8)-Amino-2-naphthol	GAF.
8-Amino-2-naphthol	TRC, VPC.
2-(4-Amino-1-naphthylazo)-4-(1,1,3,3-tetramethylbutyl)-phenol.	GAF.
2-Amino-4-nitroacetanilide	SDC.
3-Amino-5-(m-nitrobenzamide)-p-toluenesulfonic acid	GAF.
*2-Amino-5-nitrobenzenesulfonic acid [SO_3H=1]	ACS, GAF, TRC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
2-Amino-6-nitrobenzothiazole	ICC.
*2-Amino-4-nitrophenol	ACS, DUP, SDC, TRC.
4-Amino-2-nitrophenol	ACY.
2-Amino-(p-nitrophenylazo)naphthalene	AAP.
d-2-Amino-1-(p-nitrophenyl)-1,3-propanediol	PD.
*4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid	ACS, ALT, GAF, TRC.
2-Amino-5-nitrothiazole	PCW.
3'-Aminooxanilic acid	CMG, TRC.
4'-Aminooxanilic acid	DUP.
3-Amino-2-oxazolidinone	NOR.
5-Amino-2-[(2-oxo-5-benzimidazolinyl)amino]benzenesulfonic acid.	DUP.
p-Aminophenethyl alcohol	EKT.
o-Aminophenol	SDC, TRC.
p-Aminophenol	SDC.
2-(p-Aminophenoxy)ethanol hydrochloride	GAF.
(p-Aminophenyl)acetic acid	EK.
m-[(p-Aminophenyl)azo]benzenesulfonic acid	DUP, TRC.
*p-[(p-Aminophenyl)azo]benzenesulfonic acid	ACS, ACY, DUP, GAF, TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid, disodium salt.	ACS.
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.
2,2'-(m-Aminophenylimino)diethanol, dibenzoate	DUP.
2-(p-Aminophenyl)-6-methylbenzothiazole	DUP.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt.	ACS, DUP, TRC.
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid	TRC, VPC.
3-Aminopyrazole-4-carboxamide sulfate	x.
2-Aminopyridine	NEP.
4-Aminopyridine	NEP, RIL.
2-Aminopyrimidine	ACY, RIL.
5-Aminosalicylic acid	AAP, 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.
α-Amino-p-toluenesulfonamide	SDW.
5-Amino-o-toluenesulfonanilide	GAF.
*4-Amino-m-toluenesulfonic acid [SO_3H=1]	ACY, DUP, GAF.
*6-Amino-m-toluenesulfonic acid [SO_3H=1]	DUP, HSC, SNA, SW.
5-Amino-2-p-toluidinobenzenesulfonic acid	DUP, TRC.
m-(4-Amino-3-tolylazo)benzenesulfonic acid	TRC.
3-[(4-Amino-o-tolyl)azo]-1,5-naphthalenedisulfonic acid	ACS, TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid	TRC.
16-Aminoviolanthrone	ACY, GAF.
2-Amino-3,5-xylenesulfonic acid [SO_3H=1]	DUP.
5-Amino-2,4-xylenesulfonic acid	DUP.
*Aniline (Aniline oil)	ACS, ACY, DUP, FST, MOB, RUC, USR.
Aniline hydrochloride	ACY.
6-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl gamma acid).	DUP.
*7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid).	ACS, CMG, DUP, TRC.
*Anilinomethanesulfonic acid and salt	AAP, ACS, ACY, ATL, DUP, TRC, VPC.
*8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	ACS, DUP, SDC.
m-Anilinophenol	GAF.
p-Anilinophenol	SDC.
o-Anisaldehyde	ASL.
*o-Anisidine	AAP, DUP, MON.
p-Anisidine	DUP, x.
1-p-Anisidino-4-hydroxyanthraquinone	AAP.
*o-Anisidinomethanesulfonic acid	AAP, ATL, DUP, GAF, TRC, VPC.
2-(o-Anisidino)-5-nitrobenzenesulfonic acid	TRC.
m-Anisil	DUP.
*Anisole, tech	DUP, GIV, LIL, OPC.
4-(o-Anisylazo)-o-anisidine	AAP.
3-(o-Anisylazo)benzenesulfonic acid, sodium salt	ACS.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Anthracene, refined	ACP.
Anthranilic acid (o-Aminobenzoic acid)[1]	ACS, DUP, SW.
Anthra[1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)	DUP, TRC.
Anthraquinone, 100%	ACY, DUP, GAF, TRC.
1,1'-[1,5(and 1,8)-Anthraquinonylenediamino]bis-naphth[2,3-c]acridan-5,8,14-trione.	DUP.
*N,N'-(1,5-Anthraquinonylene)dianthranilic acid	DUP, GAF, ICI, TRC.
N,N'-(1,5-Anthraquinonylene)dioxamic acid	GAF, SW.
(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt.	DUP.
Arsanilic acid and salt, tech	ABB, FLM.
Aryldiamines, mixed	DA.
4',4'''-Azobis[4-biphenylcarboxylic acid]	DUP, GAF, TRC.
Barbituric acid	LIL.
Barbituric acid, sodium derivative	ABB.
Benzaldehyde, tech	BPC, HN, VEL.
4-[(4-Benzamido-1-anthraquinonyl)amino]naphth-[2,3-c]acridan-5,8,14-trione.	DUP.
1-Benzamido-4-bromoanthraquinone	AAP.
1-Benzamido-4-chloroanthraquinone	DUP, GAF.
*1-Benzamido-5-chloroanthraquinone	ACY, GAF, MAY, TRC.
1-(4-Benzamido-2,5-diethoxyphenyl)-3-methyl-3-(2-sulfo-ethyl)triazene.	GAF.
4-Benzamido-5-hydroxy-2,7-naphthalenedisulfonic acid	TRC.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid	AAP, TRC.
N-(4-Benzamido-6-methoxy-m-tolyl)-N-(methylazo)glycine	GAF.
Benzanilide	DUP, PCW.
*7H-Benz[de]anthracen-7-one (Benzanthrone)	AAP, ACS, ACY, ATL, DUP, GAF, ICI, MAY, SDC, TRC.
m-Benzenedisulfonic acid	KPT, UPF.
Benzenesulfinic acid, sodium salt	GAF.
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	EK.
1,3,5-Benzenetricarboxylic acid (Trimesic acid)	ACC.
1,2,4-Benzenetricarboxylic acid, 1,2-anhydride (Trimellitic anhydride).	ACC.
Benzhydrol (Diphenylmethanol)	PD, UOP.
Benzidine hydrochloride and sulfate	ACS, LAK.
Benzilic acid	BPC.
2-Benzofuranacetonitrile	EK.
*Benzoic acid, tech[1]	HN, MON, PFZ, VEL.
Benzoic acid, hydrazide	UPJ.
Benzoin	BPC.
Benzonitrile	VEL.
Benzophenonetetracarboxylic dianhydride	GOC.
2-Benzothiazolethiol, sodium salt	ACY, GYR, x.
1H-Benzotriazole	SW.
2H-3,1-Benzoxazine-2,4(1H)-dione	SW.
2-Benzoxazolinone-6-sulfonyl chloride	SDC.
*o-Benzoylbenzoic acid	ACY, DUP, GAF.
Benzoyl chloride	HK, VEL.
2-Benzoyl-N-1-naphthylacetamide	DUP.
2-Benzoyl-4-sulfobenzoic acid	DUP.
2-Benzoyl-4'-(p-toluenesulfonamido)acetanilide	EK.
N-Benzylacetamide	SDW.
Benzylamine	ARS, MLS.
4-(Benzylamino)-6-chloro-m-benzenedisulfonic acid	ABB.
2-(Benzylamino)ethanol	MLS.
p-(Benzylamino)phenol	EK.
4-Benzyl-6-chloro-3-keto-2-methyl-7-sulfamyl-1,2,4-benzyl-thiadiazine-1,1-dioxide.	ABB.
4-Benzyl-6-chloro-3-keto-7-sulfamyl-1,2,4-benzylthia-diazine-1,1-dioxide.	ABB.
1-Benzyl-4,5-dimethyl-6-(p-methoxybenzyl)-1,2,3,6-tetra-hydropyridine oxalate.	SDW.
Benzyl disulfide	CCW.
Benzyl ether (Dibenzyl ether)	BPC, UOP.
5-(Benzylethylamino)-o-toluenesulfonic acid	ACS.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
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.
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 hydroxide	MLS.
Benzyltrimethylammonium methoxide	MLS.
[3,3'-Bianthra[1,9-cd]pyrazole]-6,6'-(2H,2'H)dione (Pyrazoleanthrone yellow).	DUP, GAF.
[3,3'-Bi-7H-benz[de]anthracene]-7,7'-dione	DUP.
*[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione	ACY, DUP, GAF, ICI, MAY.
[1,1'-Binaphthalene]-8,8'-dicarboxylic acid	ACS.
Biphenyl	GOC, MON.
2-Biphenylamine	NES.
2,2'-Biquinoline	EK.
*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.
1,5-Bis[1-anthraquinonylamino]anthraquinone	DUP.
1,4-Bis[(5-benzamido-1-anthraquinonyl)amino]anthraquinone	ICI.
α^2,α^6-Bis[5-tert-butyl-6-hydroxy-m-tolyl]mesitol	ACY.
Bis(chlorosulfonyl)phthalocyaninedisulfonic acid, copper derivative.	TRC.
4,4'-Bis(diethylamino)benzhydrol	GAF.
4,4'-Bis[diethylamino]benzhydrol, 2,6-naphthalenedi-sulfonate.	GAF.
4,4-Bis(diethylamino)benzhydrol salt, 2,7-naphthalenedi-sulfonic acid mixture.	TRC.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)	DSC.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalenedi-sulfonic acid, leuco form.	TRC.
4,4'-Bis[dimethylamino]benzhydrol (Michler's hydrol)	SDH.
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)	DSC, DUP, SDH.
Bis[p-(dimethylamino)phenyl]methanesulfonic acid and salt	ACS.
1,5-Bis[2,4-dinitrophenoxy]-4,8-dinitroanthraquinone	DUP.
1,5(and 1,8)-Bis[2,4-dinitrophenoxy]-4,8(and 4,5)-dinitro-anthraquinone.	DUP.
3'-[Bis(2-hydroxyethyl)amino]acetanilide	GAF.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester	DUP.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, dibenzoate	DUP.
3'-[Bis(2-hydroxyethyl)amino]methanesulfonanilide, di-acetate ester.	DUP.
4,4'-Bis[(p-hydroxyphenyl)azo]-2,2'-stilbenedisulfonic acid (C.I. Direct Yellow 4).	TRC.
2,4-Bis(1-methylbutyl)phenol	PAS.
1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]benzene (Dimethyl POPOP).	ARA.
Bis(p-nitrophenyl)disulfide	SDW.
Bis(p-nitrophenyl)ether	x.
Bis(o-nitrophenyl)sulfide	x.
1,4-Bis[2-(5-phenyloxazolyl)]benzene (POPOP)	ARA.
4'-Bromoacetanilide	EK.
2-Bromoacetophenone	EK.
p-Bromoaniline	EK.
p-Bromoanisole	OPC.
*3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)	ACY, ATL, DUP, ICI, MAY, TRC.
Bromobenzene, mono-	DOW.
p-Bromobenzenesulfonyl chloride	EK.
Bromochlorobenzene	DOW.
6-Bromo-5-chlorobenzoxazolone	SW.
*2-Bromo-4,6-dinitroaniline	AAP, SDC, TRC.
Bromoethylbenzene	DOW, RSA.
2-Bromo-3'-hydroxyacetophenone benzoate	SDH.
1-Bromo-4-(N-methylacetamido)anthraquinone	GAF.
*1-Bromo-4-(methylamino)anthraquinone	ACS, DUP, ICI.
6-Bromo-3-methyl-7H-dibenz[f,ij]isoquinoline-2,7-(3H)-dione.	AAP, ICI.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
3-(Bromomethyl)thiophene	SDW.
1-Bromonaphthalene	EK.
2-Bromo-4'-nitroacetophenone	GAF.
N-(4-Bromopentyl)phthalimide	SDW.
p-Bromophenol	EK.
(p-Bromophenyl)acetonitrile	BPC.
p-Bromophenylhydrazine hydrochloride	EK.
2-Bromopyridine	NEP, RIL.
α-Bromotoluene	EK.
o-Bromotoluene	EK, RSA.
p-Bromotoluene	BPC, EK.
2-Bromo-1,3,5-triethylbenzene	DUP.
p-Butoxyphenol	ABB.
4-[3(p-Butoxyphenoxy)propyl]morpholine	ABB.
1-(Butylamino)anthraquinone	AAP.
p-Butylaniline	DUP.
2-tert-Butylanthraquinone	DUP.
p-tert-Butylbenzaldehyde	GIV.
n-Butylbenzene	PLC.
sec-Butylbenzene	PLC.
tert-Butylbenzene	CTN, MTR, PLC.
p-tert-Butylbenzoic acid	SHC.
o-(p-tert-Butylbenzoyl)benzoic acid	DUP.
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.
Butyl-p-(p-ethoxyphenoxycarbonyl)phenyl carbonate	EK.
2-tert-Butyl-4-ethylphenol	ACY.
N^1-Butyl-4-methoxymetanilamide	ALL, PCW.
2-tert-Butyl-5-methylanisole	GIV.
o-sec-Butylphenol	DOW, TNA.
p-sec-Butylphenol	DOW.
o-tert-Butylphenol	TNA.
p-tert-Butylphenol	DOW, PRD, UCC.
Butylphenols, mixed	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	PRD.
Camphoric acid	SEL.
Camphoric anhydride	SEL.
d-10-Camphorsulfonic acid	OTC.
*Camphosulfonic acid	KF, LIL, SEL.
Carbazole, refined	SDC.
3-(α-Carboxybenzylamino)crotonic acid, methyl ester, sodium salt.	LIL.
N-[(3-Carboxy-4-chlorophenyl)-sulfonyl]anthranilic acid	TRC.
3-Carboxy-2(and 4)-hydroxybenzenediazonium sulfate	ACS, GAF.
4-(2-Carboxyphenylazo)-3-methyl-1-phenyl-2-pyrazolin-5-one.	ACS.
[(o-Carboxyphenyl)thio]ethylmercury	LIL.
α-Carboxy-o-toluic acid	DUP.
Cedrene	GIV.
2'-Chloroacetoacetanilide	FMP, UCC.
2'-Chloroacetophenone	EK.
4'-Chloroacetophenone	LIL.
2-Chloro-2',6'-acetoxylidide	SDW.
4'-(Chloroacetyl)acetanilide	DUP.
m-Chloroaniline	DUP, GAF.
o-Chloroaniline	DUP, MON.
p-Chloroaniline	DUP, MON.
3-(o-Chloroanilino)propionitrile	DUP.
5-Chloro-o-anisidine [NH_2=1] (4-Chloro-o-anisidine [OCH_3=1]).	ALL.
5-Chloro-o-anisidine hydrochloride	GAF.
4-Chloroanthranilic acid	DUP.
*1-Chloroanthraquinone	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
*2-Chloroanthraquinone	ACS, ACY, GAF, TRC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
N-(5-Chloro-1-anthraquinonyl)-p-toluenesulfonamide	ICI.
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, HKD, MON, MTO, NEV, OMC, PPG, SCC.
p-Chlorobenzenesulfinic acid	TRC.
p-Chlorobenzenesulfonamide	ACY.
p-Chlorobenzenesulfonic acid	GAF.
o-Chlorobenzoic acid	HN, PD.
5-Chloro-2-benzoxazolinone	x.
*o-(p-Chlorobenzoyl)benzoic acid	ACS, ACY, DUP, HN, ICI.
p-Chlorobenzoyl chloride	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylidine	GAF.
α-(p-Chlorobenzyl)-α-phenyl-1-pyrrolidinepropanol hydrochloride.	LIL.
Chloro(p-chlorophenyl)phenylmethane	OPC.
Chlorocyclohexane	ACY.
Chlorocyclopentane	ARA.
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.
4-Chloro-2,5-dimethoxyaniline	PCW.
4-Chloro-N,N-dimethyl-3-nitrobenzenesulfonamide	EKT.
[(4-Chloro-2,5-dimethylphenyl)thio]acetic acid	ACS
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	AAP, ACS, DUP, SDC.
1-Chloro-2,4-dinitrobenzene and 2-chloro-1,3-dinitrobenzene mixture.	DUP.
3-Chloro-4,6-dinitrobenzenesulfonic acid	TRC.
4-Chloro-3,5-dinitrobenzoic acid	GAF.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	OPC.
2-Chloroethanol, p-toluenesulfonate	GAF.
N-(2-Chloroethyl)-4-(2-chloro-4-nitrophenylazo)-N-ethylaniline.	GAF.
4-[(2-Chloroethyl)ethylamino]-o-tolualdehyde	GAF.
N-(2-Chloroethyl)-N-ethylaniline	GAF.
p-[(2-Chloroethyl)methylamino]benzaldehyde	TRC.
Chloroformic acid, benzyl ester	OTC.
Chloroformic acid, p-nitrobenzyl ester	EK.
Chloroformic acid, phenyl ester	EK.
1-Chloro-4-hydroxyanthraquinone	ICI.
5'-Chloro-3-hydroxy-2-naphth-o-anisidide	BUC, PCW.
3-Chloro-4-hydroxyquinoline-3,4-carbonic acid	SDH.
5-Chloroisatoic anhydride	SW.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide	TRC.
4-Chlorometanilic acid	DUP.
5-Chlorometanilic acid	ACS.
6-Chlorometanilic acid	AAP, DUP.
5-Chloro-2-methoxybenzenediazonium chloride	GAF.
N-[(5-Chloro-2-methoxyphenyl)azo]sarcosine	ATL.
p-(Chloromethyl)anisole	SDW.
*1-Chloro-2-methylanthraquinone	ACS, ACY, DUP, TRC.
6-Chloro-4-methyl-1,3,2-benzothiazathiolium chloride	DUP.
6-Chloro-4-methylbenzo[b]thiophene-2-ol	ACY.
4-(Chloromethyl)-1,2-dimethylbenzene	BPC.
4-(Chloromethyl)-1,3-dimethylbenzene	BPC.
1-(Chloromethyl)naphthalene	BPC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide	TRC.
2-Chloro-5-(N-methylsulfamoyl)sulfanilamide	ABB.
5-Chloro-2-(N-methylsulfamyl)-4-sulfamyl-N-benzylaniline	ABB.
4-Chloro-3-(methylsulfonyl)nitrobenzene	TRC.
Chloronaphthalenes	KPS.
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)	DOW, DUP, SDC.
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)	DOW, DUP, SDC, VPC.
*1-Chloro-5-nitroanthraquinone	ACY, DUP, MAY, TRC.
1-Chloro-8-nitroanthraquinone	DUP.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)	AAP, DUP, MON.
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)	DUP, GAF.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)	AAP, DUP, MON, UPM.
2-Chloro-5-nitrobenzenesulfinic acid	TRC.
2-Chloro-5-nitrobenzenesulfonamide	AAP.
*4-Chloro-3-nitrobenzenesulfonamide	AAP, DUP, EKT, ICC, SAL, TRC.
4-Chloro-3-nitrobenzenesulfonanilide	TRC.
2-Chloro-5-nitrobenzenesulfonic acid	ACS, TRC.
2-Chloro-5-nitrobenzenesulfonic acid, sodium salt	DUP, GAF.
4-Chloro-3-nitrobenzenesulfonic acid	ACS, TRC.
*4-Chloro-3-nitrobenzenesulfonyl chloride	AAP, DUP, EKT, SAL, SDC.
2-Chloro-5-nitrobenzenesulfonyl chloride	TRC.
2-Chloro-4-nitrobenzoic acid	SAL.
2-Chloro-5-nitrobenzoic acid	TRC.
4-Chloro-3-nitrobenzoic acid	PCW.
o-(4-Chloro-3-nitrobenzoyl)benzoic acid	AAP, ACS, ICI.
4-Chloro-3-nitrophenyl methyl sulfone	TRC.
2-Chloro-4-nitrotoluene	DUP.
2-Chloro-5-nitrotoluene	PCW.
2-Chloro-6-nitrotoluene	DUP.
4-Chloro-2-nitrotoluene	DUP.
4-Chloro-3-nitrotoluene	BUC.
o-Chlorophenol	DOW, MON.
p-Chlorophenol	DOW, MON.
2-Chlorophenothiazine	SK.
(p-Chlorophenyl)acetonitrile	ARS, OPC.
1-(p-Chloro-α-phenylbenzyl)-4-methylpiperazine	ABB.
4-Chloro-α-phenyl-o-cresol	MON.
4-Chloro-o-phenylenediamine	FMT.
2-Chloro-p-phenylenediamine	DUP.
3-(o-Chlorophenyl)-5-methyl-4-isoxazolecarbonyl chloride	ARS, OTC.
3-(o-Chlorophenyl)-5-methyl-4-isoxazolecarbonyl chloride, carboxylic acid	ARS.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	TRC.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one	DUP, TRC.
p-Chlorophenyl methyl sulfone	TRC.
2-Chloro-4-phenylphenol	DOW.
1-[4-(p-Chlorophenyl)-3-phenyl-2-butenyl]pyrrolidine hydrobromide.	LIL.
4-Chlorophthalic acid	SW.
1-Chloro-2-phthalimidoanthraquinone	TRC.
(3-Chloropropenyl)benzene (Cinnamyl chloride)	SDW.
1-(3-Chloropropyl)-4-methylpiperazine	SK.
N^1-(6-Chloro-3-pyridazinyl)sulfanilamide	ACY.
2-Chloropyridine	FMT.
7-Chloro-4-quinolinol	SDW.
4-Chlororesorcinol	AAP, GAF.
5-Chlorosalicylic acid	PCW.
2-Chloro-5-sulfamoylbenzoic acid	TRC.
2-Chlorothiophene	FIS.
m-Chlorotoluene	HK.
o-Chlorotoluene	HN.
p-Chlorotoluene	HN.
*α-Chlorotoluene (Benzyl chloride)	BPC, HN, 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, PCW.
5-Chloro-o-toluidine [NH_2=1] (4-Chloro-o-toluidine [CH_3=1]).	DUP.
5-Chloro-o-toluidine hydrochloride [NH_2=1]	ATL, PCW.
N-[(5-Chloro-o-tolyl)azo]sarcosine	ATL.
*[(4-Chloro-o-tolyl)thio]acetic acid	ACY, GAF, PCW.
4-Chloro-α,α,α-trifluoro-3-nitrotoluene	GAF, PCW.
p-Chloro-α,α,α-trifluorotoluene	HK.
6-Chloro-α,α,α-trifluoro-m-toluidine	PCW.
Chlorotriphenylmethane	EK.
α-Chloro-o-xylene	BPC.
α-Chloro-p-xylene	BPC.
2-Chloro-p-xylene	DUP.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Chloro-2,5-xylenesulfonyl chloride	ACS.
4-Chloro-3,5-xylenol	OTA.
Cholesteryl nonanoate	EK.
Cholesteryl oleyl carbonate (Misomorphic)	EK.
Cholestyramine resin	MRK.
Cholic acid	WIL.
Cinnamoyl chloride	ARS, UOP, x.
*Cresols:[2]	
m-Cresol	KPT, PRD.
*o-Cresol:	
From coal tar	EK, KPT, PRD.
From petroleum	KPT, MER, NPC, PRD.
p-Cresol	HPC, SW.
Cresols, mixed:[2]	
*(m,p)-Cresol:	
From coal tar	ACP, KPT, PRD.
From petroleum	MER, NPC, PIT, PRD.
(o,m,p)-Cresol	ACP, KPT.
*Cresylic acid, refined:[3]	
*From coal tar	ACP, KPT, PRD.
*From petroleum	MER, NPC, PIT, PRD.
*Cumene	ASH, CLK, CSP, DOW, GOC, HPC, MOC, MON, SHC, SKO, SNT, SOC, TX.
p-Cumylphenol	PCW.
2-[p-(Cyanoacetamido)phenyl]-6-methyl-7-benzothiazolesulfonic acid.	DUP.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde	DUP, GAF.
p-[(2-Cyanoethyl)methylamino]benzaldehyde	DUP, GAF.
*Cyclohexane	ASH, ATR, CO, CSD, ENJ, GOC, GRS, PLC, PPR, SOG, SWC, TX, UOC.
1,4-Cyclohexanedicarboxylic acid, dimethyl ester	EK.
1,2-Cyclohexanedicarboxylic anhydride	ACS.
1,3-Cyclohexanedione	PD.
1,4-Cyclohexanedione-2,5-dicarboxylic acid, diethyl ester	FMP.
*Cyclohexanol	ACP, CNP, DBC, DUP, MON.
*Cyclohexanone	ACP, CEL, CNP, DBC, DUP, MON.
Cyclohexanone oxime	ACP, CNP.
Cyclohexene	PLC.
α-1-Cyclohexene-1-acetic acid, ethyl ester	SDW.
4-Cyclohexene-1-carboxaldehyde	UCC.
4-Cyclohexene-1,2-dicarboximide	CHO.
4-Cyclohexene-1,2-dicarboxylic anhydride	PTT.
Cyclohexylamine	ABB, MON, VGC.
5-Cyclohexyl-3-oxo-1-indancarboxylic acid	BJL.
Cyclohexyl-2-propanone	GIV.
N-Cyclohexyltaurine, sodium salt	GAF.
Cyclopentadienyliron	ARA.
Cyclopentamine base	LIL.
Cyclopentanepropionic acid	ARA.
Cyclopentanol	ARA, LIL.
Cyclopentene	ARA, PLC.
(2-Cyclopenten-1-yl)-2-propanone	LIL.
Cyclopropanecarboxylic acid	HEX.
p-Cymene	ACS, HN, x.
Decachlorocyclopentadiene	NES.
Deoxycholic acid	WIL.
Diacenaphtho[1,2-j:1,2'-l]fluoianthene (Decacyclene)	SDC.
1,5(and 1,8)-Diacetamidoanthraquinone	AAP.
3,5-Diacetamido-2,4,6-triiodobenzoic acid	SDW.
3'-[Di(2-acetoxyethyl)amino]-p-acetophenetidide	TRC.
3-(Diallylcarbamoyl)-1,2,2-trimethylcyclopentanecarboxylic acid.	WYT.
N^2,N^2-Diallylmelamine	ACY.
*1,4-Diaminoanthraquinone	ACS, CMG, DUP, GAF, TRC.
1,5-Diaminoanthraquinone	GAF, TRC.
1,5(and 1,8)-Diaminoanthraquinone	AAP, ICI, TRC.
*2,6-Diaminoanthraquinone	AAP, DUP, GAF, ICI, TRC, VPC.
3,3'-Diaminobenzanilide	AAP, TRC.
3,4-Diaminobenzanilide	AAP, DUP, TRC.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
2,4-Diaminobenzenesulfonic acid [SO_3H=1]	ACS, DUP, TRC.
2,5-Diaminobenzenesulfonic acid [SO_3H=1]	TRC.
4,4'-Diamino-2,2'-biphenyldisulfonic acid	ACS, ACY.
3,7-Diamino-4,6-dibenzothiophenedisulfonic acid, 5,5-dioxide, disodium salt.	ACY.
1,5-Diamino-2,6-dibromo-4,8-di-p-toluidinoanthraquinone	ICI.
1,4-Diamino-2,3-dichloroanthraquinone	CMG, DUP.
*1,4-Diamino-2,3-dihydroanthraquinone	ACY, ATL, DUP, GAF, HSH, ICC, ICI, 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-anthracenedicarboximide.	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone	DUP, VPC.
4,5-Diamino-1,8-dihydroxyanthraquinone	ICI.
4,4'-Diamino-5,5'-dimethyl-2,2'-biphenyldisulfonic acid	AAP.
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	ACS, ACY, DUP, GAF, GGY, SDH, TRC, VPC.
1,5-Diamino-2,4,6,8-tetrabromoanthraquinone	ICI.
3,5-Diamino-p-toluenesulfonic acid [SO_3H=1]	GAF.
4,6-Diamino-m-toluenesulfonic acid [SO_3H=1]	ACS.
3,5-Diamino-2,4,6-triiodobenzoic acid	SDW.
1,4:3,6-Dianhydroglucitol	APD.
1,5-Dianilino-9,10-dihydro-9,10-dioxo-2,6-anthracenedicarboxylic acid.	ACS.
2,5-Dianilinoterephthalic acid	SDC.
Diarylguanidine	DUP.
p-Diazo-N,N-dimethylaniline-1-amino-8-naphthol-3-sulfonate-6-sulfonic acid, sodium salt.	IDC.
5(and 3)-Diazo-6-oxo-1,3(and 1,4)-cyclohexadiene-1-carboxylic acid.	DUP.
1,5-Dibenzamidoanthraquinone	GAF, 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	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
2-Dibenzofuranol	GAF.
*1,5-Dibenzoylnaphthalene	ACY, DUP, GAF, HST, TRC, VPC.
3'-(N,N-Dibenzyl)amino-p-acetanisidide	SDC.
Dibenzyldithiocarbamic acid, sodium salt	USR.
N,N'-Dibenzylethylenediamine	WYT.
N,N'-Dibenzylethylenediamine diacetate	WYT.
N,N'-Dibenzylidenetoluene-α,α-diamine	SDH.
N,N-Dibenzylsulfanilic acid	ICI.
2,4'-Dibromoacetophenone	EK.
3,9-Dibromo-7H-benz[de]anthracen-7-one	DUP, MAY, TRC.
ar-Dibromobenzene	DOW.
2,6-Dibromo-1,5-naphthalenediol	EK.
2,6-Dibromo-4-nitroaniline	SDC.
2,6-Dibromo-4-nitrophenol	SW.
α,α-Dibromo-p-nitrotoluene	DUP.
5,13-Dibromo-8,16-pyranthrenedione	ACS, ICI.
2,5-Diethoxy-4-morpholinobenzene diazoniumsulfate salt	ALL.
3,5-Dibromo-3'-trifluoromethyl salicylanilide	PCW.
1,1'-Di-n-Butyldicyclopentadienyliron	ARA.
2,6-Di-tert-butyl-4-nonylphenol	GAF.
2,4-Di-tert-butylphenol	DOW.
Dibutyltin bis(cyclohexylmaleate)	x.
2,4-Dichloroaniline	EK.
3,4-Dichloroaniline	BUC, DUP, MON.
2,5-Dichloroaniline and hydrochloride [NH_2=1]	DUP.
3-(2,4-Dichloroanilino)-1-(2,4,6-trichlorophenyl)-2-pyrazolin-5-one.	EK.
*1,5-Dichloroanthraquinone	ACS, DUP, GAF, ICI, TRC.
1,5(and 1,8)-Dichloroanthraquinone	ACS, DUP.
*1,8-Dichloroanthraquinone	DUP, GAF, ICI.
2,6-Dichlorobenzaldehyde	DUP.
Dichlorobenzanthrone	ACY.
m-Dichlorobenzene	EK, OMC.
*o-Dichlorobenzene	ACS, DOW, DUP, DVC, HKD, MON, NEV, PPG, SCC, SVT.
*p-Dichlorobenzene	ACS, DOW, DVC, MON, PPG, SVT.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
o(and p)-Dichlorobenzene	NEV, SCC.
4,6-Dichloro-m-benzenedisulfonamide	ABB.
4,6-Dichloro-m-benzenedisulfonyl chloride	ABB.
2,5-Dichlorobenzenesulfonyl chloride	ACS.
*3,3'-Dichlorobenzidine base and salts	ACS, CWN, LAK.
2,2'-Dichlorobenzil	MTO.
2,4-Dichlorobenzoic acid	HN.
4,7-Dichlorobenzo[b]thiophen-3(2H)-one	ACS.
2,4-Dichlorobenzoyl chloride	HN.
2,5-Dichlorobenzoyl chloride	GAF.
Dichlorobenzyl chloride	BPC.
2,4-Dichloro-m-cresol	EKT.
7,16-Dichloro-6,15-dihydro-5,9,14,18-anthrazinetetrone	ICI.
4,8-Dichloro-1,5-dihydroxyanthraquinone	DUP.
4,5-Dichloro-3,6-dioxo-1,4-cyclohexadiene-1,2-dicarbonitrile.	ARA.
Dichlorodiphenylsilane	DCC.
2',7'-Dichlorofluorescein	EK.
5,14-Dichloroisoviolanthrone	ICI.
*2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.	ACY, CMG, SDH, TRC, VPC.
Dichloromethylphenylsilane	DCC.
2,6-Dichloro-4-nitroaniline	CWN, DUP, EKT, SW.
1,2-Dichloro-4-nitrobenzene	DUP, MON, SDC.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	AAP, DUP, SDC, VPC.
2,5-Dichloro-3-nitrobenzoic acid	GAF.
2,5-Dichloro-3-nitrobenzoic acid, ammonium salt	GAF.
2,5-Dichloro-3-nitrobenzoic acid, iminodi-2,2'-ethanol salt.	GAF.
2,4-Dichlorophenol	DOW, MON.
*3-(2',6'-Dichlorophenyl)-5-methyl-4-isoxazolecarbonyl chloride.	ARS, BKL, OTC.
[(2,5-Dichlorophenyl)thio]acetic acid	ACS.
2,6-Dichloropyrazine	ACY.
3,6-Dichloropyridazine	ACY.
4,7-Dichloroquinoline	PD, SDW.
2,5-Dichlorosulfanilic acid [SO_3H=1]	CMG, DUP, VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
p,α-Dichlorotoluene	HN.
Dichloroxylene	BPC.
Dicyclohexylamine	ABB, MON.
1,3-Dicyclohexyl-2-thiourea	ABB.
*Dicyclopentadiene (includes cyclopentadiene)	ENJ, GOC, MON, UCC, VEL.
Dicyclopentadiene dioxide	VEL.
Didodecylbenzene	CO.
p-Diethoxybenzene	GAF.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride, zinc chloride.	ALL.
*p-(Diethylamino)benzaldehyde	ACS, DUP, GAF, TRC.
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.
N,N-Diethylmetanilic acid	DUP.
α,α'-Diethyl-4,4'-dimethoxystilbene	LIL.
N^1,N^1-Diethyl-4-methoxymetanilamide	PCW.
N,N-Diethyl-p-nitrosoaniline	GAF.
N,N-Diethyl-4-nitroso-m-anisidine hydrochloride	DUP.
N,N-Diethyl-4-nitroso-m-phenetidine	GAF.
N,N-Diethyl-m-phenetidine	GAF.
N,N-Diethylsulfanilamide	AAP.
N,N-Diethyl-m-toluidine	DUP.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
9,10-Dihydroanthracene	NES.
6,15-Dihydro-5,9,14,18-anthrazinetetrone	TRC.
10,11-Dihydro-5H-dibenzo[a,d]cyclohepten-5-one	LIL.
2,3-Dihydro-1,H-dihydroxyanthraquinone	DUP.
*9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic acid (2-Quinizarinsulfonic acid).	AAP, ACS, HSH, PAT.
N-(5,13-Dihydro-5,13-dioxoaceanthryleno[2,1-α]aceanthrylen-7-yl)-9,10-dihydro-1-nitro-9,10-dioxo-2-anthramide.	ICI.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid	ACY, TRC.
*9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt.	GAF, ICI, 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, ICI, TRC.
*9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt.	AAP, DUP, GAF, ICI, TRC, VPC.
*9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt).	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC.
9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt (Silver salt).	DUP.
9,10-Dihydro-9,10-dioxo-2-anthroic acid	ACS.
3,4-Dihydro-3,4-dioxo-1-naphthalenesulfonic acid, sodium salt.	EK.
[Dihydrogen 3,3''-phthalocyaninedisulfonato(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	DUP, MAY, TRC.
9,10-Dihydro-5(and 8)-nitro-9,10-dioxo-1-anthracenesulfonic acid.	ICI.
9,10-Dihydro-8-nitro-9,10-dioxo-1-anthracenesulfonic acid	TRC.
9,10-Dihydro-8-nitro-9,10-dioxo-1-anthracenesulfonic acid, sodium salt.	DUP.
9,10-Dihydro-1-nitro-9,10-dioxo-2-anthroic acid	DUP.
4-(2,3-Dihydro-3-oxobenzo[b]thiophen-2-yl-methylidyne)-m-benzenedisulfonic acid.	GAF.
*1,4-Dihydroxyanthraquinone (Quinizarin)	AAP, ACY, CMG, DUP, EKT, GAF, HSH, ICC, ICI, MAY, TRC.
*1,5-Dihydroxyanthraquinone (Anthrarufin)	ACS, ACY, DUP, GAF, TRC.
1,5(and 1,8)-Dihydroxyanthraquinone	CMG, TRC.
1,8-Dihydroxyanthraquinone (Chrysazin)	GAF, TRC.
2,6-Dihydroxyanthraquinone (Anthraflavic acid)	GAF, TRC.
4,5-Dihydroxy-m-benzenedisulfonic acid, disodium salt	SDW.
2,5-Dihydroxybenzenesulfonic acid, potassium salt	NES.
2,4-Dihydroxybenzophenone	DUP, DVC, GAF.
1,5-Dihydroxy-4,8-dinitroanthraquinone	TRC, VPC.
*1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitrochrysazin).	DUP, EKT, GAF, ICI.
1,5-Dihydroxy-4,8-dinitro-2,6-anthraquinonedisulfonic acid.	DUP.
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid).	ACS.
6,7-Dihydroxy-2-naphthalenesulfonic acid	GAF, IDC.
11β,21-Dihydroxypregna-4,17(20)-cis-dien-3-one	UPJ.
4,5-Dihydroxy-3-(p-sulfophenylazo)-2,7-naphthalene-disulfonic acid, trisodium salt.	EK.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)	ACY, DUP, GAF, ICI, MAY.
m-Diiodobenzene	EK.
3,5-Diiodo-4-oxo-1(4H)-pyridineacetic acid	SDW.
Diisopropylbenzene	DOW.
N,N'-Diisopropyl-p-phenylenediamine	DUP, USR.
2,5-Dimethoxyaniline	ALL, EKT.
1,5(and 1,8)-Dimethoxyanthraquinone	TRC.
2,5-Dimethoxybenzaldehyde	CWN.
m-Dimethoxybenzene	ACY, ARS.
p-Dimethoxybenzene	ARS.
3,3'-Dimethoxybenzidine (o-Dianisidine)	ALL, CWN, SDH.
3,3'-Dimethoxybenzidine hydrochloride	ALL, CWN.
2,4-Dimethoxybenzoic acid	ACY.
N,N'-[(3,3'-Dimethoxy-4,4'-biphenylylene)bis(azo)]bis-(N-methyltaurine).	GAF.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
2,5-Dimethoxy-β-methyl-β-nitrostyrene	x.
2,5-Dimethoxy-α-methylphenethylamine hydrobromide	x.
N-(3,4-Dimethoxy-α-methylphenethyl)-2-(4-ethoxy-3-methoxyphenyl)acetamide.	LIL.
1,4-Dimethoxy-2-nitrobenzene	EKT.
2,5-Dimethoxy-4'-nitrostilbene	x.
3,4-Dimethoxyphenethylamine (Homoveratrylamine)	LIL.
4-(2',5'-Dimethoxyphenethyl)aniline hydrochloride	UPJ.
N-(3,4-Dimethoxyphenethyl)-2-(3,4-dimethoxyphenyl)-acetamide.	LIL.
(3,4-Dimethoxyphenyl)acetic acid	LIL.
(3,4-Dimethoxyphenyl)acetonitrile	LIL.
4,4-Di-(p-methoxyphenyl)-3-hexanone	LIL.
2,5-Dimethoxytetrahydrofuran	HEX.
16,17-Dimethoxyviolanthrone	ICI, MAY.
p-(Dimethylamino)benzaldehyde	BJL, TRC.
3'-Dimethylaminobenzanilide	DUP.
m-(Dimethylamino)benzoic acid	SDH.
α-(Dimethylamino)-p-cresol	TKL.
6-Dimethylamino-2-[2-(2,5-dimethyl-1-phenyl-3-pyrryl)-vinyl]-1-methyl-1-quinolinium methyl sulfate.	x.
2-[[2-(Dimethylamino)ethyl]-2-thenylamino]pyridine (nonmedicinal grade).	ABB.
2-[[2-(Dimethylamino)ethyl]-3-thenylamino]pyridine	SDW.
m-(Dimethylamino)phenol	ACY.
3-(4-Dimethylaminophenylazo)-7-dimethylamino-5-phenyl-phenazinium chloride.	ACS.
*N,N-Dimethylaniline	ACS, ACY, DSC, DUP.
7,12-Dimethylbenz[a]anthracene	EK.
3,3'-Dimethylbenzidine (o-Tolidine)	ALL, CWN.
3,3'-Dimethylbenzidine hydrochloride	CWN, DUP, EK.
*N,N-Dimethylbenzylamine	ARS, MLS, RH, SW.
α,α-Dimethylbenzyl hydroperoxide	CLK.
4-(α,α-Dimethylbenzyl)-2-phenylazophenol	TRC.
*2,2'-Dimethyl-1,1'-bianthraquinone	AAP, ACS, ACY, DUP, GAF, ICI, TRC.
5,5-Dimethyl-1,3-cyclohexanedione	AAP, EKT.
N,N-Dimethylcyclohexylamine	ABB, DUP, EKT.
5,5-Dimethylhydantoin	GLY.
2,3-Dimethylindole	DUP.
N,N-Dimethyl-m-nitroaniline	DUP.
N,N-Dimethyl-p-nitrosoaniline	ACS, ACY.
6,6-Dimethyl-2-norpinene-2-ethanol	RDA.
N-(1,4-Dimethylpentyl)aniline	USR.
N,N-Dimethyl-p-phenylenediamine	DUP, EKT.
N,N-Dimethyl-p-phenylenediamine hydrochloride	EK.
N,N-Dimethyl-p-phenylenediamine sulfate	EK.
2,5-Dimethyl-1-phenylpyrrole	SEL.
1,4-Dimethylpiperazine	JCC.
N,N-Dimethylsulfanilamide	PCW.
Dimethyl-5-sulfoisophthalate	x.
N,N-Dimethyl-p-toluidine	EK, RSA, SEL.
2,4-Dinitroacetanilide	SDC.
*2,4-Dinitroaniline	AAP, ACY, SDC.
p-(2,4-Dinitroanilino)phenol	GAF.
1,5(and 1,8)-Dinitroanthraquinone	AAP, ICI, TRC.
N,N'-(2,4-Dinitro-1,5-anthraquinonylene)dioxamic acid	TRC.
3,3'-Dinitrobenzanilide	TRC.
*3',4-Dinitrobenzanilide	AAP, DUP, TRC.
m-Dinitrobenzene	ACS, DUP.
3,5-Dinitrobenzoic acid	FIS, SAL.
3,5-Dinitrobenzoyl chloride	EK.
3,3'-Dinitro-4,4'-biacetanilide	AAP.
10,10'-Dinitro[3,3'-bi-7H-benz[de]anthracene]-7,7'-dione	DUP, MAY.
Dinitrocaprylphenol	RH.
2',6-Dinitro-p-cresol	DUP.
2,4-Dinitrocumene	DUP.
3',5'-Dinitro-2'-hydroxyacetanilide	TRC.
1-(3,5-Dinitro-2-hydroxyphenylazo)-2-naphthol	TRC.
*2,4-Dinitrophenol, tech	AAP, ACS, SDC.
(2,4-Dinitrophenyl)hydrazine	EK.
3,5-Dinitrosalicylic acid	EK, SAL.
*4,4'-Dinitrostilbene-2,2'-disulfonic acid	ACS, ACY, DUP, GAF, GGY, SDH, TCD, TRC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
2,4-Dinitrotoluene	ACS, DUP, RUC.
*2,4(and 2,6)-Dinitrotoluene	DUP, MOB, UCC.
3,5-Dinitro-p-toluenesulfonic acid	GAF.
Dinonylphenol	GAF, JCC.
2,4-Di-tert-pentylphenol	PAS, PRD.
Di-tert-pentylphenoxyacetyl chloride	EK.
1,5-Diphenoxyanthraquinone	VPC.
1,8-Diphenoxyanthraquinone	EKT.
Diphenylacetic acid	ARA.
Diphenylacetonitrile, tech	FIS.
*Diphenylamine	ACY, DOW, DUP, FST, ORO, RUC, USR.
2,8-Diphenylanthra[1,2-d:6,5-d']bisthiazole-6,12-dione	ICI.
N,N'-Diphenylethylenediamine	RPC.
2,5-Diphenyloxazole	ARA, EK.
1,3-Diphenyl-1,3-propanedione	ALD, EK.
2,2'-Diphthalimido-1,1'-dianthraquinone	TRC.
4,4'-Dithiodianiline	SDC.
2,2'-Dithiodibenzoic acid	LIL, SW.
*1,4-Di-p-toluidinoanthraquinone	ACS, ATL, GAF, ICI, TRC.
1,5-Di-p-toluidinoanthraquinone	ICI.
1,8-Di-p-toluidinoanthraquinone	ICI.
*Divinylbenzene	DOW, FG, KPP.
Dodecylbenzene. (See Alkylbenzenes.)	
Dodecylbenzyl chloride	CO.
*p-Dodecylphenol	GAF, MON, UCC, x.
Eosin (2',4',5',7'-Tetrabromofluorescein)	ICC.
1,2-Epoxy-3-(2-biphenylyl)propane	NES.
o-Ethoxybenzoic acid	ACY.
4-Ethoxy-3-methoxybenzaldehyde	LIL.
4-Ethoxy-3-methoxybenzyl alcohol	LIL.
1-(4-Ethoxy-3-methoxybenzyl)-6,7-dimethoxy-3-methyliso-quinone.	LIL.
(4-Ethoxy-3-methoxyphenyl)acetic acid	LIL.
2-Ethoxy-1-naphthoyl chloride	WYT.
4-Ethoxy-3-nitroacetanilide	AAP.
4-Ethoxy-o-phenylenediamine	TRC.
N'-(6-Ethoxy-3-pyridazinyl) sulfanilamide	ACY.
3-(Ethylamino)-p-cresol	DUP.
3-(Ethylamino)-p-toluenesulfonic acid [SO_3H=1]	DUP.
*N-Ethylaniline, refined	ACS, ACY, DUP, SDH.
2-(N-Ethylanilino)ethanol	DUP, EKT.
3-(N-Ethylanilino)propionitrile	EKT.
α-(N-Ethylanilino)-m-toluenesulfonic acid	GAF, SDH, WJ.
α-(N-Ethylanilino)-p-toluenesulfonic acid	ACS, TRC.
N-Ethyl-p-anisidine	EKT.
2-Ethylanthraquinone	ACS, DUP.
*Ethylbenzene	CMC, CSD, CSP, DOW, ENJ, FG, KPP, MON, SHC, SIN, SKC, SNT, SOG, STY, TOC, UCC.
o-(p-Ethylbenzoyl)benzoic acid	ACS, DUP.
Ethylbenzyl chloride	BPC.
9-Ethylcarbazole	SDC.
N-Ethyl-1-cyclohexen-1-ylamine	x.
N-Ethylcyclohexylamine	ABB.
3,3'-Ethylenedioxydiphenol	IDC.
Ethylene glycol dibenzenesulfonate	NES.
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.
*N-Ethyl-N-phenylbenzylamine	ACS, DUP, SDH.
9-Ethyl-3-nitrocarbazole	SDC.
α-Ethyl-3-nitrocinnamic acid	SDW.
N-[2-(N-Ethyl-4-nitroso-m-toluidino)ethyl]methane-sulfonamide.	WAY.
p-Ethylphenol	ACY.
Ethylphenylmalonic acid, diethyl ester	BPC, MAL.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)	UCC.
1-Ethylpiperidine	RIL.
2-Ethylpyridine	RIL.
4-Ethylpyridine	RIL.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
6-Ethyl-1,2,3,4-tetrahydro-1,1,4,4-tetramethylnaphthalene--	GIV.
N-Ethyl-m-toluidine----------	DUP.
N-Ethyl-o-toluidine----------	DUP.
3-(N-Ethyl-m-toluidino)-1,2-propanediol----------	EKT.
3-(N-Ethyl-m-toluidino)propionitrile----------	DUP, EKT, ICC.
1-Ethynyl-1-cyclohexanol----------	CUC, EKT.
Flavanthrone----------	TRC.
Fluoren-9-one----------	EK.
Fluorescein (3',6'-Dihydroxyfluoran)----------	ICC.
1-Fluoro-2,4-dinitrobenzene----------	EK.
o-Fluorotoluene----------	EK.
4-Formyl-m-benzenedisulfonic acid----------	GAF, SDH.
o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)---------	GAF, SDH.
Furan----------	DUP, QKO.
Furfuryl alcohol----------	QKO.
Furfurylamine----------	MLS.
2-Furoic acid, methyl ester----------	EK.
2-Furoyl chloride----------	EK.
N-Glycolylarsanilic acid, sodium salt----------	SDW.
Hexabromobenzene----------	MCH.
Hexachlorocyclopentadiene----------	HK, VEL.
1,4,5,6,7,7-Hexachloro-5-nitrobornene-2,3-dicarboxylic anhydride.	VEL.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic acid--	HK.
Hexadecachlorophthalocyanine, copper complex----------	ICC, 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.
Hippuric acid----------	BPC, x.
p-Hydrazinobenzenesulfonic acid----------	GAF, WJ.
3-Hydrazino-5-nitro-p-toluenesulfonic acid [SO_3H=1]--------	STG.
Hydrazobenzene----------	x.
Hydroquinone, di(β-hydroxyethyl) ether----------	CTN.
*Hydroquinone, tech----------	CRS, DA, DUP, EKT.
β-Hydroxy-p-acetophenetidide----------	GAF.
3'-Hydroxyacetophenone----------	SDH.
3'-Hydroxyacetophenone benzoate----------	SDH.
6'-Hydroxy-m-acetototuidide----------	TRC.
p-Hydroxybenzaldehyde----------	DOW.
*p-Hydroxybenzenesulfonic acid----------	DOW, MON, PRD, UPF.
p-Hydroxybenzoic acid----------	HN.
p-Hydroxybenzoic acid, methyl ester----------	SEL.
6'-Hydroxy-m-benzotoluidide----------	TRC.
3'-Hydroxy-2-(N-benzyl-N-methylamino)acetophenone----------	SDW.
4-Hydroxycoumarin----------	ABB.
3-[N-(2-Hydroxyethyl)anilino]propionitrile----------	DUP, ICC.
3-[N-(2-Hydroxyethyl)anilino]propionitrile, acetate--------	EKT.
3-[N-(2-Hydroxyethyl)anilino]propionitrile, benzoate ester.	DUP.
N-β-Hydroxyethyl-2,4-dihydroxybenzamide----------	IDC.
N-Hydroxyethyl-N-ethylcyano aniline----------	ICC.
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]-4-biphenylyl]azo]-1,3-naphthalenedisulfonic acid.	TRC.
7-Hydroxy-8-[[4'-[(p-hydroxyphenyl)azo]-3,3'-dimethyl-4-biphenylyl]azo]-1,3-naphthalenedisulfonic acid.	TRC.
4-Hydroxy-4'-isopropylmetanilamide----------	TRC.
4-Hydroxymetanilanilide----------	TRC.
*4-Hydroxymetanilamide----------	ACS, CMG, DUP, TRC, VPC.
*4-Hydroxymetanilic acid----------	ACS, CWN, TRC.
*3-Hydroxy-2-methylcinchoninic acid----------	DUP, GAF, ICC, TRC.
4-Hydroxy-N^1-methylmetanilamide----------	TRC.
N-(Hydroxymethyl)phthalimide----------	ACY.
3-Hydroxy-N-(3-N-morpholinopropyl)-2-naphthamide----------	IDC.
*3-Hydroxy-2,7-naphthalenedisulfonic acid----------	TCD.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt----	ACS, ACY, GAF, TRC, WJ.
7-Hydroxy-1,3-naphthalenedisulfonic acid----------	DUP, TRC.
7-Hydroxy-1,3-naphthalenedisulfonic acid, dipotassium salt.	TCD.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt----	ACS, ACY.
4-Hydroxy-2-naphthalenesulfonamide----------	GAF.
4-Hydroxy-1-naphthalenesulfonic acid----------	ACS, DUP.
5-Hydroxy-1-naphthalenesulfonic acid----------	TRC.
*6-Hydroxy-2-naphthalenesulfonic acid----------	ACS, SNA, TMS.
*6-Hydroxy-2-naphthalenesulfonic acid, sodium salt----------	ACY, TRC, WJ.
7-Hydroxy-2-naphthalenesulfonic acid (Cassella's acid)-----	DUP.
8-Hydroxy-1-naphthalenesulfonic acid----------	GAF, VPC.
8-Hydroxy-1-naphthalenesulfonic acid, γ-sultone----------	TRC.
3-Hydroxy-2-naphthanilide (Naphthol AS)----------	ATL, PCW.
1-Hydroxy-2-naphthoic acid----------	ACS.
3-Hydroxy-2-naphthoic acid (B.O.N.)----------	PCW.
3-Hydroxy-2-naphthoic acid, methyl ester----------	PCW.
3-Hydroxy-2-naphtho-o-toluidide----------	ATL, PCW.
N-(2-Hydroxy-1-naphthyl)acetamide----------	ACY.
N-(7-Hydroxy-1-naphthyl)acetamide----------	CMG, GAF, TRC.
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
N-(7-Hydroxy-1-naphthyl)benzamide----------	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-Hydroxy-4-n-octoxybenzophenone----------	CCW.
2-(m-Hydroxyphenoxy)ethanol----------	BJL.
3-[4-(4'-Hydroxyphenylazo)-2,5-dimethoxyphenylazo]benzene-sulfamic acid.	TRC.
3-Hydroxy-4-(phenylazo)-2-naphthoic acid----------	ICC.
11α-Hydroxyprogesterone----------	UPJ.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide, inner salt.	ACY.
1-Hydroxy-4-p-toluidinoanthraquinone----------	ICI.
2-Imidazolidinone modifications----------	RH.
*1,1'-Iminobis[4-aminoanthraquinone]----------	ACY, DUP, GAF, ICI, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]----------	ACY.
*1,1'-Iminobis[5-benzamidoanthraquinone]----------	GAF, ICI, TRC.
*7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]--------	ACS, CMG, TRC.
*1,1'-Iminobis[4-nitroanthraquinone]----------	ACY, DUP, ICI, TRC.
*1,1'-Iminodianthraquinone (1,1'-Dianthrimide)----------	ACY, DUP, GAF, ICI, TRC.
Indole-2,3-dione----------	ACS.
5-Iodoanthranilic acid----------	SDW.
Isobutylbenzene----------	HMY, PLC, TNA.
*Isocyanic acid derivatives:	
Bitolylene diisocyanate (TODI)----------	UPJ.
Dianisidine diisocyanate (DADI)----------	CWN, UPJ.
Dicyclohexylmethane-4,4'-diisocyanate----------	DUP.
Diphenylmethane-4,4'-diisocyanate (MDI)----------	ACS, DUP, MOB, UPJ.
Phenylisocyanate----------	MOB.
Polyisocyanates (complex)----------	MOB.
*Polymethylene polyphenylisocyanate----------	KAI, MOB, UPJ.
Toluene 2,4-diisocyanate----------	DUP, MOB, UCC.
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, UCC, WYN.
Other----------	DUP, EK, MOB, UCC, UPJ.
Isonicotinic acid, methyl ester----------	RIL.
Isonicotinonitrile----------	RIL.
Isooctylphenol----------	PRD.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)----------	ACC, SOC.
Isophthalic acid, diallyl ester----------	FMP.
Isophthalic acid, dimethyl ester----------	MTR.
Isophthalic acid, diphenyl ester----------	BJL.
Isophthaloyl chloride----------	DUP.
N-Isopropylaniline----------	EKT.
Isopropylcresol----------	KPT.
4-Isopropyl-2,6-dinitrophenol----------	SDC.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromobis-phenol A).	DOW.
4,4'-Isopropylidenebis[2,6-dichlorophenol] (Tetrachloro-	DVC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
5,5'-Isopropylidenebis(2-hydroxy-m-xylene-α,α'-diol)	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)	DOW, GE, MON, SHC, UCC.
4,4'-Isopropylidenediphenol, ethoxylated	APD.
4,4'-Isopropylidenediphenol, propoxylated	APD.
o-Isopropylphenol	TNA.
p-Isopropylphenol	PRD.
Isopropylphenols, mixed	FMP.
4-Isopropyl-m-phenylenediamine	DUP.
*Isoviolanthrone (Isodibenzanthrone)	ACY, DUP, GAF, ICI, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)	AAP, ACS, ACY, EKT, HSH, ICC, TRC.
2,4-Lutidine	ACP, KPT, RIL.
2,6-Lutidine	RIL.
3,4-Lutidine	RIL, UCC.
Malonanilide	PCW.
Mandelonitrile	KF.
Melamine	ACY, FIS.
*dl-p-Mentha-1,8-diene (Limonene)	ARZ, GIV, HN, NCI.
p-Mentha-1,4(8)-diene	GIV.
p-Menth-1-ene	GIV.
o-Mercaptobenzoic acid (Thiosalicylic acid)	AMB, EVN, LIL, WAY.
Mesitylene (1,3,5-Trimethylbenzene)	SNT.
Metanilamide	CMG, VPC.
*Metanilic acid (m-Aminobenzenesulfonic acid)	ACY, DUP, TRC.
6-(2'-Methoxybenzenesulfonamido)-2-benzoxazolinone	SDC.
4-Methoxymetanilic acid	ACY, VPC.
N-(2-Methoxy-1-naphthyl)acetamide	TRC.
6-Methoxy-8-nitroquinoline)	SDW.
(m-Methoxyphenyl)acetic acid	SDW.
(p-Methoxyphenyl)acetic acid	CTN, UOP.
5-[N-(2'-Methoxy)phenyl]-2-aminophenol	SDC.
4-Methoxy-m-phenylenediamine sulfate	WAY.
4'-Methoxypropiophenone	LIL.
6-Methoxyquinoline	DUP.
1-(Methylamino)anthraquinone	AAP, ACS, ACY, DUP, ICI.
1-(Methylamino)-4-p-toluidinoanthraquinone	GAF, ICI.
N-Methylaniline	ACY, DUP.
3-(N-Methylanilino)propionitrile	DUP.
5-Methyl-o-anisidine [NH_2=1]	SDC.
m-Methylanisole	GIV.
N-Methylanthranilic acid	GIV.
2-Methylanthraquinone	ACS, ACY.
3-Methylbenzo[f]quinoline	ACY.
2-Methylbenzothiazole	FMT.
N-Methylbenzylamine	MLS, SDW.
Methylbenzyl ether	UCC.
5-(1-Methylbutyl)barbituric acid	LIL.
3-Methylcholanthrene	EK.
Methylcyclohexane	PLC.
4-Methylcyclohexanone	EK.
Methylcyclopentadiene	ENJ, VEL.
N-Methyldicyclohexylamine	ABB.
4-Methyl-α,α-diphenyl-1-piperazine ethanol, dihydrochloride.	ABB.
N-Methyleneaniline	DUP.
4,4'-Methylenebis[2-chloroaniline]	DUP.
4,4'-Methylenebis[N,N-diethylaniline]	ACY, GAF, SDH, TRC.
*4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)	ACY, DSC, DUP, GAF, SDH.
2,2'-Methylenebis(6-nonyl-p-cresol)	ACY.
4,4'-Methylenedianiline	ACS, DOW, DUP, MOB.
5,5'-Methylenedisalicylic acid	HN.
Methylhydroquinone	EKT.
2-Methylindole-3-carboxaldehyde	GAF.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazole sulfonic acid.	DUP.
5-Methyl-4-nitro-o-anisidine	PCW.
4-Methyl-2-nitroanisole	SDC.
2-Methyl-1-nitroanthraquinone	DUP, ICI.
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.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
3'-Methyl-5-[(7-oxo-7H-benz[de]anthracen-3-yl)amino]-1,2'-iminodianthraquinone.	VPC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide	CMG, TRC.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide	CMG.
*m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	GAF, TRC, VPC.
*p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	AAP, ACY, CMG, GAF, TRC, VPC.
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.
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.
Methyl phenyl sulfide (Thioanisole)	PIT.
4-Methyl-1-piperazineacetic acid, methyl ester	ABB.
N-Methyl-N-(2-propynl)benzylamine	ABB.
3-Methyl-2-pyrazolin-5-one	DUP.
1-Methylpyrrole	DUP.
*α-Methylstyrene	ACP, CLK, DOW, HPC, SKO.
ar-Methylstyrene (Vinyltoluene)	DOW.
2-(Methylsulfonyl)-4-nitroaniline	TRC.
4-(Methylthio)-m-cresol	CRZ.
3-Methylthiophene	SDW.
p-(Methylthio)phenol	CRZ.
3-Methyl-1-(thiosulfophenyl)-2-pryazolin-5-one, sodium salt.	SDC.
3-Methyl-6-p-toluidino-7H-dibenz[f,ij]isoquinoline-2,7(3H)-dione.	ICI.
3-Methyl-1-(m-tolyl)-2-pyrazolin-5-one	DUP.
1-Naphthaldehyde	BKL.
*Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	ACS, KPT, RIL.
1,3-Naphthalenediol (1,3-Dihydroxynaphthalene)	EK.
1,5-Naphthalenedisulfonic acid	ACS, TRC.
*2,7-Naphthalenedisulfonic acid	ACS, DUP, TRC.
1-Naphthalenesulfonic acid	TRC.
1-Naphthalenesulfonic acid, sodium salt	TRC.
2-Naphthalenesulfonic acid	ACS, ACY.
2-Naphthalenesulfonic acid, sodium salt	ACY.
1-Naphthalenesulfonyl chloride	EK.
2-Naphthalenesulfonyl chloride	DUP.
1,4,5,8-Naphthalenetetracarboxylic acid	TRC.
1,3,6-Naphthalenetrisulfonic acid	GAF.
Naphthalimide	ACS, SDC.
1-Naphthol (α-Naphthol)	ACS, UCC.
2-Naphthol, tech. (β-Naphthol)[1]	ACY, DUP, SW.
p-Naphtholbenzein	EK.
1,2-Naphthoquinone	EK.
Naphthostyril	ACS.
*Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid	ACS, CMG, GAF, TRC, VPC.
1-Naphthylamine (α-Naphthylamine)	ACS, DUP.
1-Naphthylamine hydrochloride	GAF.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	SDC.
2-(Naphthylthio)acetic acid	ACY.
Nicotinonitrile (3-Cyanopyridine)	NEP, RIL.
3'-Nitroacetanilide	AAP, TRC.
4'-Nitroacetanilide	GAF, SAL, TRC.
4'-Nitro-o-acetanisidide	DUP.
2'-Nitro-p-acetanisidide	DUP.
3'-Nitro-p-acetanisidide	EKT.
3'-Nitroacetophenone	CTN, SDH.
m-Nitroaniline	ACY, x.
o-Nitroaniline	AAP, MON.
p-Nitroaniline	AAP, MON, UPM.
2-(o-Nitroanilino)ethanol	AAP.
3-Nitro-p-anisic acid	PCW.
2-Nitro-p-anisidine [NH_2=1]	DUP, SDH.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
4-Nitro-o-anisidine [NH_2=1]	DUP, SDH.
5-Nitro-o-anisidine [NH_2=1]	ALL, BUC, DUP.
o-Nitroanisole	DUP, MON.
p-Nitroanisole	DUP.
5-Nitroanthranilic acid	TRC.
1-Nitroanthraquinone	ACY, MAY.
2-(4-Nitro-2-anthraquinonyl)anthra[2,3-d]-oxazole-5,10-dione.	GAF.
m-Nitrobenzaldehyde	SDH.
*Nitrobenzene	ACS, ACY, DUP, FST, MOB, MON, RUC.
*m-Nitrobenzenesulfonic acid	ACS, ACY, DUP.
*m-Nitrobenzenesulfonic acid, sodium salt	GAF, MON, SAL.
p-Nitrobenzenesulfonyl chloride	EK.
5-Nitro-2-benzimidazolinone	DUP.
*m-Nitrobenzoic acid	SAL, SDH, WAY.
*m-Nitrobenzoic acid, sodium salt	SAL, WAY.
p-Nitrobenzoic acid	DUP, SAL.
2-(m-Nitrobenzoyl)-o-acetanisidide	GAF.
m-Nitrobenzoyl chloride	HK.
p-Nitrobenzoyl chloride	HK.
4-(p-Nitrobenzyl)pyridine	EK.
4'-Nitro-4-biphenylcarboxylic acid	DUP, TRC.
4-Nitro-sec-butylbenzene	WAY.
2-Nitro-p-cresol	SW.
Nitrodiphenylamine	ACY, MON.
5-Nitro-2-furanmethanediol, diacetate	NOR.
5-Nitroisophthalic acid	FIS, GAF.
1-Nitronaphthalene	DUP.
3-Nitro-1,5-naphthalenedisulfonic acid	GAF, TRC.
4-Nitronaphthalic anhydride	ACS.
*7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid.	ACS, GAF, TRC, VPC.
4-Nitrooxanilic acid	DUP.
p-Nitrophenethyl alcohol	PCW.
o-Nitrophenol	MON.
*p-Nitrophenol	DUP, MON, SDC, UPM.
*p-Nitrophenol, sodium salt	UPM.
4'-(p-Nitrophenyl)acetophenone	DUP, GAF.
4-[(p-Nitrophenyl)azo]-o-anisidine	AAP.
2-Nitro-p-phenylenediamine	FIS, WAY.
4-Nitro-o-phenylenediamine	DUP, FMT.
(p-Nitrophenyl)hydrazine	EK, RSA.
2,2'-[(m-Nitrophenyl)imino]diethanol	DUP.
2,2'-[(m-Nitrophenyl)imino]diethanol, diacetate ester	DUP.
2,2'-[(m-Nitrophenyl)imino]diethanol, dibenzoate ester	DUP.
2-(p-Nitrophenyl)-2H-naphtho[1,2-d]triazole-6,8-disulfonic acid.	TRC.
2-(p-Nitrophenyl)-1-octadecyl-5-benzimidazolesulfonic acid.	GAF.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid	DUP, VPC.
5-Nitrosalicylaldehyde	EK.
3(and 5)-Nitrosalicylic acid	GAF.
p-Nitrosophenol	ACY, DUP, SDC.
4-Nitro-4'-(5-sulfo-2H-naphtho[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.
5-Nitro-o-toluenesulfonanilide	GAF.
p-Nitrotoluenesulfonic acid	GGY.
3-Nitro-p-toluenesulfonic acid [SO_3H=1]	AAP, CMG, TCD, TRC.
*5-Nitro-o-toluenesulfonic acid [SO_3H=1]	ACS, ACY, DUP, GAF, SDH, TRC.
5-Nitro-o-toluenesulfonyl chloride	GAF.
3-Nitro-p-toluic acid, methyl ester	SDH.
2-Nitro-p-toluidine [NH_2=1]	ABB, DUP, SW.
*5-Nitro-o-toluidine [NH_2=1]	BUC, DUP, PCW, SDH.
5-Nitro-2-p-toluidinobenzenesulfonic acid	TRC.
*16-Nitroviolanthrone	ACY, GAF, ICI, MAY.
4-Nitro-m-xylene	DUP.
Nonyl-dinonylphenol, mixture	GAF,
*Nonylphenol	GAF, JCC, MON, RH, STP, WTC.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
5-Norbornene-2,3-dicarboxylic anhydride	VEL.
Octaphenylcyclotetrasiloxane	ARA.
Octylphenol	RH.
Octylphenyl acid phosphate	SM.
Oxalacetic acid, diethylester, (p-sulfophenyl)hydrazone	TRC.
Oxanilide	EK.
*1-[(7-Oxo-7H-benz[de]anthracen-3-yl)amino]anthraquinone	ACY, DUP, GAF, ICI, MAY, TRC.
1,1'-[(7-Oxo-7H-benz[de]anthracen-3,9-ylene)diimino]di-anthraquinone.	ACY, DUP, ICI, MAY, TRC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester.	GAF.
5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T).	AAP, VPC.
4,4'-Oxydianiline	x.
Penicillin, N-ethylpiperidine salt	MRK.
Pentamethylbenzene	SNT.
1,1,3,3,5-Pentamethylindan	GIV.
o-Pentylphenol (o-Amylphenol)	PAS.
p-tert-Pentylphenol	PAS, PRD.
3,4,9,10-Perylenetetracarboxylic acid	ACS.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-d:(3-amino-phenylimide).	SDC.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-dianhydride	SDC.
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-diimide	ACS, DUP, GAF, SDC.
Phenethylamine	MLS, OPC.
Phenethylamine sulfate	MLS.
o-Phenethylbenzoic acid	LIL.
o-Phenetidine	MON.
p-Phenetidine	MON.
*Phenol:	
*Natural:	
*From coal tar:[2]	
39° C., m.p	KPT, PRD.
82%-84%	ACP, KPT.
All other	ACP, KPT.
*From petroleum	MAL, MER, NPC, PIT, PRD.
Synthetic:	
By caustic fusion: U.S.P	MON, RCI.
From chlorobenzene by liquid-phase hydrolysis: U.S.P	DOW.
From chlorobenzene by vapor-phase hydrolysis: U.S.P	HKD, UCC.
*From cumene by oxidation: U.S.P	ACP, CLK, HPC, MON, PCC, SHC, SKO, SOC, UCC.
Phenolsulfonaphthalein	EK.
Phenolsulfonaphthalein, sodium salt	EK.
Phenolsulfonic acid, lithium salt	SAL.
Phenothiazin-2-yl-1-propane (1-(Phenothiazin-2-yl)-propanone).	WYT.
Phenoxyacetic acid, sodium salt	BPC.
Phenoxymethylpenicillin-1-oxide	LIL.
Phenoxymethylpenicillin-1-oxide, (2,2,2-trichloroethyl) ester.	LIL.
2-Phenoxypropanol	ARS.
2-Phenoxypropionic acid	ARS.
2-Phenoxypropionyl chloride	ARS, OPC.
Phenylacetic acid (α-Toluic acid)	BPC, GIV, MAL.
Phenylacetic acid, ethyl ester, tech	BPC.
Phenylacetic acid, potassium salt	BPC, OPC.
Phenylacetic acid, sodium salt	BPC, OPC.
*Phenylacetonitrile (α-Tolunitrile)	BPC, OPC, SDW, UOP.
4'-Phenylacetophenone	DUP, GAF.
2-Phenylanthra[2,3-d]oxazole-5,10-dione	GAF.
*p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydro-chloride.	ACS, ACY, DUP, GAF.
4-(Phenylazo)diphenylamine	EK.
4-(Phenylazo)-1-naphthylamine	DUP.
α-Phenyl-o-cresol	RBC.
1-Phenylcyclopentanecarboxylic acid	SK.
N,N'-p-Phenylenebis[acetamide]	ACY.
m-Phenylenediamine	ACS, ACY, DUP, GAF.
o-Phenylenediamine	DUP, FMT, SW, TRC.
p-Phenylenediamine	ACY, SDC.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
d-Phenylephrine base	SDW.
dl-Phenylephrine base	SDW.
2-Phenylethenesulfonic acid, sodium salt	SHL.
Phenyl ether (Diphenyl oxide)	DOW.
d(-)Phenylglycine	OTC.
d-(-)-2-Phenylglycine and derivatives	KF.
d-(-)Phenylglycine, N-carboxy anhydride	OTC.
dl-2-Phenylglycine (racemic)	KF.
Phenylglycine, sodium salt	ACS.
d(-)Phenylglycl hydrochloride	OTC.
5-Phenylhydantoin	ABB.
Phenylhydrazine hydrochloride	EK.
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanolamine)	EKT.
2,2'-[(Phenyl)imino]diethanol, dibenzoate ester	DUP.
3,3'-[(Phenyl)imino]dipropionitrile	DUP.
Phenylmalonic acid, benzyl ester	BKL.
Phenylmalonic acid, diethyl ester	BPC.
o-Phenylphenol	DOW, RCI.
o-Phenylphenol, chlorinated	DOW.
o-Phenylphenol, sodium salt	DOW.
p-Phenylphenol	DOW.
N-Phenyl-p-phenylenediamine	USR, x.
Phenylphosphinic acid	SFA.
Phenylphosphonothioic dichloride	SFI.
Phenylphosphorous dichloride	SFI.
*1-Phenyl-1,2-propanedione, 2-oxime	ARS, NEP, ORT.
Phenyl-2-propanone	ORT, SK.
N-3-Phenylpropyl-p-toluidine	EK.
dl-Phenylsuccinic acid	PD.
Phenyl sulfone	NES.
Phenylundecanoic acid	EK.
Phloroglucinol	MRT.
1(2H)-Phthalazinone	ACS, x.
Phthalic acid	EK.
Phthalic acid, diallyl ester	FMP.
Phthalic acid, monopotassium salt	EK.
*Phthalic anhydride	ACP, GRH, KPS, MON, PCC, PTO, RCI, SOC, STP, SW, UCC, WTC.
Phthalide	ACS, FMT.
Phthalimide	SW.
Phthalimide, potassium salt	EK.
[Phthalocyaninato(2-)]copper	GAF, ICC, ICI, TRC.
[Phthalocyaninato(2-)]iron	DUP.
Phthalocyanine, copper complex, di-(and tri)-chloromethyl--	TRC.
Phthalocyaninetetrasulfonyl chloride, copper derivative----	DUP.
Phthaloyl chloride (Phthalyl chloride)	MON.
3-Picoline-N-oxide	RIL.
*Picolines:[2]	
*2-Picoline (α-Picoline)	ACP, KPT, NEP, RIL, UCC.
3-Picoline (β-Picoline)	NEP, RIL.
4-Picoline (γ-Picoline)	NEP, RIL, UCC.
Picoline (3,4-mixture)	ACP, KPT.
Picolinic acid	NEP.
Picolinonitrile (2-Cyanopyridine)	NEP.
Picric acid (Trinitrophenol)	SDC.
2,5-Piperazinedione	EK.
*Piperidine	ABB, DUP, MRK, RIL.
3-Piperidinopropiophenone hydrochloride	ACY, SDW.
Polychlorobiphenyl	MON.
Poly(methylenephenylene) polyamine	KAI.
Primuline base	DUP.
Primulinesulfonic acid	ATL.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Propargylbenzenesulfonate	ABB.
Propiophenone	ORT, UOP.
2-Propyl-4-amino-5-methoxymethylpyrimidine amino	MRK.
n-Propylbenzene sulfonate	NES.
8,16-Pyranthrenedione	ICI, TRC.
Pyridine, refined:[2]	
2° Pyridine	ACP, KPT, NEP, RIL.
Other grades	KPT.
Pyridine hydrochloride	EK.
3-Pyridinemethanol	RIL.
3-Pyridinol	NEP.
2(1H)-Pyridone	FMT.
2-Pyrimidinol	GGY.
2-Pyrrolidinone	GAF.
4-(4-Pyrrolidinyl-m-tolylazo)benzenesulfonic acid	GAF.
Quinaldine	ACS, ACY.
Quinoline:	
1° and 2° Quinoline	ACP, KPT.
Other grades	EK.
2,4-Quinolinediol	DUP, PCW.
8-Quinolinol (8-Hydroxyquinoline, tech.)	FIS.
Quinophthalone (Quinoline yellow, base)	ACS.
Resorcinol, monoacetate (non-medicinal grade)[1]	AAP.
Resorcinol, tech[1]	KPT.
β-Resorcylic acid	ACY, KPT.
S-(4-Aminophenyl)thiosulfuric acid, sodium salt	SDC.
*Salicylaldehyde	DOW, HN, MTR, RDA.
Salicylaldehyde oxime	EK.
Salicylanilide	CFC.
*Salicylic acid, tech	CFC, DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex	TRC.
Salicylic acid, sodium-chromium complex	TRC.
Salicylic acid, sodium salt (crude)	DOW.
Salicylideneaminoguanidine oleate	DUP.
Sodium phenoxide	DUP, FIN.
*Styrene, all grades	ACC, CSD, DOW, ELP, ENJ, FG, KPP, MCB, MON, SHC, SKC, SNT, UCC.
5-Sulfamoylanthranilic acid	TRC.
Sulfanilamide, tech	SAL.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	ACS, ACY, CTN.
4-Sulfoanthranilic acid	CMG, TRC.
5-Sulfoisophthalic acid, 1,3-dimethyl ester, sodium salt	PCW.
5-Sulfoisophthalic acid, sodium salt	PCW.
N,5'-Sulfonyldianthranilic acid	TRC.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)	MON.
4-Sulfophthalic acid	HSC.
*Terephthalic acid	ACC, DUP, EKT.
*Terephthalic acid, dimethyl ester	ACC, DUP, EKT, HPC.
Terephthaloyldiacetic acid, diethyl ester	PCW.
Terphenyl (Phenylbiphenyl)	MON.
1,2,4,5-Tetraaminobenzene tetrahydrochloride	BJL.
[4,4',4'',4'''-Tetraaminophthalocyaninato(2-)]copper	SDC.
3',3'',5',5''-Tetrabromophenolphthalein, ethyl ester	EK.
Tetrabromophthalic anhydride	MCH.
Tetrabromo-8,16-pyranthrenedione	ACS, GAF.
1,4,5,8-Tetrachloroanthraquinone	ACS, DUP, GAF.
1,2,4,5-Tetrachlorobenzene	DOW, HK.
1,2,4,5-Tetrachloro-3-nitrobenzene	SDH.
Tetrachlorophthalic anhydride	MON.
Tetrachloroviolanthrone	GAF.
Tetrafluoro-m-phenylenediamine	WHC.
Tetrahydrofuran	DUP, QKO.
Tetrahydrofurfuryl methacrylate	SAR.
1,2,3,4-Tetrahydro-6-methoxyquinoline	DUP.
1,2,3,4-Tetrahydro-4-oxo-2-naphthoic acid	BJL.
1,4,5,8-Tetrahydroxyanthraquinone	ICC.
*1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative	ACS, GAF, ICC, TRC.
1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone (Pentanthrimide).	ACS, GAF.
1,2,3,4-Tetramethylbenzene (Prehinitine)	SNT.

See footnotes at end of table.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
1,2,3,5-Tetramethylbenzene (Isodurene)	SNT.
1,2,4,5-Tetramethylbenzene (Durene)	SNT.
2-(1,1,3,3-Tetramethylbutyl)-p-cresol	ACY.
p-(1,1,3,3-Tetramethylbutyl)phenol	GAF, SCN.
3,3',5,5'-Tetramethyldiphenoquinone	DUP.
N,N,N',N'-Tetramethyl-p-phenylenediamine dihydrochloride	EK.
[4,4',4'',4'''-Tetranitrophthalocyaninato(2-)]copper	SDC.
2-(2-Thenylamino)pyridine	ABB.
*3,3'-Thiobis[7H-benz[de]anthracen-7-one]	DUP, GAF, ICI, TRC.
2,2'-Thiobis[5-nitrobenzenesulfonic acid]	GAF.
4,4'-Thiodianiline	ACY.
6,6'-Thiodimetanilic acid	ACS, GAF.
2-Thiopheneacetyl chloride	LIL.
2-Thiophenecarboxaldehyde	ABB.
sym-Thymol	GIV.
*Toluene-2,4-diamine (4-m-Tolylenediamine)	ACS, ACY, DUP, GAF, OMC, RUC, UCC.
Toluene-2,5-diamine sulfate	WAY.
Toluene-2,4-disulfonic acid	GAF, SDH.
o-Toluenesulfonamide	MON.
p-Toluenesulfonamide	MON.
o(and p)-Toluenesulfonic acid	MON, SW, UPF.
p-Toluenesulfonic acid	x.
p-Toluenesulfonic acid, methyl ester	ICI.
p-Toluenesulfonic acid, monohydrate	NES.
p-Toluenesulfonyl chloride	MON.
m-Toluic acid	CWL.
o-Toluic acid	CWL.
p-Toluic acid	EK.
m-Toluidine	DUP.
o-Toluidine	DUP, FST.
o-Toluidine hydrochloride	AAP, ACY.
p-Toluidine	DUP.
p-Toluidine hydrochloride	EK.
Toluidines, mixed	DUP.
m-Toluidinomethanesulfonic acid	TRC, VPC.
o-Toluidinomethanesulfonic acid	GAF, TRC.
8-p-Toluidino-1-naphthalenesulfonic acid	ACS.
*o-(p-Toluoyl)benzoic acid	ACS, ACY, DUP.
N-(p-Tolylazo)sarcosine	BUC, GAF.
*4-(o-Tolylazo)-o-toluidine (C.I. Solvent Yellow 3)	ACS, ACY, ALL, DUP, GAF, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride	GAF.
1-p-Tolyldodecane	x.
2,2'-(m-Tolylimino)diethanol	EKT.
p-Tolylmercuric chloride	EK.
3,4',5-Tribromosalicylanilide	PCW.
1,2,3(and 1,2,4)-Trichlorobenzene	PPG.
*1,2,4-Trichlorobenzene	DOW, DVC, HK, SVT.
N,2,6-Trichloro-p-benzoquinoneimine	EK.
1,2,4-Trichloro-5-nitrobenzene	ALL, PCW.
Trichlorophenylsilane	DCC, UCC.
α,α,α-Trichlorotoluene (Benzotrichloride)	HK, VEL.
α,2,4-Trichlorotoluene	HN.
α,3,4-Trichlorotoluene	HN.
2,4,6-Trichloro-s-triazine (Cyanuric chloride)	ACY, GGY, NIL.
1,3,5-Triethylbenzene	DUP.
2-(Trifluoromethyl)phenothiazine	SK.
α,α,α-Trifluoro-N-phenyl-m-toluidine (3-(Trifluoromethyl)-diphenylamine).	SK.
α,α,α-Trifluorotoluene	HK.
α,α,α-Trifluoro-m-toluidine	SW.
α,α,α-Trifluoro-o-toluidine	SW.
1,2,4-Trihydroxyanthraquinone	GAF.
2,3,5-Triiodobenzoic acid	GAF.
1,2,3-Trimethylbenzene (Hemimellitine)	SNT.
1,2,4-Trimethylbenzene (Pseudocumene)	SNT.
2,3,3-Trimethyl-3H-indole	GAF, TRC.
*1,3,3-Trimethyl-Δ^2,α-indolineacetaldehyde	ACS, DUP, GAF, TRC, VPC.
*1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)	ACS, DUP, GAF, TRC, VPC.
Trimethylphenylammonium iodide	EK.
α,α',2-Trimethyl-1,4-piperazinediethanol	WYN.
2,4,6-Trimethylpyridine	KPT, RIL.
1,3,5-Trinitrobenzene	EK.

TABLE 2.--Cyclic intermediates: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
2,4,6-Trinitrobenzenesulfonic acid	EK.
2,4,7-Trinitrofluoren-9-one	EK.
Triphenylmethane	EK.
Triphenylmethanol	ARA, EK.
Triphenylsilanol	ARA.
α,α',α''-Tris(dimethylamino)mesitol	RH, TKL.
Tris(2-methyl-1-aziridinyl)phosphine oxide	ARS, ICC.
Tri-p-tolylphosphine	EK.
m-Ureidoaniline	ICI.
*7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J Acid Urea).	ACS, CMG, GAF, TRC, VPC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	GIV, LIL, SLV.
Veratryl alcohol (3,4-Dimethoxybenzyl alcohol)	LIL.
p-Vinylbenzenesulfonic acid, sodium salt	DUP.
2-Vinylcyclohexene	UCC.
2,2'-Vinylenebis[benzimidazole]	TRC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine	RIL.
4-Vinylpyridine	RIL.
*Violanthrone (Dibenzanthrone)	ACS, ACY, ATL, DUP, GAF, ICI, MAY, SDC, TRC.
Xanthene-9-carboxylic acid	MAL.
m-Xylene	SNT, SOC.
*o-Xylene	ASH, CCP, CPI, CSD, CSO, CSP, DLH, ENJ, GRS, MON, PPR, SIN, SNT, SOC, SWO, TOC.
*p-Xylene	ACC, CSD, ENJ, HCR, PPR, SHC, SHO, SIN, SNT, SOC, SOG, TOC.
2,5-Xylenesulfonic acid	EK, NES.
Xylenol crystals	ACP.
2,6-Xylenol, synthetic	KPT.
Xylenols:	
Low b.p	NPC.
Medium b.p	NPC.
Not classified as to b.p	GE, NPC.
Xylidines:	
2,4-Xylidine (m-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.
All other cyclic intermediates	ACY, ARA, CUC, CWN, DUP, GAF, HN, ICC, KF, LIL, MRK, OPC, PCW, PD, PRD, SCH, SW, UCC, VEL, WTC, 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 1967*, Feb. 4, 1969.

TABLE 3.--Cyclic intermediates: Directory of Manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company
AAC	Alcolac Chemical Corp.
AAP	American Aniline Products, Inc.
ABB	Abbott Laboratories
ACC	Amoco Chemical Corp.
	Allied Chemical Corp.:
ACP	Plastics Div.
ACS	Specialty Chemicals Div.
ACY	American Cyanamid Co.
ALD	Aldrich Chemical Co., Inc.
ALL	Alliance Chemical, Inc.
ALT	Crompton & Knowles Corp., Althouse Div.
AMB	American Bio-Synthetics Corp.
APD	Atlas Chemical Industries, Inc.
ARA	Arapahoe Chemical Div. of Syntex Corp.
ARK	Armstrong Cork Co.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
ASH	Ashland Oil, Inc.
ASL	Ansul Co.
ATL	Atlantic Chemical Corp.
ATR	Atlantic Richfield Co., Arco Chemical Co. Div.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
BJL	Burdick & Jackson Laboratories, Inc.
BKL	Millmaster Onyx Corp., Millmaster Chemical Div., Berkeley Chemical Dept.
BPC	Stauffer Chemical Co., Benzol Products Div.
BRP	BP Oil Co.
BUC	Blackman-Uhler Chemical Co.
CCP	Crown Central Petroleum Corp.
CCW	Carlisle Chemical Works, Inc.
CEL	Celanese Corp.
CFC	Sun Chemical Corp.
CHO	Stauffer Chemical Co., Calhio Chemicals, Inc. Div.
CLK	Clark Oil & Refining Corp., Clark Chemical Co.
CMC	Cos-Mar Co.
CMG	Nyanza, Inc.
CNP	Columbia Nipro Corp.
CO	Continental Oil Co.
CPI	Commonwealth Petrochemicals, Inc.
CRS	Carus Chemical Co., Inc.
CRZ	Crown Zellerbach Corp., Chemical Products Div.
CSD	Cosden Oil & Chemical Co.
CSO	Cities Service Oil Co.
CSP	Coastal States Petrochemicals Co.
CTN	Chemetron Corp., Organic Chemical Div.
CUC	Air Reduction Co., Inc., Airco Chemicals & Plastics
CWL	Stauffer Chemical Co., Cowles Chemical Div.
CWN	Upjohn Co., Carwin Organic Chemicals
DA	Diamond Shamrock Corp.
DBC	Dow Badische Co.
DCC	Dow Corning Corp.
DLH	Amerada Hess, Hess Oil & Chemical Div.
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. Div.
ELP	El Paso Products Co.
ENJ	Enjay Chemical Co.
EVN	Evans Chemetics, Inc.
FG	Foster Grant Co., Inc.
FIN	Fine Organics, Inc.
FIS	Fisher Chemical Co.. Inc. & Fisher Melamine Corp.
FLM	Fleming Laboratories, Inc.
FMP	FMC Corp.. Organic Chemicals Div.
FMT	Fairmount Chemical Co., Inc.
FST	First Chemical Corp.
GAF	GAF Corp., Dyestuff & Chemical Div.
GE	General Electric Co.
GGY	Geigy Chemical Corp.
GIV	Givaudan Corp.
GLY	Glyco Chemicals, Inc.
GOC	Gulf Oil Corp. - U.S. Gulf Oil Co., Chemical Dept.
GRH	W. R. Grace & Co., Hatco Chemical Div.
GRS	Pontiac Refining Corp.
GYR	Goodyear Tire & Rubber Co.
HCR	Hercor Chemical Corp.
HEX	Hexagon Laboratories, Inc.
HK	Hooker Chemical Corp.:
HKD	Durez Div.
HMY	Humphrey Chemical Co.
HN	Tenneco Chemicals, Inc.
HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Div.
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.
IDC	Industrial Dyestuff Co.
JCC	Jefferson Chemical Co., Inc.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemicals Div.
KF	Kay-Fries Chemicals, Inc.
KPP	Sinclair-Koppers Co.
KPS	Koppers Pittsburgh Co.
KPT	Koppers Co., Inc., Organic Materials Div.
LAK	Lakeway Chemical Co.
LEM	B. L. Lemke & Co., Inc.
LIL	Eli Lilly & Co. & Puerto Rico
MAL	Mallinckrodt Chemical Works
MAY	Otto B. May, Inc.
MCB	Borg-Warner Corp., Marbon Chemical Div.
MCH	Michigan Chemical Corp.
MED	Medical Chemicals Corp.
MER	Merichem Co.
MET	M & T Chemicals, Inc.
MLS	Miles Laboratories, Inc., Marschall Div.
MOB	Mobay Chemical Co.
MOC	Marathon Oil Co.
MON	Monsanto Co.
MRA	Metro-Atlantic, Inc.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co.
MTO	Montrose Chemical Co.
MTR	Chris-Craft Industries, Inc., Montrose Chemical Div.
NCI	Union Camp Corp., Chemicals Div.

TABLE 3.--Cyclic intermediates: Directory of Manufacturers, 1969--Continued

Code	Name of company
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.
OMC	Olin Corp.
OPC	Orbis Products Corp.
ORO	Chevron Chemical Co.
ORT	Roehr Chemicals, Inc.
OTA	Ferro Corp., Ottawa Chemical Div.
OTC	Ott Chemical Co.
PAS	Pennwalt Chemicals Corp.
PAT	Morton International, Inc., Morton Chemical Co. Div.
PCC	USS Chemicals, Div. of U.S. Steel Corp.
PCR	Princeton Chemical Research, Inc.
PCW	Pfister Chemical, Inc.
PD	Parke, Davis & Co.
PFZ	Pfizer, Inc.
PIC	Pierce Organics, Inc.
PIT	Pitt-Consol Chemical Co.
PLC	Phillips Petroleum Co.
PPG	PPG Industries, Inc.
PPR	Phillips Puerto Rico Core, Inc.
PRD	Productol Chemical Co.. Inc.
PTO	Puerto Rico Chemical Co., Inc.
PTT	Petro-Tex Chemical Corp.
QKO	Quaker Oats Co.
RBC	Roberts Chemicals, Div. of Security Chemicals, Inc.
RCI	Reichhold Chemicals, Inc.
RDA	Rhodia, Inc.
RH	Rohm & Haas Co.
RIL	Reilly Tar & Chemical Corp.
RPC	Millmaster Onyx Corp., Refined-Onyx Div.
RSA	R.S.A. Corp.
RUC	Rubicon Chemicals, Inc.
SAL	Salsbury Laboratories
SAR	Sartomer Resins, Inc.
SCC	Standard Chlorine of Delaware, Inc.
SCH	Schering Corp.
SCN	Schenectady Chemicals, Inc.
SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
	Sterling Drug, Inc.:
SDH	Hilton-Davis Chemical Co. Div.
SDW	Winthrop Laboratories Div.
SEL	Selney Co., Inc.
	Stauffer Chemical Co.:
SFA	Specialty Chemical Div.
SFI	Industrial Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHL	Nitini, Inc., Div. of Shulton, Inc.
SHO	Shell Oil Co.
SIN	Atlantic Richfield Co., Products Div. - Mid Continent Area
SK	Smith, Kline & French Laboratories
SKC	Sinclair-Koppers Chemical Co.
SKO	Skelly Oil Co.
SLV	Salvo Chemical Corp.
SM	Mobil Oil Corp., Mobil Chemical Co. Div., Industrial Chemical Div.
SNA	Sun Chemical Corp., Ansbacker-Siegle Div.
SNT	Suntide Refining Co.
SOC	Standard Oil Co. of California, Chevron Chemical Co.
SOG	Signal Oil & Gas Co.
STG	Stange Co.
STP	Stephan Chemical Co.
STY	Styrochem Corp.
SVT	Solvent Chemical Co., Inc.
SW	Sherwin-Williams Co.
SWO	Southwestern Oil & Refining Co.
TCD	Tenneco Chemicals, Inc., Tenneco Colors
TEN	Tennessee Copper Co. Div. of Tennessee Corp.
TKL	Thiokol Chemical Corp.
TMS	Sterling Drug, Inc., Thomasset Color Div.
TNA	Ethyl Corp.
TOC	Tenneco Oil Co.
TRC	Toms River Chemical Corp.
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.
UPM	Universal Oil Products Co.
USR	Uniroyal, Inc., Chemical Div.
VEL	Velsicol Chemical Corp.
VGC	Virginia Chemicals, Inc.
VPC	Verona Corp.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
WCC	Witco Chemical Corp.. Witfield Chemical Div.
WHC	Whittaker Corp., Narmco Research & Development Div.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.
WJ	Warner-Jenkinson Manufacturing Co.
WTC	Witco Chemical Co., Inc.
WYN	Wyandotte Chemicals Corp.
WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.
YAW	Young Aniline Works, Inc.

Note.--For the complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 the dyeing of leather and plastics. Of the several thousand different synthetic dyes that are known, more than one thousand are manufactured by one or more domestic producers. The large number of dyes results from the many different types of materials to which dyes are applied, the different conditions of service for which dyes are required, and the costs that a particular use can bear. Dyes are sold as pastes, powders, lumps, and solutions; concentrations vary from 6 percent to 100 percent. The concentration, form, and purity of a dye are determined largely by the use for which it is intended.

Total domestic production of dyes in 1969 amounted to 240 million pounds, or 6.1 percent more than the 226 million pounds produced in 1968 (table 1[1]). Sales of dyes in 1969 amounted to 221 million pounds, valued at $385 million, compared with 215 million pounds, valued at $370 million, in 1968. In terms of quantity, sales of dyes in 1969 were 2.9 percent larger than in 1968 and in terms of value, 4.1 percent larger. The average unit value of sales of all dyes in 1969 was $1.74 a pound, or 1.2 percent greater than the $1.72 a pound reported in 1968.

For many important dyes, production was larger in 1969 than in 1968. The output of Acid Yellow 151, Direct Yellow 11, and Disperse Red 60 more than doubled in 1969. Acid Yellow 151 production increased to 1,124,000 pounds in 1969 from 556,000 pounds in 1968; Direct Yellow 11 output increased to 2,522,000 pounds from 1,250,000 pounds in 1968; and Disperse Red 60 output totaled 543,000 pounds in 1969, up from 239,000 pounds in 1968. Other important dyes whose output in 1969 was substantially larger than in 1968 were Disperse Yellow 23 (76.3 percent increase), Disperse Yellow 54 (65.2 percent increase), Acid Blue 9 (36.0 percent increase), Direct Blue 218 (34.9 percent increase), Direct Yellow 106 (32.7 percent increase), Basic Yellow 11 (31.8 percent increase), Acid Black 52 (28.9 percent increase), and Vat Orange 1 (21.1 percent increase).

On the other hand, the output of a few important dyes was smaller in 1969 than in 1968. Production of Vat Orange 15 was 822,000 pounds in 1969, or 31.8 percent less than the 1,206,000 pounds produced in 1968. Production of Vat Green 1 in 1969 was 3,667,000 pounds, or 30.3

[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3. Imports of benzenoid dyes in 1968 and 1969 are given in table 2 in the Appendix.

percent less than the 5,259,000 pounds produced in 1968. The output of Direct Black 80 was 29.6 percent smaller in 1969 than in 1968; that of Vat Yellow 2 was 25.9 percent smaller; that of Acid Blue 45 was 22.2 percent smaller, that of Vat Brown 3 was 18.7 percent smaller; and that of Direct Blue 86 was 17.8 percent smaller.

Table 1A summarizes production and sales of dyes in 1969 by class of application. Five application classes of dyes accounted for approximately three-fourths of all the dyes produced. Vat dyes accounted for 21.1 percent of the total; fluorescent brighteners, for 16.6 percent; direct dyes, for 15.8 percent; disperse dyes, for 10.6 percent; and acid dyes, for 10.2 percent. Of these five classes of dyes, the output of fluorescent brighteners was 27.1 percent larger in 1969 than in 1968; the output of disperse dyes was 14.6 percent larger; the output of acid dyes was 9.0 percent larger; and the output of direct dyes was 3.3 percent larger. The output of vat dyes, however, was 7.4 percent less in 1969 than in 1968.

Of the remaining classes, the output of basic dyes in 1969 was 14.0 percent more than the 1968 production; that of azoic compositions was 9.9 percent larger in 1969 than in 1968; and that of food, drug, and cosmetic colors was 19.1 percent larger in 1969. Production of fiber-reactive dyes decreased 13.7 percent in 1969 from the 1968 output; mordant dyes decreased 21.2 percent in 1969; and solvent dye output in 1969 was 1.8 percent less than the 1968 output.

Table 1B shows production and sales of dyes, by chemical class. In 1969, three chemical classes of dyes accounted for more than two-thirds of all the dyes produced: Azo dyes accounted for 31.5 percent of the total; anthraquinone dyes, for 21.6 percent; and stilbene dyes, for 17.1 percent. The output of the azo dyes was 6.3 percent larger in 1969 than in 1968, that of the stilbenze dyes was 23.6 percent larger, and that of the anthraquinone dyes, 5.9 percent smaller. Of the remaining chemical classes for which statistics are published, the output of methine dyes was 44.0 percent larger in 1969 than in 1968; oxazine dyes, 30.4 percent larger; quinoline dyes, 30.0 percent larger; nitro dyes, 13.1 percent larger; azoic dyes, 10.5 percent larger; sulfur dyes, 4.2 percent larger; triarylmethane dyes, 2.1 percent larger; xanthene dyes, 1.6 percent larger; and thiazole dyes, 1.2 percent larger. On the other hand, the output of phthalocyanine dyes was 15.0 percent smaller in 1969 than in 1968; and the output of cyanine dyes was 1.3 percent smaller.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969

[Listed below are all benzenoid 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	240,208	220,886	385,301	$1.74
ACID DYES				
Total	24,538	21,685	52,305	2.41
Acid yellow dyes, total	5,976	4,942	12,281	2.48
Acid Yellow 11	58	53	102	1.92
Acid Yellow 17	622	554	1,189	2.15
Acid Yellow 23	484	355	810	2.28
Acid Yellow 36	281	234	344	1.47
Acid Yellow 40	...	146	428	2.93
Acid Yellow 42	61	53	95	1.79
Acid Yellow 44	20	24	71	2.96
Acid Yellow 54	95	96	210	2.19
Acid Yellow 73	...	40	94	2.35
Acid Yellow 76	43	39	100	2.56
Acid Yellow 99	75	72	180	2.50
Acid Yellow 124	132	114	294	2.58
Acid Yellow 151	1,124	968	2,366	2.44
All other	2,981	2,194	5,998	2.73
Acid orange dyes, total	3,708	3,404	5,924	1.74
Acid Orange 1	35	48	102	2.12
Acid Orange 7	655	547	591	1.08
Acid Orange 8	321	320	435	1.36
Acid Orange 10	381	401	506	1.26
Acid Orange 24	648	609	857	1.41
Acid Orange 60	170	166	408	2.46
Acid Orange 74	78	54	118	2.19
Acid Orange 116	618	533	1,176	2.21
All other	802	726	1,731	2.38
Acid red dyes, total	3,760	3,309	7,948	2.40
Acid Red 1	546	538	491	.91
Acid Red 4	107	89	169	1.90
Acid Red 14	115	86	138	1.60
Acid Red 17	...	25	44	1.76
Acid Red 18	146	142	154	1.08
Acid Red 26	96	65	90	1.38
Acid Red 37	70	56	161	2.88
Acid Red 73	291	241	626	2.60
Acid Red 85	102	105	198	1.89
Acid Red 88	259	218	325	1.49
Acid Red 89	18	21	33	1.57
Acid Red 99	60	74	140	1.89
Acid Red 114	214	212	489	2.31
Acid Red 115	...	18	33	1.83
Acid Red 119	...	10	34	3.40
Acid Red 137	160	166	543	3.27
Acid Red 151	358	371	799	2.15
Acid Red 182	46	49	147	3.00
Acid Red 186	39	37	137	3.70
All other	1,133	786	3,197	4.07
Acid violet dyes, total	490	472	1,086	2.30
Acid Violet 1	37	44	79	1.80
Acid Violet 3	56	68	138	2.03
Acid Violet 7	160	105	145	1.38

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--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--Continued				
Acid Violet 12	36	38	58	$1.53
Acid Violet 49	82	87	270	3.10
All other	119	130	396	3.05
Acid blue dyes, total	4,866	4,286	13,943	3.25
Acid Blue 7	49	33	123	3.73
Acid Blue 9	1,062	...	...	...
Acid Blue 25	266	233	1,372	5.89
Acid Blue 40	102	79	350	4.43
Acid Blue 41	88	80	295	3.69
Acid Blue 45	608	539	1,800	3.34
Acid Blue 62	36	29	191	6.59
Acid Blue 78	48	40	294	7.35
Acid Blue 113	681	558	1,178	2.11
Acid Blue 118	66	64	117	1.83
Acid Blue 120	...	22	45	2.05
Acid Blue 158 and 158A	128	120	250	2.08
Acid Blue 230	...	71	482	6.79
All other	1,732	2,418	7,446	3.08
Acid green dyes, total	920	817	2,603	3.19
Acid Green 1	...	51	89	1.75
Acid Green 3	123	143	218	1.52
Acid Green 9	...	14	57	4.07
Acid Green 16	94	89	483	5.43
Acid Green 20	43	42	82	1.95
Acid Green 25	422	327	1,135	3.47
All other	238	151	539	3.57
Acid brown dyes, total	1,054	928	2,157	2.32
Acid Brown 14	432	390	618	1.58
All other	622	538	1,539	2.86
Acid black dyes, total	3,764	3,527	6,363	1.80
Acid Black 1	922	848	1,213	1.43
Acid Black 24	89	85	151	1.78
Acid Black 48	13	18	97	5.39
Acid Black 52	941	840	1,484	1.77
Acid Black 60	148	137	478	3.49
Acid Black 107	197	216	586	2.71
All other	1,454	1,383	2,354	1.70
AZOIC DYES AND COMPONENTS				
Azoic Compositions				
Total	2,567	2,235	3,619	1.62
Azoic Yellow 2	69	...	...	...
Azoic Orange 3	115	...	...	...
Azoic Red 1	397	...	...	...
Azoic Red 2	87	55	86	1.56
Azoic Red 6	199	99	165	1.67
Azoic Blue 3	161	90	174	1.93
Azoic Brown 9	235	194	283	1.46
Azoic black dyes	752	788	1,381	1.75
All other azoic compositions	552	1,009	1,530	1.52

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--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 Diazo Components, Bases (Fast Color Bases)				
Total	1,188	989	1,433	$1.45
Azoic Diazo Component 4, base	48	56	70	1.25
Azoic Diazo Component 8, base	...	14	13	.93
Azoic Diazo Component 9, base	21	...	...	...
Azoic Diazo Component 10, base	...	8	13	1.62
Azoic Diazo Component 12, base	156	238	263	1.11
Azoic Diazo Component 32, base	319	163	257	1.58
All other azoic diazo components, bases	644	510	817	1.60
Azoic Diazo Components, Salts (Fast Color Salts)				
Total	1,740	1,728	1,559	.90
Azoic Diazo Component 1, salt	...	12	14	1.17
Azoic Diazo Component 3, salt	371	377	212	.56
Azoic Diazo Component 5, salt	98	74	82	1.11
Azoic Diazo Component 6, salt	71	...	...	...
Azoic Diazo Component 8, salt	66	57	56	.98
Azoic Diazo Component 9, salt	195	215	141	.66
Azoic Diazo Component 10, salt	18	17	22	1.29
Azoic Diazo Component 12, salt	127	128	134	1.05
Azoic Diazo Component 13, salt	251	267	175	.66
Azoic Diazo Component 28, salt	187	183	158	.86
Azoic Diazo Component 44, salt	...	6	10	1.67
Azoic Diazo Component 49, salt	62	62	147	2.37
All other azoic diazo components, salts	294	330	408	1.24
Azoic Coupling Components (Naphthol AS and Derivatives)				
Total	2,199	2,104	3,703	1.76
Azoic Coupling Component 3	...	10	29	2.90
Azoic Coupling Component 4	16	21	41	1.95
Azoic Coupling Component 7	456	520	1,012	1.95
Azoic Coupling Component 8	45	...	...	...
Azoic Coupling Component 14	227	137	308	2.25
Azoic Coupling Component 18	475	352	375	1.07
Azoic Coupling Component 29	...	11	25	2.27
Azoic Coupling Component 34	...	41	79	1.93
Azoic Coupling Component 43	...	5	16	3.20
All other azoic coupling components	980	1,007	1,818	1.80
BASIC DYES				
Total	14,887	13,754	39,313	2.86
Basic yellow dyes, total	3,814	3,323	10,192	3.07
Basic Yellow 2	553	530	1,099	2.07
Basic Yellow 11	1,120	985	3,642	3.70
Basic Yellow 13	100	80	231	2.89
All other	2,041	1,728	5,220	3.02
Basic orange dyes, total	2,026	1,810	3,775	2.09
Basic Orange 1	367	355	446	1.26
Basic Orange 2	683	583	796	1.37
Basic Orange 21	729	693	1,904	2.75
All other	247	179	629	3.51

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
BASIC DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Basic red dyes, total	2,008	1,869	8,591	$4.60
Basic Red 9	21	18	66	3.67
Basic Red 13	57	50	157	3.14
Basic Red 14	414	421	3,534	8.39
Basic Red 18	288	252	660	2.62
All other	1,228	1,128	4,174	3.70
Basic violet dyes, total	3,289	3,082	6,635	2.15
Basic Violet 1	1,305	1,115	1,544	1.38
Basic Violet 4	27	29	100	3.45
Basic Violet 10	239	245	1,090	4.45
Basic Violet 16	206	176	573	3.26
All other	1,512	1,517	3,328	2.19
Basic blue dyes, total	2,305	2,154	6,862	3.19
Basic Blue 1	...	68	227	3.34
Basic Blue 5	...	22	145	6.59
Basic Blue 7	197	147	549	3.73
Basic Blue 9	...	620	1,283	2.07
All other	2,108	1,297	4,658	3.59
Basic Green 1	86	75	271	3.61
Basic Green 4	483	688	1,753	2.55
Basic Brown 1	287	165	303	1.84
Basic Brown 4	492	484	664	1.37
All other basic dyes	97	104	267	2.57
DIRECT DYES				
Total	37,841	34,399	54,333	1.58
Direct yellow dyes, total	11,911	10,875	17,922	1.65
Direct Yellow 4	508	492	1,021	2.08
Direct Yellow 5	174	178	498	2.80
Direct Yellow 6	685	617	1,007	1.63
Direct Yellow 8	18	...	...	...
Direct Yellow 11	2,522	2,339	2,489	1.06
Direct Yellow 12	356	294	906	3.08
Direct Yellow 26	16	9	26	2.89
Direct Yellow 28	370	281	600	2.14
Direct Yellow 29	65	76	155	2.04
Direct Yellow 44	935	874	1,562	1.79
Direct Yellow 50	564	502	1,055	2.10
Direct Yellow 84	960	917	1,271	1.39
Direct Yellow 105	401	314	770	2.45
Direct Yellow 106	1,909	1,695	1,989	1.17
All other	2,428	2,287	4,573	2.00
Direct orange dyes, total	2,418	2,273	5,274	2.32
Direct Orange 1	39	34	72	2.12
Direct Orange 8	126	131	217	1.66
Direct Orange 15	309	295	300	1.02
Direct Orange 26	51	54	117	2.17
Direct Orange 29	121	106	259	2.44
Direct Orange 34	122	100	241	2.41
Direct Orange 37	33	37	85	2.30
Direct Orange 39	195	211	440	2.09
Direct Orange 72	502	472	1,090	2.31
Direct Orange 81	69	80	243	3.04
Direct Orange 102	313	293	790	2.70
All other	538	460	1,420	3.09

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--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, total	4,024	3,820	8,385	$2.20
Direct Red 1	190	170	291	1.71
Direct Red 2	205	180	374	2.08
Direct Red 4	37	40	116	2.90
Direct Red 10	...	10	15	1.50
Direct Red 13	49	50	96	1.92
Direct Red 16	...	107	218	2.04
Direct Red 23	309	271	689	2.54
Direct Red 24	382	335	633	1.89
Direct Red 26	216	141	346	2.45
Direct Red 28	195	177	267	1.51
Direct Red 31	27	15	53	3.53
Direct Red 37	82	118	328	2.78
Direct Red 39	103	134	384	2.87
Direct Red 72	184	135	293	2.17
Direct Red 75	...	15	50	3.33
Direct Red 79	110	118	296	2.51
Direct Red 80	492	490	860	1.76
Direct Red 81	542	493	1,229	2.49
Direct Red 83	185	173	269	1.55
Direct Red 122	...	9	47	5.22
Direct Red 149	16	18	55	3.06
All other	700	621	1,476	2.38
Direct violet dyes, total	226	192	653	3.40
Direct Violet 1	...	9	17	1.89
Direct Violet 7	...	5	26	5.20
Direct Violet 9	123	100	223	2.23
All other	103	78	387	4.96
Direct blue dyes, total	7,413	6,752	10,648	1.58
Direct Blue 1	461	394	865	2.20
Direct Blue 2	1,217	1,157	1,135	.98
Direct Blue 6	612	519	368	.71
Direct Blue 8	43	42	82	1.95
Direct Blue 15	45	49	83	1.69
Direct Blue 22	15	10	20	2.00
Direct Blue 25	66	59	158	2.68
Direct Blue 67	...	20	83	4.15
Direct Blue 71	...	61	171	2.80
Direct Blue 76	131	127	186	1.46
Direct Blue 78	141	102	330	3.24
Direct Blue 80	602	604	974	1.61
Direct Blue 86	1,032	1,006	1,500	1.49
Direct Blue 98	176	149	276	1.85
Direct Blue 120 and 120A	142	126	285	2.26
Direct Blue 126	155	117	351	3.00
Direct Blue 191	105	73	134	1.84
Direct Blue 218	1,226	1,054	1,912	1.81
All other	1,244	1,083	1,735	1.60
Direct green dyes, total	1,302	1,156	2,625	2.27
Direct Green 1	272	244	316	1.30
Direct Green 6	669	558	866	1.55
All other	361	354	1,443	4.08
Direct brown dyes, total	1,950	1,681	2,314	1.38
Direct Brown 1	...	51	61	1.20
Direct Brown 1A	123	93	140	1.51
Direct Brown 2	194	181	273	1.51
Direct Brown 31	130	110	337	3.06

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
DIRECT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Direct brown dyes--Continued				
Direct Brown 74	69	59	97	$1.64
Direct Brown 95	785	690	706	1.02
Direct Brown 111	47	46	163	3.54
Direct Brown 154	363	290	284	.98
All other	239	161	253	1.57
Direct black dyes, total	8,597	7,650	6,512	.85
Direct Black 4	195	191	225	1.18
Direct Black 9	50	52	64	1.23
Direct Black 19	...	60	94	1.57
Direct Black 22	535	379	264	.70
Direct Black 38	6,112	5,527	3,934	.71
Direct Black 51	93	70	231	3.30
Direct Black 80	878	733	698	.95
All other	734	638	1,002	1.57
DISPERSE DYES				
Total	25,460	23,104	57,812	2.50
Disperse yellow dyes, total	7,414	6,586	13,043	1.98
Disperse Yellow 3	2,608	2,343	3,620	1.54
Disperse Yellow 5	36	34	118	3.47
Disperse Yellow 23	966	840	1,533	1.82
Disperse Yellow 33	319	265	443	1.67
Disperse Yellow 34	292	234	386	1.65
Disperse Yellow 42	1,386	1,192	1,939	1.63
Disperse Yellow 54	697	651	2,462	3.78
All other	1,110	1,027	2,542	2.48
Disperse orange dyes, total	3,059	2,904	5,410	1.86
Disperse Orange 3	188	145	242	1.67
Disperse Orange 5	130	124	298	2.40
Disperse Orange 17	231	195	258	1.32
Disperse Orange 25	259	218	394	1.81
All other	2,251	2,222	4,218	1.90
Disperse red dyes, total	3,453	3,115	9,932	3.19
Disperse Red 1	312	282	443	1.57
Disperse Red 5	82	69	86	1.25
Disperse Red 11	38	46	286	6.22
Disperse Red 13	22	22	30	1.36
Disperse Red 15	117	88	246	2.80
Disperse Red 17	178	183	268	1.46
Disperse Red 60	543	475	1,590	3.35
Disperse Red 65	105	80	163	2.04
All other	2,056	1,870	6,820	3.65
Disperse violet dyes, total	587	471	1,558	3.31
Disperse Violet 1	131	93	258	2.77
Disperse Violet 4	33	24	88	3.67
Disperse Violet 27	134	92	140	1.52
All other	289	262	1,072	4.09
Disperse blue dyes, total	9,233	8,465	25,606	3.02
Disperse Blue 1	441	406	1,584	3.90
Disperse Blue 3	1,752	1,625	2,641	1.63
Disperse Blue 7	360	331	2,252	6.80
Disperse Blue 64	...	256	389	1.52
Disperse Blue 79	1,174	1,067	3,689	3.46
All other	5,506	4,780	15,051	3.15

See footnotes at end of table

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
DISPERSE DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Disperse black dyes, total	1,533	1,386	1,862	$1.34
Disperse Black 1	165	149	282	1.89
All other	1,368	1,237	1,580	1.28
All other disperse dyes	181	177	401	2.27
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total	2,428	2,219	9,711	4.38
Reactive yellow dyes	580	476	2,090	4.39
Reactive blue dyes	837	695	3,796	5.46
Reactive black dyes	111	116	377	3.25
All other reactive dyes	900	932	3,448	3.70
FLUORESCENT BRIGHTENING AGENTS				
Total	39,774	33,394	55,339	1.66
Fluorescent Brightening Agent 9	254	252	319	1.27
Fluorescent Brightening Agent 28	1,676	1,537	2,346	1.53
All other fluorescent brightening agents	37,844	31,605	52,674	1.67
FOOD, DRUG, AND COSMETIC COLORS				
Total	4,264	3,985	14,263	3.58
Food, Drug, and Cosmetic Dyes				
Total	4,036	3,766	12,835	3.41
FD&C Blue No. 1	89	89	902	10.13
FD&C Blue No. 2	28	31	299	9.65
FD&C Red No. 2	1,211	1,201	3,259	2.71
FD&C Red No. 3	165	170	1,602	9.42
FD&C Red No. 4	26	28	133	4.75
FD&C Yellow No. 5	1,337	1,220	3,573	2.93
FD&C Yellow No. 6	1,102	976	2,602	2.67
All other food, drug, and cosmetic dyes	78	51	465	9.12
Drug and Cosmetic and External Drug and Cosmetic Dyes				
Total	228	219	1,428	6.52
D&C Green dyes	27	...	...	...
D&C Orange dyes	23	24	122	5.08
D&C Red dyes, total	124	131	588	4.49
D&C Red No. 6	13	12	50	4.17
D&C Red No. 7	13	15	56	3.73
D&C Red No. 8	4	...	...	...
D&C Red No. 19	7	9	55	6.11
D&C Red No. 36	9	10	34	3.40
All other	78	85	393	4.62
D&C Yellow No. 5	13	14	46	3.29
All other drug & cosmetic and external drug & cosmetic dyes	41	50	672	13.44

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
MORDANT DYES	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	2,255	2,220	3,607	$1.62
Mordant yellow dyes, total	212	204	355	1.74
Mordant Yellow 1	54	54	81	1.50
All other	158	150	274	1.83
Mordant orange dyes	...	182	293	1.61
Mordant red dyes	99	112	322	2.88
Mordant blue dyes	31	56	161	2.88
Mordant brown dyes, total	291	258	621	2.41
Mordant Brown 1	44	41	97	2.37
Mordant Brown 33	73	54	112	2.07
Mordant Brown 40	17	14	37	2.64
All other	157	149	375	2.52
Mordant black dyes, total	1,427	1,399	1,834	1.31
Mordant Black 3	...	27	36	1.33
Mordant Black 11	859	902	1,192	1.32
Mordant Black 17	369	325	336	1.03
All other	199	145	270	1.86
All other mordant dyes	195	9	21	2.33
SOLVENT DYES				
Total	11,192	11,133	19,362	1.74
Solvent yellow dyes, total	1,248	1,183	2,747	2.32
Solvent Yellow 2	24	27	47	1.74
Solvent Yellow 3	37	40	60	1.50
Solvent Yellow 14	649	644	792	1.23
All other	538	472	1,848	3.92
Solvent orange dyes, total	602	505	1,347	2.67
Solvent Orange 3	65	48	88	1.83
Solvent Orange 7	150	118	168	1.42
All other	387	339	1,091	3.22
Solvent red dyes, total	1,629	1,754	4,420	2.52
Solvent Red 24	288	...	...	...
Solvent Red 26	268	250	500	2.00
Solvent Red 49	80	47	306	6.51
All other	993	1,457	3,614	2.48
Solvent violet dyes, total	299	...	...	...
Solvent Violet 8	180	257	425	1.65
All other	119	...	...	...
Solvent blue dyes, total	1,571	1,418	4,578	3.23
Solvent Blue 11	11	...	...	...
Solvent Blue 38	111	109	533	4.89
All other	1,449	1,309	4,045	3.09
Solvent brown dyes, total	98	82	275	3.35
Solvent Brown 12	32	16	46	2.88
All other	66	66	229	3.47
All other solvent dyes	5,745	5,934	5,570	.94

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
SULFUR DYES[2]	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	18,542	17,740	9,894	$0.56
Sulfur black dyes	...	10,258	3,717	.36
All other sulfur dyes	...	7,482	6,177	.83
VAT DYES				
Total	50,786	49,624	57,849	1.17
Vat yellow dyes, total	7,516	6,835	10,186	1.49
Vat Yellow 2, 8-1/2	3,258	3,256	3,310	1.02
Vat Yellow 4, 12-1/2	1,862	1,614	1,868	1.16
All other	2,396	1,965	5,008	2.55
Vat orange dyes, total	4,515	3,603	9,219	2.56
Vat Orange 1, 20%	2,002	1,263	3,654	2.89
Vat Orange 2, 12%	371	388	869	2.24
Vat Orange 3, 13-1/2%	...	22	74	3.36
Vat Orange 9, 12%	251	208	507	2.44
Vat Orange 15, 10%	822	839	1,607	1.92
All other	1,069	883	2,508	2.84
Vat red dyes, total	1,629	1,160	2,668	2.30
Vat Red 1, 13%	470	511	876	1.71
Vat Red 13, 11%	...	242	359	1.48
Vat Red 32, 20%	94	102	391	3.83
All other	1,065	305	1,042	3.42
Vat violet dyes, total	620	619	1,463	2.36
Vat Violet 1, 11%	236	218	670	3.07
Vat Violet 2, 20%	...	42	101	2.40
Vat Violet 9, 12%	...	64	207	3.23
Vat Violet 13, 6-1/4%	261	244	349	1.43
All other	123	51	136	2.67
Vat blue dyes, total	17,303	17,372	12,154	.70
Vat Blue 4, 10%	69	57	119	2.09
Vat Blue 6, 8-1/3%	3,129	2,914	3,446	1.18
Vat Blue 18, 13%	488	663	1,263	1.90
Vat Blue 20, 14%	751	702	1,062	1.51
All other	12,866	13,036	6,264	.48
Vat green dyes, total	9,375	9,252	8,026	.87
Vat Green 1, 6%	3,667	3,743	2,825	.75
Vat Green 3, 10%	3,120	2,988	2,765	.93
Vat Green 8, 8-1/2%	1,063	980	993	1.01
All other	1,525	1,541	1,443	.94
Vat brown dyes, total	3,542	3,746	6,915	1.85
Vat Brown 1, 11%	466	574	900	1.57
Vat Brown 3, 11%	1,087	990	1,861	1.88
Vat Brown 5, 13%	...	52	92	1.77
All other	1,989	2,130	4,062	1.91

See footnotes at end of table.

TABLE 1.--Benzenoid dyes: U.S. production and sales, 1969--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
VAT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Vat black dyes, total	6,286	7,037	7,218	$1.03
Vat Black 25, 12-1/2%	3,243	4,007	3,378	.84
Vat Black 27, 12-1/2%	965	916	1,314	1.43
All other	2,078	2,114	2,526	1.19
All other dyes[3]	547	573	1,199	2.09

[1] Calculated from rounded figures.
[2] Production and sales quantities of "C.I. Leuco Sulfur" and "C.I. Solubilized Sulfur" dyes are reported in terms of the usual commercial concentration of the "C.I. Sulfur" dyes.
[3] Includes oxidation bases, ingrain dyes, and miscellaneous dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 1A.--Benzenoid dyes: U.S. production and sales, by class of application, 1969

Class of application	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	240,208	220,886	385,301	$1.74
Acid	24,538	21,685	52,305	2.41
Azoic dyes and components:				
Azoic compositions	2,567	2,235	3,619	1.62
Azoic diazo components, bases (Fast color bases)	1,188	989	1,433	1.45
Azoic diazo components, salts (Fast color salts)	1,740	1,728	1,559	.90
Azoic coupling components (Naphthol AS derivatives)	2,199	2,104	3,703	1.76
Basic	14,887	13,754	39,313	2.86
Direct	37,841	34,399	54,333	1.58
Disperse	25,460	23,104	57,812	2.50
Fiber-reactive	2,428	2,219	9,711	4.38
Fluorescent brightening agents	39,774	33,394	55,339	1.66
Food, drug, and cosmetic colors	4,264	3,985	14,263	3.58
Mordant	2,255	2,220	3,607	1.62
Solvent	11,192	11,133	19,362	1.74
Sulfur[2]	18,542	17,740	9,894	.56
Vat	50,786	49,624	57,849	1.17
All other[3]	547	573	1,199	2.09

[1] Calculated from rounded figures.
[2] Production and sales quantities of "C.I. Leuco Sulfur" and "C.I. Solubilized Sulfur" dyes are reported in terms of the usual commercial concentration of the "C.I. Sulfur" dyes.
[3] Includes oxidation bases, ingrain 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.--Benzenoid dyes: U.S. production and sales, by chemical class, 1969

Chemical class	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	240,208	220,886	385,301	$1.74
Anthraquinone	51,839	48,816	98,476	2.02
Azo, total	75,587	68,660	137,194	2.00
Monazo	32,628	29,380	66,589	2.27
Disazo	24,510	22,676	44,127	1.95
Trisazo	10,695	9,481	10,175	1.07
Polyazo	2,237	1,997	3,426	1.72
Not specified	5,517	5,126	12,877	2.51
Azoic	7,694	7,056	10,314	1.46
Cyanine	514	501	3,765	7.51
Indigoid	5,221	5,571	3,572	.64
Methine	3,010	2,655	8,223	3.10
Nitro	2,250	1,945	3,219	1.66
Oxazine	356	330	1,355	4.11
Phthalocyanine	1,978	1,825	4,506	2.47
Quinoline	1,613	1,417	4,747	3.35
Stilbene	40,995	34,674	47,164	1.36
Sulfur[2]	18,542	17,740	9,894	.56
Thiazine	...	620	1,283	2.07
Thiazole	526	456	1,190	2.61
Triarylmethane	7,415	6,774	15,543	2.29
Xanthene	1,382	925	5,317	5.75
All other[3]	21,286	20,921	29,539	1.41

[1] Calculated from rounded figures.

[2] Production and sales quantities of "C.I. Leuco Sulfur" and "C.I. Solubilized Sulfur" dyes are reported in terms of the usual commercial concentration of the "C.I. Sulfur" dyes.

[3] Includes production and sales of acridine, aminoketone, azine, coumarin, indophenol, ketone imine, nitroso, oxidation bases, vat sulfur, and miscellaneous dyes; and production of thiazine dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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 2	DUP.
Acid Yellow 3	ACS, ACY, DUP.
Acid Yellow 4	SDH.
*Acid Yellow 11	ATL, BDO, CMG, VPC.
Acid Yellow 14	TRC.
*Acid Yellow 17	ACS, ACY, ATL, BDO, CMG, DUP, PDC, SDH, TCD, TRC, VPC.
*Acid Yellow 23	AAP, ACS, ACY, GAF, MRX, PDC, SDH, TRC, VPC, WJ.
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, GAF.
*Acid Yellow 40	ATL, DUP, TRC, VPC.
*Acid Yellow 42	AAP, ACY, GAF, VPC.
*Acid Yellow 44	AAP, ACS, GAF, VPC.
Acid Yellow 49	VPC.
*Acid Yellow 54	ACS, ACY, CMG, GAF, TCD, TRC, VPC.
Acid Yellow 59	VPC.
Acid Yellow 60	FAB.
Acid Yellow 63	AAP, ACS, YAW.
Acid Yellow 65	ACS, ALT, TRC.
*Acid Yellow 73	ACS, DUP, GAF, SDH.
*Acid Yellow 76	ACS, GAF, TRC.
Acid Yellow 79	VPC.
*Acid Yellow 99	ACS, CMG, GAF, TRC, VPC.
Acid Yellow 114	CMG, TRC.
Acid Yellow 121	GAF.
*Acid Yellow 124	ACS, ATL, DUP, TCD.
Acid Yellow 127	TRC.
Acid Yellow 128	ALT, TRC.
Acid Yellow 129	TRC.
*Acid Yellow 151	ACY, ATL, DUP, FAB, TCD, TRC, VPC.
Acid Yellow 152	ACY.
Acid Yellow 159	ACS, ALT, FAB, TRC.
Acid Yellow 174	DUP.
Acid Yellow 175	DUP.
Other acid yellow dyes	ACY, ALT, CMG, DUP, GAF, TRC, VPC.
*Acid orange dyes:	
*Acid Orange 1	ATL, GAF, TCD.
Acid Orange 2	ACS.
Acid Orange 5	ACY.
Acid Orange 6	ACS.
*Acid Orange 7	AAP, ACS, ACY, ATL, CPC, GAF, KON, PDC, TCD, TRC, YAW.
*Acid Orange 8	ACS, ACY, ATL, DUP, GAF, TCD, TRC.
*Acid Orange 10	ACS, ACY, ATL, DUP, GAF, PDC, SDH, TRC, VPC, YAW.
Acid Orange 11	SDH.
Acid Orange 12	ACS.
Acid Orange 19	GAF.
*Acid Orange 24	ACS, ACY, DUP, GAF, TRC, YAW.
Acid Orange 31	AAP.
Acid Orange 45	ACS, TRC.
Acid Orange 50	AAP.
Acid Orange 51	CMG, DUP, TRC.
Acid Orange 52	ACS, ATL.
Acid Orange 56	GAF.
*Acid Orange 60	CMG, DUP, FAB, GAF, TCD, TRC.
Acid Orange 62	TRC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	ACS, CMG, GAF, TRC.
Acid Orange 76	ACS, TRC.
Acid Orange 85	ACS.
Acid Orange 86	ACS, ALT, TRC.
*Acid Orange 116	ACS, ALT, ATL, FAB, GAF, TCD, TRC, YAW.
Acid Orange 119	TRC.
Acid Orange 128	DUP.
Acid Orange 132	DUP.
Other acid orange dyes	ALT, TRC, VPC.
*Acid red dyes:	
*Acid Red 1	ACS, ACY, ATL, BDO, DUP, GAF, SDH, TCD, TRC, VPC, YAW.
*Acid Red 4	AAP, ATL, BDO, CMG, DUP, GAF, PDC, TRC, VPC.
*Acid Red 14	ACS, ATL, DUP, GAF, PDC, YAW.
*Acid Red 17	ACS, ATL, TRC, YAW.
*Acid Red 18	ACS, ACY, ATL, GAF, PDC, TRC.
*Acid Red 26	ACS, ACY, ATL, CPC, GAF.
Acid Red 27	ACS.
Acid Red 32	GAF.
Acid Red 33	YAW.
Acid Red 34	ACS.
Acid Red 35	AAP, GAF.
*Acid Red 37	ACS, CMG, DUP, GAF, TCD, TRC.
Acid Red 42	GAF.
Acid Red 52	GAF.
Acid Red 57	ATL, TRC.
Acid Red 66	AAP, ATL, YAW.
*Acid Red 73	ACS, ACY, ATL, DUP, GAF, PSC, TRC, YAW.
Acid Red 80	GAF, ICI.
*Acid Red 85	ACS, ACY, ATL, CMG, DUP, GAF, PDC, TCD, TRC, VPC, YAW.
Acid Red 87	SDH.
*Acid Red 88	ACS, ACY, ATL, DUP, GAF, TRC, YAW.
*Acid Red 89	AAP, BDO, GAF, TCD, VPC.
Acid Red 97	ATL, GAF.
Acid Red 98	VPC.
*Acid Red 99	ATL, CMG, FAB, TCD, TRC, YAW.
Acid Red 100	VPC.
Acid Red 106	YAW.
Acid Red 111	ATL.
Acid Red 113	DUP.
*Acid Red 114	ACS, ALT, ATL, DUP, GAF, PDC, TRC.
*Acid Red 115	ACS, ATL, GAF.
*Acid Red 119	ACS, ALT, ATL.
Acid Red 133	GAF.
Acid Red 134	DUP, TRC.
*Acid Red 137	ACS, ATL, DUP, GAF, TRC.
Acid Red 138	ALT.
*Acid Red 151	AAP, ACY, ALT, ATL, DUP, TCD, TRC, VPC, YAW.
Acid Red 154	VPC.
Acid Red 167	ACS, DUP, TRC.
Acid Red 175	DUP.
Acid Red 178	DUP.
Acid Red 179	CMG, TRC.
*Acid Red 182	ACS, ACY, BDO, CMG, DUP, GAF, TCD.
Acid Red 183	CMG, TRC.
*Acid Red 186	ATL, CMG, GAF, VPC.
Acid Red 191	ATL, TRC.
Acid Red 194	TRC.
Acid Red 201	ATL, TRC.
Acid Red 207	ACS.
Acid Red 211	DUP.
Acid Red 212	TRC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid red dyes--Continued	
Acid Red 213	TRC.
Acid Red 217	ALT.
Acid Red 266	DUP, TRC.
Acid Red 292	ACY.
Acid Red 299	ACS, ALT, GAF, TRC.
Acid Red 309	TRC.
Acid Red 337	DUP.
Acid Red 345	DUP.
Other acid red dyes	ALT, CMG, DUP, GAF, TCD, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1	ACS, BDO, CMG, GAF.
*Acid Violet 3	ACS, ACY, TRC, YAW.
Acid Violet 6	ACS.
*Acid Violet 7	AAP, ACS, ATL, BDO, CMG, DUP, GAF, TRC, VPC.
*Acid Violet 12	BDO, CMG, DUP, GAF.
Acid Violet 17	DUP, GAF, SDH.
Acid Violet 29	HSH.
Acid Violet 34	DUP, ICI.
Acid Violet 41	CMG.
Acid Violet 43	HSH, ICI.
*Acid Violet 49	ACS, ACY, SDH, TRC.
Acid Violet 56	GAF.
Acid Violet 76	ACS.
Other acid violet dyes	GAF.
*Acid blue dyes:	
Acid Blue 1	ACS, GAF, SDH.
*Acid Blue 7	ACS, ACY, GAF, SDH.
*Acid Blue 9	ACS, ACY, GAF, SDH, VPC.
Acid Blue 10	ACS.
Acid Blue 15	GAF.
Acid Blue 20	ACS.
Acid Blue 23	ACS, TRC.
*Acid Blue 25	ACS, ATL, BDO, CMG, DUP, GAF, TRC, VPC.
Acid Blue 27	BDO, CMG, GAF.
Acid Blue 29	YAW.
Acid Blue 34	ACS.
*Acid Blue 40	ACS, ALT, ATL, BDO, DUP, GAF, ICI.
*Acid Blue 41	ACS, BDO, CMG, GAF.
Acid Blue 43	ACS, ACY, GAF, TRC.
*Acid Blue 45	ACS, ACY, ATL, CMG, DUP, GAF, TCD, TRC.
Acid Blue 47	ICI.
Acid Blue 48	HSC.
Acid Blue 58	DUP.
*Acid Blue 62	ACS, ALT, BDO, GAF, VPC.
Acid Blue 63	CMG.
Acid Blue 67	CMG.
Acid Blue 69	GAF.
Acid Blue 74	ACS, DUP.
*Acid Blue 78	ACS, ATL, BDO, DUP, GAF, ICI, TRC.
Acid Blue 80	ACS, TRC.
Acid Blue 81	ICI.
Acid Blue 83	GAF.
Acid Blue 89	ACS.
Acid Blue 90	ACS, GAF, TRC.
Acid Blue 92	ACS, YAW.
Acid Blue 93	ACY, HSC.
Acid Blue 102	ACS, TRC.
Acid Blue 104	ACS, GAF.
*Acid Blue 113	ACS, ATL, BDO, CMG, DUP, FAB, GAF, PDC, TCD, TRC.
*Acid Blue 118	ACS, ATL, GAF, TCD.
*Acid Blue 120	ACS, ATL, GAF.
Acid Blue 122	DUP.
Acid Blue 145	ACS, DUP.
*Acid Blue 158 and 158A	ACS, ACY, BDO, GAF, TCD, TRC, VPC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
ACID DYES--Continued	
*Acid blue dyes--Continued	
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.
Acid Blue 232	VPC.
Acid Blue 255	DUP
Acid Blue 263	DUP.
Other acid blue dyes	ACY, ALT, ATL, CMG, GAF, TCD, TRC, VPC.
*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	ACS, GAF.
*Acid Green 16	ACS, DUP, GAF, SDH, TRC.
*Acid Green 20	ACS, ATL, BDO, GAF, PDC, TRC.
Acid Green 22	GAF.
*Acid Green 25	ACS, ATL, CMG, GAF, HSH, ICI, TRC, VPC.
Acid Green 35	TRC.
Acid Green 41	ICI, VPC.
Acid Green 44	VPC.
Acid Green 50	ACY, GAF.
Acid Green 58	TRC.
Acid Green 70	TRC.
Acid Green 84	VPC.
Other acid green dyes	ALT, VPC.
*Acid brown dyes:	
Acid Brown 1	GAF.
Acid Brown 6	GAF.
*Acid Brown 14	AAP, ACS, ACY, DUP, GAF, TRC, YAW.
Acid Brown 19	TRC.
Acid Brown 22	DUP.
Acid Brown 28	TRC.
Acid Brown 29	DUP.
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 223	GAF.
Acid Brown 243	GAF.
Other acid brown dyes	CMG, DUP, GAF, YAW.
*Acid black dyes:	
*Acid Black 1	AAP, ACS, ACY, ATL, DUP, FAB, GAF, HSH, PDC, TCD, TRC, YAW.
Acid Black 2	ACS, ACY.
Acid Black 12	ACS.
*Acid Black 24	ACS, CMG, DUP, GAF.
Acid Black 26, 26A, and 26B	ACS, ATL, DUP, TRC.
Acid Black 29	ACS, GAF.
Acid Black 41	ACS.
*Acid Black 48	ACY, CMG, GAF, ICI, TRC.
*Acid Black 52	ACS, ATL, DUP, GAF, TCD, TRC.
Acid Black 58	DUP, TRC.
*Acid Black 60	BDO, CMG, TRC.
Acid Black 92	ACY.
*Acid Black 107	ACS, GAF, TRC.
Acid Black 108	GAF.
Acid Black 138	VPC.
Other acid black dyes	ALT, DUP, PDC, TCD.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
AZOIC DYES AND COMPONENTS	
Azoic Compositions	
Azoic yellow dyes:	
Azoic Yellow 1	ALL, ATL.
*Azoic Yellow 2	ALL, ATL, BUC, x.
Azoic Yellow 3	ATL, BUC.
Azoic orange dyes:	
*Azoic Orange 3	ALL, ATL, BUC, GAF, x.
Azoic Orange 4	GAF.
Azoic Orange 10	BUC.
*Azoic red dyes:	
*Azoic Red 1	ALL, ATL, BUC, GAF, x.
*Azoic Red 2	ALL, ATL, BUC, GAF, x.
*Azoic Red 6	ALL, ATL, BUC, x.
Azoic Red 13	GAF.
Azoic Red 15	ATL, GAF.
Azoic Red 16	ATL.
Azoic Red 73	GAF.
Azoic Red 74	GAF.
Other azoic red dyes	ALL, GAF, x.
Azoic violet dyes: Azoic Violet 1	ATL, BUC, GAF.
Azoic blue dyes:	
Azoic Blue 2	ATL, BUC, GAF.
*Azoic Blue 3	ALL, ATL, GAF, HST, x.
Azoic Blue 6	ATL,
Azoic Blue 7	ATL, GAF.
Other azoic blue dyes	ALL.
Azoic green dyes:	
Azoic Green 1	ATL, GAF.
Other azoic green dyes	VPC.
Azoic brown dyes:	
Azoic Brown 3	x.
Azoic Brown 7	BUC.
*Azoic Brown 9	ALL, BUC, GAF, HST, VPC, x.
Azoic Brown 10	BUC.
Azoic Brown 26	GAF.
Other azoic brown dyes	GAF, VPC.
*Azoic black dyes:	
Azoic Black 1	HST.
Azoic Black 4	ATL, BUC, GAF.
Azoic Black 15	GAF.
Other azoic black dyes	ALL, GAF, PCW, VPC.
Azoic Diazo Components, Bases (Fast Color Bases)	
Azoic Diazo Component 1, base	ALL.
Azoic Diazo Component 2, base	ALL, ATL.
Azoic Diazo Component 3, base	BUC.
*Azoic Diazo Component 4, base	ALL, BUC, GAF, SDH.
Azoic Diazo Component 5, base	ALL, GAF, SDH.
*Azoic Diazo Component 8, base	ALL, DUP, SDH.
*Azoic Diazo Component 9, base	AAP, DUP, VPC.
*Azoic Diazo Component 10, base	ALL, BUC, GAF.
Azoic Diazo Component 11, base	ALL, PCW.
*Azoic Diazo Component 12, base	ALL, BUC, PCW, SDH.
Azoic Diazo Component 13, base	ALL, BUC, SDH.
Azoic Diazo Component 14, base	AAP.
Azoic Diazo Component 20, base	ALL.
Azoic Diazo Component 28, base	ALL, BUC.
*Azoic Diazo Component 32, base	AAP, ALL, ATL, BUC, DUP, SDH.
Azoic Diazo Component 34, base	GAF.
Azoic Diazo Component 41, base	GAF.
Azoic Diazo Component 42, base	PCW.
Azoic Diazo Component 44, base	BUC.
Azoic Diazo Component 46, base	ATL.
Azoic Diazo Component 48, base	CWN, GAF.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	ALL, GAF, SDH.
Azoic Diazo Component 2, salt	ALL, GAF.
*Azoic Diazo Component 3, salt	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 4, salt	ALL.
*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.
*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, GAF.
*Azoic Diazo Component 28, salt	ALL, BUC, GAF, SDH.
Azoic Diazo Component 32, salt	ALL, SDH.
Azoic Diazo Component 34, salt	ALL, GAF.
Azoic Diazo Component 35, salt	ALL, GAF.
Azoic Diazo Component 36, salt	AAP, GAF.
Azoic Diazo Component 37, salt	GAF.
Azoic Diazo Component 41, salt	GAF.
Azoic Diazo Component 42, salt	ALL, GAF.
*Azoic Diazo Component 44, salt	ALL, BUC, GAF.
Azoic Diazo Component 48, salt	SDH.
*Azoic Diazo Component 49, salt	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 121, salt	GAF.
Other azoic diazo components, salts	SDH.
Azoic Coupling Components (Naphthol AS and Derivatives)	
Azoic Coupling Component 2	ATL, BUC, GAF, PCW.
*Azoic Coupling Component 3	BUC, GAF, PCW.
*Azoic Coupling Component 4	ATL, BUC, GAF, PCW.
Azoic Coupling Component 5	PCW.
*Azoic Coupling Component 7	AAP, BUC, PCW, SDH.
*Azoic Coupling Component 8	ATL, BUC, GAF, PCW.
Azoic Coupling Component 10	ATL, PCW.
Azoic Coupling Component 11	BUC, PCW.
Azoic Coupling Component 12	BUC, GAF, PCW.
Azoic Coupling Component 13	GAF, PCW.
*Azoic Coupling Component 14	ATL, BUC, GAF, PCW.
Azoic Coupling Component 15	BUC, GAF, PCW.
Azoic Coupling Component 16	BUC, GAF, PCW.
Azoic Coupling Component 17	ATL, BUC, PCW.
*Azoic Coupling Component 18	ATL, BUC, GAF, PCW.
Azoic Coupling Component 19	GAF, PCW.
Azoic Coupling Component 20	BUC, PCW.
Azoic Coupling Component 21	ATL, BUC, PCW.
Azoic Coupling Component 23	PCW.
Azoic Coupling Component 24	GAF, PCW.
*Azoic Coupling Component 29	ATL, BUC, PCW.
*Azoic Coupling Component 34	ATL, BUC, PCW.
Azoic Coupling Component 35	GAF, PCW.
Azoic Coupling Component 36	GAF.
*Azoic Coupling Component 43	ATL, BUC, GAF. PCW.
Azoic Coupling Component 44	PCW.
Other azoic coupling components	ATL, GAF, VPC.
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.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES--Continued	
*Basic yellow dyes--Continued	
Basic Yellow 16	DUP.
Basic Yellow 21	VPC.
Basic Yellow 24	BAS.
Basic Yellow 25	BAS.
Basic Yellow 26	ACY.
Basic Yellow 28	VPC.
Basic Yellow 29	DUP, VPC.
Basic Yellow 31	DUP.
Basic Yellow 37	ACY, DUP.
Basic Yellow 41	ACY.
Other basic yellow dyes	ATL, DUP, VPC.
*Basic orange dyes:	
*Basic Orange 1	ACS, ACY, DUP, GAF, TRC.
*Basic Orange 2	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
Basic Orange 14	GAF.
Basic Orange 17	ACS.
*Basic Orange 21	ATL, ACS, DUP, GAF, VPC.
Basic Orange 22	ACS, GAF.
Basic Orange 24	DUP.
Basic Orange 25	DUP.
Basic Orange 26	DUP.
Basic Orange 27	VPC.
Basic Orange 31	ACY.
*Basic red dyes:	
Basic Red 1	BAS, DUP.
Basic Red 2	ACS, DUP.
*Basic Red 9	ACY, DSC, HSC.
Basic Red 12	ACY, DUP.
*Basic Red 13	ACS, ATL, GAF, TRC, VPC.
*Basic Red 14	ACS, ATL, DUP, GAF, VPC.
Basic Red 15	DUP, GAF.
Basic Red 16	DUP.
Basic Red 17	DUP.
*Basic Red 18	DUP, GAF, VPC.
Basic Red 19	DUP.
Basic Red 22	ACY, TRC.
Basic Red 29	BAS.
Basic Red 30	ACY.
Basic Red 48	DUP.
Basic Red 49	DUP.
Other basic red dyes	GAF, TRC, VPC.
*Basic violet dyes:	
*Basic Violet 1	ACS, ACY, DSC, DUP, HSC.
Basic Violet 2	DSC, DUP.
Basic Violet 3	ACS, DSC, DUP, SDH.
*Basic Violet 4	ACS, DSC, DUP.
Basic Violet 7	GAF.
*Basic Violet 10	ACY, DUP, GAF.
Basic Violet 13	DSC.
Basic Violet 14	ACY, DSC.
Basic Violet 15	DUP.
*Basic Violet 16	ATL, DUP, GAF, TRC, VPC.
Basic Violet 18	ACY.
Basic Violet 20	VPC.
Basic Violet 24	DUP.
*Basic blue dyes:	
*Basic Blue 1	GAF, SDH, VPC.
Basic Blue 2	DSC.
Basic Blue 3	ACY, DSC, DUP, GAF.
*Basic Blue 5	DSC, GAF, SDH, VPC.
Basic Blue 6	ACS, ACY.
*Basic Blue 7	DSC, DUP, SDH.
*Basic Blue 9	ACS, ACY, DUP, SDH.
Basic Blue 11	DSC, SDH.
Basic Blue 21	DUP.
Basic Blue 22	ACS, DUP, VPC.
Basic Blue 26	DUP, SDH.
Basic Blue 35	DUP.
Basic Blue 39	DUP.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
BASIC DYES--Continued	
*Basic blue dyes--Continued	
Basic Blue 41	TRC.
Basic Blue 45	VPC.
Basic Blue 47	VPC.
Basic Blue 54	ACY, BAS.
Basic Blue 69	VPC.
Basic Blue 75	EKT.
Basic Blue 76	ACY.
Basic Blue 82	DUP.
Basic Blue 87	DUP.
Other basic blue dyes	DUP, GAF, VPC.
Basic green dyes:	
*Basic Green 1	ACS, ACY, DSC, DUP, SDH.
Basic Green 3	DUP.
*Basic Green 4	ACS, ACY, DSC, DUP, SDH.
Basic Green 7	DSC.
Other basic green dyes	DUP, VPC.
Basic brown dyes:	
*Basic Brown 1	ACS, ACY, DUP, GAF, TRC.
Basic Brown 2	GAF.
*Basic Brown 4	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
Basic black dyes	DSC, VPC.
DIRECT DYES	
*Direct yellow dyes:	
*Direct Yellow 4	ACS, ACY, ATL, DUP, GAF, TCD, TRC, VPC.
*Direct Yellow 5	ACS, ACY, GAF.
*Direct Yellow 6	ACS, ACY, ATL, DUP, GAF, TRC.
Direct Yellow 7	ATL.
*Direct Yellow 8	ACS, ATL, GAF.
Direct Yellow 9	ATL, DUP.
*Direct Yellow 11	ACS, ACY, DUP, GAF, TCD, TRC, VPC.
*Direct Yellow 12	ACS, ATL, DUP, FAB, GAF, TRC.
Direct Yellow 20	TRC.
Direct Yellow 23	DUP.
*Direct Yellow 26	ALT, ATL, TCD.
Direct Yellow 27	GAF.
*Direct Yellow 28	ACS, ATL, DUP, GAF, PDC, TRC.
*Direct Yellow 29	ATL, DUP, GAF.
Direct Yellow 39	TRC.
Direct Yellow 41	ATL.
*Direct Yellow 44	ACS, ALT, ATL, DUP, FAB, GAF, HSH, TCD, TRC, VPC.
*Direct Yellow 50	ACS, ATL, DUP, FAB, GAF, HSH, TCD, TRC, VPC.
Direct Yellow 59	ACS, DUP.
Direct Yellow 63	DUP.
Direct Yellow 81	ATL.
*Direct Yellow 84	ACS, ATL, DUP, FAB, TCD, TRC.
Direct Yellow 103	ACS.
*Direct Yellow 105	ACS, ALT, GAF, TCD, TRC.
*Direct Yellow 106	ACS, ALT, FAB, GAF, TCD, TRC, YAW.
Direct Yellow 107	GAF.
Direct Yellow 114	ACY.
Direct Yellow 117	TRC.
Direct Yellow 118	TRC.
Direct Yellow 119	DUP.
Direct Yellow 120	DUP.
Direct Yellow 121	TRC.
Direct Yellow 125	ACY.
Direct Yellow 127	DUP.
Direct Yellow 128	DUP.
Other direct yellow dyes	AAP, ALT, ATL, DUP, GAF, HSH, TRC, VPC.
*Direct orange dyes:	
*Direct Orange 1	AAP, ACS, ALT, ATL, CMG, VPC.
Direct Orange 6	ACS.
*Direct Orange 8	ACS, ATL, DUP, GAF, TRC, YAW.
Direct Orange 10	AAP, ACS.
Direct Orange 11	GAF.
*Direct Orange 15	ACS, ACY, DUP, GAF, TRC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct orange dyes--Continued	
*Direct Orange 26	ACS, ATL, CMG, DUP, GAF, HSH, TRC.
*Direct Orange 29	ATL, FAB, TCD, TRC, VPC.
*Direct Orange 34	ACS, ATL, CMG, DUP, GAF.
*Direct Orange 37	ACY, ATL, CMG, DUP, GAF.
*Direct Orange 39	ACY, ALT, ATL, DUP, FAB, GAF, TCD.
Direct Orange 59	DUP, GAF.
Direct Orange 61	TRC.
Direct Orange 67	ACS, VPC.
Direct Orange 70	TRC.
*Direct Orange 72	ACS, ALT, ATL, FAB, HSH, TCD, TRC, VPC.
Direct Orange 73	DUP, GAF, TRC.
Direct Orange 74	DUP, HSH.
Direct Orange 78	VPC.
Direct Orange 79	DUP.
Direct Orange 80	DUP, 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, DUP, VPC.
*Direct red dyes:	
*Direct Red 1	AAP, ACS, ATL, DUP, GAF, TRC, VPC, YAW.
*Direct Red 2	ATL, DUP, FAB, TCD, TRC.
*Direct Red 4	ACS, ATL, TRC, VPC.
Direct Red 5	ACS.
*Direct Red 10	AAP, ACS, ATL.
*Direct Red 13	ACS, ATL, DUP, GAF, TRC, YAW.
*Direct Red 16	ACS, ATL, DUP, GAF, TRC.
Direct Red 20	GAF.
*Direct Red 23	ACS, ATL, CMG, DUP, FAB, GAF, TCD, TRC, VPC.
*Direct Red 24	AAP, ATL, FAB, HSH, TCD, TRC, VPC.
*Direct Red 26	AAP, ACS, ATL, DUP, GAF, HSH, TCD, TRC, VPC.
*Direct Red 28	ACS, ATL, DUP, FAB, TRC, YAW.
*Direct Red 31	ACS, ATL, DUP, GAF, HSH, TRC.
Direct Red 32	ACS, DUP.
*Direct Red 37	ACS, ACY, ATL, DUP, GAF, TRC, YAW.
*Direct Red 39	ACS, ATL, DUP, GAF, TRC, YAW.
Direct Red 62	ATL, TRC.
Direct Red 67	ACS.
*Direct Red 72	ACS, GAF, TRC.
Direct Red 73	ACS, ATL, DUP.
*Direct Red 75	ACS, CMG, DUP, GAF.
Direct Red 76	GAF.
*Direct Red 79	ATL, CMG, TCD, TRC, VPC.
*Direct Red 80	AAP, ACS, ATL, BDO, CMG, FAB, HSH, SDH, TCD, TRC, VPC.
*Direct Red 81	AAP, ACS, ACY, ALT, ATL, BDO, CMG, DUP, GAF, HSH, TCD, TRC, VPC, YAW.
*Direct Red 83	ACS, ALT, ATL, CMG, FAB, HSH, TCD, TRC, VPC.
Direct Red 84	ATL, TCD.
Direct Red 95	VPC.
Direct Red 111	GAF.
Direct Red 117	DUP.
*Direct Red 122	CMG, TRC, VPC.
Direct Red 123	GAF.
Direct Red 127 and 127A	ATL.
Direct Red 139	ATL, VPC.
*Direct Red 149	ATL, CMG, DUP, GAF.
Direct Red 152	CMG, DUP.
Direct Red 153	ATL.
Direct Red 155	GAF.
Direct Red 209	TRC, VPC.
Direct Red 212	VPC.
Other direct red dyes	ALT, ATL, DUP, GAF, HSH, TCD, TRC, YAW.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct violet dyes:	
*Direct Violet 1	AAP, ACS, ATL.
*Direct Violet 7	ACS, ATL, GAF.
*Direct Violet 9	ACS, ATL, DUP, GAF, TCD, TRC.
Direct Violet 14	ACS.
Direct Violet 22	DUP.
Direct Violet 47	GAF.
Direct Violet 51	ACS, DUP.
Direct Violet 62	ACY.
Direct Violet 66	ATL, TRC.
Direct Violet 67	DUP.
*Direct blue dyes:	
*Direct Blue 1	AAP, ACS, ACY, ATL, DUP, FAB, GAF, TCD, TRC. VPC, YAW.
*Direct Blue 2	AAP, ACS, ATL, DUP, FAB, GAF, HSH, TCD, TRC, VPC, YAW.
*Direct Blue 6	AAP, ACS, ACY, ATL, DUP, GAF, HSH, TCD, TRC, YAW.
*Direct Blue 8	ACS, ATL, DUP, YAW.
Direct Blue 10	GAF.
Direct Blue 14	ACS, ATL, TRC.
*Direct Blue 15	ACS, ATL, DUP, GAF, YAW.
*Direct Blue 22	ACS, ATL, CMG, DUP.
Direct Blue 24	ATL, TCD, YAW.
*Direct Blue 25	ACS, ATL, GAF, TRC, YAW.
Direct Blue 26	ATL.
Direct Blue 44	VPC.
*Direct Blue 67	ACS, ATL, DUP, TRC.
*Direct Blue 71	ACS, ATL, GAF, TRC.
Direct Blue 74	DUP.
Direct Blue 75	TRC.
*Direct Blue 76	ACS, ALT, ATL, FAB, GAF, HSH, TCD, TRC, VPC, YAW.
*Direct Blue 78	ACS, ATL, CMG, DUP, TRC.
*Direct Blue 80	ACS, ALT, ATL, DUP, FAB, GAF, HSH, TCD, TRC.
Direct Blue 81	ATL.
*Direct Blue 86	AAP, ACS, ACY, ALT, ATL, DUP, FAB, GAF, ICC, ICI, SDH, TCD, TRC, VPC.
Direct Blue 87	ICI.
Direct Blue 91	TRC.
*Direct Blue 98	ALT, ATL, GAF, TRC, VPC.
Direct Blue 100	ALT, ATL, TCD.
Direct Blue 104	DUP.
Direct Blue 108	ATL.
*Direct Blue 120 and 120A	ATL, DUP, GAF, TCD, TRC.
*Direct Blue 126	ATL, DUP, HSH, TRC, VPC.
Direct Blue 133	GAF.
Direct Blue 136	GAF.
Direct Blue 143	DUP.
Direct Blue 151	ATL, TRC.
Direct Blue 160	TRC.
Direct Blue 189	TCD, TRC.
*Direct Blue 191	AAP, ACS, ALT, GAF.
Direct Blue 199	GAF.
*Direct Blue 218	ACS, ALT, ATL, DUP, FAB, GAF, TCD, TRC, YAW.
Direct Blue 224	ATL.
Direct Blue 238	ACY.
Direct Blue 263	DUP.
Other direct blue dyes	ALT, ATL, GAF, HSH, TCD, VPC.
*Direct green dyes:	
*Direct Green 1	AAP, ACS, ACY, ATL, DUP, FAB, GAF, TRC, YAW.
*Direct Green 6	AAP, ACS, ATL, DUP, FAB, GAF, TCD, TRC, YAW.
Direct Green 8	ACS, TRC.
Direct Green 12	ACS, TRC.
Direct Green 15	DUP.
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 41	DUP.
Direct Green 45	ATL, VPC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
DIRECT DYES--Continued	
*Direct green dyes--Continued	
Direct Green 47	ALT, DUP, GAF.
Direct Green 51	TRC.
Direct Green 69	TRC.
Other direct green dyes	ACY, DUP.
*Direct brown dyes:	
*Direct Brown 1	ACY, ATL, DUP, TCD.
*Direct Brown 1A	GAF, TRC, YAW.
*Direct Brown 2	AAP, ACS, ACY, ATL, DUP, GAF, HSH, TRC, YAW.
Direct Brown 6	ACS, ATL, GAF, TRC, YAW.
Direct Brown 25	DUP.
Direct Brown 27	ATL, GAF.
*Direct Brown 31	AAP, ACS, ATL, DUP, GAF, TRC, YAW.
Direct Brown 32	GAF.
Direct Brown 33	DUP.
Direct Brown 40	AAP.
Direct Brown 44	GAF, YAW.
Direct Brown 48	AAP.
Direct Brown 59	ACY.
*Direct Brown 74	AAP, ACS, DUP.
*Direct Brown 95	ACS, ATL, DUP, FAB, GAF, HSH, TCD, TRC, YAW.
Direct Brown 105	DUP.
Direct Brown 106	GAF.
*Direct Brown 111	DUP, GAF, TRC, VPC.
Direct Brown 112	ATL.
*Direct Brown 154	ACS, DUP, FAB, GAF, TRC, YAW.
Direct Brown 218	ACS.
Other direct brown dyes	VPC, YAW.
*Direct black dyes:	
*Direct Black 4	ACS, ATL, GAF, TCD, TRC, YAW.
Direct Black 8	TRC, YAW.
*Direct Black 9	ACS, DUP, GAF, TCD.
Direct Black 17	GAF.
*Direct Black 19	ATL, GAF, TCD, TRC.
*Direct Black 22	AAP, ALT, ATL, DUP, GAF, TCD, TRC, VPC, YAW.
Direct Black 36	AAP, ATL.
Direct Black 37	AAP, ACS.
*Direct Black 38	AAP, ACS, ACY, ATL, FAB, GAF, HSH, TCD, TRC, YAW.
Direct Black 44	TRC.
*Direct Black 51	AAP, ACS, DUP, GAF, TRC.
Direct Black 56	ACS, TRC.
Direct Black 71	ATL, VPC.
Direct Black 75	GAF.
Direct Black 78	ACS, TCD.
*Direct Black 80	ACS, ATL, FAB, HSH, TCD, TRC, VPC, YAW.
Direct Black 109	GAF.
Direct Black 130	ACY.
Direct Black 190	ACS, TCD.
Other direct black dyes	ACY, ATL, HSH, TCD, TRC, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse Yellow 1	GAF.
Disperse Yellow 2	DUP.
*Disperse Yellow 3	AAP, ACS, ALT, ATL, DUP, EKT, GAF, HSH, ICC, TCD, TRC.
*Disperse Yellow 5	AAP, GAF, ICC, TCD.
Disperse Yellow 8	DUP, EKT, TRC.
*Disperse Yellow 23	AAP, DUP, EKT, GAF, ICC, TCD, 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, DUP, EKT, ICC, GAF, MAY, SDC, TCD, TRC.
Disperse Yellow 50	TRC.
*Disperse Yellow 54	AAP, DUP, GAF, ICC, TRC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse yellow dyes--Continued	
Disperse Yellow 67	DUP.
Disperse Yellow 69	ACY.
Disperse Yellow 77	VPC.
Disperse Yellow 85	AAP, EKT.
Disperse Yellow 86	AAP, EKT.
Disperse Yellow 87	EKT.
Disperse Yellow 88	EKT.
Disperse Yellow 89	EKT.
Disperse Yellow 95	VPC.
Disperse Yellow 96	VPC.
Other disperse yellow dyes	GAF, MAY, SDC, TCD, TRC, VPC.
*Disperse orange dyes:	
*Disperse Orange 3	AAP, DUP, GAF, HSH, ICC, TCD, TRC.
*Disperse Orange 5	AAP, EKT, GAF, SDC.
Disperse Orange 16	AAP.
*Disperse Orange 17	AAP, EKT, GAF, HSH, ICC, TCD.
Disperse Orange 21	TRC.
*Disperse Orange 25	DUP, EKT, TRC.
Disperse Orange 26	DUP.
Disperse Orange 28	AAP.
Disperse Orange 29	AAP.
Disperse Orange 30	ICC, TRC.
Disperse Orange 38	TRC.
Disperse Orange 40	DUP.
Disperse Orange 41	DUP.
Disperse Orange 44	DUP.
Disperse Orange 57	EKT.
Disperse Orange 58	EKT.
Disperse Orange 59	EKT.
Disperse Orange 62	DUP.
Disperse Orange 75	DUP.
Other disperse orange dyes	AAP, GAF, ICC, MAY, SDC, TRC.
*Disperse red dyes:	
*Disperse Red 1	AAP, ACS, DUP, EKT, GAF, HSH, ICC, TCD, TRC.
Disperse Red 4	GAF, TCD, TRC.
*Disperse Red 5	AAP, EKT, GAF, HSH, ICC, TCD.
Disperse Red 7	AAP.
Disperse Red 9	ATL, ICI.
*Disperse Red 11	AAP, DUP, GAF, ICC.
*Disperse Red 13	AAP, DUP, GAF, ICC, TCD.
Disperse Red 14	MAY.
*Disperse Red 15	AAP, GAF, HSH, ICC, TCD, TRC.
*Disperse Red 17	AAP, DUP, EKT, GAF, HSH, ICC, TCD, 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	AAP, DUP, TCD, TRC.
Disperse Red 56	DUP.
Disperse Red 59	ACY, DUP, GAF.
*Disperse Red 60	AAP, DUP, EKT, GAF, TCD, VPC.
*Disperse Red 65	DUP, EKT, TRC.
Disperse Red 66	AAP.
Disperse Red 73	TRC.
Disperse Red 78	ICC, TRC.
Disperse Red 86	EKT, GAF.
Disperse Red 88	EKT.
Disperse Red 96	ACY.
Disperse Red 117	EKT.
Disperse Red 136	EKT.
Disperse Red 137	EKT.
Disperse Red 138	EKT.
Disperse Red 140	DUP.
Other disperse red dyes	AAP, GAF, ICC, MAY, SDC, TCD, 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 11	ACS.
Disperse Violet 14	DUP.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
DISPERSE DYES--Continued	
*Disperse violet dyes--Continued	
Disperse Violet 18	DUP, TRC.
Disperse Violet 26	DUP.
*Disperse Violet 27	AAP, ACY, DUP, EXT, GAF, ICC.
Disperse Violet 41	EKT.
Disperse Violet 42	EKT.
Disperse Violet 43	EKT.
Disperse Violet 44	EKT.
Other disperse violet dyes	GAF, TCD.
*Disperse blue dyes:	
*Disperse Blue 1	AAP, BAS, GAF, ICC, TRC.
*Disperse Blue 3	AAP, ACS, DUP, EKT, GAF, HSH, ICC, TCD, TRC.
*Disperse Blue 7	GAF, ICC, TCD, TRC.
Disperse Blue 9	DUP, GAF, ICC.
Disperse Blue 26	DUP.
Disperse Blue 27	DUP, EKT.
Disperse Blue 35	ICI.
Disperse Blue 55	TRC.
Disperse Blue 56	VPC.
Disperse Blue 59	DUP.
Disperse Blue 60	DUP.
Disperse Blue 61	DUP.
Disperse Blue 62	DUP, EKT, SDC.
Disperse Blue 63	DUP.
*Disperse Blue 64	DUP, EKT, GAF, TRC.
Disperse Blue 70	AAP.
Disperse Blue 71	VPC.
Disperse Blue 73	TRC.
*Disperse Blue 79	AAP, EKT, TRC.
Disperse Blue 81	VPC.
Disperse Blue 94	BAS.
Disperse Blue 95	GAF.
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.
Disperse Blue 121	EKT.
Disperse Blue 122	EKT.
Disperse Blue 123	EKT.
Disperse Blue 132	DUP.
Disperse Blue 133	DUP.
Disperse Blue 150	DUP.
Disperse Blue 155	GAF.
Other disperse blue dyes	GAF, HSH, ICC, MAY, SDC, TCD, TRC.
Disperse green dyes	GAF.
Disperse brown dyes:	
Disperse Brown 1	TRC.
Disperse Brown 2	DUP, EKT, GAF.
Disperse Brown 5	EKT.
Disperse Brown 7	EKT.
Other disperse brown dyes	AAP, GAF, ICC, SDC, TRC.
*Disperse black dyes:	
*Disperse Black 1	AAP, DUP, GAF, TRC.
Disperse Black 2	DUP, TRC.
Disperse Black 6	AAP.
Disperse Black 7	YAW.
Disperse Black 9	AAP, BAS, EKT, HSH.
Disperse Black 33	EKT.
Disperse Black 34	EKT.
Other disperse black dyes	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 14	HST.
Reactive Yellow 15	HST.
Reactive Yellow 17	HST.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
FIBER-REACTIVE DYES--Continued	
*Reactive yellow dyes--Continued	
Reactive Yellow 18	ICI.
Reactive Yellow 22	ICI.
Reactive Yellow 24	HST.
Reactive Yellow 37	HST.
Reactive Yellow 60	ACY.
Reactive Yellow 61	ACY.
Reactive Yellow 62	ACY.
Other reactive yellow dyes	HST, VPC.
Reactive orange dyes:	
Reactive Orange 1	ICI.
Reactive Orange 2	TRC.
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.
Other reactive orange dyes	HST.
Reactive red dyes:	
Reactive Red 1	ICI.
Reactive Red 2	ICI.
Reactive Red 3	ICI.
Reactive Red 4	TRC.
Reactive Red 5	ICI.
Reactive Red 8	ICI.
Reactive Red 11	ICI.
Reactive Red 13	ICI.
Reactive Red 16	TRC.
Reactive Red 21	HST.
Reactive Red 29	ICI.
Reactive Red 31	HST, ICI.
Reactive Red 33	ICI.
Reactive Red 41	VPC.
Reactive Red 93	ACY.
Other reactive red dyes	ACY.
Reactive violet dyes:	
Reactive Violet 1	ICI.
Reactive Violet 2	TRC.
Reactive Violet 4	HST.
Reactive Violet 5	HST.
Other reactive violet dyes	HST.
*Reactive blue dyes:	
Reactive Blue 1	ICI.
Reactive Blue 2	TRC.
Reactive Blue 3	ICI.
Reactive Blue 4	ICI.
Reactive Blue 5	TRC.
Reactive Blue 7	TRC.
Reactive Blue 9	ICI.
Reactive Blue 19	HST.
Reactive Blue 21	HST.
Reactive Blue 25	ICI.
Reactive Blue 27	HST.
Reactive Blue 29	VPC.
Reactive Blue 30	VPC.
Reactive Blue 86	ACY.
Reactive Blue 87	ACY.
Reactive Blue 88	ACY.
Other reactive blue dyes	HST.
Reactive green dyes	HST.
Reactive brown dyes: Reactive Brown 10	ICI.
*Reactive black dyes:	
Reactive Black 1	TRC.
Reactive Black 5	HST.
Reactive Black 9	ICI.
FLUORESCENT BRIGHTENING AGENTS	
Fluorescent Brightening Agent 1	GGY.
Fluorescent Brightening Agent 6	ACY.
Fluorescent Brightening Agent 8	ACY.
*Fluorescent Brightening Agent 9	ACY, GAF, SDH.
Fluorescent Brightening Agent 22	GGY.
Fluorescent Brightening Agent 24	GGY.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
FLUORESCENT BRIGHTENING AGENTS--Continued	
Fluorescent Brightening Agent 25	GAF.
*Fluorescent Brightening Agent 28	ACY, CCW, DUP, SDH.
Fluorescent Brightening Agent 30	GAF.
Fluorescent Brightening Agent 33	GAF.
Fluorescent Brightening Agent 34	DUP.
Fluorescent Brightening Agent 37	CIB.
Fluorescent Brightening Agent 45	TRC.
Fluorescent Brightening Agent 46	GGY.
Fluorescent Brightening Agent 49	S.
Fluorescent Brightening Agent 52	S.
Fluorescent Brightening Agent 54	GGY.
Fluorescent Brightening Agent 59	GGY.
Fluorescent Brightening Agent 61	ACY.
Fluorescent Brightening Agent 68	CCW, GAF.
Fluorescent Brightening Agent 71	ACY, GAF.
Fluorescent Brightening Agent 75	GAF.
Fluorescent Brightening Agent 102	DUP, VPC.
Fluorescent Brightening Agent 108	GAF.
Fluorescent Brightening Agent 109	GAF.
Fluorescent Brightening Agent 113	VPC.
Fluorescent Brightening Agent 114	VPC.
Fluorescent Brightening Agent 121	VPC.
Fluorescent Brightening Agent 125	ACY.
Fluorescent Brightening Agent 126	SDH.
Fluorescent Brightening Agent 128	SDH.
Fluorescent Brightening Agent 130	SDH.
Fluorescent Brightening Agent 135	CIB.
Fluorescent Brightening Agent 136	CIB.
Fluorescent Brightening Agent 139	CIB.
Fluorescent Brightening Agent 158	ACY.
Fluorescent Brightening Agent 159	ACY.
Fluorescent Brightening Agent 161	ACY.
Fluorescent Brightening Agent 205	VPC.
Other fluorescent brightening agents	ACY, CCW, CIB, DUP, GGY, PCW, S, VPC.
FOOD, DRUG, AND COSMETIC COLORS	
Food, Drug, and Cosmetic Dyes	
*FD&C Blue No. 1	ACS, KON, SDH, WJ.
*FD&C Blue No. 2	ACS, 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, KON, SDH, STG, WJ.
*FD&C Red No. 4	ALT, KON, STG, WJ.
FD&C Violet No. 1	ACS, SDH, WJ.
*FD&C Yellow No. 5	ACS, ALT, KON, SDH, STG, WJ.
*FD&C Yellow No. 6	ACS, ALT, KON, SDH, STG, WJ.
Other food, drug, and cosmetic dyes	STG.
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	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. 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, TMS.
D&C Red No. 9	KON, SNA, TMS.
D&C Red No. 10	SNA.
D&C Red No. 11	KON, SNA.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
FOOD, DRUG, AND COSMETIC COLORS--Continued	
Drug and Cosmetic Dyes--Continued	
D&C Red No. 12	KON, SNA, TMS.
D&C Red No. 13	SNA, TMS.
D&C Red No. 17	KON.
*D&C Red No. 19	ACS, KON, SNA, TMS.
D&C Red No. 21	KON, SNA, TMS.
D&C Red No. 22	KON, SDH.
D&C Red No. 27	SNA, TMS.
D&C Red No. 28	ACS.
D&C Red No. 30	KON, TMS.
D&C Red No. 31	KON.
D&C Red No. 33	ACS.
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, SNA, TMS.
D&C Yellow No. 6	KON.
D&C Yellow No. 7	KON.
D&C Yellow No. 8	KON, TMS.
D&C Yellow No. 10	ACS, KON.
D&C Yellow No. 11	ACS, KON.
Drug and Cosmetic Dyes, External	
Ext. D&C Green No. 1	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	ICI, VPC.
MORDANT DYES	
*Mordant yellow dyes:	
*Mordant Yellow 1	ATL, GAF, PDC.
Mordant Yellow 5	TRC.
Mordant Yellow 8	ACS, VPC.
Mordant Yellow 14	ACS, PDC.
Mordant Yellow 16	ACS, ACY.
Mordant Yellow 20	ACS.
Mordant Yellow 26	VPC.
Mordant Yellow 29	GAF.
Mordant Yellow 30	TRC, VPC.
Mordant Yellow 36	PDC.
*Mordant orange dyes:	
Mordant Orange 1	ACY, GAF, PDC, TRC.
Mordant Orange 4	GAF, PDC.
Mordant Orange 6	ATL, GAF, TRC.
Mordant Orange 8	TRC.
Mordant Orange 30	ACS.
*Mordant red dyes:	
Mordant Red 3	ACS, ACY.
Mordant Red 5	PDC.
Mordant Red 7	ACS, ACY, ATL, BDO, CMG, GAF, PDC, TRC, VPC.
Mordant Red 9	MRX.
Mordant Red 11	ACY.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
MORDANT DYES--Continued	
Mordant violet dyes:	
Mordant Violet 5	PDC.
Mordant Violet 11	GAF.
Mordant Violet 20	GAF.
*Mordant blue dyes:	
Mordant Blue 1	ACS, GAF.
Mordant Blue 3	GAF.
Mordant Blue 7	TRC.
Mordant Blue 9	GAF.
Mordant Blue 13	ACS, HSH.
Mordant Blue 19	CMG.
Mordant green dyes:	
Mordant Green 11	ACY.
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 17	CMG.
Mordant Brown 18	ACS, DUP.
Mordant Brown 19	GAF.
Mordant Brown 21	GAF, VPC.
*Mordant Brown 33	ACS, GAF, PDC, TRC.
*Mordant Brown 40	ACS, CMG, GAF, VPC, YAW.
Mordant Brown 50	TRC.
Mordant Brown 63	TRC.
Mordant Brown 70	DUP, PDC.
*Mordant black dyes:	
Mordant Black 1	ACS.
*Mordant Black 3	ACS, GAF, TRC.
Mordant Black 8	VPC.
Mordant Black 9	ACS, VPC.
*Mordant Black 11	ACS, GAF, TRC, VPC.
Mordant Black 13	GAF, HSH.
*Mordant Black 17	ACS, ACY, GAF, TRC.
Mordant Black 19	PDC.
Mordant Black 26	TRC.
Mordant Black 38	CMG, PDC.
Other mordant black dyes	VPC.
OXIDATION BASES	
Oxidation Base 8 and 8A	ACY.
Oxidation Base 21	PDC.
Oxidation Base 22	ACY.
Oxidation Base 25	ACY.
Other oxidation bases	ACY, CMG.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 1	AAP, ACY.
*Solvent Yellow 2	AAP, DUP, FH, GAF, PSC.
*Solvent Yellow 3	ACS, DUP, FH, PSC.
Solvent Yellow 13	ACY, GAF.
*Solvent Yellow 14	AAP, ACS, ACY, ATL, DUP, FH, GAF, PAT, PSC, SDH.
Solvent Yellow 19	GAF.
Solvent Yellow 29	GAF.
Solvent Yellow 30	ACS, PSC.
Solvent Yellow 33	ACS, ACY.
Solvent Yellow 34	DSC, DUP.
Solvent Yellow 40	ACS.
Solvent Yellow 42	ACS.
Solvent Yellow 43	GAF.
Solvent Yellow 44	ACS.
Solvent Yellow 45	ACS, DUP.
Solvent Yellow 47	ACY, DUP, GAF.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
SOLVENT DYES--Continued	
*Solvent yellow dyes--Continued	
Solvent Yellow 56	ACS, ACY.
Solvent Yellow 71	ACY.
Solvent Yellow 72	ACY.
Solvent Yellow 87	ACY.
Other solvent yellow dyes	AAP, DSC, PAT, x.
*Solvent orange dyes:	
Solvent Orange 2	AAP, PSC.
*Solvent Orange 3	ACS, ACY, DSC, GAF, PSC.
Solvent Orange 5	GAF.
*Solvent Orange 7	ACS, ACY, ATL, GAF.
Solvent Orange 20	ACY, DUP, GAF.
Solvent Orange 23	ACS.
Solvent Orange 24	DUP.
Solvent Orange 25	ACY, DUP.
Solvent Orange 31	ACS.
Solvent Orange 47	FH.
Solvent Orange 48	ACY.
Solvent Orange 51	ACY.
Other solvent orange dyes	AAP, ACY, DSC, DUP, PAT.
*Solvent red dyes:	
Solvent Red 1	ATL, PSC.
Solvent Red 8	GAF.
Solvent Red 22	GAF.
*Solvent Red 24	ACY, DUP, FH, GAF, PAT, SDH.
*Solvent Red 26	AAP, ACS, ACY, PSC.
Solvent Red 27	ACS.
Solvent Red 33	DUP, GAF.
Solvent Red 35	GAF.
Solvent Red 36	ACS.
Solvent Red 40	GAF.
Solvent Red 41	DSC.
*Solvent Red 49	ACY, DSC, DUP, GAF.
Solvent Red 52	GAF, ICI.
Solvent Red 65	ACS.
Solvent Red 68	ACS.
Solvent Red 69	DSC, DUP.
Solvent Red 74	ACS.
Solvent Red 75	ACS.
Solvent Red 76	ACS.
Solvent Red 80	ACS, ACY.
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, DUP, PAT.
*Solvent violet dyes:	
*Solvent Violet 8	ACS, ACY, DSC, DUP.
Solvent Violet 9	DSC.
Solvent Violet 13	ATL, HSH.
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, SDH.
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	DUP.
Solvent Blue 16	ACS.
Solvent Blue 32	AAP.
Solvent Blue 36	ACS, DUP.
Solvent Blue 37	DUP.
*Solvent Blue 38	ACS, ACY, ATL, DUP, GAF.
Solvent Blue 43	ACS.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
SOLVENT DYES--Continued	
*Solvent blue dyes--Continued	
Solvent Blue 58	ACY.
Solvent Blue 59	ACY.
Solvent Blue 60	ACY.
Solvent Blue 74	ACS.
Other solvent blue dyes	AAP, ACY, DSC, GAF, ICI, PAT, SDH.
Solvent green dyes:	
Solvent Green 1	ACY, DSC, SDH.
Solvent Green 2	GAF.
Solvent Green 3	AAP, ACS, ACY, ATL, GAF, HSH, ICI.
Other solvent green dyes	DSC, GAF.
*Solvent brown dyes:	
Solvent Brown 11	GAF.
*Solvent Brown 12	ACY, DSC, GAF.
Solvent Brown 17	DUP.
Solvent Brown 19	DUP.
Solvent Brown 20	ACY, DUP.
Solvent Brown 22	DUP, FH.
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, FH.
Solvent Black 12	ACS.
Solvent Black 13	ACS.
Solvent Black 17	DUP.
Solvent Black 26	ACY.
Other solvent black dyes	DSC.
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 red dyes:	
Leuco Sulfur Red 5	SDC.
Sulfur Red 6	ACY, 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	ACY.
Leuco Sulfur Blue 13	ACY.
Other sulfur blue dyes	ACY, SDC.
Sulfur green dyes:	
Sulfur Green 2	SDC.
Leuco Sulfur Green 2	SDC.
Leuco Sulfur Green 3	SDC.
Leuco Sulfur Green 9	STC.
Sulfur Green 14	SDC.
Leuco Sulfur Green 16	SDC.
Solubilized Sulfur Green 16	SDC.
Other sulfur green dyes	ACY, SDC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
SULFUR DYES--Continued	
Sulfur brown dyes:	
Leuco Sulfur Brown 1	STC.
Solubilized Sulfur Brown 1	STC.
Leuco Sulfur Brown 3	SDC.
Sulfur Brown 10	DUP, SDC.
Leuco Sulfur Brown 10	SDC.
Solubilized Sulfur Brown 10	SDC.
Sulfur Brown 12	SDC.
Sulfur Brown 14	SDC.
Leuco Sulfur Brown 14	ACY, SDC.
Solubilized Sulfur Brown 21	STC.
Sulfur Brown 26	ACY.
Leuco Sulfur Brown 26	STC.
Sulfur Brown 30	ACY.
Sulfur Brown 33	ACY.
Sulfur Brown 37	SDC.
Leuco 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	ACY, DUP, SDC.
Leuco Sulfur Black 1	ACY, SDC, STC.
Solubilized Sulfur Black 1	SDC, STC.
Sulfur Black 2	ACY, SDC.
Leuco Sulfur Black 2	ACY, SDC.
Solubilized Sulfur Black 2	SDC.
Sulfur Black 10	ACY.
Leuco Sulfur Black 10	ACY.
Sulfur Black 11	SDC.
Lueco Sulfur Black 11	SDC.
Other sulfur black dyes	SDC.
VAT DYES	
*Vat yellow dyes:	
Vat Yellow 1, 12-1/2%	ACS.
*Vat Yellow 2, 8-1/2%	AAP, ACS, ACY, ATL, GAF, HST, ICI, TRC, VPC.
Solubilized Vat Yellow 2, 25%	GAF.
Vat Yellow 3, 12-1/2%	DUP.
*Vat Yellow 4, 12-1/2%	ATL, CMG, GAF, HST, VPC.
Solubilized Vat Yellow 4, 37-1/2%	GAF, HST.
Vat Yellow 10, 10%	GAF.
Vat Yellow 14, 12-1/2%	TRC.
Vat Yellow 15, 11-1/2%	ACY.
Vat Yellow 16, 16-2/3%	DUP.
Vat Yellow 22, 10%	DUP.
Vat Yellow 33, 15%	TRC, VPC.
Vat Yellow 41, 9%	ACY.
Other vat yellow dyes	ACS, GAF, MAY, VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%	ACS, ACY, ATL, CMG, GAF, HST, ICI, TRC, VPC.
Solubilized Vat Orange 1, 26%	HST.
*Vat Orange 2, 12%	AAP, ACS, ACY, CMG, DUP, GAF, ICI, TRC.
*Vat Orange 3, 13-1/2%	CMG, DUP, GAF.
Vat Orange 4, 6%	ACY, CMG, DUP.
Vat Orange 5, 10%	AAP, ACY, HST.
Solubilized Vat Orange 5, 30%	GAF, HST.
Vat Orange 7, 11%	GAF, HST, TRC.
*Vat Orange 9, 12%	AAP, ACY, DUP, GAF, ICI, TRC.
Vat Orange 11, 6%	ACS, DUP.
*Vat Orange 15, 10%	AAP, ACS, ACY, GAF, ICI, TRC, VPC.
Vat Orange 23, 17-1/2%	DUP.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES--Continued	
*Vat orange dyes--Continued	
Vat Orange 24	DUP.
Other vat orange dyes	SDC.
*Vat red dyes:	
*Vat Red 1, 13%	AAP, ACY, HST, ICI.
Solubilized Vat Red 1, 37%	GAF, HST.
Vat Red 4	BAS.
Vat Red 10, 18%	ACS, GAF.
Solubilized Vat Red 10, 31%	GAF.
Vat Red 12, 8-1/2%	DUP.
*Vat Red 13, 11%	DUP, GAF, HST, TRC.
Vat Red 14, 10%	GAF, HST.
Vat Red 15, 10%	GAF, TRC.
Vat Red 16, 11%	DUP.
Vat Red 23	DUP.
Vat Red 29, 18%	GAF.
*Vat Red 32, 20%	ACS, DUP, GAF.
Vat Red 35, 12-1/2%	ACS.
Vat Red 52, 10%	DUP.
Vat Red 56, 15-1/2%	ACY.
Other vat red dyes	GAF, TRC.
*Vat violet dyes:	
*Vat Violet 1, 11%	ACY, DUP, GAF, ICI, TRC.
*Vat Violet 2, 20%	ACS, ACY, GAF, HST.
Vat Violet 3, 15%	GAF, HST.
*Vat Violet 9, 12%	DUP, GAF, ICI, TRC.
*Vat Violet 13, 6-1/4%	ACS, DUP, GAF, ICI, TRC.
Vat Violet 14, 12-1/2%	ACS, DUP.
Vat Violet 17, 12-1/2%	DUP, GAF.
Vat Violet 21	VPC.
Other vat violet dyes	GAF, MAY.
*Vat blue dyes:	
Vat Blue 1, 20%	ACS, BAS, GAF.
Vat Blue 3, 16%	HST.
*Vat Blue 4, 10%	ACY, DUP, GAF.
Vat Blue 5, 16%	ACS, ATL, DUP, HST.
Solubilized Vat Blue 5, 38%	GAF, HST.
*Vat Blue 6, 8-1/3%	ACS, ACY, DUP, GAF, ICI, TRC.
Solubilized Vat Blue 6, 17-1/2%	GAF, HST, ICI.
Vat Blue 12, 6-1/2%	DUP.
Vat Blue 14, 8-1/3%	ACS, DUP, GAF, TRC.
Vat Blue 16, 16-1/2%	ACY, DUP.
*Vat Blue 18, 13%	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC.
*Vat Blue 20, 14%	AAP, ACY, ATL, DUP, GAF, ICI, MAY, SDC, TRC.
Vat Blue 26, 24%	GAF.
Vat Blue 29	GAF.
Vat Blue 39, 12%	GAF.
Vat Blue 43	DUP, SDC.
Vat Blue 53, 20-1/2%	GAF.
Vat Blue 60	DUP.
Other vat blue dyes	GAF, MAY, x.
*Vat green dyes:	
*Vat Green 1, 6%	AAP, ACS, ACY, ATL, DUP, GAF, ICI, MAY.
Solubilized Vat Green 1, 12-1/2%	GAF, HST, ICI.
*Vat Green 3, 10%	AAP, ACS, ACY, ATL, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Green 3, 26%	GAF, HST, ICI.
*Vat Green 8, 8-1/2%	ACS, ATL, DUP, GAF.
Vat Green 9, 12-1/2%	ACY, ATL, GAF, MAY. SDC, TRC.
Vat Green 15, 17%	ACS.
Vat Green 19, 13%	DUP.
Vat Green 20, 6%	DUP.
Other vat green dyes	GAF, MAY, SDC.
*Vat brown dyes:	
*Vat Brown 1, 11%	ACY, DUP, GAF, MAY, TRC.
Solubilized Vat Brown 1, 17%	GAF.
*Vat Brown 3, 11%	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC, VPC.

TABLE 2.--Benzenoid dyes: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Dye	Manufacturers' identification codes (according to list in table 3)
VAT DYES--Continued	
*Vat brown dyes--Continued	
*Vat Brown 5, 13%	ACY, HST, VPC.
Vat Brown 11, 12%	MAY, TRC.
Vat Brown 12, 12-1/2%	DUP.
Vat Brown 13, 17%	MAY.
Vat Brown 14, 12%	HST.
Vat Brown 20, 10-1/2%	ACS, GAF.
Vat Brown 28, 22%	ICI.
Vat Brown 29, 13%	ACY.
Vat Brown 31, 28%	AAP.
Vat Brown 38, 20%	ICI.
Vat Brown 40, 14%	DUP.
Vat Brown 57, 12.8%	TRC.
Other vat brown dyes	GAF, SDC, VPC.
*Vat black dyes:	
Solubilized Vat Black 1, 27-1/2%	GAF, HST.
Vat Black 9, 16%	GAF, MAY, TRC.
Vat Black 11, 17-1/2%	ACY.
Vat Black 13, 14%	ACS, DUP.
Vat Black 14, 11-1/2%	DUP.
Vat Black 18, 15-1/2%	ACS, GAF.
Vat Black 21, 18-1/2%	ACY.
Vat Black 22, 19%	ACY, TRC.
*Vat Black 25, 12-1/2%	AAP, ACY, ATL, 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	DUP, GAF, SDC, TRC.
All other dyes	ACY, HSH, PAT, SDC.

TABLE 3.--Benzenoid dyes: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
AAP	American Aniline Products, Inc.	ICC	Inmont Corp.
ACS	Allied Chemical Corp., Specialty Chemicals Div.	ICI	ICI America, Inc.
ACY	American Cyanamid Co.	KON	H. Kohnstamm & Co., Inc.
ALL	Alliance Chemical, Inc.		
ALT	Crompton & Knowles Corp., Althouse Div.	MAY	Otto B. May, Inc.
ATL	Atlantic Chemical Corp.	MRX	Max Marx Color & Chemical Co.
BAS	BASF Corp.	PAT	Morton International, Inc., Morton Chemical Co. Div.
BDO	Benzenoid Organics, Inc.		
BUC	Blackman-Uhler Chemical Co.	PCW	Pfister Chemical Works
		PDC	Berncolors-Poughkeepsie, Inc.
CCW	Carlisle Chemical Works, Inc.	PSC	Passaic Color & Chemical Co.
CIB	Ciba Chemical & Dye Co.		
CMG	Nyanza, Inc.	S	Sandoz-Wander, Inc.
CPC	Childs Pulp Colors, Inc.	SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
CWN	Upjohn Co., Carwin Organic Chemicals	SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
DSC	Dye Specialties, Inc.		
DUP	E. I. duPont de Nemours & Co., Inc.	SNA	Sun Chemical Corp., Ansbacher-Siegle Div.
		STC	Sou-Tex Chemical Co., Inc.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	STG	Stange Co.
		SW	Sherwin-Williams Co.
FAB	Fabricolor Manufacturing Corp.	TCD	Tenneco Chemicals, Inc., Tenneco Colors Div.
FH	Foster-Heaton Co.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
		TRC	Toms River Chemical Corp.
GAF	GAF Corp., Dyestuff & Chemical Div.		
GGY	Geigy Chemical Corp.	VPC	Verona Corp.
HSC	Chemetron Corp., Pigments Div.	WJ	Warner-Jenkinson Manufacturing Co.
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co.	YAW	Young Aniline Works, Inc.
HST	American Hoechst Corp.		

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

As the terms are used in this report, synthetic organic pigments are toners and lakes derived in whole or in part from benzenoid chemicals and colors. They are used in paints and related products, in printing inks, and in plastics and resin materials.

Statistics on production and sales of all benzenoid pigments in 1969 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. Prior to 1961, statistics for toners included the quantities and values of extenders and diluents. Beginning in 1961, data were collected for both full-strength and extended toners on a full-strength-toner-content basis. Individual toners and lakes are identified in this report by the names used in the second edition of the Colour Index.

Total production of benzenoid pigments in 1969 was 61.0 million pounds--13.5 percent more than the 53.7 million pounds produced in 1968 and 14.4 percent more than the 53.3 million pounds produced in 1967. Total sales of benzenoid pigments in 1969 amounted to 50.8 million pounds, valued at $133.1 million, compared with 45.8 million pounds, valued at $119.9 million, in 1968 and 42.9 million pounds, valued at $108.4 million, in 1967. In terms of quantity, sales of benzenoid pigments in 1969 were 10.9 percent larger than in 1968 and 18.5 percent larger than in 1967; in terms of value, sales in 1969 were 11.0 percent larger than in 1968 and 22.9 percent larger than in 1967.

Production of toners in 1969 amounted to 57.3 million pounds--14.8 percent more than the 49.9 million pounds reported for 1968. Sales in 1969 were 47.4 million pounds, valued at $129.3 million, compared with 42.2 million pounds, valued at $116.3 million, in 1968. Sales in 1969 were thus 12.3 percent larger than those in 1968 in terms of quantity, and 11.2 percent larger in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1969 were Pigment Yellow 12, 6.0 million pounds; Pigment Blue 15, beta form, 4.8 million pounds; Pigment Blue 19, 4.6 million pounds; Pigment Red 49, barium toner, 4.4 million pounds; Pigment Blue 15, alpha form. 4.2 million pounds; Pigment Green 7, 3.7 million pounds; Pigment Red 48, 3.4 million pounds; Pigment Red 53, barium toner, 2.4 million pounds; and Pigment Red 90, 2.2 million pounds.

[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3. Imports of benzenoid pigments in 1968 and 1969 are given in table 2 in the Appendix.

Production of lakes totaled 3.7 million pounds in 1969--3.4 percent less than the 3.8 million pounds reported for 1968. Sales of lakes in 1969 amounted to 3.4 million pounds, valued at $3.8 million, compared with sales in 1968 of 3.6 million pounds, valued at $3.6 million. Sales in 1969 were thus 5.2 percent smaller than those in 1968 in terms of quantity, and 6.7 percent larger 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 90, and Pigment Blue 19 were sold principally in the flushed form. The remaining 12 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, sodium toner, without revealing the operations of individual companies.

TABLE 1.--Benzenoid pigments: U.S. production and sales, 1969

[Listed below are all benzenoid 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 benzenoid pigments for which data on production or sales were reported and identifies the manufacturer of each]

Pigment	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	61,011	50,794	133,149	$2.62
TONERS				
Total	57,310	47,375	129,310	2.73
Yellow toners, total	11,238	7,707	21,195	2.75
Hansa yellows, total	1,481	1,173	2,824	2.41
Pigment Yellow 1, C.I. 11 680	604	479	873	1.82
Pigment Yellow 3, C.I. 11 710	181	112	250	2.23
Pigment Yellow 74, C.I. 11 741	253	200	664	3.32
Other Hansa yellows	443	382	1,037	2.71
Benzidine yellows, total	9,452	6,393	16,405	2.57
Pigment Yellow 12, C.I. 21 090	5,963	3,740	8,222	2.20
Pigment Yellow 13, C.I. 21 100	412	...	...	...
Pigment Yellow 14, C.I. 21 095	2,000	1,643	3,972	2.42
Pigment Yellow 17, C.I. 21 105	476	374	1,132	3.03
Other benzidine yellows	601	636	3,079	4.84
All other	305	141	1,966	13.94
Orange toners, total	941	889	2,724	3.06
Pigment Orange 2, C.I. 12 060	52	...	...	...
Pigment Orange 5, C.I. 12 075	257	249	396	1.59
Pigment Orange 13, C.I. 21 110	195	174	555	3.19
Pigment Orange 16, C.I. 21 160	264	248	669	2.70
Pigment Orange 34, C.I. 21 115	77	...	...	...
All other	96	218	1,104	5.06
Red toners, total	23,234	19,239	38,761	2.01
Naphthol reds, total	942	601	2,196	3.65
Pigment Red 2, C.I. 12 310	81	48	122	2.54
Pigment Red 5, C.I. 12 490	98	59	304	5.15
Pigment Red 17, C.I. 12 390	69	63	179	2.84
Pigment Red 18, C.I. 12 350	14	...	...	...
Pigment Red 22, C.I. 12 315	165	107	319	2.98
Pigment Red 23, C.I. 12 355	192	176	599	3.40
Other naphthol reds	323	148	673	4.55
Pigment Red 1, C.I. 12 070, dark	124	104	137	1.32
Pigment Red 1, C.I. 12 070, light	127	131	172	1.31
Pigment Red 3, C.I. 12 120	1,595	1,537	2,421	1.58
Pigment Red 4, C.I. 12 085	247	184	279	1.52
Pigment Red 38, C.I. 21 120	201	150	662	4.41
Pigment Red 48, C.I. 15 865	3,386	2,608	4,859	1.86
Pigment Red 49, C.I. 15 630:				
Barium toner	4,408	3,904	4,181	1.07
Calcium toner	1,341	1,364	1,566	1.15
Sodium toner	243	255	292	1.15
Pigment Red 52, C.I. 15 860	1,984	1,797	2,843	1.58
Pigment Red 53, C.I. 15 585, barium toner	2,357	1,997	2,723	1.36
Pigment Red 57, C.I. 15 850, calcium toner	1,050	942	1,455	1.54
Pigment Red 63, C.I. 15 880	43	38	56	1.47
Pigment Red 81, C.I. 45 160, PMA	599	480	2,888	6.02
Pigment Red 81, C.I. 45 160, PTA	107	94	643	6.84
Pigment Red 90, C.I. 45 380	2,171	1,218	2,713	2.23
All other	2,309	1,835	8,675	4.73
Violet toners, total	2,548	2,166	12,830	5.92
Pigment Violet 1, C.I. 45 170, PMA	120	122	398	3.26
Pigment Violet 1, C.I. 45 170, PTA	85	85	577	6.79
Pigment Violet 3, C.I. 42 535, fugitive	605	595	799	1.34

See footnotes at end of table.

TABLE 1.--Benzenoid pigments: U.S. production and sales, 1969--Continued

Pigment	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
TONERS--Continued				
Violet toners--Continued				
Pigment Violet 3, C.I. 42 535, PMA	424	399	1,190	$2.98
Pigment Violet 3, C.I. 42 535, PTA	45	50	219	4.38
Pigment Violet 23, C.I. 51 319	124	120	2,022	16.85
All other	1,145	795	7,625	9.59
Blue toners, total	14,170	13,047	39,097	3.00
Pigment Blue 1, C.I. 42 595, PMA	203	182	884	4.86
Pigment Blue 1, C.I. 42 595, PTA	16	...	...	...
Pigment Blue 14, C.I. 42 600, PMA	115	116	823	7.09
Pigment Blue 15, C.I. 74 160, alpha form	4,202	3,732	11,118	2.98
Pigment Blue 15, C.I. 74 160, beta form	4,752	4,045	13,260	3.28
Pigment Blue 19, C.I. 42 750A	4,582	4,681	11,360	2.43
Pigment Blue 22, C.I. 69 810	36	24	393	16.38
Pigment Blue 25, C.I. 21 180	126	...	...	...
All other	138	267	1,259	4.72
Green toners, total	4,671	3,894	14,025	3.60
Pigment Green 1, C.I. 42 040, PTA	8	7	42	6.00
Pigment Green 2, C.I. 42 040 and 49 005, PMA	74	72	374	5.19
Pigment Green 2, C.I. 42 040 and 49 005, PTA	73	62	286	4.61
Pigment Green 4, C.I. 42 000, PTA	9	4	24	6.00
Pigment Green 7, C.I. 74 260	3,699	3,157	10,901	3.45
Pigment Green 8, C.I. 10 006	127	123	155	1.26
Pigment Green 10, C.I. 12 775	...	178	1,091	6.13
Pigment Green 36, C.I. 74 265	160	174	646	3.71
All other	521	117	506	4.32
Brown toners, total	234	171	367	2.15
Pigment Brown 5, C.I. 15 800	172	124	199	1.60
All other	62	47	168	3.57
Black toners	274	262	311	1.19
LAKES				
Total	3,701	3,419	3,839	1.12
Red lakes:				
Pigment Red 60, C.I. 16 105	301	260	428	1.65
Pigment Red 83, C.I. 58 000	53	56	195	3.48
(Acid Red 26), C.I. 16 150	156	158	115	.73
Violet lakes:				
Pigment Violet 5, C.I. 58 055	182	180	414	2.30
All other lakes[2]	3,009	2,765	2,687	.97

[1] Calculated from rounded figures.
[2] Includes all black, blue, brown, green, orange, yellow lakes, "all other" red, and "all other" violet lakes.

Note.--The C.I. (*Colour Index*) numbers shown in this report are the identifying numbers given in the second edition of the *Colour Index*.
The abbreviation PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

TABLE 1A.--Benzenoid pigments: U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1969

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	3,740	8,654	$2.31
Dry full-strength toner	685	1,484	2.17
Dry extended toner, dry dispersions, and aqueous dispersions[3] [4]	150	366	2.44
Flushed color	2,905	6,804	2.34
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	2,653	8,260	3.11
Dry full-strength toner	1,833	6,049	3.30
Dry extended toner and dry dispersions[4]	62	162	2.61
Aqueous dispersions[3]	439	1,154	2.63
Flushed color	319	895	2.81
Pigment Red 3, C.I. 12 120, total	1,537	2,496	1.62
Dry full-strength toner and dry extended toner[4]	1,016	1,614	1.59
Aqueous dispersions[3]	87	132	1.52
Flushed color	434	750	1.73
Pigment Red 48, C.I. 15 865, total	2,608	4,859	1.86
Dry full-strength toner	2,385	4,456	1.87
Dry extended toner and dry dispersions[4]	56	107	1.91
Aqueous dispersions[3]	92	159	1.73
Flushed color	75	137	1.83
Pigment Red 49, C.I. 15 630, barium toner, total	3,904	4,260	1.09
Dry full-strength toner	3,035	3,318	1.09
Dry extended toner, dry dispersion, and aqueous dispersion[3] [4]	13	19	1.46
Flushed color	856	923	1.08
Pigment Red 49, C.I. 15 630, calcium toner, total	1,364	1,684	1.23
Dry full-strength toner and dry dispersions[4]	1,152	1,330	1.15
Aqueous dispersions[3] and flushed color[4]	212	354	1.67
Pigment Red 49, C.I. 15 630, sodium toner[4]	255	301	1.18
Pigment Red 53, C.I. 15 585, barium toner, total	1,997	2,768	1.39
Dry full-strength toner, dry extended toner, and dry dispersions[4]	1,202	1,633	1.36
Aqueous dispersions[3] and flushed color[4]	795	1,135	1.43
Pigment Red 90, C.I. 45 380, total	1,218	2,844	2.33
Dry full-strength toner, dry extended toner, and dry dispersions[4]	46	98	2.13
Aqueous dispersions[3] and flushed color[4]	1,172	2,746	2.34
Pigment Violet 3, C.I. 42 535, fugitive, total	595	800	1.34
Dry full-strength toner	299	430	1.44
Dry extended toner[4] and flushed color	296	370	1.25
Pigment Violet 3, C.I. 42 535, permanent (PMA and PTA), total	449	1,429	3.18
Dry full-strength toner	279	805	2.89
Dry extended toner, dry dispersion and aqueous dispersions[3] [4]	97	410	4.23
Flushed color	73	214	2.93
Pigment Blue 15, C.I. 74 160, alpha form, total	3,732	11,118	2.98
Dry full-strength toner	1,315	4,266	3.24
Dry extended toner and dry dispersions[4]	838	2,962	3.53
Aqueous dispersions[3]	1,157	2,752	2.38
Flushed color	422	1,138	2.70

See footnotes at end of table.

TABLE 1A.--Benzenoid pigments: U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1969--Continued

Selected pigments by commercial forms	Sales		
	Quantity[1]	Value	Unit value[2]
	1,000 pounds	*1,000 dollars*	*Per pound*
Pigment Blue 15, C.I. 74 160, beta form, total	4,045	13,260	$3.28
Dry full-strength toner	1,295	4,484	3.46
Dry extended toner and dry dispersions[4]	573	2,121	3.70
Aqueous dispersions[3]	1,036	3,105	3.00
Flushed color	1,141	3,550	3.11
Pigment Blue 19, C.I. 42 750A, total	4,681	11,360	2.43
Dry full-strength toner and dry extended toner[4]	319	774	2.43
Aqueous dispersions[3] and flushed color[4]	4,362	10,586	2.43
Pigment Green 7, C.I. 74 260, total	3,157	10,904	3.45
Dry full-strength toner	1,242	4,597	3.70
Dry extended toner and dry dispersions[4]	659	2,445	3.71
Aqueous dispersions[3]	1,076	3,238	3.01
Flushed color	180	624	3.47

[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 second edition of the *Colour Index*.
The abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

TABLE 2.--Benzenoid pigments: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[Benzenoid 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:	
*Hansa yellows:	
*Pigment Yellow 1, C.I. 11 680	ACS, ACY, AMS, CPC, DUP, FCL, GAF, HSC, HSH, ICI, IMP, KON, PPG, ROM, S, SDH, SNA, SW.
*Pigment Yellow 3, C.I. 11 710	ACS, HSH, IMP, KCW, KON, PPG, ROM, S, SW.
Pigment Yellow 4, C.I. 11 665	ACS, SNA.
Pigment Yellow 5, C.I. 11 660	IMP.
Pigment Yellow 6, C.I. 11 670	IMP.
Pigment Yellow 9, C.I. 11 720	SNA.
Pigment Yellow 49, C.I. 11 765	ICI, IMP.
Pigment Yellow 65, C.I. 11 740	SW.
Pigment Yellow 73	ACS, SNA, SW, x.
*Pigment Yellow 74, C.I. 11 741	DUP, HSC, IMP, SDH, SW.
Pigment Yellow 75	IMP.
All other Hansa yellows	DUP, KCW, SW.
*Benzidine yellow:	
*Pigment Yellow 12, C.I. 21 090	ACS, ACY, AMS, DUP, FCL, HSC, HSH, ICC, IMP, KON, LVY, ROM, S, SDH, SNA, SW.
*Pigment Yellow 13, C.I. 21 100	BUC, FCL, GAF, HSC, HSH, HST, ICC, IMP, ROM, SDH, SNA, SW.
*Pigment Yellow 14, C.I. 21 095	ACS, ACY, AMS, BUC, CIK, CPC, DUP, FCL, GAF, HSC, HSH, HST, ICC, IMP, KON, ROM, S, SDH, SNA, SW, x.
*Pigment Yellow 17, C.I. 21 105	AMS, ACY, BUC, FCL, HSH, HSC, ICC, IMP, ROM, SDH, SNA, SW.
Pigment Yellow 76	x.
Pigment Yellow 83	ACS, HST.
Pigment Yellow 97	HST.
All other benzidine yellows	HSH, ICC, ROM, S, SW.
Pigment Yellow 11, C.I. 10 325	LVR.
Pigment Yellow 18, C.I. 49 005	IMP.
Pigment Yellow 19	GAF.
Pigment Yellow 60, C.I. 12 705	SW.
Pigment Yellow 108, C.I.68 420	ACS.
Pigment Yellow 110	ACS
Pigment Yellow 112 C.I. 70 600	ACS, TRC.
(Basic Yellow 2), C.I. 41 000 fugitive	MRX.
All other	ACS, ACY, ICC, IMP, S, SW.
*Orange toners:	
Pigment Orange 1, C.I. 11 725	ACS, KCW.
*Pigment Orange 2, C.I. 12 060	FCL, IMP, SDH, SW, UHL.
*Pigment Orange 5, C.I. 12 075	ACY, HSC, IMP, SNA, SW.
*Pigment Orange 13, C.I. 21 110	ACS, ACY, AMS, ICC, IMP, KON, S, SNA, SW.
Pigment Orange 15, C.I. 21 130	ACS.
*Pigment Orange 16, C.I. 21 160	ACS, BUC, DUP, FCL, GAF, HSC, HSH, HST, ICC, IMP, ROM, SDH, SNA, SW.
*Pigment Orange 34, C.I. 21 115	BUC, ICC, SDH, SNA.
Pigment Orange 43, C.I. 71 105	ACS, GAF.
(Vat Orange 2), C.I. 59 705	GAF.
(Vat Orange 4), C.I. 59 710	ACS.
(Vat Orange 15), C.I. 69 025	ACS.
All other	GAF, KON, ROM.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310	ACS, HSH, IMP, KCW, KON, MRX, SDH, SW.
*Pigment Red 5, C.I. 12 490	DUP, GAF, HSH, ICC, ICI, IMP, ROM, S, SDH, SW.
Pigment Red 7, C.I. 12 420	ICI, S.
Pigment Red 9, C.I. 12 460	IMP.
Pigment Red 10, C.I. 12 440	KCW.
Pigment Red 13, C.I. 12 395	IMP, KCW, SW.
Pigment Red 14, C.I. 12 380	DUP.

TABLE 2.--Benzenoid pigments: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Red toners--Continued	
*Naphthol reds--Continued	
Pigment Red 15, C.I. 12 465	DUP.
*Pigment Red 17, C.I. 12 390	ACY, FCL, ICC, IMP, ROM, S, SNA, SW, UHL.
*Pigment Red 18, C.I. 12 350	ACS, IMP, SW.
*Pigment Red 22, C.I. 12 315	ACY, DUP, GAF, IMP, MRX, ROM, SNA, SW.
*Pigment Red 23, C.I. 12 355	ACS, ACY, BUC, DUP, FCL, ICC, IMP, ROM, SDH, SNA, SW.
Pigment Red 31, C.I. 12 360	SNA.
Pigment Red 112, C.I. 12 370	x.
All other naphthol reds	ICC, KCW, ROM, S, SDH, SW.
*Pigment Red 1, C.I. 12 070, dark	ACY, AMS, HSC, HSH, IMP, KON, LVY, SDH, SW.
*Pigment Red 1, C.I. 12 070, light	ACY, HSC, HSH, IMP, KON, PPG, SHD, SW.
*Pigment Red 3, C.I. 12 120	ACY, CIK, CPC, DUP, HSC, HSH, IMP, KCW, KON, PPG, SDH, SNA, SW, UHL.
*Pigment Red 4, C.I. 12 085	ACY, AMS, FCL, HSC, IMP, KON, MRX, SDH, SNA, SW.
Pigment Red 6, C.I. 12 090	DUP, HSC, HSH, KCW, KON, SW.
*Pigment Red 38, C.I. 21 120	ACS, DUP, GAF, ICC, SNA, SW.
Pigment Red 40, C.I. 12 170	KON.
Pigment Red 41, C.I. 21 200	ACS.
*Pigment Red 48, C.I. 15 865	ACS, ACY, AMS, DUP, FCL, GAF, HSC, HSH, ICC, IMP, KON, LVY, MRX, S, SNA, SW.
Pigment Red 49, C.I. 15 630:	
*Barium Toner	ACY, AMS, CIK, FCL, HSC, IMP, KON, LVY, SDH, SW, UHL.
*Calcium toner	ACY, AMS, FCL, HSC, IMP, LVY, PPG, SDH, SW.
*Sodium toner	ACY, AMS, HSC, KON, SDH, SW.
Other	GAF.
*Pigment Red 52, C.I. 15 860	AMS, FCL, HSC, HSH, IMP, SNA, SW.
*Pigment Red 53, C.I. 15 585, barium toner	ACY, AMS, CIK, FCL, HSC, IMP, 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	HSH, IMP, SDH.
Pigment Red 55, C.I. 15 820	DUP, IMP.
*Pigment Red 57, C.I. 15 850, calcium toner	ACS, AMS, CIK, DUP, FCL, HSC, HSH, IMP, KON, LVY, MGR, SDH, SNA, SW.
Pigment Red 58, C.I. 15 825	DUP, GAF, IMP.
*Pigment Red 63, C.I. 15 880	ACS, HSH, KON, SNA, SW.
Pigment Red 64, C.I. 15 800	ACS.
Pigment Red 77, C.I. 15 826	SW.
Pigment Red 79, PMA	GAF.
Pigment Red 81, C.I. 45 160, fugitive	KCW, MGR, SNA.
*Pigment Red 81, C.I. 45 160, PMA	CPC, DUP, FCL, GAF, IMP, KON, LVR, LVY, MGR, MRX, S, SNA, TCD, UHL.
*Pigment Red 81, C.I. 45 160, PTA	ACY, AMS, DUP, FCL, GAF, HSC, IMP, KON, MGR, MRX, S, SDH, SNA, UHL.
Pigment Red 87, C.I. 73 310	ACS, TCD.
Pigment Red 88	ACS, SDH.
*Pigment Red 90, C.I. 45 380	AMS, FCL, ICC, IMP, LVR, LVY, SDH, TCD.
Pigment Red 91	TCD.
Pigment Red 92	TCD.
Pigment Red 94	TCD.
Pigment Red 117, C.I. 15 603	SW.
Pigment Red 122	ACS, ACY, SNA.
Pigment Red 123, C.I. 71 145	ACS.
Pigment Red 168, C.I. 59 300	ACS, TRC.
Pigment Red 177	TRC.
Pigment Red 179, C.I. 71 130	ACS.
Pigment Red 190, C.I. 71 140	ACS, GAF, HSC, SNA.
(Basic Red 2), C.I. 50 240	GAF.
All other	ACS, DUP, GAF, HAM, HSC, SW, x.
*Violet toners:	
Pigment Violet 1, C.I. 45 170, fugitive	UHL.
*Pigment Violet 1, C.I. 45 170, PMA	GAF, IMP, LVR, MGR, MRX, S, SNA.
*Pigment Violet 1, C.I. 45 170, PTA	ACY, AMS, DUP, FCL, GAF, HSC, IMP, KON, MGR, MRX, SNA.
Pigment Violet 2, C.I. 45 175	TCD.
*Pigment Violet 3, C.I. 42 535, fugitive	ACY, AMS, HAM, HSC, IMP, KON, LVY, MGR, UHL.
*Pigment Violet 3, C.I. 42 535, PMA	AMS, CIK, DUP, GAF, HSC, IMP, KON, LVR, LVY, MGR, MRX, PPG, SDH, SNA, SW, UHL.

TABLE 2.--Benzenoid pigments: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Pigment	Manufacturers' identification codes (according to list in table 3)
TONERS--Continued	
*Violet toners--Continued	
*Pigment Violet 3, C.I. 42 535, PTA	ACY, AMS, GAF, HSC, IMP, KON, MRX, SNA, SW, TCD.
Pigment Violet 5, C.I. 58 055	S.
Pigment Violet 19, C.I. 46 500	ACS, DUP, SNA.
*Pigment Violet 23, C.I. 51 319	ACS, ACY, GAF, HST, SDC.
Pigment Violet 31, C.I. 60 010	DUP, ICI.
Pigment Violet 36, C.I. 73 385	ACS.
Pigment Violet 38, C.I. 73 395	ACS.
All other	BUC, ICC, IMP, ROM.
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA	DUP, GAF, IMP, KON, LVY, MGR, MRX, SNA, SW, TCD, UHL.
*Pigment Blue 1, C.I. 42 595, PTA	AMS, GAF, IMP, MGR, SNA, SW, TCD.
Pigment Blue 2, C.I. 44 045, PMA	GAF.
Pigment Blue 2, C.I. 44 045, PTA	HAM, KON.
Pigment Blue 3, C.I. 42 140, PMA	LVR.
Pigment Blue 9, C.I. 42 025, PMA	MRX.
Pigment Blue 9, C.I. 42 025, PTA	GAF, IMP, MGR, SDH.
Pigment Blue 10, C.I. 44 040, PMA	IMP, SDH.
Pigment Blue 10, C.I. 44 040, PTA	IMP.
*Pigment Blue 14, C.I. 42 600, PMA	DUP, GAF, IMP.
Pigment Blue 14, C.I. 42 600, PTA	DUP, GAF.
*Pigment Blue 15, C.I. 74 160, alpha form	ACS, ACY, BUC, DUP, GAF, HSC, ICC, ICI, IMP, MGR, SNA, SW, TMS, TRC.
*Pigment Blue 15, C.I. 74 160, beta form	ACS, ACY, AMS, DUP, FCL, GAF, HSC, ICC, IMP, LVY, SNA, SW, TMS.
*Pigment Blue 19, C.I. 42 750A	ACY, AMS, HSC, SW, TCD.
*Pigment Blue 22, C.I. 69 810	ACS, DUP, TCD, TRC.
*Pigment Blue 25, C.I. 21 180	ACS, DUP, GAF, ICC, S.
Pigment Blue 64, C.I. 69 825	ICI, TRC.
All other	DUP, GAF, S, SDH.
*Green toners:	
Pigment Green 1, C.I. 42 040, PMA	GAF, IMP, UHL.
*Pigment Green 1, C.I. 42 040, PTA	IMP, MGR, S.
*Pigment Green 2, C.I. 42 040 and 49 005, PMA	GAF, IMP, KON, LVY, MGR, MRX, UHL.
*Pigment Green 2, C.I. 42 040 and 49 005, PTA	ACY, AMS, DUP, GAF, IMP, KON, MRX, S, SDH, UHL.
Pigment Green 4, C.I. 42 000, fugitive	GAF.
Pigment Green 4, C.I. 42 000, PMA	GAF, KON, MGR.
*Pigment Green 4, C.I. 42 000, PTA	ACY, AMS, HAM, IMP, KON, MGR.
*Pigment Green 7, C.I. 74 260	ACS, ACY, CIK, DUP, FCL, GAF, HSC, ICC, IMP, SNA, SW, TMS, TRC.
*Pigment Green 8, C.I. 10 006	HSH, IMP, KCW, SW.
*Pigment Green 10, C.I. 12 775	DUP, HSC, IMP, SW.
*Pigment Green 36, C.I. 74 265	ACS, ACY, GAF, SNA.
Pigment Green 38	ACS, DUP.
All other	GAF, IMP, SW.
*Brown toners:	
Pigment Brown 1, C.I. 12 480	ICI.
Pigment Brown 2, C.I. 12 071	HSH, SDH.
Pigment Brown 3, C.I. 21 010, fugitive	KON.
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, ICC, SDH.
*Black toners:	
Pigment Black 1, C.I. 50 440	SNA.
Pigment Black 7, C.I. 77 266	GAF.
All other	DUP, GAF, UHL.
LAKES	
Yellow Lakes:	
(Acid Yellow 23), C.I. 19 140	KON, MRX.
(Acid Yellow 73), C.I. 45 350	TCD.
Orange lakes:	
Pigment Orange 7, C.I. 15 530	CPC.
Pigment Orange 17, C.I. 15 510	IMP, KCW, KON.
All other	HAM.

TABLE 2.--Benzenoid pigments: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Pigment	Manufacturers' identification codes (according to list in table 3)
LAKES--Continued	
Red Lakes:	
*Pigment Red 60, C.I. 16 105	HSH, KON, MRX, SNA.
*Pigment Red 83, C.I. 58 000	HSH, IMP, KON, MRX, UHL.
(Acid Red 17), C.I. 16 180	IMP, KCW.
*(Acid Red 26), C.I. 16 150	CPC, HAM, IMP, KCW.
(Acid Red 27), C.I. 16 185	KON.
(Natural Red 4), C.I. 75 470	KON.
All other	HAM, IMP.
Violet lakes:	
*Pigment Violet 5, C.I. 58 055	ACS, DUP, HSH, IMP, KON, UHL.
Pigment Violet 20, C.I. 58 225	SW.
All other	HAM.
Blue lakes:	
Pigment Blue 17, C.I. 74 180	CPC, KCW.
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	CPC, KCW.
Green lakes	IMP.
Brown lakes	HAM, LVR.
Black lakes:	
(Natural Black 3), C.I. 75 291	CPC, KON
All other	HAM.

Note.--The C.I. *(Colour Index)* numbers shown in this report are the identifying codes given in the second 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) acids, respectively.

TABLE 3.--Benzenoid pigments: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
ACS	Allied Chemical Corp., Specialty Chemicals Div.	KCW	Keystone Color Works, Inc.
ACY	American Cyanamid Co.	KON	H. Kohnstamm & Co., Inc.
AMS	Martin-Marietta Corp., Ridgway Color & Chemical Div.	LVR	C. Lever Co., Inc.
		LVY	Cities Service Co., Levey Div.
BUC	Blackman-Uhler Chemical Co.	MGR	Magruder Color Co., Inc.
		MRX	Max Marx Color & Chemical Co.
CIK	Tenneco Chemicals, Inc., Cal/Ink Div.		
CPC	Childs Pulp Colors, Inc.	PPG	PPG Industries, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.	ROM	United Merchants & Manufacturers, Inc. Roma Chemical Div.
FCL	Sun Chemical Corp., Federal Color Laboratories Div.	S	Sandoz, Inc.
		SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
GAF	GAF Corp., Dyestuff & Chemical Div.	SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
HAM	Hampden Color & Chemical Co.	SNA	Sun Chemical Corp., Ansbacher-Siegle Div.
HSC	Chemetron Corp., Pigments Div.	SW	The Sherwin-Williams Co.
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co.		
HST	American Hoechst Corp.	TCD	Tenneco Chemicals, Inc., Tenneco Colors Div.
		TMS	Sterling Drug, Inc., Thomasset Colors Div.
ICC	Inmont Corp.	TRC	Toms River Chemical Corp.
ICI	ICI America, Inc.		
IMP	Hercules, Inc., Imperial Color & Chemical Dept.	UHL	Paul Uhlick & Co., Inc.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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

Table 1 shows statistics for production and sales or medicinal chemicals grouped by pharmacological class.[1] The statistics shown are for bulk chemicals only; finished pharmaceutical preparations and products put up in pills, capsules, tablets, or other measured doses are excluded.[2] The difference between production and sales reflects inventory changes, processing losses, and captive consumption of medicinal chemicals processed into ethical and proprietary pharmaceutical products by the primary manufacturer. In some instances, the difference may also include quantities of medicinal grade products used as intermediates, e.g., penicillin G salts used as intermediates in the manufacture of 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 1969 amounted to 200 million pounds, or 12.9 percent more than the 177 million pounds produced in 1968 and 11.1 percent more than the 180 million pounds produced in 1967. Total sales of bulk medicinal chemicals in 1969 amounted to 145 million pounds, valued at $462 million, compared with sales in 1968 of 123 million pounds, valued at $415 million, and sales in 1967 of 127 million pounds, valued at $385 million. In terms of quantity, sales in 1969 were thus 18.2 percent larger than in 1968 and 14.1 percent larger than in 1967. In terms of value, sales in 1969 were 11.3 percent larger than in 1968 and 19.9 percent larger than in 1967.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3. Imports of medicinal chemicals in 1968 and 1969 are given in table 2 in the Appendix.

[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.

Production of the more important groups of medicinal chemicals in 1969 was as follows: Antibiotics, 13.2 million pounds (29 percent larger than in 1968), of which 7.4 million pounds was for medicinal use and 5.8 million pounds was for other uses; anti-infective agents other than antibiotics, 33.7 million pounds (1.5 percent smaller than in 1968); central nervous system depressants and stimulants, 52.0 million pounds (21 percent larger); gastrointestinal agents, 58.3 million pounds (21 percent larger); and vitamins, 17.6 million pounds (4 percent larger). Production of some of the more important individual products listed in table 1 was as follows: Choline chloride, 41.9 million pounds (20 percent larger than in 1968); aspirin, 37.3 million pounds (21 percent larger); methionine and its hydroxy analogue, 14.6 million pounds (44 percent larger); salicylic acid, 13.7 million pounds (18 percent larger); piperazine base and salts, 8.0 million pounds (8 percent smaller); ascorbic acid, 7.0 million pounds (4 percent larger); anti-infective sulfonamides, 4.9 million pounds (2.5 percent larger); penicillins (except semi-synthetic), 2,462 trillion units (11 percent larger); tetracyclines, 2.1 million kilograms (38 percent larger); vitamin A, 1,192 trillion units (12 percent larger); and vitamin E, 476 billion units (15 percent larger).

Table 1.--Medicinal chemicals: U.S. production and sales, 1969

[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	200,034	144,802	461,820	$3.19
Acyclic	73,616	56,689	36,585	.65
Benzenoid[3]	107,867	75,069	325,708	4.34
Cyclic nonbenzenoid[4]	18,551	13,044	99,527	7.63
Antibiotics, total[5 6]	13,199	5,448	115,555	21.21
For medicinal use, total	7,360	3,202	89,361	27.91
Antifungal and antitubercular antibiotics	706	...	...	...
Bacitracin	25	16	1,419	88.69
Penicillins, total[7]	4,035	1,374	37,149	27.04
Ampicillin	688	...	...	...
Penicillin G, potassium	1,986	...	...	...
All other	1,361	1,374	37,149	27.04
Other antibiotics for medicinal use	2,594	1,812	50,793	28.03
For other uses, total	5,839	2,246	26,194	11.66
Bacitracin	412	324	4,975	15.35
All other	5,427	1,922	21,219	11.04
Antihistamines, total	575	261	10,780	41.30
Antinauseants	69	...	...	...
Chlorpheniramine maleate	46	18	262	14.56
All other	460	243	10,518	43.28
Anti-infective agents (except antibiotics), total	33,705	25,014	95,676	3.82
Arsenic, bismuth, and mercury compounds, total	3,527	...	...	...
Phenolic antiseptics and disinfectants	312	239	399	1.67
Piperazine base and salts, total	7,981	5,152	3,260	.63
Piperazine	3,873	831	640	.77
All other	4,108	4,321	2,620	.61
Quinoline derivatives, total	538	340	2,049	6.03
Diiodohydroxyquin	28	13	56	4.31
Oxyquinoline benzoate	2	...	...	...
All other	508	327	1,993	6.09
Sulfonamides, total	4,916	...	...	...
Groups listed above for which separate sales data may not be shown	...	3,952	11,496	2.91
Other anti-infective agents, total	16,431	15,331	78,472	5.12
Anthelmintic agents	7,335	7,657	36,531	4.77
Antibacterial agents and general antiseptics, total	3,435	2,022	5,225	2.58
Urinary antiseptics, total	762	591	1,166	1.97
Methenamine salts	434	...	...	...
All other	328	591	1,166	1.97
Other antibacterial agents and general antiseptics	2,673	1,431	4,059	2.84
Antifungal agents	1,038	1,119	946	.85
Antiprotozoan agents	4,623	4,533	35,770	7.89
Autonomic drugs, total	622	501	9,267	18.50
Parasympatholytic (anticholinergic) quaternary ammonium compounds	41	...	...	...
Parasympatholytic (anticholinergic) tertiary amines	61	29	1,396	48.14
Sympathomimetic (adrenergic) agents, total	510	453	6,475	14.29
Epinephrine hydrochloride (racemic)	1	1	92	92.00
Phenylpropanolamine hydrochloride	237	282	1,749	6.20
All other	272	170	4,634	27.26
Other autonomic drugs	10	19	1,396	73.47

See footnotes at end of table.

TABLE 1.--Medicinal chemicals: U.S. production and sales, 1969--Continued

Chemical	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Cardiovascular agents, total	1,095	...	...	...
Vasodilators	77	...	...	...
Other cardiovascular agents	1,018	...	...	...
Central depressants and stimulants, total	51,989	34,659	69,506	$2.01
Amphetamines, total	83	80	692	8.65
Amphetamine base and sulfate (racemic)	31	...	...	...
All other	52	80	692	8.65
Analgesics and antipyretics, total	45,461	29,941	36,194	1.21
Acetaminophen	2,825	...	...	...
Aspirin	37,273	...	...	...
Salicylates (except aspirin)	2,393	2,888	2,947	1.02
All other	2,970	27,053	33,247	1.23
Antidepressants	78	...	...	...
Barbiturates, total	836	...	...	...
Pentobarbital, sodium	97	...	...	...
All other	739	...	...	...
Hydrocodone bitartrate	1	1	326	326.00
Hypnotics and sedatives (except barbiturates)	682	...	...	...
Skeletal muscle relaxants and tranquilizers, total	1,542	1,204	7,047	5.85
Meprobamate	868	...	...	...
All other	674	1,204	7,047	5.85
Other central depressants and stimulants[8]	3,307	3,433	25,247	7.35
Dermatological agents and local anesthetics, total	14,537	13,895	6,312	.45
Bismuth subgallate	...	25	149	5.96
Lidocaine	...	8	191	23.88
Salicylic acid	13,653	13,094	4,948	.38
All other	884	768	1,024	1.33
Expectorants and mucolytic agents, total	2,401	2,375	3,967	1.67
Ethylenediamine dihydriodide	974	970	1,491	1.54
All other	1,427	1,405	2,476	1.76
Gastrointestinal agents, total	58,336	44,607	15,215	.34
Choleretics and hydrocholeretics	126	...	...	...
Choline chloride (all grades)	41,921	26,133	3,736	.14
Methionine and its hydroxy analogue	14,640	16,923	8,363	.49
All other	1,649	1,551	3,116	2.01
Hematological agents, total	28	19	1,528	80.42
Anticoagulants, total	9	...	...	...
Sodium heparin	3	...	...	...
All other	6	...	...	...
Other hematological agents	19	19	1,528	80.42
Hormones and synthetic substitutes, total	1,837	364	17,034	46.80
Corticosteroids	61	...	...	...
Synthetic hypoglycemic agents	1,595	308	1,190	3.86
All other	181	56	15,844	282.93
Renal-acting and edema-reducing agents, total	1,640	163	5,593	34.31
Mercurial diuretics	...	(9)	21	57.85
Theophylline derivatives	86	65	229	3.52
All other	1,554	98	5,343	54.52
Therapeutic nutrients, total	1,932	1,463	1,672	1.14
Amino acids and salts	737	444	757	1.70
Calcium salts	...	629	426	.68
Other therapeutic nutrients	1,195	390	489	1.25

See footnotes at end of table.

TABLE 1.--Medicinal chemicals: U.S. production and sales, 1969--Continued

Chemical	Production[1]	Sales[1]		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Vitamins, total	17,647	14,777	71,545	$4.84
Vitamin A alcohol and esters, total[10]	1,364	1,018	22,584	22.18
Vitamin A palmitate (feed grade)	1,023	720	12,280	17.06
All other	341	298	10,304	34.58
Vitamin B-complex, total	6,297	5,663	24,234	4.28
Niacin (all grades)	1,968	1,972	2,001	1.01
Niacinamide	1,014	1,013	1,869	1.85
Pantothenic acid and derivatives, total	1,581	1,327	3,155	2.38
Calcium pantothenate (racemic) (feed grade)	982	744	1,422	1.91
All other	599	583	1,733	2.97
Riboflavin (feed grade)	544	428	3,764	8.79
Other B-complex vitamins	1,190	923	13,445	14.57
Vitamin C, total	8,866	7,368	12,279	1.67
Ascorbic acid	6,956	5,342	8,585	1.61
All other	1,910	2,026	3,694	1.82
Vitamin D[10]	10	4	655	163.75
Vitamin E[10]	892	644	11,260	17.48
Vitamin K	218	80	533	6.66
Miscellaneous medicinal chemicals[11]	491	1,256	38,170	30.39

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

Antibiotic	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
				1,000 dollars	
Ampicillin	---Kg---	312,076	...	...	...
Bacitracin, total	---BU---	9,925	7,722	6,394	$828.02
For medicinal use	---BU---	570	373	1,419	3,804.29
For other uses	---BU---	9,355	7,349	4,975	676.96
Neomycin, for all uses	---Kg---	178,204	41,126	1,413	34.36
Penicillins (except semi-synthetics), total	---BU---	2,461,560	1,173,366	19,379	16.52
Penicillin G, potassium, for medicinal use	---BU---	1,436,232	...	...	...
Penicillin G, procaine, for all uses	---BU---	746,281	616,773	10,891	17.66
All other, for all uses	---BU---	279,047	556,593	8,488	15.25
Tetracyclines, for all uses	---Kg---	2,052,472	381,248	16,329	42.83

Footnotes for table 1--Continued

[6] Some of the data shown for tetracyclines in footnote 5 of the 1968 report were incorrect because of a clerical error. Production should have been 1,483,593 kilograms; sales, 401,172 kilograms; and the average unit value of ales, $49.64 per kilogram. The published value of sales ($19,913,000) was correct.

[7] Production of medicinal and feed grades of all pencillins (except semi-synthetics) amounted to 4,037,000 pounds. sales amounted to 2,121,000 pounds, valued at $19,379,000.

[8] Includes production and sales of anticonvulsants, antitussives (except hydrocodone bitartrate) and stimulants; also includes sales of antidepressants, barbiturates, and hyptnotics and sedatives.

[9] Sales of mercurial diuretics amounted to 363 pounds.

[10] 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---	1,191,585	898,795	22,584	$25.13
Vitamin A palmitate (feed grade)	---BU---	842,907	593,176	12,280	20.70
All other	---BU---	348,678	305,619	10,304	33.72
Vitamin D	---BU---	177,805	79,597	655	8.23
Vitamin E	---MU---	475,838	361,133	11,260	31.18

[11] Includes production and sales of antineoplastic agents, diagnostic agents, smooth-muscle relaxants, and unclassified medicinal chemicals; also includes sales of cardiovascular agents.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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:	
*For medicinal use:	
*Antifungal and antitubercular antibiotics:	
Antifungal antibiotics:	
Amphotericin B	OMS.
Candicidin	x.
Nystatin	OMS.
Antitubercular antibiotics:	
Cycloserine	COM.
Dihydrostreptomycin	MRK, PFZ.
Streptomycin	MRK, PFZ.
Viomycin	PFZ.
*Bacitracin	COM, PEN, PFZ, PMP.
*Penicillins:	
*Ampicillin	BEE, BRS, OMS, WYT.
Ampicillin, sodium	OMS.
Cloxacillin, sodium	BEE, BRS.
Dicloxacillin	BRS.
Dicloxacillin, sodium	BEE.
Hetacillin	BRS.
Methicillin, sodium	BRS.
Nafcillin, sodium	WYT.
Oxacillin, sodium	BEE, BRS.
Penicillin G, benzathine	WYT.
*Penicillin G, potassium	LIL, OMS, PFZ, WYT.
Penicillin G, procaine	LIL, OMS, PFZ, WYT.
Penicillin G, sodium	OMS.
Penicillin O, sodium	PFZ.
Phenethicillin, potassium	BRS, PFZ.
Phenoxymethylpenicillin (Penicillin V)	ABB, LIL.
Phenoxymethylpenicillin, benzathine	WYT.
Phenoxymethylpenicillin, hydrabamine	ABB.
Phenoxymethylpenicillin, potassium	ABB, LIL, OMS.
*Other antibiotics for medicinal use:	
Cephalexin	LIL.
Cephaloglycin	LIL.
Cephaloridine	LIL.
Cephalothin	LIL.
Chloramphenicol	PD, RLS.
Clindamycin	x.
Erythromycin	ABB, LIL.
Fumagillin	ABB.
Gentamycin	SCH.
Gramicidin	x.
Kanamycin	BRS.
Lincomycin	x.
Neomycin	OMS, PEN, PFZ, UPJ.
Novobiocin	MRK, UPJ.
Oleandomycin	PFZ.
Paromomycin	MRK.
Polymyxin B	PFZ.
Spectinomycin	ABB, x.
Tetracyclines:	
Chlortetracycline	ACY, RLS.
Demeclocycline	ACY.
Doxycycline	PFZ.
Methacycline	PFZ.
Oxytetracycline	PFZ, RLS.
Tetracycline	ACY, BRS, PFZ, RLS.
Thiostrepton	OMS.
Troleandomycin	PFZ.
Tyrothricin	x.
Vancomycin	LIL.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Antibiotics--Continued	
*For other uses:	
*Bacitracin	COM, DLI, GPR, PEN, PMP.
Chlortetracycline	ACY, DLI.
Cycloheximide	UPJ.
Hygromycin B	LIL.
Neomycin	PEN, PFZ.
Novobiocin	UPJ.
Oxytetracycline	PFZ.
Penicillin G, benzathine	WYT.
Penicillin G, procaine	MRK, OMS.
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.
Carbinoxamine D-tartrate	SCH.
Chlorcyclizine hydrochloride	ABB, BUR.
Chlorothen citrate	ACY.
*Chlorpheniramine maleate	HEX, SCH, SK, x.
Cyproheptadine hydrochloride	MRK.
Dexbrompheniramine maleate	SCH.
Dexchlorpheniramine maleate	SCH.
Dimethindene maleate	CBP.
Diphenhydramine hydrochloride	GAN, PD, RLS.
Doxylamine succinate	BKC.
Methapyrilene fumarate	ABB.
Methapyrilene hybenzate	LIL.
Methapyrilene hydrochloride	ABB.
Phenindamine tartrate	HOF.
Pheniramine maleate	HEX, SCH, x.
Phenyltoloxamine citrate	BRS.
Promethazine hydrochloride	WYT.
Pyrilamine maleate	HEX, MRK.
Pyrilamine resin adsorbate	MRK.
Pyrrobutamine phosphate	LIL.
Thenyldiamine hydrochloride	SDW.
Thonzylamine hydrochloride	NEP.
Tripelennamine	CBP.
Tripelennamine citrate	CBP.
Tripelennamine hydrochloride	CBP.
Triprolidine hydrochloride	BUR.
*Anti-infective agents (except antibiotics):	
*Arsenic, bismuth, and mercury compounds:	
Acetarsone	SDW.
Arsanilic acid	WHL.
Bismuth dipropylacetate	x.
Bismuth sodium triglycollamate	BPC.
Bismuth subsalicylate	MAL, NOR, PEN.
Carbarsone	LIL, PYL, WHL.
Glycobiarsol	PYL, SDW.
Merbromin	HYN.
Mercuric salicylate	MRK.
Nitarsone	SAL.
Nitromersol	ABB.
Phenylmercuric benzoate	MRK.
Phenylmercuric borate	MRK.
Phenylmercuric chloride	MRK.
Phenylmercuric nitrate	MRK.
Roxarsone	SAL.
Roxarsone sodium	SAL.
Sodium arsanilate[1]	SAL.
Thimerosal	LIL, PYL, SEL.

See footnotes at end of table.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Phenolic antiseptics and disinfectants:	
Betanaphthol[1]	ACY.
Bithionol	SDH.
Resorcinol[1]	KPT, LEM.
Thymol	GIV.
Thymol iodide	MAL.
*Piperazine base and salts:	
*Piperazine[1]	DOW, FLM, JCC, UCC.
Piperazine adipate	PYL.
Piperazine citrate	BUR.
Piperazine dihydrochloride	DOW, FLM, JCC, SEL, WHL.
Piperazine dithiocarbamate	SEL.
Piperazine hexahydrate	JCC.
Piperazine hydrochloride	DOW, JCC.
Piperazine phosphate	BUR, JCC, PYL, SEL.
Piperazine sulfate	JCC.
Piperazine tartrate	PYL.
*Quinoline derivatives:	
Amodiaquin	PD.
Amodiaquin hydrochloride	PD.
Buquinolate	UOP.
Chloroquine phosphate	SDW.
*Diiodohydroxyquin	CBP, FIN, LEM, PYL, RSA, SRL.
Hydroxychloroquine sulfate	SDW.
8-Hydroxy-5-quinolinesulfonic acid	MRK.
Iodochlorhydroxyquin	CBP, PYL.
Oxolinic acid	NEP.
Oxyquinoline	FIS, LEM, MRK.
*Oxyquinoline benzoate	FIS, LEM, MRK.
Oxyquinoline citrate	FIS, MRK.
Oxyquinoline sulfate	FIS, LEM, MRK.
Primaquine phosphate	PD, SDW.
*Sulfonamides:	
Acetyl sulfamethoxypyridazine	ACY.
Acetyl sulfisoxazole	HOF.
Azosulfamide	SDW.
Dinsed	SAL.
Mafenide acetate	SDW.
Mafenide hydrochloride	SDW.
Phthalylsulfacetamide	CTN, LEM.
Phthalylsulfathiazole	LEM, MRK, PYL.
Succinylsulfathiazole	MRK, PYL.
Sulfabenzamide	ACY.
Sulfabenzamide, sodium	ACY.
Sulfabromomethazine, sodium	MRK.
Sulfacetamide	CTN, LEM.
Sulfacetamide, sodium	CTN, LEM.
Sulfachloropyrazine, sodium	ACY.
Sulfachloropyridazine, sodium	CBP.
Sulfadiazine	ACY.
Sulfadiazine, sodium	ACY.
Sulfadimethoxine	HOF.
Sulfaethidole	ACY.
Sulfaguanidine	ACY, SAL.
Sulfamerazine	ACY, LEM.
Sulfamerazine, sodium	ACY, CTN.
Sulfamethazine	ACY, LEM.
Sulfamethazine, sodium	ACY, CTN, SEL.
Sulfamethizole	ACY, CTN.
Sulfamethoxazole	HOF.
Sulfamethoxypyridazine	ACY.
Sulfanilamide	SAL.
Sulfanitran	SAL.
Sulfapyridine	ACY, CTN, MRK.
Sulfapyridine, sodium	ACY, CTN.
Sulfaquinoxaline	MRK.

See footnotes at end of table.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Sulfonamides--Continued	
Sulfathiazole	ACY, MRK.
Sulfathiazole, sodium	ACY, MRK.
Sulfisoxazole	HOF.
Sulfisoxazole, sodium	HOF.
*Other anti-infective agents:	
*Anthelmintic agents:	
Cadmium anthranilate	MAL.
2,2-Dichlorovinyl dimethyl phosphate	SHC.
Diethylcarbamazine citrate	ACY.
Gentian violet	ACS, SDH.
Hexylresorcinol	HEX, MRK.
Phenothiazine	ABR, ISC.
Pyrvinium pamoate	x.
Thiabendazole	MRK.
*Antibacterial agents and general antiseptics:	
*Urinary antiseptics:	
Calcium mandelate	MAL.
Ethoxazene hydrochloride	KON.
Furadantin	NOR.
Mandelic acid	MAL.
Methenamine	HN.
*Methenamine salts:	
Methenamine hippurate	RIK.
Methenamine mandelate	ARN, LEM, NEP, PYL.
Methenamine sulfosalicylate	x.
Methylene blue	ACS, ACY.
Nitrofurantoin	NOR.
Phenazopyridine hydrochloride	HOF, NEP.
*Other antibacterial agents and general antiseptics:	
Acriflavine	ACS.
Aminacrine	SDW.
Aminacrine hydrochloride	SDW.
Antileprotic and antitubercular agents:	
Aminosalicylic acid	MLS.
Dapsone	SDW.
Ethionamide	RDA.
Isoniazid	RIL.
Potassium aminosalicylate	MLS.
Pyrazinamide	MRK.
Sodium aminosalicylate	MLS.
Sodium sulfoxone	ABB.
Benzalkonium chloride	SDH.
Bromoform	DOW.
Camphor, monobromated	MAL, PEN.
Cetalkonium chloride	FIN, SDW.
Cetylpyridinium chloride	FIN, HEX.
Chlorobutanol	BPC, PD.
Furaltadone	NOR.
Furamazone	NOR.
Iodoform[2]	MAL, PEN.
Nalidixic acid	SDH.
Nitrofurathiazide	SCH.
Nitrofurazone	NOR.
Nitromide	SAL.
Providone - iodine complex	GAF.
*Antifungal agents:	
Benzoic acid	MON.
Calcium undecylenate	WTL.
Fuchsin, basic	ACS.
Nifuroxime	NOR.
Salicylanilide	LEM.
Sodium caprylate	LEM.
Sodium undecylenate	BAC.
Undecylenic acid	BAC.
Zinc undecylenate	BAC, CFC, WTL.
*Antiprotozoan agents:	
Aklomide	SAL.
Aminitrozole	ACY.
Amprolium	MRK.
Chlorbetamide	SDW.

See footnotes at end of table.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Anti-infective agents (except antibiotics)--Continued	
*Other anti-infective agents--Continued	
*Antiprotozoan agents--Continued	
3,5-Dinitro-o-toluamide	DOW.
Furazolidone	NOR.
Metronidazole	RDA.
Nifursol	SAL.
Nihydrazone	NOR.
Nithiazide	MRK.
Nitrophenide	ACY.
Pyrimethamine	BUR.
*Autonomic drugs:	
Parasympatholytic (anticholinergic) agents (except tropane derivatives):	
*Quaternary ammonium compounds:	
Diphemanil methylsulfate	SCH.
Hexocyclium methylsulfate	ABB.
Isopropamide iodide	SK.
Mepenzolate bromide	LKL.
Methantheline bromide	SRL.
Pipenzolate bromide	LKL.
Propantheline bromide	SRL.
Tridihexethyl iodide	ACY.
*Tertiary amines:	
Adiphenine hydrochloride	CBP.
Caramiphen edisylate	SK.
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 hydrochloride	SDW.
Isoproterenol sulfate	ABB.
Levarterenol bitartrate	SDW.
Methoxyphenamine hydrochloride	x.
Naphazoline hydrochloride	CBP.
Nylidrin hydrochloride	BKL.
Phenylephrine	GAN, SDW.
Phenylephrine bitartrate	GAN.
Phenylephrine hydrochloride	CTN, GAN, HEX, ORT, SDW.
*Phenylpropanolamine hydrochloride	ARS, BKL, GAN, NEP, ORT.
Propylhexedrine	HEX, SK.
Protokylol hydrochloride	LKL.
Pseudoephedrine hydrochloride	BUR, GAN.
Pseudoephedrine sulfate	GAN.
Tetrahydrozoline hydrochloride	PFZ.
*Other autonomic drugs:	
Ganglionic blocking agent: Tetraethylammonium chloride.	RSA.
Parasympatholytic tropane derivatives:	
Anisotropine methylbromide	x.
Benztropine mesylate	x.
Homatropine	CTN.
Homatropine hydrobromide	CTN, HEX.
Homatropine methylbromide	CTN, HEX.
Parasympathomimetic (cholinergic) agents:	
Acetylcholine chloride	MRK.
Methacholine chloride	MRK, RSA.
Neostigmine bromide	HOF.
Physostigmine salicylate	PEN.
Pyridostigmine bromide	HOF.
Sympatholytic (antiadrenergic) agent: Ergonovine maleate.	LIL.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Cardiovascular agents:	
*Vasodilators:	
Cyclandelate	WYT.
Dioxyline phosphate	LIL.
Ethyl nitrite	MAL.
Glyceryl trinitrate	APD.
Isosorbide dinitrate	APD.
Mannitol hexanitrate	APD.
Nicotinyl alcohol tartrate	HOF.
Pentaerythritol tetranitrate	APD.
*Other cardiovascular agents:	
Antihypertensive agents:	
Guanethidine sulfate	CBP.
Hydralazine hydrochloride	CBP.
Methyldopa	MRK.
Pargyline hydrochloride	ABB.
Rauwolfia and veratrum alkaloids:	
Alkavervir	RIK.
Alseroxylon	RIK.
Raunormine	PEN.
Reserpine	PEN.
Bioflavonoids:	
Hesperidin	SKG.
Hesperidin methyl chalcone	SKG.
Lemon bioflavonoids	SKG.
Naringin	SKG.
Rutin	PEN.
Cardiac drugs:	
Procainamide hydrochloride	LEM, OMS.
Quinidine sulfate	HEX.
Colestipol hydrochloride	x.
*Central depressants and stimulants:	
*Amphetamines:	
*Amphetamine base and sulfate (racemic):	
Amphetamine (racemic)	HEX, ORT.
Amphetamine sulfate (racemic)	ARN, HEX, SK.
Dextroamphetamine	HEX.
Dextroamphetamine carboxymethylcellulose	ARN.
Dextroamphetamine hydrochloride	ARN, HEX.
Dextroamphetamine phosphate	ARN, HEX.
Dextroamphetamine sulfate	ARN, HEX, SK.
Dextroamphetamine tannate	ARN.
Levamphetamine succinate	ARN.
Methamphetamine (dextro)	HEX.
Methamphetamine (levo)	ABB, HEX.
Methamphetamine hydrochloride (dextro)	ARN, GAN, HEX.
Methamphetamine hydrochloride (racemic)	ARN, HEX.
*Analgesics and antipyretics:	
*Acetaminophen	ATP, MLS, NEP, x.
*Aspirin	DOW, MLS, MON, NOR, SDG.
*Salicylates (except aspirin):	
Aluminum aspirin	ABB, SCH.
Magnesium salicylate	MAL.
Phenyl salicylate	DOW.
Potassium salicylate	HN, PEN.
Salicylamide	CFC, x.
Salicylsalicylic acid	CFC, HN, NES.
Sodium salicylate	DOW, HN.
Strontium salicylate	CFC.
*Other analgesics and antipyretics:	
p-Aminobenzoic acid and salts:	
Aminobenzoic acid	LEM.
Calcium aminobenzoate	GAN.
Magnesium aminobenzoate	LEM.
Potassium aminobenzoate	GAN, LEM.
Sodium aminobenzoate	GAN, LEM.
Anileridine hydrochloride	MRK.
Calcium succinate	LEM.
Colchicine	PEN.
Dextropropoxyphene napsylate	LIL.
Ethoheptazine citrate	WYT.
Indomethacin	MRK.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Analgesics and antipyretics--Continued	
*Other analgesics and antipyretics--Continued	
Mefenamic acid	PD.
Meperidine hydrochloride	PEN, SDW, WYT.
Methadone hydrochloride	LIL.
Oxycodone hydrochloride	EN.
Oxyphenbutazone	GGY.
Pentazocine	SDW.
Pentazocine hydrochloride	SDW.
Phenacetin	MON.
Phenylbutazone	GGY.
Propoxyphene hydrochloride	LIL.
*Antidepressants:	
Amitriptyline	MRK.
Desipramine hydrochloride	LKL.
Imipramine hydrochloride	GGY.
Isocarboxazid	HOF.
Nialamide	PFZ.
Nortriptyline	LIL.
Phenelzine sulfate	NEP.
Protriptyline	MRK.
Antitussives:	
Benzonatate	CBP.
Carbetapentane citrate	PFZ.
Chlophedianol hydrochloride	RIK.
Codeine	MRK.
Dextromethorphan hydrobromide	HOF.
Dimethoxanate hydrochloride	BKL.
Ethylmorphine hydrochloride	MAL, MRK, PEN.
*Hydrocodone bitartrate	MAL, MRK, PEN.
Levopropoxyphene napsylate	LIL.
Thebaine	MRK.
*Barbiturates:	
Allylbarbituric acid	GAN.
Allylbarbituric acid, sodium	GAN.
Amobarbital	LIL.
Amobarbital, sodium	GAN, LIL.
Barbital	GAN.
Barbital, sodium	GAN.
Butabarbital	ABB, GAN.
Butabarbital, sodium	ABB, GAN.
Hexobarbital	GAN, SDW.
Mephobarbital	SDW.
Metharbital	ABB.
Methohexital, sodium	LIL.
Pentobarbital	ABB, GAN.
*Pentobarbital, sodium	ABB, GAN, PD.
Phenobarbital	GAN, MAL.
Phenobarbital, sodium	GAN, MAL, SDW.
Secobarbital	GAN, LIL.
Secobarbital, sodium	GAN, LIL.
Talbutal	SDW.
Thiamylal, sodium	PD.
Thiopental, sodium	ABB.
Vinbarbital	x.
*Hypnotics and sedatives (except barbiturates):	
Carbromal	PD.
Ethchlorvynol	ABB.
Ethinamate	LIL.
Glutethimide	CBP.
Methyprylon	HOF.
*Skeletal muscle relaxants and tranquilizers:	
Skeletal muscle relaxants:	
Carisoprodol	BKL.
Chlorphenesin carbamate	UPJ.
Mephenesin	BKL, HEX, OMS.
Mephenesin carbamate	OMS.
Phenaglycodol	LIL.
Styramate	ARP.
Succinylcholine chloride	ABB, BUR, SDW.
Tubocurarine	ABB, OMS.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Central depressants and stimulants--Continued	
*Skeletal muscle relaxants and tranquilizers--Continued	
Tranquilizers:	
Azacyclonol hydrochloride	BKC.
Buclizine hydrochloride	PFZ.
Chlordiazepoxide hydrochloride	HOF.
Chlormezanone	SDW.
Chlorprothixene	HOF.
Diazepam	HOF.
Ectylurea	MLS.
Ethomoxane hydrochloride	LIL.
Hydroxyphenamate	ARP.
Hydroxyzine hydrochloride	PFZ.
Mebutamate	BKL.
*Meprobamate	ABB, BKL, x.
Methaqualone	HEX, x.
Methaqualone hydrochloride	HEX.
Molindone hydrochloride	PD.
Oxazepam	WYT.
Phenothiazine derivatives:	
Carphenazine maleate	WYT.
Chlorpromazine hydrochloride	SK.
Fluphenazine enanthate	OMS.
Fluphenazine hydrochloride	OMS, SCH.
Perphenazine	SCH.
Prazepam	NEP.
Prochlorperazine maleate	SK.
Promazine hydrochloride	WYT.
Trifluoperazine hydrochloride	SK.
Triflupromazine hydrochloride	OMS.
*Other central depressants and stimulants:	
Anticonvulsants:	
Diphenylhydantoin	PD.
Diphenylhydantoin, sodium	PD.
Ethosuximide	PD.
Ethotoin	ABB.
Methsuximide	PD.
Phenacemide	ABB.
Phensuximide	PD.
General anesthetic: Vinyl ether	MRK.
Stimulants:	
Benzphetamine hydrochloride	x.
Caffeine:	
Natural	GNF.
Synthetic	PFZ.
Caffeine, citrated	MAL, MRK.
Caffeine sodium benzoate	GAN, MAL.
Chlorphentermine hydrochloride	NEP.
Deanol acetamidobenzoate	RIK.
Diethylpropion	BKC, x.
Nikethamide	CBP.
Pemoline	ABB.
Phentermine	HEX.
*Dermatological agents and local anesthetics:	
*Bismuth subgallate	BKC, MAL, PEN.
*Lidocaine	AST, LEM, RLS, SDW.
*Salicylic acid[1]	DOW, HN, MON, SDH.
*Other dermatological agents and local anesthetics:	
Dermatological agents:	
Allantoin	FIN, HFT.
Aluminum phenolsulfonate	MAL.
Ammonium phenolsulfonate	SAL.
Glycol salicylate	RDA.
Scarlet red	ACS.
Sodium phenolsulfonate	SAL.
Zinc phenolsulfonate	MAL.
Local anesthetics:	
Butacaine	ABB.
Butacaine sulfate	ABB.
Butamben picrate	ABB.
Butyl aminobenzoate (Butamben)	ABB.
Dibucaine	CBP.
Dibucaine hydrochloride	CBP.
Diclonine hydrochloride	BJL.
Ethyl aminobenzoate (Benzocaine)	LEM.

See footnotes at end of table

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Dermatological agents and local anesthetics--Continued	
*Other dermatological agents and local anesthetics--Continued	
Local anesthetics--Continued	
Oxethazaine	WYT.
Pramoxine hydrochloride	ABB.
Procaine hydrochloride	ABB, LEM, PFZ.
Proparacaine hydrochloride	OMS.
Propyl aminobenzoate	RSA.
Tetracaine	SDW.
Tetracaine hydrochloride	SDW.
*Expectorants and mucolytic agents:	
*Ethylenediamine dihydriodide	ABR, ISC, MAL, WHL.
Guaiacol and its derivatives:	
Glyceryl guaiacolate	GAN, HEX, x.
Guaiacol	MON.
Potassium guaiacolsulfonate	HN.
Iodinated glycerol	x.
Iodobrassid	CBP.
Lobeline sulfate	ABB.
Terpin hydrate	PEN.
Thonzonium bromide	NEP.
*Gastrointestinal agents:	
*Choleretics and hydrocholeretics:	
Bile acids, oxidized	SRL, WIL.
Dehydrocholic acid	WIL.
Florantyrone	SRL.
Iron bile salts	LIL, WIL.
Ox bile extract	ABB, LIL, WIL.
Sodium dehydrocholate	WIL.
Tocamphyl	x.
*Choline chloride (all grades):	
Feed grade	COM, DA, HFT, TMH.
Medicinal grade	HFT.
Technical grade	RH.
*Methionine and its hydroxy analogue:	
Methionine (feed grade)	DOW.
Methionine (medicinal grade)	DOW, LEM.
Methionine, hydroxy analogue, calcium salt	DUP, MON.
*Other gastrointestinal agents:	
Betaine base	HFT, MAL.
Betaine hydrochloride	HFT, LEM.
Choline bicarbonate	COM.
Choline bitartrate	ACY, HFT.
Choline citrate (Tricholine citrate)	ACY, HFT.
Choline dihydrogen citrate	ACY, HFT.
Danthron	GAF.
Dihydroxy aluminum aminoacetate	CHT.
Magnesium citrate	MAL.
Pectin	SKG.
Phenolphthalein	MON.
Podophyllum resin	ABB, PEN.
Sitosterols	UPJ.
Sodium carboxymethylcellulose	CBP.
Sodium tartrate	MAL.
*Hematological agents:	
*Anticoagulants:	
*Sodium heparin	ABB, RIK, WIL.
*Other anticoagulants:	
Ammonium heparin	ABB, WIL.
Anisindione	SCH.
Bishydroxycoumarin	ABB.
Sodium warfarin	EN.
*Other hematological agents:	
Aminocaproic acid	ACY.
Cellulose, oxidized	EKT.
Dextran	PHR.
*Hormones and synthetic substitutes:	
*Corticosteroids:	
Betamethasone	SCH.
Betamethasone acetate	SCH.
Betamethasone phosphate	SCH.
Betamethasone valerate	SCH.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Hormones and synthetic substitutes--Continued	
*Corticosteroids--Continued	
Cortisone	MRK.
Cortisone acetate	MRK, SCH, UPJ.
Dexamethasone	MRK, SCH, UPJ.
Dexamethasone acetate	SCH.
Dexamethasone phosphate	MRK.
Dichlorisone acetate	SCH.
1,2-Dihydrotriamcinolone	UPJ.
Fludrocortisone acetate	UPJ.
Fluorometholone	UPJ.
9-Fluoroprednisolone acetate	UPJ.
Fluprednisolone	UPJ.
Hydrocortisone	MRK, PFZ, UPJ.
Hydrocortisone acetate	MRK, UPJ.
Hydrocortisone phosphate	MRK.
Methylprednisolone	UPJ.
Prednisolone	MRK, UPJ.
Prednisolone acetate	SCH, UPJ.
Prednisolone phosphate	MRK.
Prednisone	UPJ.
Prednisone acetate	SCH.
Triamcinolone	ACY, OMS.
Triamcinolone acetonide and diacetate	OMS.
*Synthetic hypoglycemic agents:	
Acetohexamide	LIL.
Chlorpropamide	PFZ.
Phenformin hydrochloride	BKL.
Tolazamide	x.
Tolbutamide	HST, x.
*Other hormones and synthetic substitutes:	
Anabolic agents and androgens:	
Fluoxymesterone	UPJ.
Methandrostenolone	CBP.
Testosterone cypionate	UPJ.
Testosterone phenylacetate	CBP.
Antithyroid agents:	
Methimazole	LIL.
Propylthiouracil	ACY.
Estrogens:	
Chlorotrianisene	BKC.
Diethylstilbestrol	CTN, LIL.
Diethylstilbestrol diphosphate	x.
Estrogenic substances, conjugated	ORG.
Natural estrogenic substance	ORG.
Progestogens:	
Medroxyprogesterone acetate	x.
Norgestrel	WYT.
Progesterone	x.
Other hormones:	
Corticotropin (ACTH) (pituitary)	ARP.
Glucagon (crystalline) (pancreas)	LIL.
Insulin (pancreas)	ARP, LIL.
Thyroid	LIL.
*Renal-acting and edema-reducing agents:	
*Mercurial diuretics:	
Meralluride	LKL.
Mersalyl acid	SDW.
Sodium mercaptomerin	WYT.
*Theophylline derivatives:	
Ambuphylline	LEM.
Aminophylline	GAN, LEM, SRL.
Oxtriphylline	NEP.
Theophylline sodium glycinate	CHT.
*Other renal-acting and edema-reducing agents:	
Acetazolamide	ACY.
Benzothiadiazine derivatives:	
Bendroflumethiazide	OMS.
Benzthiazide	PFZ.
Chlorothiazide	MRK.
Flumethiazide	OMS.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Renal-acting and edema-reducing agents--Continued	
*Other renal-acting and edema-reducing agents--Continued	
Benzothiadiazine derivatives--Continued	
Hydrochlorothiazide	ABB, CBP, MRK.
Methyclothiazide	ABB.
Polythiazide	PFZ.
Trichlormethiazide	SCH.
Chlorthalidone	GGY.
Dichlorphenamide	MRK.
Ethacrynic acid	MRK.
Probenecid	MRK.
Spironolactone	SRL.
Theobromine sodium salicylate	GLY.
Triamterene	SK.
*Therapeutic nutrients:	
*Amino acids and salts:	
Amino acid mixtures	ABB, CUT, STA.
Aspartic acid and salts:	
Aspartic acid	HEX.
Magnesium aspartate	WYT.
Potassium aspartate	WYT.
Beta-alanine	DA.
Glutamic acid and salts:	
Ammonium glutamate	IMC, LEM.
L-Arginine-L-glutamate	ABB.
Glutamic acid	IMC, LEM.
Glutamic acid hydrochloride	IMC, LEM.
Potassium glutamate	IMC, LEM.
Lysine (feed grade)	MRK.
Lysine hydrochloride	MRK.
Phenylalanine	SDW.
*Calcium salts:	
Calcium glucoheptonate	PFN.
Calcium gluconate	PFZ, WHL.
Calcium levulinate	SEL.
Calcium phytate	STA.
*Other therapeutic nutrients:	
Copper gluconate	PFZ.
Ferrous gluconate	PFZ, SDW.
Fructose	DLI.
Liver concentrate	WIL.
Liver, desiccated	WIL.
Magnesium gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
*Vitamins:	
*Vitamin A alcohol and esters:	
Beta-carotene (Provitamin A)	EKT, HOF.
Vitamin A acetate (feed grade)	HOF, PFZ.
Vitamin A acetate (medicinal grade)	CW, HOF, PFZ.
Vitamin A alcohol	CW, HOF, PFZ.
Vitamin A natural esters	CW.
*Vitamin A palmitate (feed grade)	EKT, HOF, PFZ.
Vitamin A palmitate (medicinal grade)	EKT, HOF, PFZ.
*Vitamin B-complex:	
*Niacin (all grades):	
Feed grade	DA, MRK, RIL.
Medicinal grade	MRK, RIL, SCR.
*Niacinamide	MRK, NEP, PD, SCR.
*Pantothenic acid and derivatives:	
Calcium pantothenate (dextro)	x.
Calcium pantothenate (racemic) - calcium chloride complex.	CKL, HFT, PHF.
*Calcium pantothenate (racemic) (feed grade)	CKL, DA, DLI, HFT, PHF.
Calcium pantothenate (racemic) (medicinal grade)	DA.
Dexpanthenol	DA, HOF.
Panthenol (racemic)	HOF, PD.
Sodium pantothenate	PD.
*Riboflavin (feed grade)	DA, GPR, HOF, MRK.

TABLE 2.--Medicinal chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
*Vitamins--Continued	
*Vitamin B-complex--Continued	
*Other B-complex vitamins:	
Biotin	HOF.
Cyanocobalamin:	
Cyanocobalamin (feed grade)	GPR, MRK, PMP.
Cyanocobalamin (medicinal grade)	MRK.
Cyanocobalamin (U.S.P. crystalline)	MRK.
Cyanocobalamin with intrinsic factor concentrate	WIL.
Folic acid	ACY.
Inositol	STA.
Magnesium nicotinate	NEP.
Niacinamide hydrochloride	NEP.
Pyridoxine	HOF, MRK.
Riboflavin (medicinal grade)	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:	
Vitamin D_2 (Ergocalciferol)	PHF, SCR, VTM.
Cholecalciferol (Vitamin D_3)	DA, DLI, PHF, VTM.
7-Dehydrocholesterol (Provitamin D_3)	VTM.
*Vitamin E:	
d-Alpha tocopherol	CW, EKT.
dl-Alpha tocopherol	HOF.
d-Alpha tocopheryl acetate	CW, EKT.
dl-Alpha tocopheryl acetate	HOF.
dl-Alpha tocopheryl acetate (feed grade)	HOF.
d-Alpha tocopheryl acid succinate	CW, EKT.
*Vitamin K:	
Menadiol sodium diphosphate	HOF.
Menadione	ABB, HET, WHL.
Menadione sodium bisulfite	ABB, DA, DLI, HET, WHL.
Phytonadione	MRK.
*Miscellaneous medicinal chemicals:	
Antineoplastic agents:	
Mercaptopurine	BUR.
Testolactone	OMS.
Thioguanine	BUR.
Vinblastine sulfate	LIL.
Vincristine sulfate	LIL.
Diagnostic agents:	
Roentgenographic contrast media:	
Acetrizoate, sodium	MAL.
Diatrizoate, meglumine	SDW.
Diatrizoate, sodium	SDW.
Iodohippurate, sodium	MAL.
Iodopyracet	SDW.
Iopanoic acid	SDW.
Iophendylate	x.
Iothalamate, meglumine	MAL.
Iothalamate, sodium	MAL.
Methiodal, sodium	SDW.
Other diagnostic agents:	
Evans blue (blood volume determination)	NEP.
Indocyanine green (cardiac output test)	x.
Metyrapone (pituitary function test)	CBP.
Phenolphthalein monophosphate dicyclohexylamine	NEP.
Smooth muscle relaxants:	
Alverine	CTN.
Alverine citrate	x.
Alverine hydrochloride	CTN.
Papaverine hydrochloride	LIL, MRK.
Unclassified medicinal chemicals:	
Allopurinol	BUR.
Penicillamine (copper chelating agent)	MRK.

[1] Producers of technical grade are listed in report on cyclic intermediates.
[2] Producers of technical grade are listed in report on miscellaneous chemicals.

TABLE 3.--Medicinal chemicals: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company
ABB	Abbott Laboratories
ABR	Atomic Basic Chemicals Corp.
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACY	American Cyanamid Co.
APD	Atlas Chemical Industries, Inc.
ARN	Arenol Chemical Corp.
ARP	Armour Pharmaceutical Products Co.
ARS	Arsynco, Inc.
AST	Astra Pharmaceutical Products, Inc.
ATP	Atco Chemical-Industrial Products, Inc., Fine Chemicals Div.
BAC	Baker Castor Oil Co.
BEE	Beecham, Inc.
BJL	Burdick & Jackson Laboratories, Inc.
BKC	J. T. Baker Chemical Co.
BKL	Millmaster Onyx Corp., Millmaster Chemical Div., Berkeley Chemical Dept.
BPC	Stauffer Chemical Co., Benzol Products Div.
BRS	Bristol-Myers Co., Bristol Laboratories Div.
BUR	Burroughs Wellcome & Co. (U.S.A.), Inc.
CBP	Ciba Pharmaceutical Co.
CFC	Sun Chemical Corp.
CHT	Chattam Drug & Chemical Co., Chattem Chemicals Div.
CKL	Chemlek Laboratories, Inc.
COM	Commercial Solvents Corp.
CTN	Chemetron Corp., Organic Chemical Div.
CUT	Cutter Laboratories, Inc.
CW	General Mills, 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., Dyestuff & Chemical Div.
GAN	Gane's Chemical Works, Inc.
GGY	Geigy Chemical Corp.
GIV	Givaudan Corp.
GLY	Glyco Chemicals, Inc.
GNF	General Foods Corp., Maxwell House Div.
GPR	Grain Processing Corp.
HET	Heterochemical Corp.
HEX	Hexagon Labs., Inc.
HFT	Hoffman-Taff, Inc.
HN	Tenneco Chemicals, Inc.
HOF	Hoffmann-LaRoche, Inc.
HST	American Hoechst Corp.
HYN	Hynson, Westcott & Dunning, Inc.
IMC	International Minerals & Chemical Corp.
ISC	Interstate Chemical Co.
JCC	Jefferson Chemical Co., Inc.
KON	H. Kohnstamm & Co., Inc.
KPT	Koppers Co., Inc., Organic Materials Div.
LEM	B. L. Lemke & Co., Inc.
LIL	Eli Lilly & Co.
LKL	Lakeside Laboratories Div. of Colgate-Palmolive Co.
MAL	Mallinckrodt Chemical Works
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.
OMS	E. R. Squibb & Sons, Inc.
ORG	Organics, Inc.
ORT	Roehr Chemicals, Inc.
PD	Parke, Davis & Co.
PEN	CPC International, Inc., Penick Div.
PFN	Pfanstiehl Laboratories, Inc.
PFZ	Pfizer, Inc.
PHF	Peter Hand Foundation
PHR	Pharmachem Corp.
PMP	Premier Malt Products, Inc.
PYL	Polychemical Laboratories, Inc.
RDA	Rhodia, Inc.
RH	Rohm & Haas Co.
RIK	Dart Industries, Inc., Riker Laboratories Div.
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.
SEL	Selney Co., Inc.
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.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Div.
UPJ	Upjohn Co.
VB	Vermilye-Bell
VTM	Vitamins, Inc.
WHL	Whitmoyer Laboratories, Inc.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.
WTL	Pennwalt Corp., Lucidol Div.
WYT	Wyeth Laboratories, Inc., Wyeth Laboratories Div. of American Home Products Corp.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 1969 amounted to 120.4 million pounds--slightly more than the 117.5 million pounds produced in 1968 (table 1[1]). Sales of these materials in 1969 amounted to 103.6 million pounds, valued at $93.6 million, compared with 108.8 million pounds, valued at $97.3 million in 1968.

Production of cyclic flavor and perfume materials in 1969 amounted to 61.4 million pounds; sales amounted to 48.7 million pounds, valued at $52.9 million. The individual chemical in the cyclic group produced in the greatest volume in 1969 again was benzyl alcohol (7.7 million pounds). Production of synthetic sweeteners amounted to 16.6 million pounds in 1969, compared with 19.7 million pounds in 1968.

U.S. output of acyclic flavor and perfume materials in 1969 amounted to 59.0 million pounds; sales of these materials amounted to 54.8 million pounds, valued at $40.8 million. Monosodium glutamate was by far the most important of the acyclic chemicals, and the individual flavor and perfume chemical produced in the greatest volume; output of this chemical totaled 48.5 million pounds in 1969, compared with 47.7 million pounds in 1968.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3. Imports of flavor and perfume materials in 1968 and 1969 are given in table 2 in the Appendix.

TABLE 1.--Flavor and perfume materials: U.S. production and sales, 1969

[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 manufacturer of each]

Material	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	120,390	103,564	93,626	$0.90
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total	61,353	48,721	52,873	1.09
Benzenoid and Naphthalenoid				
Total	51,191	41,659	39,558	.95
4-Allyl-2-methoxyphenol (Eugenol)	391	334	828	2.48
4-Allyl-1,2-(methylenedioxy)benzene (Safrole)	259	...	...	...
Benzophenone[2]	191	129	147	1.14
Benzyl acetate	1,390	1,390	501	.36
Benzyl alcohol[2]	7,704	7,149	2,653	.37
Benzyl benzoate	308	376	181	.48
Benzyl cinnamate	8	9	32	3.75
Benzyl phenylacetate	4	4	9	2.49
Benzyl propionate	36	32	33	1.02
Benzyl salicylate	452	386	443	1.15
Cinnamyl acetate	6	6	15	2.36
Cinnamyl alcohol	165	127	186	1.46
Cinnamyl anthranilate	1	1	6	9.76
Cinnamyl propionate	...	2	10	5.09
Ethyl phenylglycidate	14	...	...	...
Hydrocoumarin	...	33	123	3.77
Isobutyl phenylacetate	21	21	19	.91
Isopentyl salicylate	718	644	417	.65
2-Methoxy-4-propenylphenol (Isoeugenol)	104	120	436	3.62
p-Methylanisole	...	22	20	.91
Methyl anthranilate	...	195	341	1.75
α-Methylbenzyl acetate (Styralyl acetate)	37	61	55	.91
α-Methylcinnamaldehyde	...	8	14	1.80
Methyl phenylacetate	15	12	11	.98
Methyl salicylate	6,950	4,888	2,183	.45
α-Pentylcinnamaldehyde	290	277	397	1.44
Phenethyl acetate	...	65	66	1.02
Phenethyl formate	2	2	5	2.70
2-Phenethyl phenylacetate	...	25	48	1.93
2-Phenoxyethyl isobutyrate	...	2	6	3.27
3-Phenyl-1-propanol (Hydrocinnamic alcohol)	31	19	34	1.83
p-Propenylanisole (Anethole)	2,329	2,544	1,530	.60
Sweeteners, synthetic	16,632	12,524	8,478	.68
All other benzenoid and naphthalenoid materials	13,133	10,252	20,331	1.98
Terpenoid, Heterocyclic, and Alicyclic				
Total	10,162	7,062	13,315	1.89
Cedryl acetate	140	112	311	2.78
Essential oils, chemically modified	236	162	858	5.31
α-Ionone	113	59	260	4.43
Isobornyl acetate	878	...	...	...
Menthol, synthetic, tech. & U.S.P	450	397	1,545	3.89
Methylionones	562	393	1,592	4.05
Terpineols	2,573	2,558	923	.36
α-Terpinyl acetate	582	552	351	.64
Vetivenyl acetate	25	16	301	18.30
All other terpenoid, heterocyclic and alicyclic materials	4,603	2,813	7,174	2.55

See footnotes at end of table.

TABLE 1.--Flavor and perfume materials: U.S. production and sales, 1969--Continued

Material	Production	Sales		
		Quantity	Value	Unit value[1]
FLAVOR AND PERFUME MATERIALS, ACYCLIC	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	59,037	54,843	40,753	$0.74
Allyl hexanoate	24	15	39	2.55
Citral a (Geranial)	123	94	274	2.92
Citronellyl formate	29	23	50	2.12
Citronellyl isobutyrate	9	...	...	...
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)	19	21	71	3.45
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)	2,344	2,105	1,972	.94
3,7-Dimethyl-6-octen-1-ol (Citronellol)	895	730	1,249	1.71
Ethyl butyrate	510	392	250	.64
Ethyl hexanoate (Ethyl caproate)	12	5	13	2.52
Geranyl acetate	99	98	157	1.60
Geranyl formate	21	20	45	2.22
Glutamic acid, monosodium salt (Monosodium glutamate)	48,503	46,572	28,131	.60
7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	531	485	2,128	4.38
Isopentyl butyrate	61	68	48	.71
Isopentyl formate	6	4	6	1.34
Isopentyl isovalerate	17	...	...	...
Rhodinol	19	11	311	29.01
All other acyclic materials	5,815	4,200	6,009	1.43

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

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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]

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC	
Benzenoid and Naphthalenoid	
2'Acetonaphthone	GIV.
Acetophenone	GIV.
Acetyl cedrene	GIV.
5-Acetyl-1,1,2,3,3,6-hexamethylidan	PFW.
p-Allylanisole	GIV.
Allyl cinnamate	RT.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)	GIV.
*4-Allyl-2-methoxyphenol (Eugenol)	ARS, CI, FB, GIV, IFF, LUE, PEN, RT, UNG, UOP.
4-Allyl-2-methoxyphenol acetate (Eugenyl acetate)	GIV.
*4-Allyl-1,2-(methylenedioxy)benzene (Safrole)	FB, GIV, OPC.
Allyl phenoxyacetate	GIV.
p-Anisaldehyde	GIV, IFF, OPC, UOP.
Anisole (Methyl phenyl ether)	GIV.
Anisyl acetate	ELN ,GIV.
Anisyl butyrate	RT.
Anisyl formate	RT.
*Benzophenone	GAF, GIV, NEO, PD.
*Benzyl acetate	GIV, OPC, UOP.
*Benzyl alcohol	BPC, OPC, SHL, UOP, VEL.
*Benzyl benzoate	MON, OPC, PFZ, UOP, VEL.
Benzyl butyrate	FB, GIV.
*Benzyl cinnamate	FB, GIV, UOP.
Benzyl ether	SHL, VEL.
Benzyl formate	ELN, GIV.
Benzyl glyceryl acetal	CI, GIV, RT.
Benzyl isopentyl ether	GIV.
1-(Benzyloxy)-2-methoxy-4-propenylbenzene (Benzyl isoeugenyl ether).	GIV, UOP.
*Benzyl phenylacetate	ELN, GIV, RT.
*Benzyl propionate	ELN, FB, GIV, NEO, OPC.
*Benzyl salicylate	ELN, GIV, OPC, RT, UNG, UOP.
4-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone (Musk ketone).	GIV.
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette).	GIV.
p-tert-Butyl-α-methyl hydrocinnamaldehyde	GIV.
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)	GIV.
Carvacrol	GIV.
Cinnamaldehyde	FB, UOP.
Cinnamic acid	BPC.
*Cinnamyl acetate	ELN, FB, GIV, RT.
*Cinnamyl alcohol	FB, GIV, NEO, UOP.
*Cinnamyl anthranilate	FEL, GIV, RT.
Cinnamyl cinnamate	FB.
*Cinnamyl propionate	ELN, FB, GIV, RT.
Citral dimethyl acetal	GIV.
Coumarin	DOW, RDA.
Cuminyl alcohol	GIV.
trans-Decahydro-β-naphthol	IFF.
Dihydronordicyclopentadienyl acetate	GIV.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrole)	GIV.
p-α-Dimethylbenzyl alcohol	GIV.
3,7-Dimethyl-1,6-octadien-3yl anthranilate (Linalyl anthranilate).	FMT.
3,7-Dimethyl-1,6-octadien-3yl benzoate (Linalyl benzoate).	HOF.
3,7-Dimethyl-2,6-octadienylphenylacetate (Geranyl phenylacetate).	GIV.
α,α-Dimethylphenethyl acetate	GIV, IFF.
α,α-Dimethylphenethyl alcohol	IFF.
Diphenylmethane (Benzylbenzene)	ARA.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)	GIV.

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
p-Ethoxy benzaldehyde	GIV.
1-Ethoxy-2-hydroxy-4-propenylbenzene	SHL.
3-Ethoxy-4-hydroxybenzaldehyde (Ethylvanillin)	MON, RDA, SLV.
2-Ethoxynaphthalene	GIV.
Ethyl anthranilate	FB.
Ethyl benzoate	ELN.
Ethyl cinnamate	GIV, UOP.
Ethyl α,β-epoxy-β-methylhydrocinnamate	ELN, GIV.
2-Ethylhexyl salicylate	FEL.
*Ethyl phenylglycidate	GIV, PCW, RT, UOP.
Ethyl salicylate	FB, UOP.
3'-Ethyl-5',6',7',8'-tetrahydro-5',5',8',8'-tetramethyl-2'-acetonaphthone.	GIV,UOP.
Geranyl benzoate	GIV.
α-Hexylcinnamaldehyde	CI, GIV, IFF.
Hydratropaldehyde	GIV, IFF.
Hydratropaldehyde, dimethyl acetal	GIV, IFF. RT.
*Hydrocoumarin	ARS, GIV, UOP.
Hydroxycitronellalmethyl anthranilate	GIV.
4-(4-Hydroxy-3-methoxyphenyl)-2-butanone	GIV.
Indole	GIV.
Isoamyl phenylacetate	GIV.
Isobutyl benzoate	ELN.
Isobutyl cinnamate	RT.
*Isobutyl phenylacetate	ELN, FB, GIV, OPC, RT.
Isobutyl salicylate	FB, GIV, UOP.
*Isopentyl salicylate	FB, GIV, OPC, UOP.
p-isopropylbenzaldehyde (Cumaldehyde)	GIV.
Isopropyl cinnamate	RT.
p-Isopropyl-α-methylhydrocinnamaldehyde (Cyclamenaldehyde).	GIV, RDA.
p-Mentha-1,8-diene (Limonene)	RT, SKG.
4'-Methoxyacetophenone (Acetanisole)	GIV.
p-Methoxybenzyl alcohol (Anisyl alcohol)	GIV, UOP.
o-Methoxycinnamaldehyde	CI.
2-Methoxynaphthalene	GIV.
1-(p-Methoxyphenyl)-1-pentene-3-one	GIV.
*2-Methoxy-4-propenylphenol (Isoeugenol)	CI, GIV, SHL, UOP.
4'-Methylacetophenone	ELN, UOP.
*p-Methylanisole	CI, GIV, OPC, UOP.
*Methyl anthranilate	FB, OPC, PFW, SHL, SW, UNG.
Methyl anthranilydene-p-isopropylmethylhydrocinnamaldehyde.	RDA.
Methyl benzoate	HN.
*α-Methylbenzyl acetate (Styralyl acetate)	CI, ELN, GIV, UOP.
*α-Methylcinnamaldehyde	CI, FB, GIV.
Methyl cinnamate	FB, UOP.
6-Methylcoumarin	GIV.
1,2-(Methylenedioxy)-4-propenylbenzene (Isosafrole)	GIV.
p-Methylhydratropaldehyde	GIV.
Methyl N-methylanthranilate	GIV, OPC.
*Methyl phenylacetate	ELN, GIV, OPC.
*Methyl salicylate	CFC, DOW, HN, MON, PEN.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan	GIV.
*α-Pentylcinnamaldehyde	CI, FB, GIV, UOP.
*Phenethyl acetate	GIV, IFF, NEO.
Phenethyl alcohol	IFF.
Phenethyl benzoate	IFF
Phenethyl n-butyrate	IFF.
*Phenethyl formate	ELN, IFF, RT.
Phenethyl isobutyrate	GIV, IFF, RT.
Phenethyl isovalerate	GIV, RT.
*2-Phenethyl phenylacetate	CI, GIV, IFF, RT. UOP.
Phenethyl propionate	GIV, IFF.
Phenethyl salicylate	GIV.
*2-Phenoxyethyl isobutyrate	ELN, GIV, IFF.
Phenylacetaldehyde	GIV.
Phenylacetaldehyde, dimethyl acetal	GIV.
o-Phenylanisole (2-Methoxybiphenyl)	GIV.
4-Phenyl-3-buten-2-one (Methyl styryl ketone)	FB, UOP.
Phenylethyl tiglate	FB.
*3-Phenyl-1-propanol (Hydrocinnamic alcohol)	ELN, FB, GIV.
3-Phenylpropyl acetate	GIV.

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
3-Phenylpropyl cinnamate	FB.
3-Phenylpropyl propionate	IFF.
Piperonal (Heliotropin)	GIV, SHL, UOP.
*p-Propenylanisole (Anethole)	ARZ, GLD, HN, HPC, NCI, UOP.
p-Propylanisole (Dihydroanethole)	FB, GIV.
α-Propylphenylethyl alcohol	GIV.
*Sweeteners, synthetic:	
Cyclohexanesulfamic acid	ABB.
Cyclohexanesulfamic acid, calcium salt	ABB, MON, PFZ, UNS.
Cyclohexanesulfamic acid, sodium salt	ABB, MON, PFZ, UNS.
Saccharin (1,2-Benzisothiazolin-3-one,-1,1-dioxide)	MON, SW.
Saccharin, calcium salt	MON, SW.
Saccharin, sodium salt	LAK, MON.
p-Tolualdehyde	GIV, HN, TCC.
p-Tolylacetaldehyde	GIV.
p-Tolyl acetate	GIV.
p-Tolyl phenylacetate	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone)	ARS.
Vanillin (4-Hydroxy-3-methoxybenzaldehyde)	MON, SLV.
Verdyl propionate	GIV.
Terpenoid, Heterocyclic, and Alicyclic	
Allyl cyclohexyl propionate	GIV.
Amyris acetate	GIV.
Bornyl acetate	FEL.
p-tert-Butylcyclohexanone	IFF.
p-tert-Butylcyclohexyl acetate	CI, IFF.
β-Caryophyllene	CI, GIV.
Caryophyllene alcohol	FB.
Cedrenol	GIV.
Cedrol	ELN, GIV, IFF.
*Cedryl acetate	ELN, GIV, IFF, UNG.
Cedryl formate	IFF.
2-Cyclohexylcyclohexanone	GIV.
Cyclopentanone carboxylic acid	ARA.
Dihydroterpinyl acetate	GIV.
*Essential oils, chemically modified:	
Acetyl cedrene	IFF.
Clove leaf oil terpenes	SHL.
Ethyl oxyhydrate	FEL, FLO, LUE, PFW, VND.
Guaiacwood acetate	ELN, GIV.
Jessemal	IFF.
Lavandin, acetylated	FEL, GIV, UNG.
Piperonal terpenes	SHL.
Rose oxide	FB.
Sassafrass oil, hydrogenated	GIV.
Synthetic indane musk	IFF.
Ethylene brassylate	RDA.
Galaxolide	IFF.
3-Hydroxy-2-ethyl-4-pyrone (Ethyl maltol)	PFZ.
16-Hydroxyhexadecanoic acid, o-lactone (Hexadecanolide).	IFF.
2-Hydroxy-3-methyl-2-cyclopenten-1-one (Methyl cyclopentanolone).	RT.
2-Hydroxy-3-methyl-2-cyclopenten-1-one isovalerate	RT.
1-4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-10-carboxaldehyde.	IFF.
3-Hydroxy-2-methyl-4-pyrone (Naltol)	PFZ.
4-Hydroxynonanoic acid, γ-lactone (γ-Nonalactone)	GIV.
4-Hydroxyoctanoic acid, γ-lactone (γ-Octalactone)	GIV, RT.
4-Hydroxyundecanoic acid, γ-lactone (γ-Undecalactone)	ELN, FB.
Ionones:	
*α-Ionone	GIV, HOF, IFF, MYW.
β-Ionone	HOF, MYW, UOP.
Ionone (α- and β-)	GIV, MYW, UNG.
Isoborneol	RDA.
*Isobornyl acetate	FB, OPC, PFW, RDA.
Isobornyl propionate	GIV.
Isomenthone	GIV.
2-Isopropylcyclohexanol	GIV.
p-Mentha-6,8-dien-2-ol (Carveol)	FB.
p-Mentha-6,8-dien-2-one (Carvone; Carvol)	FB. FRM.

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
p-Menthan-3-one (Menthone)	GIV, HN, NEO, OPC.
p-Menth-8-en-ol (Isopulegol)	GIV.
p-Menth-1-en-3-one	GIV.
p-Menth-4(8)-en-3-one (d-Pulegone)	GIV.
1,1-p-Menthen-6-yl-1-propanone	GIV.
*Menthol, synthetic:	
Tech	GIV, NEO.
U.S.P	GIV, GLD, HN, NEO.
Menthyl acetate	GIV.
Menthyl anthranilate	PFW.
Methylcyclohexyl propionate	GIV.
*Methylionones:	
6-Methyl-α-ionone	GIV, MYW.
6-Methyl-β-ionone	NEO.
Methylionone (α- and β-)	GIV, IFF, MYW, UNG, UOP.
Methyl-2-nonenoate	GIV.
Neryl acetate prime	GIV.
Nopyl acetate	CI, RT, SHL.
Santalol	GIV, IFF.
Santalyl acetate	GIV.
*Terpineols:	
α-Terpineol	GLD, HPC.
β-Terpineol	HN.
Terpineol (α- and β-)	GIV, NEO.
Terpinol hydrate (terpin hydrate), tech	HPC.
*α-Terpinyl acetate	GIV, NEO, PFW, UNG.
Terpinyl acetate (mixed α-β)	RDA.
α-Terpinyl propionate	ELN, GIV.
3,3,5-Trimethylcyclohexanol	ARS.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl-α-ionone).	GIV, IFF.
Vernaldehyde	GIV.
Vetivenol	GIV, UOP.
*Vetivenyl acetate	CI, ELN, FB, GIV, IFF, NEO, UNG, UOP.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Acetylbutyryl (2,3-Hexanedione)	FB.
Acetyl propionyl	FB.
Acetylvaleryl (2,3-Heptanedione)	FB.
*Allyl hexanoate	ELN, FB, GIV, PFW.
Allyl isothiocyanate (Synthetic mustard oil)	MRT.
Allyl mercaptan	RT.
Allyl octanoate (Allyl caprylate)	RT.
Allyl sorbate	RT.
Allyl sulfide	RT.
Amyl propionate	GIV.
Brazinol	RDA.
Butyl butyryl lactate	ARS.
Butyl 10-undecylenate	GIV.
Cadinene	FB.
*Citral a (Geranial)	CI, ELN, FB, FEL, GIV, LUE, RT, UOP.
Citronellyl acetate	CI, GIV, IFF, UOP.
Citronellyl butyrate	GIV.
*Citronellyl formate	CI, ELN, GIV, IFF, RT.
*Citronellyl isobutyrate	ELN, GIV, IFF, RT.
Citronellyl propionate	IFF.
Decanal (Capraldehyde)	GIV, IFF.
Diethyl sebacate	ELN, FEL.
Diethyl succinate	ELN, UCC.
Dihydro myrcenol	IFF.
Dihydro safrol	CI.
1,1-Dimethoxy-3,7-dimethyl-2,6-octadiene	CI.
2,6-Dimethyl-5-hepten-1-al	GIV.
3,7-Dimethyl-1,6-nonadien-3-ol	HOF.
3,7-Dimethyl-1,6-nonadien-3-ol, acetate	HOF.
3,6-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-octadien-1-ol (Geraniol)	CI, FB, FEL, GIV, GLD, IFF, NCI, NEO, UNG, UOP.
3,7-Dimethyl-1,6-octadien-3-ol (Linalyl alcohol)	ELN, FB, FEL, GIV, GLD, HOF, LUE, SHL, UNG.
3,7-Dimethyl-1,6-octadien-3-ol acetate (Linalyl acetate).	ELN, FB, GIV, GLD, HOF, SHL, UNG.

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
3,7-Dimethyl-1,6-octadien-3-ol cinnamate	HOF.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate).	HOF.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate).	HOF, NEO.
3,7-Dimethyloctan-1-al	HOF.
3,7-Dimethyl-1-octanol (Dihydrocitronellol)	CI, GIV.
3,7-Dimethyl-3-octanol (Tetrahydrolinalool)	GIV, HOF.
3,7-Dimethyl-6-octen-1-al (Citronellal)	CI, FB, GIV, IFF.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)	CI, ELN, FB, GIV, GLD, IFF, OPC.
Dimyrcetal	IFF.
*Ethyl butyrate	FB, NW, RT, UOP.
Ethyl caprate	FB.
Ethyl formate	FB, PFW.
Ethyl heptanoate	FB, FEL, RT.
*Ethyl hexanoate (Ethyl caproate)	ELN, FB, NW, PFW, RT.
2-Ethyl-1-hexanol (3-Octanol)	GIV.
Ethyl isohexanoate	PFW.
Ethyl isovalerate	PFW.
Ethyl laurate	ELN, FB.
Ethyl myristate	RT.
Ethyl nonanoate	FEL, RT.
Ethyl octanoate	FB, RT.
Ethyl propionate	FB.
Ethyl valerate	PFW.
Fleuramone	IFF.
Geranic acid	FB.
Geranonitrile	IFF.
*Geranyl acetate	CI, ELN, FEL, GIV, IFF, UNG, UOP.
Geranyl butyrate	GIV.
Geranyl caproate	CI.
*Geranyl formate	CI, ELN, GIV, IFF, RT, UOP.
Geranyl isobutyrate	IFF.
Geranyl isovalerate	FB.
Geranyl neryl formate	IFF.
Geranyl propionate	FB.
*Glutamic acid, monosodium salt (Monosodium glutamate)	COM, GRW, IMC, MRK.
γ-Heptalactone	FB.
Heptanal (Enanthaldehyde)	BAC.
Heptyl alcohol (1-Heptanol)	BAC.
2-Hexanal	FB.
Hexanoic acid (Caproic acid)	FB.
2-Hexanol	FB, OPC.
cis-3-Hexen-1-ol lactate	RT.
3-Hydroxy-2-butanone (Acetoin)	FMT.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)	CI, GIV, GLD, IFF, OPC, UOP.
7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal).	GIV, IFF.
Isobutyl acetate	FB, PFW.
Isodihydro lavandulaldehyde	FB.
Isodihydro lavandulol	FB.
Isodihydro lavanduly1 acetate	FB.
Isojasmone	FB.
*Isopentyl butyrate	FB, GIV, NW, PFW, UOP.
*Isopentyl formate	ELN, FB, FEL, GIV, RT.
*Isopentyl isovalerate	ELN, FB, PFW.
Laevo carvyl acetate	FB.
Lauraldehyde	GIV, IFF.
Methyl amyl ketone	CI.
Methyl isobutyrate	PFW.
Methyl-β-methyl thiopropionate	RT.
Methylol methyl hexyl ketone	GIV.
β-Methylthiopropionaldehyde	RT.
2-Methylundecanal	GIV.
Muguol and tetrahydro muguol	IFF.
Myrcenyl acetate	IFF.
Myristaldehyde	GIV.
Nonanal	GIV.
Nonane diacetate	CI.
Nonane-1,3-diol monoacetate	GIV.
Nonanol	GIV.

TABLE 2.--Flavor and perfume materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Material	Manufacturers' identification codes (according to list in table 3)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Nonyl acetate	CI, GIV.
Ocimenol and acetate	IFF.
Octanal	GIV, IFF.
3-Octanone (Ethyl amyl ketone)	GIV.
n-Octyl alcohol	GIV.
n-Octyl formate	FB.
Omega decenol	IFF.
Pseudo linalyl acetate	IFF.
Pyrolysate ester	GIV.
Rhodinol	FB, FEL, GIV, IFF, LUE, NEO, SHL, UNG.
Rhodinyl acetate	GIV, IFF.
Rhodinyl butyrate	IFF.
Rhodinyl formate	IFF.
Sodium allyl sulfonate	SHL.
Tepyl acetate	UOP.
3,7,8,8-Tetramethyl-1,6-nonadiene-3-ol	HOF.
3,7,11-Trimethyl-1,6,10-dodecatriene-3-ol	HOF.
2,6,10-Trimethyl-9-undecen-1-al	GIV.
Undecanal	GIV, IFF.
9-Undecenal	GIV.
10-Undecen-1-ol	GIV.
10-Undecen-1-ol acetate	GIV.
γ-Valerolactone	GIV.

TABLE 3.--Flavor and perfume materials: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company
ABB	Abbott Laboratories
ARA	Arapahoe Chemicals Div. of Syntex Corp.
ARS	Arsynco, Inc.
ARZ	Arizona Chemical Co.
BAC	Baker Castor Oil Co.
BPC	Stauffer Chemical Co., Benzol Products
CFC	Sun Chemical Corp.
CI	Chem-Fluer, Inc.
COM	Commercial Solvents Corp.
DOW	Dow Chemical Co.
ELN	Elan Chemical Co.
FB	Fritzsche, Dodge & Olcott, Inc.
FEL	Felton International, Inc.
FLO	Florasynth, Inc.
FMT	Fairmount Chemical Co., Inc.
FRM	Farmers' Chemical Co.
GAF	GAF Corp., Dyestuff & Chemical Div.
GIV	Givaudan Corp.
GLD	S.C.M. Corp., Glidden-Durkee Div.
GRW	Great Western Sugar Co.
HN	Tenneco Chemicals, Inc.
HOF	Hoffman-LaRoche, Inc.
HPC	Hercules, Inc.
IFF	International Flavor & Fragrances, Inc.
IMC	International Minerals & Chemical Corp.
LAK	Lakeway Chemical Co.
LUE	George Lueders & Co., Inc.
MON	Monsanto Co.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co.
MYW	Stepan Chemical Co., Maywood Div.
NCI	Union Camp Corp., Chemical Div.
NEO	Norda Essential Oil & Chemical Co., Inc.
NW	Northwestern Chemical Co.
OPC	Orbis Products Corp.
PD	Parke, Davis & Co.
PEN	CPC International, Inc., Penick Div.
PFW	Polak's Frutal Works, Inc.
PFZ	Pfizer, Inc.
RDA	Rhodia, Inc.
RT	F. Ritter & Co.
SHL	Nitini, Inc. Div. of Shulton, Inc.
SKG	Sunkist Growers, Inc.
SLV	Salvo Chemical Corp.
SW	Sherwin-Williams Co.
TCC	Tanatex Chemical Corp.
UCC	Union Carbide Corp.
UNG	Ungerer & Co.
UNS	Miles Laboratories, Inc., Union Div.
UOP	Universal Oil Products Co., UOP Chemical Div.
VEL	Velsicol Chemical Corp.
VND	Van Dyk & Co., Inc.

Note.--For the complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

Plastics and resin materials are condensation and polymerization products of organic chemicals containing necessary plasticizers, fillers, extenders, stabilizers, and coloring agents. At some stage in their manufacture they exist in such physical condition that they can be shaped or otherwise processed by the application of heat and pressure. Some types of plastics materials may be molded, cast, or extruded into semifinished or finished forms. Other types are used as adhesives, for the treatment of textiles and paper, and for protective coatings. Statistics on U.S. production and sales of synthetic plastics and resin materials for 1969 are given in table 1.[1] In general, the statistics follow the outline of the Tariff Commission's monthly report on the production and sales of synthetic plastics and resin materials (S.O.C. Series P-69). However, the data given include some companies which were not covered in the monthly reports, and also some adjusted figures supplied by the original reporting companies, and, consequently, many of the figures given in table 1 are revised from those shown in the Commission's monthly release dated April 15, 1970, which contained year-end cumulative monthly totals for 1969. The end-use breakdowns shown were developed with the advice of representatives of the plastics industry, and the data reported reflect producers' determinations of the use categories for their materials.

Total U.S. production of synthetic plastics and resin materials in 1969 amounted to 18,676 million pounds--14 percent more than the 16,360 million pounds reported for 1968. Sales in 1969 were 15,922 million pounds, valued at $3,175 million. Production of benzenoid plastics and resin materials in 1969 amounted to 6,554 million pounds and that of nonbenzenoid materials to 12,122 million pounds. These figures compare with the benzenoid production in 1968 of 5,899 million pounds, and with nonbenzenoid production of 10,461 million pounds.

The 1969 output of all types of thermosetting resins totaled 3,749 million pounds, compared with 3,573 million pounds in 1968. In 1969 phenolic and other tar acid resins were produced in the largest quantity in the thermosetting group. Output of phenolic resins amounted to 1,181 million pounds in 1969, compared with 1,097 million pounds in 1968. Production of urea and melamine resins in 1969 was 817 million pounds, and that of alkyd resins was 694 million pounds. Other thermosetting resins produced in significant amounts in 1969 were polyester resins (688 million pounds); epoxy resins (166 million pounds); and polyurethane resins (81 million pounds).

The total output of thermoplastic resins in 1969 amounted to 14,927 million pounds, compared with 12,787 million pounds in 1968. The 1968 and 1969 figures include data for coumarone-indene and petroleum polymer resins which were previously classified as thermosetting. In 1969, as in previous years, polyethylene, polystyrene, and

[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

polyvinyl chloride were the resins produced in the largest volume. The output of high-pressure (low-density) polyethylene in 1969 was 3,880 million pounds, which corresponds to the output of 3,306 million pounds reported for 1968. Production of low-pressure (high-density) polyethylene in 1969 was 1,610 million pounds, corresponding to the 1,261 million pounds produced in 1968. Total output of polyvinyl chloride resins in 1969 was 3,032 million pounds, and that of polystyrene resins was 3,343 million pounds. Production of polypropylene in 1969 exceeded 1 billion pounds for the first time (1,090 million pounds).

TABLE 1.--Plastics and resin materials: U.S. production and sales, 1969

[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 manufacturer of each]

Kind and use	Production	sales		
		Quantity	Value	Unit value[1]
	1,000 pounds dry basis[2]	*1,000 pounds dry basis*[2]	*1,000 dollars*	*per pound*
Grand total	18,676,249	15,921,884	3,174,753	$0.20
Plastics and resin materials, benzenoid	6,554,204	5,386,791	1,238,301	.23
Plastics and resin materials, nonbenzenoid	12,122,045	10,535,093	1,936,452	.18
THERMOSETTING RESINS				
Total	3,748,977	2,929,658	751,173	.26
Alkyd resins, total	694,119	335,265	92,367	.28
Domestic:				
Phthalic anhydride type	585,885	272,845	76,004	.28
Polybasic acid type	108,234	56,666	14,752	.26
Sales for export	...	5,754	1,611	.28
Epoxy resins:				
Unmodified, total	166,017	163,582	82,704	.51
Bonding and adhesive	...	19,458	...	...
Protective coatings	...	69,109	...	...
Reinforced plastics	...	30,197	...	...
All other uses	...	29,827	...	...
Sales for export	...	14,991	...	...
Modified	8,558	5,575	3,948	.71
Polyester resins,[3] total	688,264	606,723	165,281	.27
Reinforced plastics:				
Sheets, flat and corrugated	...	50,749	...	...
All other	...	383,410	...	...
Surface coatings	...	4,233	...	...
All other uses	...	158,590	...	...
Sales for export	...	9,741	...	...
Phenolic and other tar acid resins, total	1,181,150	968,603	213,567	.22
Molding materials	316,619	286,277	...	...
Bonding and adhesive resins for:				
Laminating	130,300	78,869	...	...
Coated and bonded abrasives	31,881	20,915	...	...
Friction materials	44,338	39,945	...	...
Thermal insulation	124,172	57,561	...	...
Foundry or shell molding	101,042	87,034	...	...
Plywood	208,050	188,615	...	...
Fibrous and granulated wood	58,460	46,557	...	...
Protective coatings, unmodified and modified	36,348	23,204	...	...
All other uses	129,940	122,172	...	...
Sales for export	...	17,454	...	...
Polyurethane and diisocyanate resins	81,365	49,334	26,897	.55
Rosin modifications, total	85,906	85,087	16,754	.20
Rosin and rosin esters, unmodified (ester gums)	23,880	22,875	4,846	.21
All other	62,026	62,212	11,908	.19
Urea and melamine resins, total	816,521	698,042	130,365	.19
Textile treating and coating resins	73,301	64,180	...	...
Paper treating and coating resins	69,150	46,405	...	...

See footnotes at end of table.

TABLE 1.--Plastics and resin materials: U.S. production and sales, 1969--Continued

Kind and use	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds dry basis[2]	*1,000 pounds dry basis*[2]	*1,000 dollars*	*Per pound*
THERMOSETTING RESINS--Continued				
Urea and melamine resins--Continued				
Bonding and adhesive resins for:				
Laminating	59,590	42,208	...	...
Plywood	174,682	162,347	...	...
Fibrous and granulated wood	229,950	214,467	...	...
Protective coatings	63,853	42,802	...	...
All other uses (including molding)	145,995	117,533	...	...
Sales for export	...	8,100	...	...
All other thermosetting resins[4]	27,077	17,447	19,290	$1.11
THERMOPLASTIC RESINS				
Total	14,927,272	12,992,226	2,423,580	.19
Cellulose plastics materials, total	192,613	186,639	109,799	.59
Sheets, continuous:				
Under 0.003 gage	16,793	15,491	...	...
0.003 gage and over	56,777	55,354	...	...
All other sheets, rods, and tubes	6,833	6,574	...	...
Molding and extrusion materials	112,210	109,220	...	...
Coumarone-indene and petroleum polymer resins, total	356,939	354,085	42,911	.12
Floor tile	35,790	35,699	...	...
Rubber compounding	87,297	82,994	...	...
All other uses	233,852	208,184	...	...
Sales for export	...	27,208	...	...
Polyamide resins, nylon type	92,213	81,790	66,053	.81
Polyolefin plastics materials:				
Polyethylene, density 0.940 and below:[5]				
Production and sales	3,880,256	3,502,663	424,051	.12
Sales and use, total	...	3,735,588	...	...
Injection molding	...	496,470	...	...
Blow molding	...	50,393	...	...
Film and sheet	...	1,631,071	...	...
Extrusion coating on paper and other substrates	...	398,091	...	...
Wire and cable	...	358,333	...	...
All other extruded products, including pipe and conduit		51,317	...	...
All other domestic uses	...	302,925	...	...
Export sales	...	446,988	...	...
Polyethylene, density over 0.940:				
Production and sales	[6] 1,609,630	1,242,018	188,990	.15
Sales and use, total	...	1,412,205	...	...
Injection molding	...	289,056	...	...
Blow molding	...	539,355	...	...
Film and sheet	...	55,362	...	...
Extrusion coating on paper and other substrates	...	13,493	...	...
Wire and cable	...	33,473	...	...
Pipe and conduit	...	46,382	...	...
Other extruded products	...	18,269	...	...
All other domestic uses	...	252,201	...	...
Export sales	...	164,614	...	...
Polypropylene: Production and sales	1,089,890	971,729	210,493	.22
Styrene type plastics materials, total	3,343,425	2,835,877	521,737	.18
ABS and SAN resins:[7]				
Production and sales	583,859	332,182	91,911	.28
Sales and use, total	...	546,498	...	...
Molding	...	303,509	...	...
Extrusion	...	150,278	...	...
All other domestic uses	...	60,900	...	...
Export sales	...	31,811	...	...

See footnotes at end of table.

TABLE 1.--Plastics and resin materials: U.S. production and sales, 1969--Continued

Kind and use	Production	Quantity	Value	Unit value[1]
	1,000 pounds dry basis[2]	*1,000 pounds dry basis*[2]	*1,000 dollars*	*Per pound*
THERMOPLASTIC RESINS--Continued				
Styrene type plastics materials--Continued				
Styrene and styrene copolymer resins:				
Production and sales	[8] 2,759,566	2,503,695	429,826	$0.17
Sales and use, total	...	2,697,867	...	...
Molding	...	1,404,491	...	...
Textile and paper treating and coating	...	327,620	...	...
Emulsion paint	...	36,678	...	...
Extrusion	...	367,415	...	...
All other domestic uses (including foam and foamable materials)	...	480,045	...	...
Export sales	...	81,618	...	...
Vinyl resins (resin content):				
Polyvinyl chloride and copolymers:				
Production and sales, total	3,032,063	2,748,068	375,393	.14
Suspension homopolymers	2,051,521	...	...	...
Suspension copolymers	592,092	...	...	...
Dispersion (paste)	388,450	...	...	...
Sales and use, total	...	2,915,881	...	...
Calendering, except flooring		522,506	...	...
Flooring:				
Calendered	...	269,785	...	...
Coated	...	66,109	...	...
Paper and textile coating, and other paper and textile uses	...	101,260	...	...
Protective coatings and adhesives	...	84,154	...	...
Wire and cable	...	376,495	...	...
Extruded film and sheet	...	161,404	...	...
Other extruded products	...	463,042	...	...
Sound records	...	137,955	...	...
Injection and blow molding	...	109,634	...	...
Plastisol formulating and molding	...	111,604	...	...
All other domestic uses	...	349,524	...	...
Export sales	...	162,409	...	...
Polyvinyl acetate:				
Production and sales, total	426,342	332,421	88,067	.26
Latexes	317,002	...	...	...
Resins	109,340	...	...	...
Sales and use, total	...	394,754	...	...
Emulsion paints	...	136,923	...	...
Adhesives	...	124,722	...	...
Paper treating	...	28,710	...	...
Textile treating	...	14,535	...	...
All other domestic uses	...	83,567	...	...
Export sales	...	6,297	...	...
Polyvinyl alcohol	57,003	50,702	17,308	.34
Other vinyl resins[9]	170,794	94,819	35,588	.38
All other thermoplastic resins[10]	676,104	591,415	343,190	.58

[1] Calculated from rounded figures.

[2] For the purpose of this report, "dry basis" is defined as the total weight of the material, including resin, plasticizers, fillers, extenders, colors and stabilizers, and excluding water, solvents and other liquid diluents.

[3] The term "polyester resins" includes unsaturated alkyds copolymerized with a monomer such as styrene, and polyallyl resins such as diallyl phthalate and allyl diglycol carbonate.

[4] Includes data for acetone-formaldehyde resins; styrene-alkyd polyesters; toluenesulfonamide resins: silicone resins; and other thermosetting resins which were produced in small quantities. Also included are saturated polyesters for urethanes.

[5] Represents data for polyethylene produced by the high-pressure process and for ethylene copolymers.

[6] Represents production of polyethylene by the low-pressure process.

[7] ABS resins are polymers of acrylonitrile, styrene, and butadiene. SAN resins are polymers of styrene and acrylonitrile.

[8] Includes straight polystyrene, 1,087 million pounds; rubber-modified polystyrene, 1,118 million pounds; styrene-butadiene copolymers, 405 million pounds; and all other, 150 million pounds.

[9] Includes data for polyvinyl butyral; polyvinylidene chloride; and certain copolymers.

[10] Includes data for acrylic; fluorocarbon; non-nylon polyamides; polycarbonate; polyoxymethylene; polyterpene; and other thermoplastic resins.

TABLE 2.--Plastics and resin materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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]

Chemical	Manufacturers' identification codes (according to list in table 3)
THERMOSETTING RESINS	
*Alkyd resins, domestic:	
*Phthalic anhydride type	ACY, APT, APV, ASH, BAL, BEN, BOY, BRU, CEL, CIK, CM, COM, CPV, DEG, DSO, DUN, DUP, EW, FAR, FBR, FCD, FLW, FOC, FRE, FSH, GEI, GIL, GLD, GRG, GRV, HAN, ICF, JOB, JSC, JWL, KEL, KMC, KMP, KPS, KPT, KYN, MCC, MID, MMM, MNP, NCI, NON, NPV, NTL, OBC, OSB, PER, PFP, PPG, PRT, PRX, QCP, RCI, RED, REL, RH, SCN, SED, SIP, SM, SW, SYV, TV, x, x, x.
*Polybasic acid type	ACY, APV, ASH, BEN, CGL, CM, COM, CPV, DEG, DUN, DUP, EW, FBR, FCD, FOC, GEI, GLD, GRV, HAN, HPC, HYC, ICF, KMC, KYN, MCC, MID, MMM, MOB, NCI, NPV, OSB, PPG, RCI, RED, RH, SCN, SW, TV.
*Epoxy resins:	
*Unmodified	CBA, CEL, CPV, DOW, RCI, RSY, SHC, UCC.
*Modified	ASH, CM, DSO, EW, FAR, FOM, FRE, HAP, IOC, MID, MMM, MNP, MRB, NON, NPV, OCF, OSB, PPG, PRX, PYR, REL, SCN, SED, x.
*Polyester resins	ACP, ACR, ACY, APD, ASH, CGL, COM, CPV, DA, DEG, DSO, EKT, EPC, EW, FMP, FRE, GEI, GLD, GRG, GRV, GYR, HKD, IFC, IPC, KMC, KPS, KPT, MFG, MMM, MRO, OCF, ORO, PLU, PPG, RCI, RH, SCN, SED, SHA, SIC, SM, SW, SYV, VAL, x.
*Phenolic and other tar acid resins	ABS, ACR, AMR, ASH, BME, BOR, CBC, CBD, CBM, CD, CGL, CLK, CPV, DSO, EW, FCD, FOM, FRE, FRL, GE, GEI, GRG, GRV, HAN, HER, HKD, HPC, HVG, ICF, INL, IOC, IRI, KPT, KYN, MCA, MID, MMM, MON, MRB, NCI, NON, NPI, NPP, NPV, NTC, OCF, PGU, PLS, PPG, PPL, PRX, PYR, PYZ, RAB, RCD, RCI, REL, RH, RPC, SCN, SHA, SIM, SM, SNC, SPL, SW, SYV, UCC, UNO, UPL, VSV, WCA, WRD, WTC, x.
*Polyurethane and diisocyanate resins	ARK, ASH, BFG, CGL, DUP, EW, FAR, FRE, GPM, HAP, IPI, JWL, KMC, MCC, MID, PEL, PVI, PYR, QUN, RCI, SCN, SKT, UPJ, x.
*Rosin modifications:	
*Rosin and rosin esters, unmodified (ester gums)	APV, ASH, CBY, DPP, FAR, FRP, JOB, MCC, NCI.
*All other	APV, ASH, CBY, DPP, EW, FAR, FRP, NCI, OSB, RH, SCF, TV.
Silicone resins	ASH, DCC, RCI, SPD.
Styrene-alkyd polyesters	ASH, CGL, EW, MCC, VAL.
*Urea and melamine resins	ACP, ACY, AMR, APX, ASH, BOR, CAP, CBC, CBD, CEL, CIB, CLK, CMP, CPV, DAN, DSO, DUP, ECC, EFH, FOM, GAF, GE, GRV, HAN, HNC, HRT, IRI, JSC, KPS, MID, MMM, MON, NON, NPP, NTC, OCF, PC, PGU, PMC, PPG, PPL, QCP, RCI, REL, RH, RPC, SAC, SBC, SED, SEY, SNW, SOR, STC, SW, SYV, TXT, UNO, UPL, USO, VAL, WIC, WRD, x, x.
*All other thermosetting resins	ACY, EW, FRE, HVG, MOB, MON.
THERMOPLASTIC RESINS	
Acetal resins	CEL, DUP.
Acrylic resins	ACY, ASH, CEL, CIB, DUP, EFH, FLH, FRE, GLC, GLX, HRT, JOB, JSC, KMC, NPV, PCI, PVI, QUN, RH, RPC, SAR, SED, SEY, SNW, UCC, VAL, VPC, WIC, x, x.
*Cellulose plastics materials	CEL, DOW, DUP, EKT, HN, MON, RSB, SPY, x, x.

TABLE 2.--Plastics and resin materials: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
THERMOPLASTIC RESINS--Continued	
*Coumarone-indene and petroleum polymer resins	ACC, ACP, DSO, DUP, ENJ, KPI, MID, NEV, PAI, PPG, RCI, RGC, VEL.
Dicyandiamine resins	CIB, JSC, RPC, SBC, SNW, WIC.
Polyamide resins:	
*Nylon type	ALF, BCM, CEL, DUP, FG, GOC, MON, POL, SNW.
Non-nylon type	DUP, EMR, HN, UCC, x.
Polycarbonate resins	GE, MOB.
Polyether resins	WTC.
Polyethylene resins:	
*Density 0.940 and below	ACP, CEL, CPG, CPX, DOW, DUP, EKX, ENJ, GOC, KPP, MON, RCC, UCC, USI.
*Density over 0.940	ACP, CEL, CPX, DOW, DUP, EKX, GOC, KPP, MON, PLC, UCC, USI, x.
Ethylene copolymers	DUP, ENJ, UCC, USI, x.
*Polypropylene resins	AVS, DA, EKX, ENJ, HPC, NVT, RCC, SHC.
Polyterpene resins	CBY, SCN.
Styrene type plastics materials:	
*ABS and SAN resins	BFG, DOW, FBF, FIR, GRD, KPP, MCB, MON, RCC, UCC, USR.
*Styrene and styrene copolymer resins	ACC, ATR, BAS, BCN, BFG, BOR, CSD, DOW, DPI, DSO, DUP, FBF, FG, FIR, GAF, GNT, GOR, GRD, GYR, IOC, JSC, KPP, MON, MRT, NLC, PAI, PLA, POL, PRX, PVI, RCC, RH, SBI, SHC, SM, SOL, SPE, UBS, UCC, UOC, USR, WAY, WIC, x, x.
Vinyl resins:	
*Polyvinyl chloride and copolymer resins	ACP, AME, BFG, BOR, CLK, CPL, CST, CUC, DA, DOW, ESC, FIR, GNT, GRA, GYR, HN, KYS, MON, NSC, PNT, PYR, QCP, RUB, SCO, SFA, THC, TNA, UCC, USR.
*Polyvinyl acetate resins	AML, ASH, BEN, BOR, BOY, CEL, CUC, DSO, DUP, FAR, FLH, GLC, GLD, GRD, HAN, HNC, HRT, JSC, KMC, KMP, MCC, MMM, MON, NPV, NSC, OBC, OCF, PII, PPG, PRX, PVI, RCI, RPC, SBI, SED, SEY, SPC, UCC, UOC, WIC, x, x, x, x, x.
*Polyvinyl alcohol resins	BOR, CUC, DUP, MON, x.
Polyvinyl butyral resins	DUP, MON, UCC.
Polyvinylidene chloride resins	BAS, DOW, DUP, GRD, MCC.
All other vinyl resins	DUP, EW, MON, UCC, USR.
All other thermoplastic resins	ACC, DUP, EFH, ENJ, GGY, MMM, RH, RPC, SBI, UNO.

TABLE 3.--Plastics and resin materials: Directory of Manufacturers, 1969

Code	Name of company
ABS	Abex Corp., American Brakeblok Div.
ACC	Amoco Chemical Corp.
ACP	Allied Chemical Corp., Plastics Div.
ACR	CPC International, Inc., Acme Resin Div.
ACY	American Cyanamid Co.
ALF	Allied Chemical Corp., Fibers Div.
AME	American Chemical Corp.
AML	Amalgamated Chemical Corp.
AMR	Pacific Resins & Chemical Co.
APD	Atlas Chemical Industries, Inc.
APT	American Petrochemicals Corp., Mol Rez Div.
APV	Armstrong Paint & Varnish Works, Inc.
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.
AVS	AviSun Corp.
BAL	Baltimore Paint & Chemical Corp.
BAS	BASF Corp.
BCM	Belding Chemical Industries
BCN	Lehn & Fink Products Corp., Beacon Div.
BEN	Bennett's
BFG	B. F. Goodrich Co., B.F. Goodrich Chemical Co. Div.
BLS	Beech-Nut, Inc.
BME	Bendix Corp., Friction Materials Div.
BOR	Borden Co., Borden Chemical Co. Div.
BOY	Boysen Paint Co.
BRU	M. A. Bruder & Sons, Inc.
CAP	DuPlan Corp., Rochester Button Div.
CBA	Ciba Products Co.
CBC	Georgia-Pacific Corp., Coos Bay Div.
CBD	Chembond Corp.
CBM	Carborundum Co., Coated Abrasives Div.
CBN	Cities Service Co., Petrochemicals Group
CBY	Crosby Chemicals, Inc.
CD	Budd Co., Polychem Div.
CEL	Celanese Corp.: Celanese Coatings Co. Celanese Plastics Co.
CGL	Cargill, Inc.
CIB	Ciba Chemicals & Dye Co.
CIK	Tenneco Chemicals, Inc., Cal/Ink Div.
CLK	Clark Oil & Refining Corp., Clark Chemical Co.
CM	Carpenter-Morton Co.
CMP	Commercial Products Co., Inc.
COM	Commercial Solvents Corp.
CPL	Conoco Plastics
CPV	Cook Paint & Varnish Co.
CPX	Chemplex Co.
CSD	Cosden Oil & Chemical Co.
CST	Chas. S. Tanner Co.
CUC	Air Reduction Co., Inc., Airco Chemical & Plastics Div.
DA	Diamond Shamrock Corp.
DAN	Dan River Mills, Inc.
DAV	Conchemco, Inc., H. B. Davis Co. Div.
DCC	Dow Corning Corp.
DEG	Degan Oil & Chemical Co.
DOW	Dow Chemical Co.
DPT	Diamond Plastics, Inc.
DPP	Dixie Pine Products Co., Inc.
DSO	DeSoto, Inc.
DUN	Frank W. Dunne Co.
DUP	E. I. duPont de Nemours & Co., Inc.
ECC	Eastern Color & Chemical Co.
EFH	E. F. Houghton & Co.
EKT	Eastman Kodak Co.: Tennessee Eastman Co. Div.
EKX	Texas Eastman Co. Div.
EMR	Emery Industries, Inc.
ENJ	Enjay Chemical Co.
EPC	Epoxylite Corp.
ESC	Escambia Chemical Corp.
EW	Westinghouse Electric Corp., Industrial Plastics Div., Chemical Products Plant
FAR	Farnow, Inc.
FBF	Dart Industries, Inc., Fiberfil Div.
FBR	Pabco Paint Corp.
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.: Organic Chemicals Div.
FOC	Farac Oil & Chemical Co. Div. of Handschy Chemical Co.
FOM	Formica Corp.
FRE	Freeman Chemical Corp.
FRL	Firestone Tire & Rubber Co., Firestone Foam Products Co.
FRP	FRP Company
FSH	Frisch & Co., Inc.
GAF	GAF Corp.: Dyestuff & Chemical Div. Textile Chemicals Div.
GE	General Electric Co.:
GEI	Insulating Materials Dept.
GGY	Geigy Chemical Corp.
GIL	Gilman Paint & Varnish Co.
GLC	General Latex & Chemical Corp.
GLD	SCM Corp., Glidden-Durkee Div.
GLX	Electro-Seal Glasflex Corp.
GNM	General Mills, Inc.
GNT	General Tire & Rubber Co., Chemical Div.
GOC	Gulf Oil Corp., U.S. Gulf Oil Co., Chemicals Dept.
GOR	Gordon Chemical Co., Inc.
GPM	General Plastics Manufacturing Co.
GRA	Great American Chemical Corp.
GRD	W. R. Grace & Co., Polymers Chemicals Div.
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 Div.
HN	Tenneco Chemicals, Inc.
HNC	H & N Chemical Co.
HPC	Hercules, Inc.
HRT	Hart Products Corp.
HVG	Haveg Industries, Inc.
HYC	Dexter Corp., Hysol Co. Div.
ICF	Inmont Corp.
INL	Inland Steel Co., Inland Steel Container Co. Div.

TABLE 3.--Plastics and resin materials: Directory of Manufacturers, 1969--Continued

Code	Name of company
IOC	Ionac Chemical Co. Div. of Sybron Corp.
IPC	Interplastic Corp., Commercial Resins Div.
IPI	Isocyanate Products, Inc.
IRI	Ironsides Resins, Inc.
JOB	Jones-Blair Paint Co.
JSC	Jersey State Chemical Co.
JWL	Jewel Paint & Varnish Co.
KEL	Kelly-Pickering Chemical Corp.
KMC	Kohler-McLister Paint Co.
KMP	Kelly-Moore Paint Co.
KPI	Kenrich Petrochemicals, Inc.
KPP	Sinclair-Koppers Co.
KPS	Koppers Pittsburgh Co.
KPT	Koppers Co., Inc., Organic Materials Div.
KYN	Kyanize Paints, Inc.
KYS	Keysor Chemical Corp.
MCA	Masonite Corp., Alpine Div.
MCB	Borg-Warner Corp., Marbon Chemical Div.
MCC	McCloskey Varnish Co.
MFG	Molded Fiber Glass Body Co.
MID	Dexter Corp., Midland Div.
MMM	Minnesota Mining & Manufacturing Co.
MNP	Minnesota Paints, Inc.
MOB	Mobay Chemical Co.
MON	Monsanto Co.
MR	Benjamin Moore & Co.
MRB	Marblette Co., Div. of Allied Products Corp.
MRO	W. R. Grace & Co., Marco Chemical Div.
MRT	Morton Chemical Co.
NCI	Union Camp Corp., Chemical Div.
NEV	Neville Chemical Co.
NLC	Nalco Chemical Co.
NON	A. P. Nonweiler Co.
NPI	National Polychemicals, Inc.
NPP	Enjay Chemical Co., Enjay Fibers & Laminates Co. Div.
NPV	Norris Paint & Varnish Co., Inc.
NSC	National Starch & Chemical Corp.
NTC	National Casein Co.
NTL	National Lead Co.
NVT	Novamont Corp., Neal Works
OBC	O'Brien Corp.
OCF	Owens-Corning Fiberglas Corp.
ORO	Chevron Chemical Co.
OSB	C. J. Osborn Co.
PAI	Pennsylvania Industrial Chemical Corp.
PC	Proctor Chemical Co., Inc.
PCI	Pioneer Chemical Works, Inc.
PEL	Pelron Corp.
PER	Perry & Derrick Co.
PFP	Midwest Manufacturing Corp.
PGU	Gulf Oil Corp., Gulf Adhesives
PII	Polymer Industries, Inc.
PLA	Richardson Co., Polymeric Div.
PLC	Phillips Petroleum Co.
PLS	Plastics Engineering Co.
PLU	Plumb Chemical Corp.
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.
PVI	Polyvinyl Chemicals, Inc., Div. of Beatrice Foods Co.
PYR	Poly Resins
PYZ	Polyrez Co., Inc.
QCP	Quaker Chemical Corp.
QUN	K. J. Quinn & Co., Inc.
RAB	Raybestos-Manhattan, Inc., Raybestos Div.
RCC	Rexene Polymers Co.
RCD	Richardson Co.
RCI	Reichhold Chemicals, Inc.
RED	Red Spot Paint Co., Inc.
REL	Reliance Universal, Inc. & Rel Rez Div.
RGC	Rogers Corp.
RH	Rohm & Haas Co.
RPC	Millmaster Onyx Corp., Refined-Onyx Div.
RSB	Rosenberg Bros. & Co.
RSY	Resyn Corp.
RUB	Hooker Chemical Corp., Ruco Div.
SAC	Southeastern Ahhesives Co.
SAR	Sartomer Resins, Inc.
SBC	Scher Bros., Inc.
SBI	Standard Brands Chemical Industries, Inc.
SCF	Schaefer Varnish Co., Inc.
SCN	Schenectady Chemicals, Inc.
SCO	Scholler Bros., Inc.
SED	Conchemco, Inc., Kansas City Div.
SEY	Seydel-Woolley & Co., Inc.
SFA	Stauffer Chemicals Co., Specialty Chemical Div.
SHA	Shanco Plastics & Chemicals, Inc.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SIC	Vistron Corp., Silmar Div.
SIM	Simpson Timber Co.
SIP	Sipes Chemical Coatings Co.
SKT	Textron, Inc., Spencer Kellogg Div.
SM	Mobil Chemical Co.
SNC	Sonoco Products Co.
SNW	Sun Chemical Corp., Chemicals Div.
SOL	Solar Chemical Corp.
SOR	Thomason Industries, Inc., Southern Resin Div.
SPC	Sinclair Paint Co.
SPD	General Electric Co., Silicone Products Dept.
SPE	Southern Petrochemical Corp.
SPL	Spaulding Fibre Co., Inc.
SPY	Standard Pyroxoloid Corp.
STC	Sou-Tex Chemical Co., Inc.
SW	Sherwin-Williams Co.
SYV	Synvar Corp.
THC	Olin Corp., Thompson Plastics
TNA	Ethyl Corp.
TV	Sun Chemical Corp., General Printing Ink Div.
TX	Texaco. Inc.
TXT	Textilana Corp.
UBS	A. E. Staley Manufacturing Co.
UCC	Union Carbide Corp.
UNO	United Oil Manufacturing Co.
UOC	Union Oil Co. of California
UPJ	Upjohn Co.
UPL	Champion Papers, Inc., U.S. Plywood Div., California Operations, Shasta Area

TABLE 3.--Plastics and resin materials: Directory of Manufacturers, 1969--Continued

Code	Name of company	Code	Name of company
USI	National Distillers & Chemical Corp.: U.S. Industrial Chemicals Co. Div.	VPC	Verona Corp.
USI	National Petro Chemical Corp.	VSV	Valentine Sugars, Inc.
USO	U.S. Oil Co.	WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.
USR	Uniroyal, Inc., Chemical Div.	WCA	West Coast Adhesives Co.
VAL	Valchem	WIC	Wica Chemicals, Inc.
VEL	Veliscol Chemical Corp.	WRD	Weyerhaeuser Co., Wood Products Div.
		WTC	Witco Chemical Co., Inc.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 1969 are given in table 1.[1]

Production of rubber-processing chemicals as a group in 1969 amounted to 303 million pounds, or 2.9 percent less than the 313 million pounds reported for 1968. Sales of rubber-processing chemicals in 1969 amounted to 229 million pounds, valued at $144 million, compared with 236 million pounds, valued at $151 million, in 1968. The decreased production and sales of rubber-processing chemicals in 1969 is attributable principally to the decreased production and sales of cyclic compounds, particularly the amino antioxidants.

The output of cyclic rubber-processing chemicals in 1969 amounted to 255 million pounds, 3.3 percent less than the 264 million pounds reported for 1968. Sales in 1969 were 194 million pounds, valued at $127 million, compared with 199 million pounds, valued at $133 million, in 1968. Of the total output of cyclic rubber-processing chemicals in 1969, accelerators accounted for 34.8 percent and antioxidants for 59.5 percent. Production of antioxidants, which amounted to 151.6 million pounds in 1969, included 109.8 million pounds of amino compounds and 41.8 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants in 1969 were 83.2 million pounds, valued at $55.9 million; sales of phenolic and phosphite antioxidants were 29.0 million pounds, valued at $20.6 million.

Production of acyclic rubber-processing chemicals in 1969 amounted to 48.7 million pounds, a decrease of 0.9 percent from the 49.1 million pounds reported for 1968. Sales in 1969 totaled 35.5 million pounds, valued at $17.2 million, compared with 36.6 million pounds, valued at $18.4 million, in 1968. Accelerators, principally dithiocarbamic acid derivatives and tetramethylthiuram sulfides, accounted for 52.7 percent of the output of acyclic rubber-processing chemicals for 1969. Dodecyl mercaptans accounted for 27.9 percent. Blowing agents, modifiers, shortstops, and lubricating and conditioning agents accounted for the remainder of the output of acyclic compounds.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

TABLE 1.--Rubber-processing chemicals: U.S. production and sales, 1969

[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 manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	303,479	229,492	144,476	$0.63
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total	254,792	194,012	127,268	.66
Accelerators, activators, and vulcanizing agents, total	88,654	68,313	38,105	.56
Aldehyde-amine reaction products	2,302	1,301	1,059	.81
Dithiocarbamic acid derivatives	248	217	511	2.35
Thiazole derivatives, total	76,053	56,261	28,267	.50
N-Cyclohexyl-2-benzothiazolesulfenamide	4,882	3,360	1,990	.59
2,2'-Dithiobis(benzothiazole)	23,467	11,602	6,092	.53
2-Mercaptobenzothiazole	6,693	4,805	1,896	.39
2-Mercaptobenzothiazole, zinc salt	4,556	3,645	1,821	.50
All other thiazole derivatives	36,455	32,849	16,468	.50
All other accelerators	10,051	10,534	8,268	.78
Antioxidants, antiozonants, and stabilizers, total	151,607	112,186	76,471	.68
Amino compounds, total	109,765	83,229	55,885	.67
Substituted p-phenylenediamines, total	54,448	36,981	31,746	.86
N,N'-Diphenyl-p-phenylenediamine	1,263	1,306	1,148	.88
All other substituted p-phenylenediamines	53,185	35,675	30,598	.86
Octyldiphenylamine	3,863	3,059	1,658	.54
N-Phenyl-2-naphthylamine	4,511	...	...	...
All other amino antioxidants, antiozonants, and stabilizers	46,943	43,189	22,481	.52
Phenolic and phosphite antioxidants and stabilizers, total	41,842	28,957	20,586	.71
Polyphenolics (including bisphenols)	12,164	10,020	12,129	1.21
Phenol, alkylated	10,234	5,872	3,307	.56
Phenol, hindered	833	...	...	...
Phenol, styrenated	2,091	...	...	...
All other phenolic and phosphite antioxidants and stabilizers	16,520	13,065	5,150	.39
N-Nitrosodiphenylamine (retarder)	2,047	1,126	660	.59
Peptizers	5,927	5,821	3,261	.56
All other cyclic rubber-processing chemicals[3]	6,557	6,566	8,771	1.34
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total	48,687	35,480	17,208	.48
Accelerators, activators, and vulcanizing agents, total	25,685	18,728	10,911	.58
Dithiocarbamic acid derivatives, total	10,098	7,873	5,802	.74
Dibutyldithiocarbamic acid, sodium salt	1,483	...	...	...
Dibutyldithiocarbamic acid, zinc salt	1,936	1,808	1,760	.97
Diethyldithiocarbamic acid, sodium salt	...	144	55	.38
Diethyldithiocarbamic acid, zinc salt	2,493	2,164	1,303	.60
Dimethyldithiocarbamic acid, zinc salt	2,809	1,789	829	.46
All other dithiocarbamic acid derivatives	1,377	1,968	1,855	.94

See footnotes on following page.

TABLE 1.--Rubber-processing chemicals: U.S. production and sales, 1969--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[5]	...	10,575	4,826	$0.46
Bis(dimethylthiocarbamoyl) disulfide	10,107	8,071	3,047	.38
Bis(dimethylthiocarbamoyl) sulfide	2,591	1,771	1,359	.77
All other thiurams	...	733	420	.57
All other accelerators, activators, and vulcanizing agents[6]	2,889	280	283	1.01
Dodecyl mercaptans	13,587	12,082	4,270	.35
Dimethyldithiocarbamic acid, sodium salt	5,411	1,303	340	.26
All other acyclic rubber-processing chemicals[7]	4,004	3,367	1,687	.50

[1] Calculated from rounded figures.
[2] Includes aldehyde and acetone-amine reaction products.
[3] Includes tackifiers, physical-property improvers, and blowing agents.
[4] 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".
[5] Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.
[6] Includes production data for thiurams.
[7] Includes blowing agents, polymerization regulators, shortstops, and conditioning and lubricating agents.

TABLE 2.--Rubber-processing chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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	CCO.
Heptaldehyde-aniline condensate	USR.
Triethyltrimethylenetriamine	USR.
*Dithiocarbamic acid derivatives:	
Dibenzyldithiocarbamic acid, zinc salt	USR.
Dibutyldithiocarbamic acid, N,N-dimethylcyclohexylamine salt.	MON.
Dibutyldithiocarbamic acid, diphenylguanidine salt	CCO.
2,4-Dinitrophenyl dimethyldithiocarbamate	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts, mixed.	DUP.
Guanidines:	
Dicatechol borate, di-o-tolylguanidine salt	DUP.
1,3-Diphenylguanidine	ACY.
Diphenylguanidine phthalate	MON.
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	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, zinc chloride	DUP.
*2-Mercaptobenzothiazole, zinc salt	ACY, BFG, DUP, 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, DUP.
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.
2-Imidazoline-2-thiol	DUP, RBC.
m-Phenylenebismaleimide	DUP.
Poly-p-dinitrosobenzene	DUP.
Styrene polysulfide	TKL.
m-Tolylenebismaleimide	DUP.
All other	x.
*Antioxidants, antiozonants, and stabilizers:	
*Amino antioxidants, antiozonants, and stabilizers:	
Aldehyde- and acetone-amine reaction products:	
Acetaldehyde-aniline hydrochloride condensate	USR.
Aldol-α-naphthylamine condensate	BFG.
Butyraldehyde-aniline condensate	DUP.
Diphenylamine-acetone condensate	ACY, BFG, USR.
Phenyl-2-naphthylamine-acetone condensate	USR.

TABLE 2.--Rubber-processing chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Antioxidants, antiozonants, and stabilizers--Continued	
*Amino antioxidants, antiozonants, and stabilizers--Continued	
*Substituted p-phenylenediamines:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT, USR, x.
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylenediamine-	MON, UPM.
N,N'-Bis(1-methylheptyl)-p-phenylenediamine---------	BFG, MON, UPM.
N-sec-Butyl-N'-phenyl-p-phenylenediamine-----------	USR.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine----------	USR.
Diarylarylenediamines, mixed----------	GYR.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine--	GYR.
N-(1,4-Dimethylpentyl)-N'-phenyl-p-phenylenediamine-	USR.
N,N'-Di-2-naphthyl-p-phenylenediamine--------------	BFG.
*N,N'-Diphenyl-p-phenylenediamine------------------	BFG, DUP, SDC, USR.
N-Isopropyl-N'-phenyl-p-phenylenediamine----------	MON, USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine-----	BFG.
Nitroso-N-phenyl-p-phenylenediamine----------	USR.
All other p-phenylenediamines----------	MON.
Other amino antioxidants, antiozonants, and stabilizers:	
p-Anilinophenol----------	BFG.
1,2-Dihydro-6-dodecyl-2,2,4-trimethylquinoline------	MON.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline-------	MON.
1,2-Dihydro-2,2,4-trimethylquinoline----------	BFG, MON.
4,4'-Dimethoxydiphenylamine----------	DUP.
4,4'-Dioctyldiphenylamine----------	BFG.
N,N'-Diphenylethylenediamine----------	CCO, DA, x.
N,N'-Diphenyl-1,3-propanediamine----------	CCO.
N,N'-Di-o-tolylethylenediamine----------	CCO.
p-Isopropoxydiphenylamine----------	BFG.
4,4'-Methylenedianiline----------	USR.
*Octyldiphenylamine----------	ACY, NPI, PAS, USR.
Octyldiphenylamine mixture (mono-, nonyl-, and di-)-	BFG.
N-Phenyl-1-naphthylamine----------	DUP.
*N-Phenyl-2-naphthylamine----------	BFG, DUP, USR.
p-(p-Toluenesulfonamido)diphenylamine----------	USR.
*Phenolic and phosphite antioxidants and stabilizers:	
Phosphites:	
Diphenyldecyl phosphite----------	HK.
Nonyl phenyl phosphites, mixed----------	NPI, USR.
Phenyldidecyl phosphite----------	HK.
Polymeric phosphite----------	NPI.
Polyphenolic phosphite, polyalkylated----------	BFG.
*Polyphenolics (including bisphenols):	
Bisphenol, hindered----------	GYR.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)----------	MON.
2,5-Di-(1,1-dimethylpropyl)hydroquinone----------	MON.
2,5-Di-sec-pentyldecylhydroquinone----------	USR.
2,2'-Methylenebis(6-tert-butyl-p-cresol)----------	ACY, ASH.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)-------	ACY.
2,2'-Methylenebis[6-(1-methylcyclohexyl)-p-cresol]--	ICI.
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.
1,1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)-butane.	ICI.
Other phenolic antioxidants and stabilizers:	
p-Benzyloxyphenol----------	BFG.
o-Cresol, alkylated----------	PIT.
N-Lauroyl-p-aminophenol----------	MLS.
*Phenol, alkylated----------	ACY, BFG, CCO, GYR, NEV, PIT, USR.
*Phenol, hindered----------	DUP, GYR, PIT.
*Phenol, styrenated----------	BFG, GYR, NEV, USR.
N-Stearoyl-p-aminophenol----------	MLS.
Xylenol, alkylated----------	PIT.
Blowing agents:	
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide----------	DUP.
Dinitrosopentamethylenetetramine----------	DUP, NPI.
p,p'-Oxybis(benzenesulfonhydrazide)----------	USR.
p-Toluenesulfonylhydrazide----------	USR.
p-Toluenesulfonylsemicarbazide----------	USR.

TABLE 1.--Rubber-processing chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Peptizers:	
Alkylated o-thiocresol	PIT.
Alkylated thiophenol, zinc salt	PIT.
Aryl mercaptans	PIT.
2-Benzamidothiophene, zinc salt	ACY.
Dicresyl disulfide	USR.
2',2'''-Dithiobis(benzanilide)	ACY.
Dixylyl disulfides, mixed	PIT.
2-Naphthalenethiol	DUP.
Pentachlorobenzenethiol	DUP.
Pentachlorobenzenethiol, zinc salt	DUP.
Thiocresol	PIT.
Thiophenol (Benzenethiol)	PIT.
Xylenethiol	DUP.
Other cyclic rubber-processing chemicals:	
p-tert-Amylphenol sulfide (tackifier)	PAS.
4-Chloro-2,6-bis(2,4-dihydroxybenzyl)phenol	ICI.
Hindered aromatic polyamine	USR.
*N-Nitrosodiphenylamine (retarder)	ACY, BFG, CTN, GYR, NPI, SAL, USR.
Phenol cyanurate complex	ICI.
All other	x.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Dithiocarbamic acid derivatives:	
Dibutyldithiocarbamic acid, potassium salt	VNC.
*Dibutyldithiocarbamic acid, sodium salt	ALC, DUP, PAS, USR, VNC.
*Dibutyldithiocarbamic acid, zinc salt	ALC, DUP, USR, VNC.
Diethyldithiocarbamic acid, selenium salt	VNC.
*Diethyldithiocarbamic acid, sodium salt	ALC, DUP, 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, GNT.
*Dimethyldithiocarbamic acid, zinc salt	ALC, DUP, FMN, GYR, PAS, RBC, USR, WRC.
All other	VNC.
*Thiurams:	
Bis(dibutylthiocarbamoyl) sulfide	USR.
Bis(diethylthiocarbamoyl) disulfide	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide	DUP, GYR, PAS, VNC.
*Bis(dimethylthiocarbamoyl) sulfide	DUP, GYR, USR.
Bis(ethylmethylthiocarbamoyl) sulfide	PAS.
Thiuram blend	DUP.
Xanthates and sulfides:	
Di-n-butylxantho disulfide	USR.
Diisopropylxantho disulfide	BFG.
Zinc dibutyl xanthate	USR.
Zinc isopropyl xanthate	VNC.
All other acyclic accelerators, activators, and vulcanizing agents:	
n-Butyraldehyde-butylamine condensate	DUP.
Di-n-butylammonium oleate	DUP.
3-Ethyl-1,1-dimethyl-2-thiourea	VNC.
Ethylenediamine carbamate	DUP.
1,1,3-Trimethyl-2-thiourea	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.
Polymerization regulators:	
Alkyl mercaptans, mixed	PAS, PLC.
*Dodecyl mercaptans	HK, PAS, PLC.
n-Octyl mercaptan	PAS.
Shortstops:	
Dimethyldithiocarbamic acid, potassium salt	GYR, USR.
*Dimethyldithiocarbamic acid, sodium salt	ALC, DUP, GYR, PAS, USR.
Other acyclic rubber-processing chemicals:	
Zinc laurate (activator, physical-property improver)	USR.
All other	USR.

TABLE 3.--Rubber-processing chemicals: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
ACS	Allied Chemical Corp., Specialty Chemicals Div.	MLS	Miles Laboratories, Inc., Chemicals Div.
ACY	American Cyanamid Co.	MON	Monsanto Co.
ALC	Alco Chemical Corp.		
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	NEV	Neville Chemical Co.
		NPI	National Polychemicals, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	PAS	Pennwalt Chemicals Corp.
		PIT	Pitt-Consol Chemical Co.
		PLC	Phillips Petroleum Co.
CCO	Reichhold Chemicals, Inc.		
CTN	Chemetron Corp., Organic Chemical Div.	RBC	Roberts Chemical Div. of Security Chemicals, Inc.
DA	Diamond Shamrock Corp.	RCD	Richardson Co.
DUP	E. I. duPont de Nemours & Co., Inc.		
		SAL	Salsbury Laboratories
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
FMN	FMC Corp., Niagara Chemical Div.	TKL	Thiokol Chemical Corp.
GNT	General Tire & Rubber Co., Chemical Div.	UPM	Universal Oil Products Co.
GYR	Goodyear Tire & Rubber Co.	USR	Uniroyal, Inc., Chemical Div.
HK	Hooker Chemical Corp.	VNC	Vanderbilt Chemical Corp.
ICI	ICI America, Inc.	WRC	Wood Ridge Chemical Corp.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

Cyclic and acyclic elastomers (synthetic rubbers) are a group of high polymeric materials which have properties similar to those found in natural rubber. The term "elastomers", as used in this report, is specifically 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 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. Data on U.S. production and sales of elastomers in 1969 are shown in table 1.[1]

The total domestic output of all types of synthetic elastomers in 1969 was 4,524 million pounds, compared with 4,268 million pounds reported for 1968. Sales of these elastomers amounted to 3,918 million pounds, valued at $1,060 million, in 1969, compared with 3,563 million pounds, valued at $973 million, in 1968.

Production of cyclic elastomers in 1969 amounted to 2,592 million pounds, compared with 2,563 million pounds in 1968. Sales of cyclic elastomers in 1969 were 2,173 million pounds, valued at $520 million, compared with 2,017 million pounds, valued at $479 million, in the previous year. Of the total U.S. production of cyclic elastomers in 1969, the polybutadiene-styrene type (including vinylpyridine) accounted for 2,564 million pounds, and the polyurethane type for 27 million pounds.

The U.S. production of acyclic elastomers in 1969 was 1,932 million pounds, compared with 1,705 million pounds in 1968. Sales of these products in 1969 amounted to 1,745 million pounds, valued at $539 million. Of the 1969 production of acyclic elastomers, stereo elastomers were produced in the largest amount (1,008 million pounds), followed by the polyisobutylene-isoprene type (291 million pounds), and the polybutadiene-acrylonitrile type (N-type) (154 million pounds). The stereo elastomers are composed of polybutadiene, polyisoprene, and ethylene-propylene rubber. Production of silicone elastomers in 1969 was 14 million pounds and of other acyclic elastomers was 466 million pounds. The latter figure includes polyacrylate, polyalkalene sulfide, polychloroprene, polyisobutylene, and types of other elastomers of lesser importance.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

TABLE 1.-- Elastomers (synthetic rubbers):[1] U.S. production and sales, 1969

[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 manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	4,524,057	3,917,583	1,059,506	$0.27
ELASTOMERS, CYCLIC				
Total	2,591,720	2,172,843	520,141	.24
Polybutadiene-styrene type (S-type)[3]	2,529,912	[4]2,129,969	484,235	.23
Polybutadiene-styrene-vinylpyridine type	34,382	19,967	11,550	.58
Polyurethane type	27,426	22,907	24,356	1.06
ELASTOMERS, ACYCLIC				
Total	1,932,337	1,744,740	539,365	.31
Polybutadiene-acrylonitrile type (N-type)	154,193	136,848	64,451	.47
Polyisobutylene-isoprene type (Butyl)	290,733	...	...	...
Silicone elastomers	13,535	12,691	40,517	3.19
Stereo elastomers, total	1,007,788	894,804	177,458	.20
Ethylene propylene rubber	167,000	141,783	38,709	.27
Stereo polybutadiene	596,731	553,008	98,230	.18
Stereo polyisoprene	244,057	200,013	40,519	.20
All other acyclic elastomers[5]	466,088	700,397	256,939	.37

[1] The term "elastomers" is defined as substances in bale, crumb, powder, latex, and other crude forms which can be vulcanized or similarly processed into materials that can be stretched at 68° F. to at least twice their original length and, after having been 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] Includes data for polyacrylate, polyalkalene sulfide, polychloroprene, polyisobutylene, and other elastomers, and for sales of polyisobutylene-isoprene elastomers.

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

TABLE 2.--Elastomers (synthetic rubbers): Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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	
*Polybutadiene-styrene type (S-type)	APL, ASH, ASY, BFG, CPY, FIR, FRS, GNT, GYR, MCB, PLC, SBI, SHC, TUS, USR, WIC, x.
*Polybutadiene-styrene-vinylpyridine type	BFG, FIR, FRS, GNT, GYR, USR.
*Polyurethane type	ACY, BFG, DUP, GNT, MOB, PRC, TKL, USR, WTC, x.
ELASTOMERS, ACYCLIC	
Polyacrylate ester type	ACY, BFG, TKL.
Polyalkalene sulfide type	PRC, TKL.
Polybutadiene type	ATR, BFG, FRS, GYR, TKL, TUS.
*Polybutadiene-acrylonitrile type (N-type)	BFG, CPY, FRS, GYR, SBI, USR.
Polychloroprene type (Neoprene)	DUP.
*Polyisobutylene-isoprene type (Butyl)	CBN, ENJ.
Reaction products of natural rubber	GYR, HPC, ICI.
*Silicone elastomers	DCC, SFA, SPD, UCC.
*Stereo elastomers:	
*Ethylene propylene rubber	CPY, DUP, ENJ, USR.
*Stereo polybutadiene	APL, ASY, FRS, GNT, PLC, TUS.
*Stereo polyisoprene	APL, GYR, SHC.
All other	DUP, ENJ, UCC, x.

TABLE 3.--Elastomers (synthetic rubbers): Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
ACY	American Cyanamid Co.	ICI	I.C.I. America, Inc.
APL	Ameripol, Inc.		
ASH	Ashland Chemical Co.	MCB	Borg-Warner Corp., Marbon Chemical Div.
ASY	American Synthetic Rubber Corp.	MOB	Mobay Chemical Co.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.		
		PLC	Phillips Petroleum Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	PRC	Products Research & Chemical Corp.
		RUB	Hooker Chemical Corp., Ruco Div.
CBN	Cities Service Co., Petrochemical Group		
CPY	Copolymer Rubber & Chemical Corp.	SBI	Standard Brands Chemical Industries, Inc.
		SFA	Stauffer Chemical Co., Specialty Chemical Div.
DCC	Dow Corning Corp.		
DUP	E. I. duPont de Nemours & Co., Inc.	SHC	Shell Oil Co., Shell Chemical Co. Div.
		SPD	General Electric Co., Silicone Products Dept.
ENJ	Enjay Chemical Co.		
	Firestone Tire & Rubber Co.:	TKL	Thiokol Chemical Corp.
FIR	Firestone Plastics Co. Div.	TUS	Texas-U.S. Chemical Co.
FRS	Firestone Synthetic Rubber & Latex Co. Div.		
		UCC	Union Carbide Corp.
GNT	General Tire & Rubber Co., Chemical Div.	USR	Uniroyal, Inc., Chemical Div.
GYR	Goodyear Tire & Rubber Co.		
		WIC	Wica Chemicals, Inc.
HPC	Hercules, Inc.	WTC	Witco Chemical Co., Inc.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 resins, or (3) develop new improved properties not present in the original resins. Plasticizers reduce the viscosity of the resins and make it easier to shape and form them at high temperatures and pressures. They also impart flexibility and other desirable properties to the finished product. Statistics on production and sales of plasticizers in 1969 are given in table 1.[1]

Total U.S. production of plasticizers in 1969 amounted to 1,382 million pounds--representing an increase of 3.8 percent over the output of 1,331 million pounds reported for 1968. Sales in 1969 of the plasticizers covered by this report amounted to 1,275 million pounds, valued at $266 million, compared with 1,239 million pounds, valued at $280 million in 1968--an increase of 2.9 percent in quantity and a decrease of 5.0 percent in value.

Production of cyclic plasticizers in 1969, which consisted chiefly of the esters of phthalic anhydride and phosphoric acid, amounted to 1,023 million pounds, compared with 985 million pounds in 1968--an increase of 3.9 percent. Sales of cyclic plasticizers in 1969 amounted to 947 million pounds, valued at $165 million, compared with 918 million pounds, valued at $178 million in the previous year. This represents an increase in sales quantity of 3.2 percent and a decrease in sales value of 7.3 percent. The production of di(2-ethylhexyl) phthalate and diiso-octyl phthalate amounted to 438 million pounds or 31.7 percent of the total plasticizerzs output and 42.8 percent of the total cyclic plasticizer output.

Production of acyclic plasticizers in 1969 amounted to 359 million pounds, an increase of 3.8 percent, compared with 346 million pounds in 1968. Sales of acyclic plasticizers in 1969 amounted to 328 million pounds, valued at $101 million, compared with 320 million pounds, valued at $102 million, in 1968, a gain of 2.5 percent in sales quantity and a decrease of 1.0 percent in value. Production of complex linear polyesters in 1969 amounted to 54 million pounds, and that of epoxidized esters, to 104 million pounds. Among the other products included in the acyclic class are the esters of adipic, azelaic, oleic, sebacic, and stearic acids.

Production of benzenoid plasticizers in 1969 amounted to 1,109 million pounds, or 80.2 percent of the total output. Sales of benzenoid plasticizers in 1969 amounted to 1,026 million pounds, valued at $187 million, or 80.5 percent and 70.3 percent, respectively, of the 1969 totals.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

TABLE 1.--Plasticizers:[1] U.S. production and sales, 1969

[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 manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	1,382,231	1,274,602	265,870	$0.21
Benzenoid	1,108,927	1,025,984	186,909	.18
Nonbenzenoid	273,304	248,618	78,961	.32
PLASTICIZERS, CYCLIC				
Total	1,022,941	946,984	164,709	.17
Phosphoric acid esters:				
Cresyl diphenyl phosphate	11,088	10,540	2,897	.27
Tricresyl phosphate	46,498	41,559	13,311	.32
Triphenyl phosphate	9,180	...	...	...
Phthalic anhydride esters, total	883,832	821,374	127,166	.15
Butyl octyl phthalates (including butyl 2-ethylhexyl phthalate and butyl iso-octyl phthalate)	13,264	10,281	1,582	.15
Dibutyl phthalate	34,476	30,071	5,295	.18
Dicyclohexyl phthalate	4,412	...	...	...
Diethyl phthalate	22,460	18,620	3,519	.19
Diisodecyl phthalate	136,708	125,959	17,820	.14
Di(2-methoxyethyl) phthalate	...	2,560	656	.26
Dimethyl phthalate	7,338	6,642	1,311	.20
Dinonyl phthalate	2,451	...	...	...
Dioctyl phthalates:				
Di(2-ethylhexyl) phthalate	355,345	339,880	45,158	.13
Diiso-octyl phthalate	83,023	70,400	12,615	.18
Di-tridecyl phthalate	22,057	21,641	4,814	.22
Glycol phthalate esters	3,970	4,262	1,732	.41
n-Hexyl n-decyl phthalate	12,832	12,547	2,226	.18
n-Octyl n-decyl phthalate	54,516	49,497	8,822	.18
All other phthalic anhydride esters	130,980	129,014	21,616	.11
Trimellitic acid esters, total	7,545	5,618	1,705	.30
Triiso-octyl trimellitate	2,748	1,921	560	.29
Tri-n-octyl n-decyl trimellitate	2,302	1,620	484	.30
Trioctyl trimellitate	1,708	1,032	310	.30
All other trimellitic acid esters	787	1,045	351	.34
All other cyclic plasticizers[3]	64,798	67,893	19,630	.29
PLASTICIZERS, ACYCLIC				
Total	359,290	327,618	101,161	.31
Adipic acid esters, total	65,827	60,540	14,952	.25
Di[2-(2-butoxyethoxy)ethyl] adipate	1,700	1,761	772	.44
Di(2-ethylhexyl) adipate	40,058	37,114	8,874	.24
Diisodecyl adipate	5,509	4,882	1,194	.24
Diiso-octyl adipate	4,785	...	...	...
n-Octyl n-decyl adipate	10,716	9,557	2,226	.23
All other	3,059	7,226	1,886	.26
Complex linear polyesters and polymeric plasticizers[4]	54,090	48,683	18,503	.38
Di(2-ethylhexyl) azelate	5,771	4,899	1,723	.35
Epoxidized esters, total	104,239	94,660	24,537	.26
Epoxidized soya oils	73,518	67,139	17,250	.26
Octyl epoxytallates	14,675	...	...	...
All other	16,046	27,521	7,287	.26

See footnotes at end of table.

TABLE 1.--Plasticizers:[1] U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
PLASTICIZERS, ACYCLIC--Continued				
Glyceryl monoricinoleate	250	243	102	$0.42
Isopropyl myristate	4,071	3,806	1,718	.45
Isopropyl palmitate	1,173	1,108	416	.38
Oleic acid esters, total	12,609	11,765	2,777	.24
Butyl oleate	2,142	1,829	393	.21
Methyl oleate	3,921	3,431	640	.19
Propyl oleate	905	...	...	...
All other	5,641	6,505	1,744	.27
Phosphoric acid esters	18,935	14,902	6,782	.46
Sebacic acid esters:				
Dibutyl sebacate	5,194	3,826	2,316	.61
Di(2-ethylhexyl) sebacate	5,168	4,656	2,532	.54
Stearic acid esters, total	9,715	8,671	2,226	.26
n-Butyl stearate	5,013	4,137	992	.24
All other	4,702	4,534	1,234	.27
Triethylene glycol di(caprylate-caprate)	2,140	1,987	716	.36
All other acyclic plasticizers[5]	70,108	67,872	21,861	.32

[1] Does not include data for clearly defined extenders or secondary plasticizers.
[2] Calculated from rounded figures.
[3] Includes data for alkylated naphthalene, glycol dibenzoates, hydrogenated terphenyls, phosphate esters (including sales of triphenyl phosphate), toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.
[4] Adipic acid polyesters account for most of the production of complex linear polyesters and polymeric plasticizers.
[5] Includes data for azelaic, citric and acetylcitric, lauric, myristic, palmitic, pelargonic, ricinoleic, sebacic, and tartaric acid esters, glyceryl and glycol esters, and other acyclic plasticizers.

Note.--Production and sales statistics are included in this report for some items that are not used exclusively as plasticizers.

TABLE 2.--Plasticizers: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

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

Chemical	Manufacturers' identification codes (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-octyldiphenyl oxide	DOW.
Dipropanediol dibenzoate	VEL.
N-Ethyl-p-toluenesulfonamide	MON.
Isopropylidenediphenoxypropanol	DOW.
Naphthalene, alkylated	ACC.
Phosphoric acid esters:	
p-Chlorophenyldiphenyl phosphate	MON.
*Cresyl diphenyl phosphate	FMP, MON, MTR, SFA, SM.
Dibutyl phenyl phosphate	MON, ORO.
Diphenyl octyl phosphate	MON.
Methyl diphenyl phosphate	FMP, MON.
*Tricresyl phosphate	FMP, MON, MTR, SFA.
*Triphenyl phosphate	EK, MON, SFA.
All other phosphoric acid esters	SFA.
*Phthalic anhydride esters:	
Alkyl benzyl phthalates	MON.
Bis(4-methyl-1,2-pentyl) phthalate	GRH.
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	ACP.
n-Butyl n-decyl phthalate	PCC.
*Butyl octyl phthalates:	
*Butyl 2-ethylhexyl phthalate	GRH, MON, TEK, UCC.
*Butyl iso-octyl phthalate	GRH.
Butyl-n-octyl phthalate	RCI, RUB.
Di(2-butoxyethyl) phthalate	FMP.
*Dibutyl phthalate	ACP, CGL, COM, DA, DUP, EKT, GRH, MON, PFZ, RCI, RUB, SW, UCC.
*Dicyclohexyl phthalate	ACP, DUP, FMP, MON, PFZ.
Diethyl isophthalate	PFZ.
*Diethyl phthalate	DUP, EKT, KF, MON, PFZ, TEK.
Dihexyl phthalate	ACP, CGL, ENJ, UCC.
*Diisodecyl phthalate	ACP, BFG, CPL, EKT, ENJ, GRH, MON, PCC, RCI, RUB, TEK, UCC.
Diisononyl phthalate	ENJ, PFZ.
*Di(2-methoxyethyl) phthalate	EKT, FMP, SFA.
Dimethyl isophthalate	PFZ.
*Dimethyl phthalate	EKT, KF, MON, TCC.
*Dinonyl phthalate	ACP, CPL, RCI, TEK.
Dioctyl phthalates:	
Dicapryl phthalate	WTH.
Di(2-ethylhexyl) isophthalate	UCC.
*Di(2-ethylhexyl) phthalate	ACP, BFG, CGL, CPL, EKT, ENJ, GRH, MON, PCC, PFZ, RCI, RUB, TEK, UCC.
*Diiso-octyl phthalate	ACP, CGL, CPL, ENJ, GRH, MON, PCC, RCI, RUB, TEK, UCC.
Mixed dioctyl phthalates	BFG, CPL, TEK.
Diphenyl phthalate	MON.
*Di-tridecyl phthalate	ACP, CGL, CPL, ENJ, GRH, MON, PCC, RCI, RUB, TEK, UCC.
Di-n-undecyl phthalate	CPL.
2-(Ethylhexyl)isodecyl phthalate	CGL, UCC.
*Glycol phthalate esters:	
Butyl phthalyl butyl glycolate	MON.
Ethyl (and methyl) phthalyl ethyl glycolate	MON.
Glycol phthalate anhydride esters	UCC.
Polypropylene glycol bis(amyl) phthalate	UCC.
All other glycol phthalate esters	FMP, HPC, WTC.
*n-Hexyl n-decyl phthalate	ACP, CPL, GRH, TEK, UCC.

TABLE 2.--Plasticizers: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, CYCLIC--Continued	
*Phthalic anhydride esters--Continued	
Isodecyl tridecyl phthalate	TEK.
Iso-octyl isodecyl phthalate	ACP, CPL, PFZ, RUB.
Iso-octyl tridecyl phthalate	RUB.
*n-Octyl n-decyl phthalate	ACP, CPL, GRH, MON, PCC, RCI, RUB, TEK, UCC.
All other phthalic anhydride esters	MON.
Polyethylene glycol dibenzoate	VEL.
Tetrahydrofurfuryl oleate	CCW, EMR.
Toluenesulfonamide, o-, p- mixtures	ACY, LAK, MON.
*Trimellitic acid esters:	
Tri-n-alkyl trimellitate	RUB.
Tri(2-ethylhexyl)trimellitate	PFZ, RCI.
Triisodecyl trimellitate	PFZ.
*Triiso-octyl trimellitate	GRH, PCC, RCI, RUB.
*Tri-n-octyl n-decyl trimellitate	GRH, PFZ, RCI, TEK.
*Trioctyl trimellitate	GRH, PCC, RUB, TEK.
All other trimellitic acid esters	CPL, ENJ, PCC, RUB, x.
Trimethylpentanediol dibenzoate	VEL.
Trimethylpentanediol monoisobutyrate monobenzoate	EKT.
All other cyclic plasticizers	CCW, MON, NEV, WTC.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
*Di[2-(2-butoxyethoxy)ethyl] adipate	FMP, RCI, TKL, WTH.
*Di(2-ethylhexyl) adipate	CGL, CPL, EKT, ENJ, GRH, MON, PCC, PFZ, RCI, RH, RUB, TEK, UCC.
Di-n-hexyl adipate	ARC.
Diisobutyl adipate	FMP, GRH, HAL.
*Diisodecyl adipate	ACP, CGL, ENJ, GRH, MON, PCC, PFZ, RCI, RH, RUB, TEK, UCC.
*Diiso-octyl adipate	PCC, RCI, RH, RUB.
Diisononyl adipate	ENJ.
Diisopropyl adipate	SBC, VND.
Di-n-octyl adipate	ACP.
Di-n-propyl adipate	ARC.
n-Hexyl n-decyl adipate	GRH, PCC.
Iso-octyl n-decyl adipate	BFG, GRH, PFZ.
*n-Octyl n-decyl adipate	ACP, CPL, GRH, MON, PCC, RCI, RH, RUB, TEK, TKL.
All other	CPL.
Azelaic acid esters:	
Dicyclohexyl azelate	PFZ.
Di(2-ethylbutyl) azelate	EMR.
*Di(2-ethylhexyl) azelate	EKT, EMR, PCS, PFZ, RCI, RUB, UCC.
Diisobutyl azelate	HAL.
Diiso-octyl azelate	EMR.
All other azelaic acid esters	EMR.
Bis[2-(2-butoxyethoxy)ethoxy] methane	CTN.
1,4-Butanediol dicaprylate	RUB.
Butoxyethyl pelargonate	HAL.
Castor oil maleate	RH.
Citric and acetylcitric acid esters	ICI, PFZ.
*Complex linear polyesters and polymeric plasticizers	ASH, EKT, EMR, GLY, 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, UCC.
*Epoxidized esters:	
Butyl epoxydioleate	ASH.
Butyl epoxystearates	BAC.
Butyl epoxytallate	ASH, TEK.
Epoxidized linseed oils	ASH, SWT.
*Epoxidized soya oils	ASH, BAC, CPL, RH, SWT, TEK, UCC, WTC.
Epoxidized tall oils	RCT, RH.
2-Ethylhexyl epoxytallates	ASH, BAC, SWT, UCC.
Octyl epoxystearates	WTC.
*Octyl epoxytallates	CPL, RH, TEK, UCC, WTC.
All other expoxidized esters	PCS, UCC.
Glyceryl tri-acetate (Triacetin)	PFZ.
Glyceryl tributyrate and tripropionate	EKT.
Glycol pelargonate	FMR.
Isodecyl nonamoate (Isodecyl pelargonate)	EMR.
Lauric acid esters	HAL, SBC, TEK.

TABLE 2.--Plasticizers: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PLASTICIZERS, ACYCLIC--Continued	
Myristic acid esters:	
*Isopropyl myristate	ARC, DRW, ICI, PCS, SBC, SCP.
*Oleic acid esters:	
2-Butoxyethyl oleate	ARC, HAL.
*Butyl oleate	ARC, ICI, SWT, WM, WTC, WTH.
Decyl oleate	VND.
Glyceryl trioleate (Triolein)	DRW, EMR, SWT, WM, PCS.
Isobutyl oleate	DA.
Isopropyl oleate	EMR, WM.
Methoxyethyl oleate	HAL.
*Methyl oleate	CHL, EMR, HUM, ICI, SWT.
*Propyl oleate	CHL, EMR, WM.
Trimethylpropane oleate	RUB.
All other oleic acid esters	RH.
Palmitic acid esters:	
Butyl palmitate	AAE.
Isobutyl palmitate	DA, EKT.
Iso-octyl palmitate	RUB.
*Isopropyl palmitate	ARC, DRW, PCS, SBC.
2-Methoxyethyl palmitate	EKT.
*Phosphoric acid esters:	
Tri(2-butoxyethyl) phosphate	FMP.
Tributyl phosphate	FMP.
Tri(2-chloroethyl) phosphate	SFA, UCC.
Triethyl phosphate	EKT.
Trioctyl phosphate	UCC.
All other phosphoric acid esters	SM.
Propylene glycol di(caprylate-caprate)	HAL.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate	BAC.
Butyl ricinoleate	BAC, RCI.
*Glyceryl monoricinoleate	BAC, DA, GLY, HAL.
Glyceryl tri(acetylricinoleate)	BAC.
Methyl ricinoleate	BAC, DA.
All other ricinoleic and acetylricinoleic acid esters	BAC.
Sebacic acid esters:	
Dibutoxyethyl sebacate	HAL, RCI.
*Dibutyl sebacate	EKT, GRH, HAL, PFZ, RCI, RH, WTH.
*Di(2-ethylhexyl) sebacate	GRH, HAL, PFZ, RCI, RH, WTH.
Diiso-octyl sebacate	DA, RCI.
*Stearic acid esters:	
Butoxyethyl stearate	ARC, WM.
*n-Butyl stearate	AAE, ARC, CHL, DA, DRW, EMR, HAL, ICI, PCS, RUB, SCP, SWT, WTH.
Dimethylammonium stearate	RH.
Dodecyl (lauryl) stearate	RCI.
2-Ethylhexyl stearate	FMP.
Glyceryl triacetyl stearate	BAC.
Isobutyl stearate	ARC, DA.
Isocetyl stearate	WM.
Isopropyl stearate	ARC, WM.
Methyl dichlorostearate	HK.
Methyl pentachlorostearate	HK.
Methyl stearate	CHL.
All other stearic acid esters	DA, HPC, WM.
Sucrose acetate isobutyrate	ARC, EKT.
Tetraethylene glycol di(2-ethylhexanoate)	UCC.
Triethylene glycol dicaprylate	RUB.
*Triethylene glycol di(caprylate-caprate)	DRW, HAL, RUB, WM.
Triethylene glycol di-2-ethylbutyrate	UCC.
Triethylene glycol di(2-ethylhexanoate)	EKT, UCC.
Triethylene glycol dipelargonate	RUB.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	EKX.
All other acyclic plasticizers	ARC, EMR, HPC, PFZ, TKL, WM.

TABLE 3.--Plasticizers: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company	Code	Name of company
AAE	American Aniline & Extract Co., Inc.	ICI	ICI America, Inc.
ACC	Amoco Chemicals Corp.		
ACP	Allied Chemical Corp., Plastics Div.	KF	Kay-Fries Chemicals, Inc.
ACY	American Cyanamid Co.		
ARC	Armour & Co., Armour Industrial Chemical Co. Div.	LAK	Lakeway Chemicals, Inc.
ASH	Ashland Oil, Inc., Ashland Chemical Co. Div.	MON	Monsanto Co.
		MTR	Chris-Craft Industries, Inc., Montrose Chemical Div.
BAC	Baker Castor Oil Co.		
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	NEV	Neville Chemical Co.
CCA	Carlisle Chemical Works, Inc., Advance Div.	ORO	Chevron Chemical Co.
CCW	Carlisle Chemical Works, Inc.	PCC	USS Chemicals Div. of U.S. Steel Corp.
CGL	Cargill, Inc.	PCS	Emery Industries, Inc.
CHL	Chemol, Inc.	PFZ	Pfizer, Inc.
COM	Commercial Solvents Corp.		
CPL	Conoco Plastics	RCI	Reichhold Chemicals, Inc.
CTN	Chemetron Corp., Organic Chemical Div.	RH	Rohm & Haas Co.
		RUB	Hooker Chemical Corp., Ruco Div.
DA	Diamond Shamrock Corp.		
DOW	Dow Chemical Co.	SBC	Scher Brothers, Inc.
DRW	Drew Chemical Corp.	SCP	Standard Chemical Products, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.	SFA	Stauffer Chemical Co., Specialty Chemical Div.
		SM	Mobil Chemical Co.
EK	Eastman Kodak Co.:	SM	Mobil Oil Corp., Mobil Chemical Co. Div., Industrial Chemical Div.
EKT	Tennessee Eastman Co. Div.		
EKX	Texas Eastman Co. Div.	SW	Sherwin-Williams Co.
EMR	Emery Industries, Inc.	SWT	Swift & Co., Swift Chemical Co. Div.
ENJ	Enjay Chemical Co.		
		TCC	Tanatex Chemical Corp.
FMP	FMC Corp., Organic Chemicals Div.	TEK	Teknor Apex Co.
FOR	El Dorado Chemical Co.	TKL	Thiokol Chemical Corp.
GLY	Glyco Chemicals, Inc.	UCC	Union Carbide Corp.
GRH	W. R. Grace & Co., Hatco Chemical Div.		
		VEL	Velsicol Chemical Corp.
HAL	C. P. Hall Co. of Illinois	VND	Van Dyk & Co., Inc.
HK	Hooker Chemical Corp.		
HPC	Hercules, Inc.	WM	Wilson Pharmaceutical & Chemical Corp., Wilson-Martin Div.
HUM	Kraftco Corp., Humko Plastics Div.	WTC	Witco Chemical Co., Inc.
		WTH	Pennwalt, Inc., Harchem Div.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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. 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 1969 amounted to 3,901 million pounds, or 4.3 percent more than the 3,739 million pounds reported for 1968 and 12.1 percent more than the 3,479 million pounds reported for 1967. Sales of bulk surface-active agents in 1969 amounted to 1,988 million pounds, valued at $370 million, compared with sales in 1968 of 1,998 million pounds, valued at $357 million, and sales in 1967 of 1,750 million pounds, valued at $317 million. In terms of quantity, sales in 1969 were thus 0.5 percent smaller than in 1968 and 13.6 percent larger than in 1967; in terms of value, sales in 1969 were 3.7 percent larger than in 1968 and 16.8 percent larger than in 1967.

Production of anionic surface-active agents in 1969 amounted to 2,753 million pounds, or 70.6 percent of the total output reported for 1969 and 1.6 percent more than the anionic output reported for 1968. Sales of anionics in 1969 amounted to 1,157 million pounds, valued at $172 million. Of the total anionic output, 937 million pounds consisted of potassium and sodium salts of fatty, rosin, and tall oil acids, of which 493 million pounds was the sodium salt of tallow acids and 111 million pounds was the sodium salt of coconut oil acids; 748 million pounds consisted of alkylbenzenesulfonates, of which 435 million pounds was sodium dodecylbenzenesulfonate, 129 million pounds was dodecylbenzenesulfonic acid, and 127 million pounds was sodium tridecylbenzenesulfonate; 426 million pounds consisted of ligninsulfonates, of which 286 million pounds was the calcium salt; and 235 million pounds consisted of sulfated ethers.

Production of nonionic surface-active agents in 1969 amounted to 971 million pounds, or 24.9 percent of the total output reported for 1969 and 13.8 percent more than the nonionic output reported for 1968. Sales of nonionics in 1969 amounted to 682 million pounds, valued at $134 million. Of the total nonionic output, 270 million pounds consisted of alkylphenol ethoxylates and other benzenoid ethers, of which 138 million pounds was nonylphenol ethoxylate; 436 million pounds consisted of alcohol ethoxylates and other nonbenzenoid ethers, of which 347 million pounds was mixed linear alcohol ethoxylate; 87 million pounds consisted of glycerol esters; and 83 million pounds consisted of alkanolamides.

Production of cationic surface-active agents in 1969 amounted to 169 million pounds, or 4.3 percent of the total output reported for 1969 and 1.1 percent more than the cationic output reported for 1968. Sales of cationics in 1969 amounted to 140 million pounds, valued at $58 million. Of the total cationic output, 56 million pounds consisted of quaternary ammonium salts not containing oxygen, and 20 million pounds consisted of primary monoamines not containing oxygen.

Production of amphoteric surface-active agents in 1969 amounted to 8.5 million pounds, or 0.2 percent of the total output reported for 1969 and 1.6 percent more than the amphoteric output reported for 1968. Sales of amphoterics in 1969 amounted to 8.0 million pounds, valued at $5.2 million.

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

TABLE 1.--Surface-active agents: U.S. production and sales, 1969

[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 manufacturer 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	3,901,021	1,988,115	369,775	$0.19
Benzenoid[4]	1,141,438	486,236	99,985	.21
Nonbenzenoid[5]	2,759,583	1,501,879	269,790	.18
Amphoteric Surface-Active Agents				
Total	8,486	8,048	5,156	.64
Anionic Surface-Active Agents				
Total	2,752,563	1,157,375	171,820	.15
Carboxylic acids (and salts thereof), total	958,680	...	...	...
Carboxylic acids having amide, ester, or ether linkages, total	21,395	8,879	5,618	.63
N-Lauroylsarcosine, sodium salt	4,269	...	...	...
All other[6]	17,126	8,879	5,618	.63
Potassium and sodium salts of fatty, rosin, and tall oil acids, total	937,285	...	...	...
Castor oil acids, potassium and sodium salts, total	128	91	23	.25
Potassium salt	90	...	...	...
Sodium salt	38	...	...	...
Coconut oil acids, potassium and sodium salts, total	123,264	3,467	1,186	.34
Potassium salt	12,206	...	...	...
Sodium salt	111,058	...	...	...
Corn oil acids, potassium and sodium salts	746	746	303	.41
Mixed vegetable fatty acids, potassium salt	3,041	...	...	...
Oleic acid, potassium salt	4,267	779	208	.27
Oleic acid, sodium salt	1,112	1,033	244	.24
Stearic acid, sodium salt	2,985	1,001	378	.38
Tall oil acids, potassium and sodium salts, total	22,967	16,170	3,294	.20
Potassium salt	12,954	...	...	...
Sodium salt	10,013	...	...	...
Tallow acids, sodium salt	492,609	...	...	...
All other	286,166	...	...	...
Phosphoric and polyphosphoric acid esters (and salts thereof), total	24,864	17,524	8,500	.49
Alcohols and phenols, ethoxylated and phosphated, total	16,620	11,390	5,080	.45
Mixed linear alcohols, ethoxylated and phosphated	1,538	1,117	282	.25
Nonylphenol, ethoxylated and phosphated	6,027	3,436	1,227	.36
All other	9,055	6,837	3,571	.52
Alcohols, phosphated or polyphosphated, total	8,244	6,134	3,420	.56
2-Ethylhexyl phosphate, sodium salt	282	141	61	.43
Octyl phosphates and polyphosphates	3,089	2,826	1,550	.55
All other	4,873	3,167	1,809	.57
Sulfonic acids (and salts thereof), total	1,305,470	683,122	78,282	.11
Alkylbenzenesulfonates, total	748,339	179,816	35,536	.20
Dodecylbenzenesulfonates, total	590,334	160,062	30,032	.19
Dodecylbenzenesulfonic acid	129,191	38,751	5,012	.13
Dodecylbenzenesulfonic acid, calcium salt	14,234	8,841	3,044	.34
Dodecylbenzenesulfonic acid, isopropanolamine salt	512	...	...	...
Dodecylbenzenesulfonic acid, potassium salt	23	10	3	.30
Dodecylbenzenesulfonic acid, sodium salt	435,465	101,866	19,177	.19
Dodecylbenzenesulfonic acid, triethanolamine salt	4,077	4,894	1,200	.25
All other	6,832	5,700	1,596	.28
Other alkylbenzenesulfonates, total	158,005	19,754	5,504	.28
Tridecylbenzenesulfonic acid, sodium salt	126,895	11,228	4,235	.38
All other	31,110	8,526	1,269	.15

See footnotes at end of table.

TABLE 1.--Surface-active agents: U.S. production and sales, 1969--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				
Benzene-, cumene-, toluene-, and xylenesulfonates, total	63,308	54,354	4,710	$0.09
Cumenesulfonic acid, ammonium salt	3,101	2,990	284	.09
Xylenesulfonic acid, ammonium salt	8,275	9,977	769	.08
Xylenesulfonic acid, sodium salt	36,344	23,300	1,947	.08
All other	15,588	18,087	1,710	.09
Ligninsulfonates, total	425,520	407,781	16,286	.04
Ligninsulfonic acid, calcium salt	285,941	269,025	6,792	.03
Ligninsulfonic acid, chromium salt	14,576	14,861	1,245	.08
Ligninsulfonic acid, sodium salt	54,168	53,270	4,216	.08
All other	70,835	70,625	4,033	.06
Naphthalenesulfonates, total	11,019	8,994	3,325	.37
Butyl- and dibutylnaphthalenesulfonic acid and salt	1,930	1,524	523	.34
All other	9,089	7,470	2,802	.38
Sulfonic acids having amide linkages, total	6,477	4,001	2,541	.64
Sulfosuccinic acid derivatives	2,028	1,755	1,005	.57
Taurine derivatives, total	4,449	2,246	1,536	.68
N-Methyl-N-oleoyltaurine, sodium salt	2,942	1,756	831	.47
All other	1,507	490	705	1.44
Sulfonic acids having ester or ether linkages, total	40,495	22,315	14,123	.63
Sulfosuccinic acid esters, total	11,021	10,374	5,383	.52
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt	1,753	1,795	694	.39
Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt	6,298	5,696	3,450	.61
All other	2,970	2,883	1,239	.43
Other sulfonic acids having ester or ether linkages	29,474	11,941	8,740	.73
All other sulfonic acids	10,312	5,861	1,761	.30
Sulfuric acid esters (and salts thereof), total	...	176,553	36,862	.21
Acids, amides, and esters, sulfated, total	...	12,510	3,227	.26
Coconut oil acids - ethanolamine condensate, sulfated, potassium salt	42	42	38	.90
Esters of sulfated oleic acid, total	4,462	3,542	1,085	.31
Butyl oleate, sulfated, sodium salt	1,720	1,132	293	.26
Glycerol trioleate, sulfated, sodium salt	161	...	...	...
Isopropyl oleate, sulfated, sodium salt	499	422	128	.30
Propyl oleate, sulfated, sodium salt	429	420	95	.23
All other	1,653	1,568	569	.36
Oleic acid, sulfated, disodium salt	6,991	6,301	1,420	.23
Tall oil, sulfated, sodium salt	1,391	1,376	265	.19
All other	...	1,249	419	.33
Alcohols, sulfated, total	...	32,798	14,260	.43
Coconut and sperm oil alkyl sulfate, sodium salt	311	301	190	.63
Dodecyl sulfate salts, total	49,202	...	...	...
Dodecyl sulfate, ammonium salt	2,425	2,424	1,186	.49
Dodecyl sulfate, diethanolamine salt	...	2,661	1,411	.53
Dodecyl sulfate, magnesium salt	436	400	230	.58
Dodecyl sulfate, sodium salt	18,997	...	...	...
Dodecyl sulfate, triethanolamine salt	10,964	...	...	...
All other	16,380	...	...	...
Hexadecyl sulfate, sodium salt	140	...	...	...
Mixed linear alcohol sulfate, ammonium salt	...	103	62	.60
Mixed linear alcohol sulfate, sodium salt	1,699	1,317	382	.29
Octadecyl sulfate, sodium salt	...	220	109	.50
All other	...	25,372	10,690	.42
Ethers, sulfated, total	234,706	94,314	12,129	.13
Alkylphenols, ethoxylated and sulfated	3,811	3,323	1,085	.33
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt	1,569	481	260	.54
Dodecyl alcohol, ethoxylated and sulfated, sodium salt	3,008	...	...	...
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt	103,310	...	...	...
All other	123,008	90,510	10,784	.12

See footnotes at end of table.

TABLE 1.--Surface-active agents: U.S. production and sales, 1969--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				
Natural fats and oils, sulfated, total	39,092	36,931	7,246	$0.20
Castor oil, sulfated, sodium salt	7,399	6,710	2,045	.30
Coconut oil, sulfated, sodium salt	1,785	1,621	427	.26
Cod oil, sulfated, sodium salt	2,058	1,651	207	.13
Neat's-foot oil, sulfated, sodium salt	2,026	1,728	322	.19
Peanut oil, sulfated, sodium salt	123	128	96	.75
Soybean oil, sulfated, sodium salt	132	132	48	.36
Sperm oil, sulfated, sodium salt	8,106	7,820	1,445	.18
Tallow, sulfated, sodium salt	11,238	11,007	1,397	.13
All other	6,225	6,134	1,259	.21
Other anionic surface-active agents[7]	125,513	248,010	36,922	.15
Cationic Surface-Active Agents				
Total	168,914	140,335	58,304	.42
Amine oxides and oxygen-containing amines (except those having amide linkages), total	40,189	...	...	...
Acyclic, total	33,547	...	...	...
N,N-Bis(2-hydroxyethyl)octadecylamine	142	...	...	...
(Coconut oil alkyl)amine, ethoxylated	2,391	...	...	...
(Tallow alkyl)amine, ethoxylated	1,035	1,172	735	.63
All other	29,979	...	...	...
Cyclic (except imidazoline and oxazoline derivatives)	3,063	...	...	...
Imidazoline and oxazoline derivatives, total	3,579	3,181	1,463	.46
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	1,237	823	319	.39
All other	2,342	2,358	1,144	.49
Amines and amine oxides having amide linkages, total	15,297	...	...	...
Carboxylic acid - diamine and polyamine condensates, total	8,846	8,644	2,763	.32
Stearic acid - diethylenetriamine condensate	403	...	...	...
All other	8,443	8,644	2,763	.32
Oleic acid - ethylenediamine condensate, monoethoxylated	3,537	...	...	...
Stearic acid - ethylenediamine condensate, monoethoxylated	2,680	2,291	1,256	.55
Other amines and amine oxides having amide linkages	234	...	...	...
Amines, not containing oxygen (and salts thereof), total	48,757	46,556	17,055	.37
Amine salts	3,176	3,895	1,670	.43
Diamines and polyamines, total	12,336	11,034	3,438	.31
N-(Coconut oil alkyl)trimethylenediamine	577	609	293	.48
Imidazoline derivatives	2,907	...	...	...
N-(Tallow alkyl)trimethylenediamine	4,829	4,755	1,218	.26
All other	4,023	5,670	1,927	.34
Primary monoamines, total	20,479	19,155	6,593	.34
(Hydrogenated tallow alkyl)amine	1,935	1,975	544	.28
9-Octadecenylamine	1,125	925	357	.39
Octadecylamine	623	...	...	...
(Tallow alkyl)amine	5,263	4,947	1,307	.26
All other	11,533	11,308	4,385	.39
Secondary and tertiary monoamines, total	12,766	12,472	5,354	.43
N,N-Dimethyl(coconut oil alkyl)amine	2,236	2,519	1,027	.41
N,N-Dimethyl(mixed alkyl)amine	...	125	39	.31
N,N-Dimethyloctadecylamine	470	392	257	.66
N-Methylbis(hydrogenated tallow alkyl)amine	2,107	1,843	462	.25
All other	7,953	7,593	3,569	.47
Oxygen-containing quaternary ammonium salts	9,037	...	...	...
Quaternary ammonium salts, not containing oxygen, total	55,634	50,802	22,359	.44
Acyclic, total	40,217	37,169	13,016	.35
Bis(coconut oil alkyl)dimethylammonium chloride	1,494	1,790	981	.55
Bis(hydrogenated tallow alkyl)dimethylammonium chloride	19,172	17,373	4,486	.26
Hexadecyltrimethylammonium salts	620	568	514	.88
All other	18,931	17,438	7,035	.40

See footnotes at end of table.

TABLE 1.--Surface-active agents: U.S. production and sales, 1969--Continued

Chemical	Production[1]	Sales[2]		
		Quantity[1]	Value	Net value[3]
Cationic Surface-Active Agents--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Quaternary ammonium salts, not containing oxygen--Continued				
Benzenoid, total	15,417	13,633	9,343	$0.70
Benzyl(coconut oil alkyl)dimethylammonium chloride	430	427	334	.78
Benzyldimethyl(mixed alkyl)ammonium chloride	7,015	6,962	5,589	.80
Benzyldimethyloctadecylammonium chloride	1,369	1,252	1,122	.90
Benzyltrimethylammonium chloride	...	169	69	.41
(3,4-Dichlorobenzyl)dodecyldimethylammonium chloride	24	21	19	.90
All other	6,579	4,802	2,210	.46
Groups listed above for which separate sales data may not be shown	...	27,689	12,673	.46
Nonionic Surface-Active Agents				
Total	971,058	682,357	134,495	.20
Carboxylic acid amides, total	83,572	52,866	15,154	.29
Carboxylic acid - alkanolamine condensates, total	83,191	52,548	14,962	.28
Diethanolamine condensates (amine/acid ratio=2/1), total	23,950	18,878	5,260	.28
Capric acid	181	169	62	.37
Coconut oil acids	12,139	11,566	3,366	.29
Coconut oil and tallow acids	3,182	2,489	450	.18
Lauric acid	3,182	...	...	...
Oleic acid	1,099	925	275	.30
Stearic acid	763	572	185	.32
Tall oil acids	490	...	...	...
All other	2,914	3,157	922	.29
Diethanolamine condensates (other amine/acid ratios), total	41,081	...	...	...
Coconut oil acids (amine/acid ratio=1/1)	17,539	16,658	4,572	.27
Lauric acid (amine/acid ratio=1/1)	19,014	...	...	...
Oleic acid (amine/acid ratio=1/1)	565	580	199	.34
Palmitic and stearic acid (amine/acid ratio=1/1)	45	26	6	.23
Stearic acid (amine/acid ratio=1/1)	1,040	1,027	373	.36
All other	2,878	...	...	...
Ethanolamine condensates, total	14,907	...	...	...
Coconut oil acids (amine/acid ratio=2/1)	999	906	265	.29
Lauric acid (amine/acid ratio=2/1)	11	11	4	.36
All other	13,897	...	...	...
Isopropanolamine condensates, total	3,253	...	...	...
Lauric acid	147	138	47	.34
All other	3,106	...	...	...
Groups listed above for which separate sales data may not be shown	...	14,324	4,236	.30
Other carboxylic acid amides	381	318	192	.60
Carboxylic acid esters, total	179,662	144,869	44,532	.31
Anhydrosorbitol esters, total	20,345	12,889	4,578	.36
Anhydrosorbitol mono-oleate	7,684	4,657	1,670	.36
Anhydrosorbitol monostearate	3,220	...	...	...
Anhydrosorbitol triolate	...	471	186	.39
Anhydrosorbitol tristearate	...	124	41	.33
All other	9,441	7,637	2,681	.35
Diethylene glycol esters, total	2,292	1,863	655	.35
Diethylene glycol monolaurate	211	208	62	.30
Diethylene glycol monostearate	636	608	206	.34
All other	1,445	1,047	387	.37
Ethoxylated anhydrosorbitol esters, total	19,885	16,407	6,755	.41
Ethoxylated anhydrosorbitol monolaurate	...	3,920	1,556	.40
Ethoxylated anhydrosorbitol mono-oleate	7,625	6,173	2,554	.41
Ethoxylated anhydrosorbitol monopalmitate	...	362	167	.46
Ethoxylated anhydrosorbitol monostearate	4,437	3,821	1,645	.43
Ethoxylated anhydrosorbitol trioleate	774	...	...	...
Ethoxylated anhydrosorbitol tristearate	968	1,129	476	.42
All other	6,081	1,002	357	.36
Ethylene glycol esters	3,397	3,307	944	.29

See footnotes at end of table.

TABLE 1.--Surface-active agents: U.S. production and sales, 1969--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				
Glycerol esters, total	87,168	76,076	19,869	$0.26
Complex glycerol esters	3,738	3,114	1,316	.42
Glycerol esters of chemically defined acids, total	15,982	13,815	4,056	.29
Glycerol monolaurate	62	64	26	.41
Glycerol mono-oleate	4,099	2,993	1,041	.35
Glycerol monostearate	8,968	7,965	2,101	.26
All other	2,853	2,793	888	.32
Glycerol esters of mixed acids, total	67,448	59,147	14,497	.25
Glycerol monoester of hydrogenated cottonseed oil acids	4,779	...	...	...
Glycerol monoester of hydrogenated soybean oil acids	12,680	13,553	3,260	.24
All other	49,989	45,594	11,237	.25
Natural fats and oils, ethoxylated, total	6,064	4,460	1,287	.29
Castor oil, ethoxylated	4,763	3,732	1,052	.28
Lanolin, ethoxylated	807	289	74	.26
All other	494	439.	161	.37
Polyethylene glycol esters, total	25,450	19,576	6,832	.35
Polyethylene glycol esters of chemically defined acids, total	18,093	14,378	5,536	.39
Polyethylene glycol dilaurate	1,556	1,387	486	.35
Polyethylene glycol dioleate	2,655	914	333	.36
Polyethylene glycol monolaurate	2,770	2,477	893	.36
Polyethylene glycol mono-oleate	3,061	2,954	1,273	.43
Polyethylene glycol monostearate	6,143	5,086	1,934	.38
All other	1,908	1,560	617	.40
Polyethylene glycol esters of rosin and tall oil acids, total	6,355	4,447	1,008	.23
Polyethylene glycol monoester of tall oil acids	1,913	...	...	...
Polyethylene glycol sesquiester of tall oil acids	3,479	2,724	648	.24
All other	963	1,723	360	.21
Polyethylene glycol esters of other mixed acids, total	1,002	751	288	.38
Polyethylene glycol sesquiester of coconut oil acids	198	151	54	.36
All other	804	600	234	.39
Polyglycerol esters	553	592	295	.50
Propanediol esters, total	5,793	2,891	795	.27
1,2-Propanediol distearate	10	9	4	.44
1,2-Propanediol monostearate	1,497	1,404	503	.36
All other	4,286	1,478	288	.19
Other carboxylic acid esters[8]	8,715	6,808	2,522	.37
Ethers, total	705,953	483,445	73,708	.15
Benzenoid ethers, total	269,515	206,120	34,571	.17
Alkylphenol-formaldehyde condensates, alkoxylated	21,412	...	...	...
Dodecylphenol, ethoxylated	18,537	7,661	1,161	.15
Nonylphenol, ethoxylated	137,801	123,806	17,783	.14
All other	91,765	74,653	15,627	.21
Nonbenzenoid ethers, total	436,438	277,325	39,137	.14
Linear alcohols, alkoxylated, total	385,395	232,448	28,270	.12
Dodecyl alcohol, ethoxylated	...	1,881	922	.49
Hexadecyl alcohol, ethoxylated	1,155	703	429	.61
Mixed linear alcohols, ethoxylated	346,916	216,790	22,988	.11
9-Octadecenyl alcohol, ethoxylated	3,895	2,183	1,014	.46
All other	33,429	10,891	2,917	.27
Other ethers and thioethers, total	51,043	44,877	10,867	.24
Poly(ethylene and propylene) glycols	33,984	27,811	6,819	.25
Tridecyl alcohol, ethoxylated	6,547	5,816	1,335	.23
All other	10,512	11,250	2,713	.24
Other nonionic surface-active agents	1,871	1,177	1,101	.94

[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," as used in this report, describes any surface-active agents, except lignin derivatives, whose molecular structure includes 1 or more 6-membered carbocyclic or heterocyclic rings with conjugated double bonds (e.g., the benzene ring or the pyridine ring).
[5] Includes ligninsulfonates.
[6] Includes amine salts of fatty, rosin, and tall oil acids.
[7] Includes production of "all other" sulfated acids, amides, and esters and of "all other" sulfated alcohols; also includes sales of "all other" potassium and sodium salts of fatty, rosin, and tall oil acids.
[8] Includes ethoxylated sorbitol esters and miscellaneous esters.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

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

Chemical	Manufacturers' identification codes (according to list in table 3)
Amphoteric Surface-Active Agents	
Acyclic:	
Alkylbetaine	DUP.
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt.	DUP.
(Carboxymethyl)(coconut oil alkyl)dimethylammonium hydroxide, inner salt.	CUL.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, sodium salt.	JRG.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt.	UVC.
(Carboxymethyl)dodecyldimethylammonium hydroxide, inner salt.	TCC.
(1-Carboxyundecyl)trimethylammonium hydroxide, inner salt.	DUP.
N-(Coconut oil alkyl)-β-alanine, sodium salt	GNM.
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.
N-(2-Hydroxyethyl)-N-(2-stearamidoethyl)glycine, sodium salt.	GAF.
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	GNM.
All other	VAC, MYW.
Cyclic:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium chloride, disodium salt.	UVC.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt.	MIR, UVC.
1-[2-(2-Carboxyethoxy)ethyl]-1-(2-hydroxy-3-sulfopropyl)-2-(mixed alkyl)-2-imidazolinium hydroxide, disodium salt.	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 chloride, sodium salt.	PCS, UVC.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR, UVC.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR, PCS, UVC.
Heptadecylmethylbenzimidazolinesulfonic acid, sodium salt.	CIB.
3-[2-(2-Undecyl-2-imidazolin-1-yl)ethoxy]-propionic acid, sodium salt.	UVC.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	SEY.
Coconut oil acids, ethanolamine salt	SBP.
Oleic acid, n-butylamine salt	DYS.
Stearic acid, N,N,N',N'-tetrakis(2-hydroxyethyl)ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt	AML, GLY, HAL.
Tallow acids, ethanolamine salt	SBP.
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.
*N-Lauroylsarcosine, sodium salt	CP, GGY, HMP, ONX.
N-(Mixed alkylsulfonyl)glycine, sodium salt	GAF.
Mixed linear alcohols, ethoxylated and carboxyalkylated, sodium salt.	SEY.
N-Oleoylpolypeptide, sodium salt	LMI, MYW.
N-Oleoylsarcosine, sodium salt	GAF, GGY.
Phthalic acid, octadecyl ester, potassium salt	CIB.
Stearoyl-2-lactylic acid	GLY.
Stearoyl-2-lactylic acid, calcium salt	GLY.
Tridecyloxypoly(ethyleneoxy)acetic acid, sodium salt	UVC.
Unspecified sarcosine derivatives	HMP.
All other	MYW
*Potassium and sodium salts of fatty, rosin, and tall oil acids:	
*Castor oil acids, potassium and sodium salts:	
*Potassium salt	ARL, BAC, PEK, SEA.
*Sodium salt	BAC, HEW, MRV, SNW.
*Coconut oil acids, potassium and sodium salts:	
*Potassium salt	ACE, AES, DA, DSO, DYS, GAF, GRC, GRL, HEW, HNT, HRT, JRG, LUR, MCP, NMC, PCH, PEK, PG, SOP, SWT.
*Sodium salt	AGP, CON, CP, GRC, HEW, JRG, LEV, NMC, NPR, PG, PRX, SWT.
Coconut oil and tallow acids, sodium salt	BSW.
*Corn oil acids, potassium and sodium salts:	
Potassium salt	GRC, HNT.
Sodium salt	GRC, NMC.
Grease, sodium salt	NMC.
Lauric acid, potassium salt	DRW.
*Mixed vegetable fatty acids, potassium salt	AES, DYS, GRC, GRL, LUR, MCP, NMC, PCH, PEK, SWT.
Mixed vegetable fatty acids, sodium salt	SWT.
Myristic acid, potassium salt	AES.
*Oleic acid, potassium salt	AES, ARL, CCL, CHP, CIB, DA, DAN, DYS, GAF, GYR, HNT, QCP, S, SHP, SWT, USR, WBG.
*Oleic acid, sodium salt	BSW, DA, GYR, LEV, LUR, MRV, NMC, SEA, SWT, WBG, WTC.
Olive oil acids sodium salt	HEW, HNT, LUR.
Palm kernel oil acids, sodium salt	HEW, NMC.
Palm oil acids, sodium salt	HEW, LUR, PRX.
Peanut oil acids, potassium salt	KAL, SLC.
Peanut oil acids, sodium salt	NMC.
Rosin acids, potassium salt	ASY, USR, x.
Rosin acids, sodium salt	ASY, CRT, HRT, MRA, PLC, PRX, QCP, SLM, x.
Soybean oil acids, potassium salt	CON, HEW, PEK.
Soybean oil acids, sodium salt	HEW.
Stearic acid, potassium salt	GYR, HEW, WTC.
*Stearic acid, sodium salt	DA, GYR, HEW, LEV, MAL, SNW, WTC.
*Tall oil acids, potassium and sodium salts:	
*Potassium salt	ACE, AES, CON, DRW, DYS, GAF, GRC, HNT, NMC, PEK, PNX, QCP, SOP, VAL, x.
*Sodium salt	GRC, GYR, MRV, PRX, SNW, SOP, UNP, x.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	
Tallow acids, potassium salt	ASY. PG, SWT, USR.
*Tallow acids, sodium salt	AGP, ASY, BSW, CON, CP, DA, DYS, GRC, HEW, JRG, LEV, LUR, NMC, NPR, PG, PLC, PRX, QCP, SWT.
*Phosphoric and polyphosphoric acid esters (and salts thereof):	
*Alcohols and phenols, ethoxylated and phosphated:	
Butyl alcohol ethoxylated and phosphated	GAF.
p-tert-Butylphenol, ethoxylated and phosphated	RTF.
Dinonylphenol, ethoxylated and phosphated	GAF, TCH.
Dodecyl alcohol, ethoxylated and phosphated	GAF, WIC, WTC.
Dodecylphenol, ethoxylated and phosphated	GAF.
2-Ethylhexanol, ethoxylated and phosphated	WAY.
Iso-pentyl alcohol, ethoxylated and phosphated	GAF.
*Mixed linear alcohols, ethoxylated and phosphated	CHP, CRT, CST, GAF, SEY, TCH, TCI, WAY, WTC, WYN.
*Nonylphenol, ethoxylated and phosphated	DEX, GAF, HDG, NLC, RTF, SCP, TCC, TXT, VAC, WAY, WTC.
Nonylphenol, ethoxylated and phosphated, barium salt	TXN.
9-Octadecenyl alcohol, ethoxylated and phosphated	GAF.
9-Octadecenyl alcohol, ethoxylated and phosphated, ethanolamine salt.	GAF.
Octadecyl alcohol, ethoxylated and phosphated	GAF.
Octylphenol, ethoxylated and phosphated	RH.
Octylphenol, ethoxylated and phosphated, magnesium salt.	x.
Phenol, ethoxylated and phosphated	GAF, WTC.
Polyhydric alcohol, ethoxylated and phosphated	NLC.
Tridecyl alcohol, ethoxylated and phosphated	GAF, LUR, TCC, WAY, WTC.
All other	SOP, WTC.
*Alcohols, phosphated or polyphosphated:	
Decyl, dodecyl, and octyl phosphate, morpholine salt	DUP.
Decyl and octyl phosphate	TXN.
Decyl polyphosphate, sodium salt	WTC.
Decyl polyphosphate, triethanolamine salt	RCD.
2-Ethylhexyl phosphate	WAY.
*2-Ethylhexyl phosphate, sodium salt	SEY, TCI, UCC.
2-Ethylhexyl polyphosphate	SFA, TCC, TCI, UVC.
2-Ethylhexyl polyphosphate, sodium salt	SFA.
Hexyl polyphosphate, potassium salt	DEX.
Mixed alkyl phosphate	CST, DUP, SFA, TCC.
Mixed alkyl phosphate, diethanolamine salt	DUP.
9-Octadecenyl phosphate	DUP.
Octadecyl phosphate, triethanolamine salt	RCD.
*Octyl phosphates and polyphosphates:	
Octyl phosphate	TXT.
Octyl phosphate, alkylamine salt	DUP, TXT.
Octyl phosphate, potassium salt	DUP.
Octyl polyphosphate	DEX.
Octyl polyphosphate, potassium salt	x.
All other	NLC, SFA.
*Sulfonic acids (and salts thereof):	
*Alkylbenzenesulfonates:	
*Dodecylbenzenesulfonates:	
*Dodecylbenzenesulfonic acid	ACS, ARD, ATR, CO, CRT, CTL, EMK, HLI, LAK, LEV, PIL, PLX, PRX, RCD, RTF, STP, TCI, TDC, TEN, TXT.
Dodecylbenzenesulfonic acid, aluminum salt	KCH.
Dodecylbenzenesulfonic acid, ammonium salt	AKS, ARL, TXN.
Dodecylbenzenesulfonic acid, butylamine salt	SOP, WTC.
*Dodecylbenzenesulfonic acid, calcium salt	APD, NLC, RCD, RH, RTF, STP, WTC.
Dodecylbenzenesulfonic acid, diethanolamine salt	RTF, SOP, VAL, WTC.
Dodecylbenzenesulfonic acid, dimethylamine salt	PIL.
Dodecylbenzenesulfonic acid, ethylenediamine salt	APD.
*Dodecylbenzenesulfonic acid, isopropanolamine salt	CTL, RCD, x.
Dodecylbenzenesulfonic acid, isopropylamine salt	APD, CTL, RCD, RTF, SNW, STP.
Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt.	PCS, VAL.
*Dodecylbenzenesulfonic acid, potassium salt	RCD, SOP, VAL.
*Dodecylbenzenesulfonic acid, sodium salt	AAC, ACS, AKS, APX, ARD, ARL, ATR, BLA, CO, CP, CRT, CTL, DA, DEP, DSO, HLI, HRT, LEV, MON, PG, PIL, PLX, PRX, RCD, RTF, STP, TEN, UNP, VAC, WTC.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*Sulfonic acids (and salts thereof)--Continued	
*Alkylbenzenesulfonates--Continued	
*Dodecylbenzenesulfonates--Continued	
*Dodecylbenzenesulfonic acid, triethanolamine salt---	AAC, ACS, ARD, ARL, ATR, CTL, DSO, HLI, PEK, PIL, RCD, SOS, STP, TXN, VAC, WTC, x.
*Other alkylbenzenesulfonates:	
Decylbenzenesulfonic acid, sodium salt----------	MON.
Didodecylbenzenesulfonic acid----------	CO.
Pentadecylbenzenesulfonic acid, potassium salt------	STP.
Pentylbenzenesulfonic acid, sodium salt----------	MON.
Tridecylbenzenesulfonic acid----------	CO, PIL, RCD.
*Tridecylbenzenesulfonic acid, sodium salt----------	BLA, CO, CP, NPR, PG, PIL, RCD, TXT, WTC.
Tridecylbenzenesulfonic acid, triethanolamine salt--	CUL, PCS.
Undecylbenzenesulfonic acid----------	TXT.
Undecylbenzenesulfonic acid, ammonium salt----------	TXT.
Undecylbenzenesulfonic acid, sodium salt----------	TXT.
Undecylbenzenesulfonic acid, triethanolamine salt---	TXT.
All other----------	RTF, USR.
*Benzene-, cumene-, toluene-, and xylenesulfonates:	
Benzenesulfonic acid, sodium salt----------	NES.
*Cumenesulfonic acid, ammonium salt----------	NES, STP, WTC.
Toluenesulfonic acid----------	NES, RCD, WTC.
Toluenesulfonic acid, potassium salt----------	NES, RCD, STP, TXN.
Toluenesulfonic acid, sodium salt----------	CO, NES, STP, WTC.
Toluene and xylenesulfonic acid, sodium salt----------	CO.
Xylenesulfonic acid----------	HLI.
*Xylenesulfonic acid, ammonium salt----------	ATR, CO, HLI, NES, RCD, STP, TXN, WTC.
Xylenesulfonic acid, potassium salt----------	NES, STP.
*Xylenesulfonic acid, sodium salt----------	ATR, CO, HLI, JRG, NES, PIL, RCD, SDC, STP, TXN, WTC.
*Ligninsulfonates:	
Ligninsulfonic acid, aluminum salt----------	MAR.
Ligninsulfonic acid, ammonium salt----------	CPP, CRZ, WVA.
*Ligninsulfonic acid, calcium salt----------	CRZ, CWP, GLY, LKY, LPC, MAR, PSP.
*Ligninsulfonic acid, chromium salt----------	DCP, MAR, RAY.
Ligninsulfonic acid, iron salt----------	CRZ, WVA.
Ligninsulfonic acid, magnesium salt----------	LPC, WVA.
Ligninsulfonic acid, mixed salts----------	PSP, WVA.
*Ligninsulfonic acid, sodium salt----------	CRZ, MAR, PSP, RAY, WVA.
*Naphthalenesulfonates:	
*Butyl- and dibutylnaphthalenesulfonic acid and salt:	
Butylnaphthalenesulfonic acid, sodium salt----------	CLD, CMG, DA, PFZ.
Dibutylnaphthalenesulfonic acid----------	GAF, S.
Didodecylnaphthalenesulfonic acid, sodium salt--------	PFZ.
Diisopropylnaphthalenesulfonic acid----------	DUP.
Diisopropylnaphthalenesulfonic acid, sodium salt------	GAF, PFZ.
Dipentylnaphthalenesulfonic acid, (mixed alkyl)amine salt.	NLC.
Dipentylnaphthalenesulfonic acid, sodium salt---------	GGY.
Isopropylnaphthalenesulfonic acid----------	DUP, GRD, ONX.
Isopropylnaphthalenesulfonic acid, ammonium salt------	NLC.
Methylenebis(2-naphthalenesulfonic acid)----------	DUP.
Methylnaphthalenesulfonic acid, sodium salt----------	DA, UDI.
Methylnonylnaphthalenesulfonic acid, sodium salt------	UDI.
Tetrahydronaphthalenesulfonic acid----------	DUP.
*Sulfonic acids having amide linkages:	
*Sulfosuccinic acid derivatives:	
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt.	ACY, CTN, MOA.
N-(2-Hydroxyethyl)-N-(tallow alkyl)sulfosuccinamic acid, disodium salt.	SCP.
N-Octadecylsulfosuccinamic acid, disodium salt------	ACY, CTN.
Sulfosuccinic acid, alkanolamide half ester, sodium salt.	SCP.
Sulfosuccinic acid, alkanolamide half ester, triethanolamine salt.	SCP.
Sulfosuccinic acid, alkanolamide ester, sodium salt-	HDG.
Sulfosuccinic acid, 2-(coconut oil amido)ethyl ester, disodium salt.	LAK.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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 amide linkages--Continued	
*Taurine derivatives:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt	GAF, LIL, TNI.
N-Cyclohexyl-N-palmitoyltaurine, sodium salt	GAF.
*N-Methyl-N-oleoyltaurine, sodium salt	CRT, DA, DEP, DRW, GAF, HRT, MCP, MRA, SNW.
N-Methyl-N-palmitoyltaurine, sodium salt	GAF.
N-Methyl-N-(tall oil acyl)taurine, sodium salt	GAF, WTC.
N-Methyl-N-(tallow acyl)taurine, sodium salt	GAF.
All other	GAF.
*Sulfonic acids having ester or ether linkages:	
*Sulfosuccinic acid esters:	
*Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt.	GAF, MOA, PC.
*Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt.	ACY, AKS, CHP, CRT, CST, DA, DAN, EMK, GGY, HDG, HRT, ICI, MCP, MOA, SBC, TCI, UVC.
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.
Dodecyldiphenyloxidedisulfonic acid, disodium salt	DOW.
Dodecyl sulfoacetate	ACS.
Iso-octylphenol, ethoxylated and sulfonated, sodium salt.	CRT, RH.
2-Lauroyloxy-1-propanesulfonic acid	SDH.
Sulfopropane-1,2,3-tricarboxylic acid tris(2-ethylbutyl ester, sodium salt.	WTC.
All other	PG, WTC.
*All other sulfonic acids:	
Butylhydroxybiphenylsulfonic acid	RBC.
Mixed alkanesulfonic acid, sodium salt	DUP, VPC.
Mixed fish oils, sulfonated	SLM.
Mixed linear alpha olefins, sulfonated	CP.
Petroleumsulfonic acid, water soluble (acid layer), sodium salt.	WTC.
Sperm oil, sulfonated	SLM.
All other	STC.
*Sulfuric acid esters (and salts thereof):	
*Acids, amides, and esters, sulfated:	
*Coconut oil acids - ethanolamine condensate, sulfated, potassium salt.	DEX, EMK, ONX.
Glycerol monoester of coconut oil acids, sulfated, sodium salt.	AAC, CP.
9-Octadecenyl acetate, sulfated, sodium salt	DUP.
*Oleic acid esters, sulfated:	
2-Butoxyethyl oleate, sulfated, sodium salt	S.
*Butyl oleate, sulfated, sodium salt	AKS, EFH, ICI, MCP, ONX, PC.
Ethyl oleate, sulfated, sodium salt	GAF.
*Glycerol trioleate, sulfated, sodium salt	LEA, MRV, SCP.
*Isopropyl oleate, sulfated, sodium salt	CRT, DEX, HRT, ICI, LEA, LUR, SCP.
Methyl oleate, sulfated, sodium salt	DA, ICI.
Mixed esters of oleic acid, sulfated, sodium salt	EFH.
*Propyl oleate, sulfated, sodium salt	ACY, CHP, GAF, MCP, MRV, WTC.
*Oleic acid, sulfated, disodium salt	ACT, ACY, CRT, DA, DRW, EFH, GAF, ICI, LEA, MRV, SCO, TEN, WHW.
Oleostearin, sulfated, sodium salt	SEA.
Propyl ricinoleate, sulfated, disodium salt	AKS.
Ricinoleic acid, sulfated, disodium salt	DA.
*Tall oil, sulfated, sodium salt	ACY, APX, BAO, CHP, DA, HRT, ICI, KAL, MRV, RTF, SEA, WHI, WHW.
All other	EMR.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*Sulfuric acid esters (and salts thereof)--Continued	
*Alcohols, sulfated:	
*Coconut and sperm oil alkyl sulfate, sodium salt	DEP, DUP, PCS.
Decyl sulfate, sodium salt	CTL, DUP.
Decyl sulfate, triethanolamine salt	DUP.
3,9-Diethyl-6-tridecyl sulfate, sodium salt	UCC.
2-Ethylhexyl sulfate, sodium salt	AAC, PCS, SCP, UCC.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt	UCC.
*Dodecyl sulfate salts:	
2-Amino-2-methylpropanol salt	DUP.
*Ammonium salt	AAC, CTL, CUL, HLI, ONX, PCS, RCD, SCP, STP.
*Diethanolamine salt	AAP, CUL, DUP, HLI, JRG, ONX, SCP, STP.
N,N-Diethylcyclohexylamine salt	DUP.
Isopropanolamine salt	JRG, PCS.
*Magnesium salt	AAC, CUL, HLI, ONX, STP.
Potassium salt	HLI, PG, RCD.
*Sodium salt	AAC, CTL, CUL, DUP, HLI, JRG, ONX, PCS, PG, RCD, SCP, STP.
*Triethanolamine salt	AAC, CTL, CUL, DUP, HLI, ONX, PCS, PG, RCD, SCP, STP, TXT.
Hexadecyl and 9-octadecenyl sulfate, sodium salt	AAC, RCD.
*Hexadecyl sulfate, sodium salt	AAC, DUP, SCP.
Hexyl sulfate, potassium salt	DEX.
Hexyl sulfate, sodium salt	GAF.
*Mixed linear alcohol sulfate, ammonium salt	CP, LAK, S, SCP, TXT.
*Mixed linear alcohol sulfate, sodium salt	CO, CP, LAK, RTF, SCP, TXT.
Mixed linear alcohol sulfate, triethanolamine salt	LAK.
Nonyl sulfate, sodium salt	TEN.
*Octadecyl sulfate, sodium salt	DUP, EMK, ONX, PG.
Octadecyl sulfate, triethanolamine salt	DUP.
Octyl sulfate, sodium salt	AAC, DUP.
Tridecyl sulfate, sodium salt	AAC.
*Ethers, sulfated:	
*Alkylphenols, ethoxylated and sulfated:	
Dodecylphenol, ethoxylated and sulfated, ammonium salt.	GAF.
Iso-octylphenol, ethoxylated and sulfated, sodium salt.	RH.
(Mixed alkyl)phenol, ethoxylated and sulfated, ammonium salt.	GAF.
Nonylphenol, ethoxylated and sulfated, ammonium salt	CIB, GAF, PIL, STP, TXT, x.
Nonylphenol, ethoxylated and sulfated, sodium salt	CRT, GAF.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	ARL.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	AAC, CTL, HLI, ONX, TXT.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, CTL, CUL, DUP, GAF, ONX, PCS, RCD, SCP, STP.
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt.	LEV, TXN.
2-Hexyloxypropyl sulfate, sodium salt	S.
*Mixed linear alcohols, ethoxylated and sulfated, ammonium salt.	CO, LAK, NLC, PG, RCD, SCP, SHC, STP, TXT, UCC.
Mixed linear alcohols, ethoxylated and sulfated, potassium salt.	SHC, STP.
Mixed linear alcohols, ethoxylated and sulfated, sodium salt.	CO, CRT, DA, GAF, LAK, PIL, RCD, SCP, SHC, STP, TCI, TXT, UCC.
Sperm oil alcohol, ethoxylated and sulfated, sodium salt.	DUP.
Tridecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, ARL, RCD.
All other	APX, PG.
*Natural fats and oils, sulfated:	
*Castor oil, sulfated, sodium salt	ACT, ACY, AKS, AML, APX, BAO, BSW, CRT, DA, DEX, DRW, EFH, GAF, HRT, ICI, KAL, KNG, LEA, LUR, MCP, MRA, MRD, MRV, ONX, PC, S, SCO, SEA, SLC, SLM, SNW, WHI, WHW.
*Coconut oil, sulfated, sodium salt	ACY, BAO, DA, KNG, LUR, MRD, SEA, WHW.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Anionic Surface-Active Agents--Continued	
*Sulfuric acid esters (and salts thereof)--Continued	
*Natural fats and oils, sulfated--Continued	
*Cod oil, sulfated, sodium salt	ACT, BAO, CRT, DRW, HRT, MRD, S, SEA, WAW, WHI, WHW.
Grease, other than wool, sulfated, sodium salt	SEA, WHI.
Herring oil, sulfated, sodium salt	ACT, DA.
Lard, sulfated, sodium salt	SLM, WAW.
Mixed animal and vegetable oils, sulfated, sodium salt	SLM.
Mixed fish oils, sulfated, sodium salt	ACT, AML, BAO, SCO, SLM, WHI.
Mustard seed oil, sulfated, sodium salt	DA, LUR.
*Neat's-foot oil, sulfated, sodium salt	ACT, BAO, CRT, DA, KAL, LEA, LUR, MRD, PC, SEA, SLM, WHI, WHW.
*Peanut oil, sulfated, sodium salt	ACY, DA, ICI, LEA, LUR, SLC.
Ricebran oil, sulfated, sodium salt	EFH, LUR.
*Soybean oil, sulfated, sodium salt	CRT, DRW, HRT, KAL, LEA, MRD, ONX.
*Sperm oil, sulfated, sodium salt	ACT, BAO, CLD, CRT, DA, DRW, HRT, KAL, KNG, LEA, MRD, ONX, RTC, SEA, SLM, WHI, WHW.
*Tallow, sulfated, sodium salt	ACT, ACY, BAO, BSW, DA, ICI, KAL, LUR, MCP, MRA, MRD, ONX, PC, PCI, SCP, SEY, SID, SOS, WHI.
Whale oil, sulfated, sodium salt	KNG.
Other anionic surface-active agents:	
Lignin (non-sulfonated) and salts thereof	WVA.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt.	S.
Toluenesulfinic acid, triethanolamine salt	FIN.
Tridecyl alcohol, ethoxylated and carbonated, sodium salt	S.
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, FIN.
*N,N-Bis(2-hydroxyethyl)octadecylamine	ARC, FIN, TCH.
N,N-Bis(2-hydroxyethyl)octadecylamine oxide	ARC.
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, CUL, NLC, SDH, SWW, 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-Dimethylhexadecylamine oxide	ARC, ONX.
N,N-Dimethyl(hydrogenated tallow alkyl)amine oxide	ARC.
N,N-Dimethyloctadecylamine oxide	ARC.
(Hydrogenated tallow alkyl)amine, ethoxylated	CIB.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)ethylenediamine.	NLC.
(Mixed alkyl)amine, ethoxylated	APD, CIB, DA, GAF, RH.
(Mixed alkyl)poly(oxyethylene)amine	GAF.
Mixed substituted oximes	GNM.
(9-Octadecenyl)amine, ethoxylated	ARC, TCH.
Octadecylamine, ethoxylated	ARC, ICI.
Polyethylenepolyamine, alkoxylated	NLC.
(Soybean oil alkyl)amine, ethoxylated	AAC, ARC, VAC.
*(Tallow alkyl)amine, ethoxylated	AAC, ARC, CIB, DUP, TCH.
(Tallow alkyl)amine, ethoxylated, sulfate	DUP.
N-(Tallow alkyl)trimethylenediamine, ethoxylated	ARC.
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine	NLC.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated.	WYN.
All other	x.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	
*Cyclic (except imidazoline and oxazoline derivatives):	
N-Hexadecylmorpholine	APD.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine	APX.
Lignin amine	WVA.
Rosin amine, ethoxylated	HPC, NLC, PCS, RTF, WTC.
N-(soybean oil alkyl)morpholine	APD.
*Imidazoline and oxazoline derivatives:	
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline	COM, SWT, UVC.
2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline	ONX, UVC, VAC.
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline	COM, UVC.
2-(Heptadecyl-1-(2-hydroxyethyl)-2-imadazoline	GGY, MOA, UVC.
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline	UVC.
1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline.	GGY, MOA, UVC.
*1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline	CUL, HDG, MOA, NLC, UVC, x.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride.	UVC, WTC.
1-(2-Hydroxyethyl)-2-undecyl-2-imidazoline	PCS, UVC.
2-(11-Hydroxy-8-heptadecenyl)-2-imidazoline	UVC.
*Amines and amine oxides having amide linkages:	
*Carboxylic acid - diamine and polyamine condensates:	
Adipic and stearic acids - diethylenetriamine condensate.	RTF.
Coconut oil acids - diethylenetriamine condensate	APX, DA, TXT.
Caprylic acid - tetraethylenepentamine condensate	ICI.
Coconut oil acids - N,N-dimethyltrimethylenediamine condensate.	JRG, TXT.
Mixed dicarboxylic acids - polyalkylenepolyamine condensate.	TXT.
Mixed fatty acids - polyalkylenepolyamine condensate	GRD, NLC.
Oleic acid - 1-(2-aminoethyl)piperazine condensate	TXT.
Oleic acid - diethylenetriamine condensate	APD, TXT.
Oleic acid - N,N-dimethyltrimethylenediamine condensate.	CCW.
Pelargonic acid - tetraethylenepentamine condensate	ICI.
*Stearic acid - diethylenetriamine condensate	CST, HRT, ONX, S.
Stearic acid - N,N-diethylethylenediamine condensate	CBP.
Stearic acid - dipropylenetriamine condensate	JOR.
Stearic acid - tetraethylenepentamine condensate	DEX, ICI, ONX.
Tall oil acids - diethylenetriamine condensate	NCW, NLC.
Tall oil acids - polyalkylenepolyamine condensate	UVC.
All other	EFH, VND.
Carboxylic acid - diamine and polyamine condensates, alkoxylated:	
Coconut oil acids - diethylenetriamine condensate, polyethoxylated.	TCC.
Coconut oil acids - ethylenediamine condensate, monoethoxylated.	ARL.
*Oleic acid - ethylenediamine condensate, monoethyoxylated.	CLD, DEX, HAL, SOC, TNA.
Palmitic acid and stearic acids - ethylenediamine condensate, monoethoxylated	MCP.
Palm oil acids - ethylenediamine condensate, monoethoxylated.	APX.
*Stearic acid - ethylenediamine condensate, monoethoxylated.	AML, CLD, CMG, CST, DA, DEX, ICI, MRA, S, SNW.
Stearic acid - diethylenetriamine condensate, polyethoxylated.	TCC.
Stearic acid - ethylenediamine condensate, diethoxylated.	HAL.
Stearic acid - ethylenddiamine condensate, polyethoxylated.	APD.
3-Lauramido-N,N-dimethylpropylamine oxide	SNW
All other	MYW

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Amines, not containing oxygen (and salts thereof):	
*Amine salts:	
(Coconut oil alkyl)amine acetate	ARC, ASH, ENO.
Hexamethylenediamine-p-toluenesulfonate	x.
(Hydrogenated tallow alkyl)amine acetate	ARC, ASH.
(9-Octadecenyl)amine acetate	ARC, GNM.
N-(9-Octadecenyl)trimethylenediamine tallate	ARC.
Octadecylamine acetate	ACY, ARC.
Octylamine acetate	ARC.
(Soybean oil alkyl)amine acetate	ARC, ENO.
(Tallow alkyl)amine acetate	ARC.
N-(Tallow alkyl)trimethylenediamine acetate	ARC, ASH.
N-(Tallow alkyl)trimethylenediamine naphthenate	APD.
N-(Tallow alkyl)trimethylenediamine oleate	ARC.
N-(Tallow-alkyl)trimethylenediamine tallate	ARC.
All other	ASH.
*Diamines and polyamines:	
*N-(Coconut oil alkyl)trimethylenediamine	ARC, ENO, GNM.
N-(Docosyl- and eicosyl)trimethylenediamine	ENO.
N-Dodecyldiethylenetriamine	FIN.
*Imidazoline derivatives:	
1-(2-Aminoethyl)-2-heptadecyl-2-imidazoline	HDG, UVC.
1-(2-Aminoethyl)-2-(mixed alkyl)-2-imidazoline	UVC.
1-[3-(2-Aminoethyl)naphth-1-yl]-2-(8-heptadecenyl)-2-imidazoline.	NLC.
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline.	NLC, RTF, UVC.
2-(8-Heptadecenyl)-2-imidazoline	PCS.
2-Heptadecyl-2-imidazoline	SCO.
N-(Mixed alkyl)polyethylenepolyamine	CCW
N-(9-Octadecenyl)trimethylenediamine	ARC, GNM.
Polybutene amine	ORO.
N-(Soybean oil alkyl)trimethylenediamine	ARC, ENO.
N-(Tall oil alkyl)trimethylenediamine	ARC.
N-(Tallow alkyl)dipropylenetriamine	ARC, GNM.
*N-(Tallow alkyl)trimethylenediamine	ARC, ASH, ENO, GNM.
*Primary monoamines:	
(Coconut oil alkyl)amine	ARC, ENO, GNM.
(Cottonseed oil alkyl)amine	ASH.
Docosyl- and eicosylamine	ENO.
Dodecylamine	ARC, ASH, ENO, GNM.
Hexadecylamine	ARC, ASH, ENO.
*(Hydrogenated tallow alkyl)amine	ARC, ASH, ENO, GNM.
(Mixed alkyl)amine	ARC.
(Mixed tert-alkyl)amine	RH.
*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	ARC, ASH, GNM.
*(Tallow alkyl)amine	ARC, ASH, ENO, GNM, SNW.
*Secondary and tertiary monoamines:	
Bis(coconut oil alkyl)amine	ARC.
Bis(hydrogenated tallow alkyl)amine	ARC, ENO.
Bis(soybean oil alkyl)amine	ARC.
*N,N-Dimethyl(coconut oil alkyl)amine	ARC, BRD, ENO, PG.
N,N-Dimethyldodecylamine	ARC, BRD.
N,N-Dimethylhexadecylamine	ARC, BRD.
N,N-Dimethyl(hydrogenated tallow alkyl)amine	ARC, ENO.
*N,N-Dimethyl(mixed alkyl)amine	ARC, BRD, PG.
*N,N-Dimethyloctadecylamine	ARC, BRD, CUL, ENO, PG.
N,N-Dimethyl(soybean oil alkyl)amine	ARC, ENO.
N,N-Dimethyltetradecylamine	ARC, BRD.
N-Methylbis(coconut oil alkyl)amine	ARC, ENO, GNM.
*N-Methylbis(hydrogenated tallow alkyl)amine	ARC, ASH, ENO, GNM.
N-Methylbis(mixed alkyl)amine	PG.
N-Methyldioctadecylamine	ASH.
Trioctylamine	GNM.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Oxygen-containing quaternary ammonium salts:	
Quaternary ammonium salts having amide linkages:	
1-(2-Coconut oil acylamidoethyl)-1-methyl-2-nor(coconut oil alkyl)-2-imidazolinium methyl sulfate.	CUL.
2-Heptadecyl-1-methyl-1-(2-stearamidoethyl)-2-imidazolinium methyl sulfate.	CUL.
(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.
Stearic acid - diethanolamine condensate, methyl sulfate.	DUP.
Tall oil acid - polyalkylenepolyamine condensate, quaternary sulfate.	NLC.
Trimethyl(3-oleamidopropyl)ammonium methyl sulfate----	CIB.
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 .	CIB, NLC.
Benzyl(coconut oil alkyl, ethoxylated)dimethylammonium chloride.	GAF.
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium chloride.	UVC.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazolinium chloride.	NLC, UVC.
Bis(2-hydroxyethyl, ethoxylated)methyl(9-octadecenyl)-ammonium chloride.	ARC.
Bis(2-hydroxyethyl, ethoxylated)methyloctadecylammonium chloride.	ARC.
(Coconut oil alkyl)amine, ethoxylated and quaternarized.	ARC.
(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.	APD, MOA, UVC.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate----------	APD, BRD.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate.	APD.
2(8-Heptadecenyl)-1,1-bis(2-hydroxyethyl)-2-imidazolinium chloride.	GGY.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)ethylenediamine, distearate, methyl sulfate.	DUP.
2-Hydroxytrimethylenebis[(coconut oil alkyl)dimethylammonium chloride].	CIB.
Octadecylamine, propoxylated and quaternarized---------	TCC.
N-(Tallow alkyl)diamine, ethoxylated and quaternarized-	ARC.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, dioleate, methyl sulfate.	DUP.
(Tridecylbenzyl)diethyl(2-hydroxyethyl)ammonium chloride.	SNW.
All other----------	APD, VAC.
*Quaternary ammonium salts, not containing oxygen:	
*Acyclic:	
*Bis(coconut oil alkyl)dimethylammonium chloride------	ARC, 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)dimethyl(ammonium methyl sulfate.	ARC.
(Coconut oil alkyl)trimethylammonium chloride---------	ARC, GNM.
Didodecyldimethylammonium bromide----------	ONX.
Dimethylbis(mixed alkyl)- and trimethyl(mixed alkyl)-ammonium chloride.	GNM.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Cationic Surface-Active Agents--Continued	
*Quaternary ammonium salts, not containing oxygen--Con.	
*Acyclic--Continued	
Dimethylbis(9-octadecenyl)ammonium chloride	GNM.
Dimethylbis(soybean oil alkyl)ammonium chloride	ARC.
Dimethyldioctadecylammonium chloride	ASH, ONX, PG.
Dimethyldioctadecylammonium methyl sulfate	ONX.
Dodecyltrimethylammonium bromide	DUP.
Dodecyltrimethylammonium chloride	ARC, GNM.
Ethyldimethyl(mixed alkyl)ammonium ethyl sulfate	JOR, TCC.
Ethyldimethyl(9-octadecenyl)ammonium bromide	ONX.
Ethylhexadecyldimethylammonium bromide	FIN.
*Hexadecyltrimethylammonium salts:	
Hexadecyltrimethylammonium bromide	DUP, FIN, ICI.
Hexadecyltrimethylammonium chloride	ARC, BRD.
Hexadecyltrimethylammonium p-toluenesulfonate	FIN.
(Hydrogenated tallow alkyl)trimethylammonium chloride	ARC.
Methyltrioctylammonium chloride	GNM.
Methyltris(mixed alkyl)ammonium chloride	ASH.
N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)trimethylenebis[ammonium chloride].	ARC, GNM.
Triethyloctadecylammonium ethyl sulfate	AKS.
Trimethyl(mixed alkyl)ammonium chloride	NLC.
Trimethyloctadecylammonium chloride	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride	ARC, VAC.
Trimethyl(soybean oil alkyl)ammonium methyl sulfate	ARC.
Trimethyl(tallow alkyl)ammonium chloride	ARC, GNM.
Trimethyltetradecylammonium bromide	FIN.
All other	GNM, STC, VAC.
*Benzenoid:	
*Benzyl(coconut oil alkyl)dimethylammonium chloride	CRT, DEP, LUR, RTF, TXT.
*Benzyldimethyl(mixed alkyl)ammonium chloride	AAC, BRD, CUL, FIN, ONX, PG, RH, TXT, VAC.
*Benzyldimethyloctadecylammonium chloride	CUL, FIN, ONX, RH, TNI, WSN.
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.
Benzyl(mixed alkyl)pyridinium chloride	RTF.
1-Benzylpyridinium chloride	DEP.
*Benzyltrimethylammonium chloride	BRD, COM, CRT, CUL, TCC, VAC, WTC.
*(3,4-Dichlorobenzyl)dodecyldimethylammonium chloride	CUL, ONX, VAC.
(Dodecylbenzyl)dimethyloctadecylammonium chloride	ARC.
(Dodecylbenzyl)triethylammonium chloride	PC.
(Dodecylbenzyl)trimethylammonium chloride	CUL, VAC, WTC.
2-Dodecylisoquinolinium bromide	CUL, ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride	RH.
1-Dodecylpyridinium chloride	BRD, HD.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride	ONX.
Nonionic Surface-Active Agents	
*Carboxylic acid amides:	
*Carboxylic acid - alkanolamine condensates:	
*Diethanolamine condensates (amine/acid ratio = 2/1):	
*Capric acid	GGY, PCS, SCP, UVC.
Castor oil acids	BAC.
*Coconut oil acids	AKS, AML, ARD, BSW, CIB, CLI, CTL, DA, DEP, DSO, EFH, GAF, HLI, HRT, JOR, KNP, LUR, MCP, MOA, ONX, PC, PCS, PNX, RCD, RTF, SBC, SCP, SEY, SOP, SOS, STP, SWT, TXC, TXN, UNN, UVC, VAC, VND, WTC, x.
Coconut oil and tall oil acids	CSB.
*Coconut oil and tallow acids	CLI, CRT, GAF, MOA, PG, VAL, WTC.
*Lauric acid	CLI, DA, DRW, HLI, ONX, PCS, PG, RCD, WON, WTC, x.
Lauric and myristic acids	HLI, MOA.
Linoleic acid	VND.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid amides--Continued	
*Carboxylic acid - alkanolamine condensates--Continued	
*Diethanolamine condensates (amine/acid ratio = 2/1)--Continued	
Mixed vegetable oil acids	HLI.
*Oleic acid	CCW, CLI, EMR, MOA, STP, UVC, VAC.
Palmitic acid	CMG.
Pelargonic acid	EMR.
*Stearic acid	AML, CLI, DA, EMR, ONX, SCO, SOS, TXC, VAL.
Tallow acids	WTC.
*Tall oil acids	EFH, MCP, MOA, MRA, SOS.
All other	ROB.
*Diethanolamine condensates (other amine/acid ratios):	
*Coconut oil acids (amine/acid ratio=1/1)	APX, ARD, CCL, CLI, CTL, CUL, DA, EMK, GGY, HLI, MOA, MRV, ONX, PCS, PIL, QCP, RTF, SBC, SCO, SEY, STP, TCC, TXT, VAC, WTC.
Coconut oil acids (amine/acid ratio=1.4/1)	JRG.
Coconut oil acids (other ratios)	EMR.
Linoleic acid (amine/acid ratio=1/1)	MOA.
*Lauric acid (amine/acid ratio=1/1)	CTL, CUL, DRW, HLI, LEV, MOA, ONX, PCS, PG, RTF, SBC, TXN, VAC, WTC.
Lauric and myristic acids (amine/acid ratio=1/1)	CLI, TXT.
Myristic acid (amine/acid ratio=1/1)	HDG.
*Oleic acid (amine/acid ratio=1/1)	DA, GGY, SBC, SWT, TCC, TXT.
*Palmitic and stearic acids (amine/acid ratio=1/1)	GAF, MOA, MRA, PCS.
Palmitic and stearic acids (amine/acid ratio=1.3/1)	MCP.
*Stearic acid (amine/acid ratio=1/1)	EMR, GAF, GGY, GLY, JOR, MOA, RPC, SEY, UVC.
Stearic acid (amine/acid ratio-2.7/1)	EFH.
Tall oil acids (amine/acid ratio=1/1)	MRV.
Tall oil acids (amine/acid ratio=2.7/1)	EFH.
Tallow acids (amine/acid ratio=1/1)	RPC.
Unspecified mixed fatty acids (amine/acid ratio=1/1).	STP.
*Ethanolamine condensates:	
*Coconut oil acids (amine/acid ratio=2/1	AES, CTL, PEK, STP, VAC, VND, WTC.
Coconut oil acids (amine/acid ratio=1/1)	MOA, PCS, PG, STP, UVC.
Hydrogenated castor oil acids (amine/acid ratio=2/1).	BAC, GLY.
Hydrogenated tallow acids (amine/acid ratio=2/1)	GLY.
*Lauric acid (amine/acid ratio=2/1)	AES, ARC, CTL.
Lauric and myristic acids (amine/acid ratio=1/1)	MOA, TXT.
Oleic acid (amine/acid ratio=1/1)	VPC.
Stearic acid (amine/acid ratio=2/1)	ARC, CLI.
Stearic acid (amine/acid ratio=1/1)	MOA, VND.
Stearic acid (amine/acid ratio=1/2)	GLY.
All other	VAC.
*Isopropanolamine condensates:	
Coconut oil acids	STP.
*Lauric acid	ARD, CLI, MOA, PCS, WTC.
Lauric and myristic acids	LEV, MOA, TXT.
*Other carboxylic acid amides:	
Coconut oil acids - ethanolamine condensate, ethoxylated.	DA, STP.
Oleic acid - ethanolamine condensate, ethoxylated	GAF.
Stearic acid - N,N'-diethylethylenediamine condensate (amine/acid ratio=1/2)	SNW.
Tallow acids - propanolamine condensate, ethoxylated	NLC.
All other	EMR.
*Carboxylic acid esters:	
*Anhydrosorbitol esters:	
Anhydrosorbital ester of mixed fatty acids	GLY.
Anhydrosorbitol dioleate	APD.
Anhydrosorbitol monoester of tall oil acids	APC, GLY, HDG, RTF, TCH.
Anhydrosorbitol monolaurate	APD, ARC, GLY, PCS, TCH.
*Anhydrosorbitol mono-oleate	AAC, APD, ARC, DRW, EMR, GLY, HDG, PCS, SEY, TCH.
Anhydrosorbitol monopalmitate	APD, GLY, HDG, PCS, TCH.
*Anhydrosorbitol monostearate	APD, DRW, GLD, GLY, HDG, PCS.
Anhydrosorbitol sesquioleate	AAC, GLY, HDG.
Anhydrosorbitol tetrastearate	APD.
Anhydrosorbitol triester of tall oil acids	GLY, TCH.
*Anhydrosorbitol trioleate	AAC, APD, GLY, PCS, TCH.
*Anhydrosorbitol tristearate	APD, GLY, HDG.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemicals	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Diethylene glycol esters:	
Diethylene glycol dioleate	GLY.
Diethylene glycol distearate	ARC, GLY.
*Diethylene glycol monolaurate	CCW, EMR, GLY, HAL, HDG.
Diethylene glycol mono-oleate	ARC, HAL.
Diethylene glycol monoricinoleate	GLY.
*Diethylene glycol monostearate	ARC, CLI, DA, HAL, HDG, MCP, PCS, QCP, UVC, VND, WTC.
Diethylene glycol sesquiester of tall oil acids	QCP, WTC.
Diethylene glycol sesqui-isostearate	SEY.
Diethylene glycol sesquilaurate	ARC, GLY.
Diethylene glycol sesquistearate	WM.
*Ethoxylated anhydrosorbitol esters:	
Ethoxylated anhydrosorbitol monoester of tall oil acids.	RTF, TCH.
*Ethoxylated anhydrosorbitol monolaurate	AAC, APD, ARC, DRW, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol mono-oleate	AAC, APD, ARC, DRW, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol monopalmitate	AAC, APD, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol monostearate	AAC, APD, ARC, DRW, GLY, HDG, PCS, TCH.
Ethoxylated anhydrosorbitol triester of castor oil acids.	APD.
Ethoxylated anhydrosorbitol triester of tall oil acids.	APD.
*Ethoxylated anhydrosorbitol trioleate	AAC, APD, GLY, PCS, TCH.
*Ethoxylated anhydrosorbitol tristearate	AAC, APD, DRW, GLY, HDG, PCS, TCH.
Ethoxylated sorbitol esters:	
Ethoxylated sorbitol beeswax ester	APD.
Ethoxylated sorbitol distearate	APD.
Ethoxylated sorbitol heptaoleate	APD.
Ethoxylated sorbitol hexaester of tall oil acids	APD, TCH.
Ethoxylated sorbitol hexaoleate	APD.
Ethoxylated sorbitol lanolin ester	APD.
Ethoxylated sorbitol mono-oleate	APD.
Ethoxylated sorbitol monostearate	SNW.
Ethoxylated sorbitol oleate, acetylated	APD.
Ethoxylated sorbitol pentaester of tall oil acids	APD, RTF.
Ethoxylated sorbitol pentalaurate	APD.
Ethoxylated sorbitol pentaoleate	APD.
Ethoxylated sorbitol tetraester of lauric and oleic acids.	APD.
Ethoxylated sorbitol tetraester of tall oil acids	APD.
*Ethylene glycol esters:	
Ethylene glycol distearate	ARC, CCA, EMR, HDG, HUM.
Ethylene glycol ester of dimer acid	EMR.
Ethylene glycol mono-oleate	EFH, HAL.
Ethylene glycol monostearate	ARC, CCW, CLI, GLY, HAL, HDG, KNP, PCS, VND, WM.
Ethylene glycol sesquistearate	WM.
*Glycerol esters:	
*Complex glycerol esters:	
Anhydrosorbitol glycerol monolaurate	APD.
Ethoxylated glycerol sesquiester of mixed fatty acids.	APD.
Glycerol diacetyltartrate monostearate	DRW, PCS.
Glycerol ester ethoxylated	GLY.
Glycerol lactate ester of hydrogenated palm oil acids.	GLD.
Glycerol lactate ester of hydrogenated tallow acids	GLD.
Glycerol lactate palmitate	ARC, DRW.
Glycerol lactate stearate	APD, PCS.
Glycerol maleate mono-oleate	DA.
Glycerol mannitan laurate	GLY.
Glycerol monoester of mixed fatty acids, acetylated	EKT, WTC.
Glycerol mono-oleate, acetylated	x.
Glycerol monostearate, succinylated	EKT.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemicals	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Glycerol esters--Continued	
*Glycerol esters of chemically defined acids:	
Glycerol dioleate	ARC, HAL, WTC.
Glycerol distearate	APD, APX, ARC, WTC.
Glycerol monocaprylate	ARC, DRW.
*Glycerol monolaurate	ARC, GLY, HAL.
*Glycerol mono-oleate	AAE, APD, ARC, CCW, DRW, EFH, EKT, EMR, GLY, HAL, HDG, PCS, SWT, WM, WTC.
Glycerol monoricinoleate	CCW, DA, GLY, HDG.
*Glycerol monostearate	ARC, CCW, CHL, CHP, CRT, DRW, EFH, EMR, GLY, GRO, HAL, HRT, ICI, LUR, MRA, NW, PCS, PG, SOS, SWT, TCC, VND, WM. x.
*Glycerol esters of mixed acids:	
Glycerol monoester of coconut oil acids	DRW, GLY, SWT, WM.
Glycerol monoester of corn oil acids	GLD.
Glycerol monoester of cottonseed oil acids	EKT.
*Glycerol monoester of hydrogenated cottonseed oil acids.	GLD, LEV, WM.
*Glycerol monoester of hydrogenated soybean oil acids.	DRW, EKT, GLD, PCS.
Glycerol monoester of hydrogenated tallow acids	GLD, PCS.
Glycerol monoester of lard acids	ARC, EKT, GLD, GLY.
Glycerol monoester of peanut oil acids	DRW.
Glycerol monoester of tall oil acids	ARC, EFH, SLM.
All other	APD, EKT, LEV.
*Natural fats and oils, ethoxylated:	
*Castor oil, ethoxylated	AAC, APD, BAC, DA, DRW, GAF, GLY, ICI, NLC, PCS, RTF, TCH, TMH, WYN.
Hydrogenated castor oil, ethoxylated	APD, DA, GAF, TCH.
*Lanolin, ethoxylated	AAC, APD, CRD, PCS.
Tallow, ethoxylated	DRW.
*Polyethylene glycol esters:	
*Polyethylene glycol esters of chemically defined acids:	
Polyethylene glycol dibenzoate	TCC.
*Polyethylene glycol dilaurate	ARC, DA, DEX, EFH, GLY, HAL, HDG, JOR, PCS, WM.
*Polyethylene glycol dioleate	ARC, CLD, DA, EFH, GGY, GLY, HAL, HDG, NLC, PCS, UVC, VND, WM.
Polyethylene glycol distearate	ARC, EFH, GLY, HAL, HDG, PCS, QCP.
Polyethylene glycol methylcarbitol maleate	CCA.
*Polyethylene glycol monolaurate	AAC, ARC, CCA, DA, DEX, GAF, GGY, GLY, HAL, HDG, ICI, JOR, KNP, MCP, MRT, PCS, TCH, UVC.
*Polyethylene glycol mono-oleate	APD, ARC, CCA, CLD, CRT, DA, DEX, DRW, EFH, GAF, GGY, GLY, HAL, HDG, HRT, ICI, ONX, PCS, SWT, TCH, UVC, VAC, WTC.
Polyethylene glycol mono-oleate, ethoxylated	APD.
Polyethylene glycol monopalmitate	APD.
Polyethylene glycol monopelargonate	EMR, PCS.
Polyethylene glycol monoricinoleate	HAL.
*Polyethylene glycol monostearate	AAC, AKS, AML, APD, ARC, CHP, CRT, DA, DEP, DEX, DRW, EFH, EMR, GAF, GGY, GLY, HAL, HDG, HRT, ICI, KNP, ONX, PC, PCS, RH, SEY, TCC, TCH, UVC, VND, WM, WTC.
Polyethylene glycol sesquioleate	EMR, PCS.
All other	SEY.
*Polyethylene glycol esters of rosin and tall oil acids:	
Polyethylene glycol diester of tall oil acids	EFH, GLY.
*Polyethylene glycol monoester of tall oil acids	EFH, GLY, NLC, RTF, SOS, TCH.
Polyethylene glycol sesquiester of rosin acids	HPC, QCP.
*Polyethylene glycol sesquiester of tall oil acids	AML, APD, APX, ARC, DA, DRW, MON, SLM, UVC, WTC.
*Polyethylene glycol esters of other mixed acids:	
Polyethylene glycol diester of trimerized castor oil acids.	GLY.
Polyethylene glycol ester of palmitic and stearic acids.	MCP.
Polyethylene glycol monoester of coconut oil acids	APD, EMR, GLY.
Polyethylene glycol sesquiester of castor oil acids	ARC, UVC.
*Polyethylene glycol sesquiester of coconut oil acids.	ARL, DA, DRW, PG, SCP, UVC, VND.
Polyethylene glycol sesquiester of tallow acids	SOS.
All other	VAC.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Carboxylic acid esters--Continued	
*Polyglycerol esters:	
Polyglycerol lactate oleate	DRW.
Polyglycerol mono-oleate	HDG, PCS, VND.
Polyglycerol monostearate	PCS.
*Propanediol esters:	
1,2-Propanediol dioleate	x.
*1,2-Propanediol distearate	ARC, HAL, PCS.
1,3-Propanediol monoester of coconut oil acids	WM.
1,2-Propanediol monoester of hydrogenated cottonseed oil acids.	GLD.
1,2-Propanediol monoester of soybean oil acids	GLD.
1,2-Propanediol monoester of tallow acids	GLD.
1,2-Propanediol monolaurate	ARC, DRW, HAL, SBC.
1,2-Propanediol mono-oleate	EFH, HAL.
*1,2-Propanediol monostearate	APD, ARC, CCW, DRW, EKT, EMR, GLY, HAL, PCS.
Miscellaneous carboxylic acid esters:	
Ethoxylated 1,2-propanediol monostearate	APD.
Lauric acid esters of glycerol and ethoxylated nonylphenol.	TCC.
Methylglucoside laurate	HDG.
Methylglucoside oleate	HDG.
Miscellaneous esters of stearic acid	EMR.
Oleic acid esters of ethoxylated nonylphenol	EFH.
Pentaerythritol distearate	GLY, VAL.
Polyalkylene glycol diglycolate	NLC.
Polypropylene glycol mono-oleate, propoxylated	HDG.
Polypropylene glycol monostearate	HDG.
Polypropylene glycol oleate	HAL.
Sucrose esters of fatty acids	SUG.
All other	CCW, STC, WM.
*Ethers:	
*Benzenoid ethers:	
*Alkylphenol - formaldehyde condensates, alkoxylated:	
p-tert-Butylphenol - formaldehyde condensate, alkoxylated.	RTF.
(Mixed alkyl)phenol - formaldehyde, alkoxylated	NLC, RTF.
Nonylphenol - formaldehyde, alkoxylated	NLC, RTF.
tert-Octylphenol - formaldehyde condensate, ethoxylated	SDW.
p-tert-Butylphenol, ethoxylated	RTF.
Diisobutylphenol, ethoxylated	GAF.
Dinonylphenol, ethoxylated	GAF, HDG, PCS, STP, TMH.
*Dodecylphenol, ethoxylated	GAF, MON, PCS, TMH, UCC.
Iso-octylphenol, ethoxylated	APX, DA, OMC, RH.
(Mixed alkyl)phenol, ethoxylated	GAF.
(Mixed alkyl)phenoxypoly(ethyleneoxy)ethyl chloride	GAF.
*Nonylphenol, ethoxylated	APD, CIB, CLY, DA, GAF, HDG, ICI, JCC, MON, NLC, OMC, PCS, RH, RTF, STP, TCH, TMH, UCC.
Nonylphenol, ethoxylated and propoxylated	RTF.
Nonylphenoxypoly(ethyleneoxy)ethyl iodide	GAF.
Phenol, ethoxylated	APD, DA, GAF, JCC, TCH, UCC.
Tetradecylphenol, ethoxylated	ORO.
Tridecylphenol, ethoxylated	PCS.
Xylenol, ethoxylated	NLC.
All other	RH, VPC.
*Nonbenzenoid ethers:	
*Linear alcohols, alkoxylated:	
Decyl alcohol, ethoxylated	GAF, ICI, TCH.
Decyl and octyl alcohols, ethoxylated	GAF.
Decyl and octyl alcohols, ethoxylated and propoxylated.	GAF.
Decyloxypoly(ethyleneoxy)ethyl chloride	GAF.
*Dodecyl alcohol, ethoxylated	AAC, APD, DRW, GAF, HDG, OMC, UCC.
Dodecyl alcohol, ethoxylated and propoxylated	DUP.
*Hexadecyl alcohol, ethoxylated	AAC, ACS, APD, ASH, CIB, GLY, ICI.
*Mixed linear alcohols, ethoxylated	AAC, CO, GAF, HDG, JCC, MON, NLC, RH, RTF, SHC, STP, TCH, UCC, WTC.
Mixed linear alcohols, ethoxylated and propoxylated	GAF, JCC, STP, WYN.
*9-Octadecenyl alcohol, ethoxylated	AAC, APD, ASH, CIB, CRD, DA, DUP, GAF, GLY, TCH, VPC.

TABLE 2.--Surface-active agents: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemicals	Manufacturers' identification codes (according to list in table 3)
Nonionic Surface-Active Agents--Continued	
*Ethers--Continued	
*Nonbenzenoid ethers--Continued	
*Linear alcohols, alkoxylated--Continued	
Octadecyl alcohol, ethoxylated	APD, CIB, DUP, GAF.
Sperm oil alcohol, ethoxylated	DUP.
Tallow alcohol, ethoxylated	AAC.
Tetradecyl alcohol, ethoxylated	AAC
Tridecyl alcohol, ethoxylated	DUP.
All other	RH.
*Other ethers and thioethers:	
*Poly(ethylene and propylene)glycols:	
Poly(mixed ethylene, propylene)glycol	NLC, UCC, VAC.
Polypropylene glycol, ethoxylated	NLC, RTF, WYN.
tert-Dodecyl mercaptan, ethoxylated	AAC, UCC.
2-Ethylhexanol, ethoxylated	TCH.
Glucose, ethoxylated	RH.
Glycerol, alkoxylated	NLC.
Mixed alcohols, ethoxylated	DRW, UCC, VAC.
Rosin alcohol, ethoxylated	CIB.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated	CUC.
*Tridecyl alcohol, ethoxylated	AAC, APD, DRW, GAF, ICI, JCC, MON, NLC, OMC, PCS, RTF, TCH, UCC.
Tridecyl alcohol, propoxylated and ethoxylated	JCC.
Trimethylheptanol, ethoxylated	PCS.
Trimethylnonyl alcohol, ethoxylated	UCC.
Trimethylolpropane, alkoxylated	JCC, RTF, WYN.
All other	AAC, NLC, SNW.
*Other nonionic surface-active agents:	
3,5-Dimethyl-1-hexyn-3-ol	CUC.
3,6-Dimethyl-4-octyne-4,7-diol	CUC.
Dodecylbenzenesulfonic acid - diethanolamine condensate, fatty acid monoester.	ACT.
Glycerol sesquiester of hydrogenated castor oil acids, borated and ethoxylated.	GLY.
Octyl phosphate, ethoxylated	DUP.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol	CUC.
Tri(castor oil alkyl) phosphate	GLY.
Tris(nonylphenyl)phosphite	GAF.
All other	CMG, GAF, NLC, WTC.

TABLE 3.--Surface-active agents: Directory of Manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company
AAC	Alcolac Chemical Corp.
AAE	American Aniline & Extract Co., Inc.
ACE	Acme Chemical Co.
ACS	Allied Chemical Corp., Specialty Chemicals Div.
ACT	Arthur C. Trask Co.
ACY	American Cyanamid Co.
AES	Amerace-Esna Corp., Chemical Specialties Div.
AGP	Armour-Dial, Inc.
AKS	Arkansas Co., Inc.
AML	Amalgamated Chemical Corp.
APD	Atlas Chemical Industries, Inc.
APX	Apex Chemical Co., Inc.
ARC	Armour & Co., Armour Industrial Chemical 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. Div.
BAC	Baker Castor Oil Co.
BAO	Bayoil Co., Inc.
BLA	Astor Products, Inc., Sub. of Winn-Dixie Stores, Inc.
BLS	Beech-Nut, Inc.
BRD	Baird Chemical Industries, Inc.
BSW	Original Bradford Soap Works, Inc.
CBP	Ciba Pharmaceutical Co.
CCA	Carlisle Chemical Works, Inc., Advance Div.
CCL	Charlotte Chemical Laboratories, Inc.
CCW	Carlisle Chemical Works, Inc.
CHL	Chemol, Inc.
CHP	C. H. Patrick & Co., Inc.
CIB	Ciba Chemical & Dye Co.
CLD	Colloids, Inc.
CLI	Clintwood Chemical Co.
CLY	W. A. Cleary Corp.
CMG	Nyanza, Inc.
CO	Continental Oil Co.
COM	Commerical Solvents Corp.
CON	Concord Chemical Co., Inc.
CP	Colgate-Palmolive Co.
CPP	Charmin Paper Products Co.
CRD	Croda, Inc.
CRT	Crest Chemical Corp.
CRZ	Crown Zellerbach Corp., Chemical Products Div.
CSB	Imoco-Gateway Corp., Chemical Service Div.
CST	Charles S. Tanner Co.
CTL	Continental Chemical Co.
CTN	Chemetron Corp., Organic Chemical Div.
CUC	Air Reduction Co., Inc., Airco Chemical & Plastics
CUL	Culver Chemical Co.
CWP	Consolidated Papers, Inc.
DA	Diamond Shamrock Corp.
DAN	Dan River Mills, Inc.
DCP	Dixie Chemical Products, Inc.
DEP	DePaul Chemical Co., Inc.
DEX	Dexter Chemical Corp.
DOW	Dow Chemical Co.
DRW	Drew Chemical Corp.
DSO	DeSoto, Inc.
DUP	E. I. duPont de Nemours & Co., Inc.
DYS	Davies-Young 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.
FIN	Fine Organics, Inc.
GAF	GAF Corp.: Dyestuff & Chemical Div. Textile Chemical Div.
GGY	Geigy Chemical Corp.
GLD	SCM Corp., Glidden-Durkee Div.
GLY	Glyco Chemicals, Inc.
GNM	General Mills, Inc., Chemical Div.
GRC	W. R. Grace & Co.: Dubois Chemicals Div.
GRD	Polymer & Chemicals Div.
GRL	Vestal Laboratories Div.
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.
HK	Hooker Chemical Corp.
HLI	Haag Laboratories, Inc.
HMP	W. R. Grace & Co., Hampshire Chemical Div.
HNT	Huntington Laboratories, Inc.
HPC	Hercules, Inc.
HRT	Hart Products Corp.
HUM	Krafto Corp., Humko Products Div.
ICI	ICI America, Inc.
JCC	Jefferson Chemical Co., Inc.
JOR	Jordan Chemical Co.
JRG	Andrew Jergens Co.
KAL	Kali Manufacturing Co.
KCH	Keystone Chemurgic Corp.
KNG	Far-Best Corp., O. L. King Div.
KNP	Knapp Products, Inc.
LAK	Lakeway Chemical Co.
LEA	Leatex Chemical Co.
LEV	Lever Brothers Co.
LIL	Eli Lilly & Co.
LKY	Lake State Div. of St. Regis Paper Co.
LMI	North American Chemical Co.
LPC	Lignin Products Co., Inc.
LUR	Laurel Products Corp.
MAL	Mallinckrodt Chemical Works
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.
MRV	Marlowe-Van Loan Corp.
MYW	Stepan Chemical Co., Maywood Div.

TABLE 3.--Surface-active agents: Directory of Manufacturers, 1969--Continued

Code	Name of company
NCW	Nostrip Chemical Works, Inc.
NES	Nease Chemical Co., Inc.
NLC	Nalco Chemical Co.
NMC	National Milling & Chemical Co., Inc.
NPR	Safeway Stores, Inc., Brookside Div.
NW	Northwestern Chemical Co.
OMC	Olin Corp.
ONX	Millmaster Onyx Corp., Onyx Chemical Co.
ORO	Chevron Chemical Co.
PC	Proctor Chemical Co., Inc.
PCH	Peerless Chemical Co.
PCI	Pioneer Chemical Works, Inc.
PCS	Emery Industries, Inc.
PEK	Peck's Products Co.
PFZ	Pfizer, Inc.
PG	Procter & Gamble Co.
PIL	Pilot Chemical Co.
PLC	Phillips Petroleum Co.
PLX	Plex Chemical Corp.
PNX	Murphy-Phoenix Co.
PRX	Purex Corp., Ltd.
PSP	Georgia-Pacific Corp., Bellingham Div.
PUR	Puritan Chemical Co.
QCP	Quaker Chemical Corp.
RAY	ITT Rayonier, Inc.
RBC	Roberts Chemicals Div. of Security Chemicals, Inc.
RCD	Richardson Co.
RH	Rohm & Haas Co.
ROB	Robeco Chemicals, Inc.
RPC	Millmaster Onyx Corp., Refined-Onyx Div.
RTC	Ritter Chemical Co., Inc.
RTF	Retzloff Chemical Co.
S	Sandoz-Wander, Inc.
SBC	Scher Bros., Inc.
SBP	Sugar Beet Products Co.
SCO	Scholler Bros., Inc.
SCP	Standard Chemical Products, Inc.
SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
	Sterling Drug, Inc.:
SDH	Hilton-Davis Chemical Co. Div.
SDW	Winthrop Laboratories Div.
SEA	Seaboard Chemicals, Inc.
SEY	Seydel-Woolley & Co.
SFA	Stauffer Chemical Co., Specialty Chemical Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHP	Shepherd Chemical Co.
SID	George F. Siddall Co., Inc.
SLC	Soluol Chemical Co., Inc.
SLM	Salem Oil & Grease Co.
SMC	Stamford Chemical Industries, Inc.
SNW	Sun Chemical Corp., Chemicals Div.
SOC	Standard Oil Co. of California, Chevron Chemical Co.
SOP	Southern Chemical Products Co.
SOS	Southern Sizing Co.
STC	Sou-Tex Chemical Co., Inc.
STP	Stepan Chemical Co.
SUG	Colonial Sugar Co., Sucro Chemical Div.
SWT	Swift & Co., Swift Chemical Co. Div.
TCC	Tanatex Chemical Corp.
TCH	Trylon Chemical Corp.
TCI	Texize Chemicals, Inc.
TDC	Diversey Corp., Diversey Chemical Co. Div.
TEN	Tennessee Copper Co. Div. of Tennessee Corp.
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., Varney Div.
VAL	Valchem
VND	Van Dyk & Co., Inc.
VPC	Verona Corp.
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.
WSN	Mallinckrodt Chemical Works, Washine Div.
WTC	Witco Chemical Co., Inc.
WVA	Westvaco Corp., Polychemicals Dept.
WYN	Wyandotte Chemicals Corp.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix

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. Statistics on production and sales of pesticides and related products in 1969 are given in table 1.[1]

U.S. production of pesticides and related products in 1969 amounted to 1,104 million pounds--about 7.4 percent less than the 1,192 million pounds reported for 1968. Sales in 1969 were 929 million pounds, valued at $851 million, compared with 960 million pounds, valued at $849 million, in 1968.

The output of cyclic pesticides and related products amounted to 819 million pounds in 1969--about 12 percent less than the 930 million pounds produced in 1968. Sales in 1969 were 666 million pounds, valued at $697 million, compared with 723 million pounds, valued at $697 million in 1968. The output of DDT amounted to 123 million pounds in 1969--about 11.5 percent less than in 1968. The output of the butyl ester of the herbicide, 2,4-D, amounted to 3 million pounds in 1969--about 90 percent less than in 1968, while the output of the butyl ester of the herbicide, 2,4,5-T, amounted to 258,000 pounds in 1969--more than 99 percent less than in 1968.

Production of acyclic pesticides and related products increased in 1969, amounting to 285 million pounds, compared with the 263 million pounds reported for 1968. Sales in 1969 were 263 million pounds, an increase of about 11 percent as compared with 237 million pounds in 1968; the value of sales increased to $154 million in 1969, compared with $152 million in 1968--a gain of only 1 percent.

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[1] See also table 2 of this section which lists these products and identifies the manufacturers of each from the list in table 3.

TABLE 1.--Pesticides and related products: U.S. production and sales, 1969

[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 manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	1,104,381	928,663	851,166	$0.92
Benzenoid	682,094	506,767	451,243	.89
Nonbenzenoid	422,287	421,896	399,923	.95
PESTICIDES AND RELATED PRODUCTS, CYCLIC				
Total	819,436	666,038	697,167	1.05
Fungicides, total	100,748	84,384	34,557	.41
3,5-Dimethyl-1,3,5-2H-tetrahydrothiadiazine-2-thione (DMTT)	1,074	1,102	517	.47
Mercury fungicides, total	1,475	1,298	6,792	5.23
Phenylmercuric acetate (PMA)	534	351	2,467	7.03
Phenylmercuric oleate	407	381	1,126	2.96
Other mercury fungicides	534	566	3,199	5.65
Naphthenic acid, copper salt	1,545	1,529	438	.29
Pentachlorophenol (PCP)	45,988	40,566	5,946	.15
8-Quinolinol (8-Hydroxyquinoline), copper salt	88	205	285	1.39
All other cyclic fungicides[2]	50,578	39,684	20,579	.52
Herbicides and plant hormones, total	324,221	250,069	445,275	1.78
1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)	2,771	...	...	...
Phenoxyacetic acid derivatives:				
2,4-Dichlorophenoxyacetic acid (2,4-D)	47,077	18,786	5,224	.28
2,4-Dichlorophenoxyacetic acid esters and salts, total	56,998	46,057	14,627	.32
2,4-Dichlorophenoxyacetic acid, n-butyl ester	3,403	2,675	1,200	.45
2,4-Dichlorophenoxyacetic acid, sec-butyl ester	4,992	...	...	...
2,4-Dichlorophenoxyacetic acid, dimethylamine salt	22,403	20,270	6,347	.31
2,4-Dichlorophenoxyacetic acid, iso-octyl ester	11,093	8,384	2,449	.29
All other (2,4-D) esters and salts	15,107	14,728	4,631	.31
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	4,999	...	...	...
2,4,5-Trichlorophenoxyacetic acid esters and salts, total	11,626	5,679	5,963	1.05
2,4,5-Trichlorophenoxyacetic acid, n-butyl ester	258	524	452	.86
2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester	4,187	2,974	3,393	1.14
All other (2,4,5-T) esters and salts	7,181	2,181	2,118	.97
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)	1,597	...	...	...
All other cyclic herbicides and plant hormones[3]	199,153	179,547	419,461	2.34
Insecticides and rodenticides, total	394,467	331,585	217,335	.66
Aldrin-toxaphene group[4]	...	110,366	50,228	.46
α-Bis(p-chlorophenyl)-β,β,β-trichloroethane (DDT)	123,103	80,305	11,032	.14
Organophosphorus insecticides, total	92,458	70,361	73,190	1.04
O,O-Dimethyl O-p-nitrophenyl phosphorothioate (Methyl parathion)	50,572	32,818	15,794	.48
All other organophosphorus insecticides[5]	41,886	37,543	57,396	1.53
All other insecticides and rodenticides[6]	178,906	70,553	82,885	1.17
PESTICIDES AND RELATED PRODUCTS, ACYCLIC				
Total	284,945	262,625	153,999	.59
Fungicides, total	39,805	40,034	26,617	.66
Dimethyldithiocarbamic acid, ferric salt (Ferbam)	...	1,771	645	.36
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	1,938	1,989	880	.44
All other acyclic fungicides[7]	37,867	36,274	25,092	.69
Herbicides and plant hormones[8]	69,085	61,088	50,395	.82

See footnotes at end of table.

TABLE 1.--Pesticides and related products: U.S. production and sales, 1969--Continued

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued				
Insecticides, rodenticides, and soil conditioners and fumigants, total	176,055	161,503	76,987	$0.48
1,2-Dibromo-3-chloropropane (DBCP)	8,611	...	...	...
Methyl bromide (Bromoethane)	20,033	19,689	8,025	.41
All other acyclic insecticides (including acyclic organophosphorus insecticides), rodenticides, and soil conditioners and fumigants[9] [10]	147,411	141,814	68,962	.49

[1] Calculated from rounded figures.

[2] Includes captan, dinocap, folpet, glyodin, pentachloronitrobenzene, sodium pentachlorophenate, tri- and tetrachlorophenols, (including 2,4,5-trichlorophenol and its salts) and others.

[3] Includes amiben salts, barban, benefin, acetanilide compounds, dicamba, dimethylurea compounds, dinitrophenol compounds, endothal, isopropyl phenylcarbamates (IPC and CIPC), maleic hydazide (sales only), picloram, propanil, silvex (sales only), 2,4,5-T (sales only), triazines, trifluralin, uracils, and others.

[4] Includes sales of aldrin, chlordan, dieldrin, heptachlor, terpene polychlorinates, and toxaphene.

[5] Includes azinphosmethyl, carbophenothion, coumaphos, diazinon, dioxathion, parathion, ronnel, and other phosphorothioates and phosphorodithioates, and others.

[6] Includes aldrin-toxaphene group (production only), chlorobenzilate, DDD, dicofol, endosulfan, methoxychlor, and other chlorinated insecticides, carbaryl, insect attractants, DEET and other insect repellents, hexachlorocyclohexane, lindane, small amounts of rodenticides, synergists, and others.

[7] Includes dithiocarbamates, including Ferbam (production only), maneb and zineb, dodine, mercury compounds, PETD, and others.

[8] Includes cacodylic acid, CDAA, dalapon, methanearsonic acid's disodium salt and sodium salt, thiocarbamate, thiolcarbamate, and organophosphorus herbicides, sodium TCA, and others.

[9] Includes DDVP, disulfoton, ethion, malathion, anled, phorate, and other organophosphorus insecticides, DBCP (sales only), soil conditioners and fumigants, metaldehyde (which is a mollusicide), small quantities of rodenticides, and others.

[10] Acyclic organophosphorus insecticides are included with "All other acyclic insecticides" in order to establish an all other acyclic insecticide total without disclosing the operations of individual companies.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

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

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC	
*Fungicides:	
2,6-Bis(dimethylaminomethyl)cyclohexanone	MRK.
5-Chloro-2-benzothiazolethiol, laurylpyridinium salt	VNC.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine	CHG.
1,4-Dichloro-2,5-dimethoxybenzene	DUP.
2,6-Dichloro-4-nitroaniline (DCNA)	UPJ.
*3,5-Dimethyl-1,3,5,2H-tetrahydrothiadiazine-2-thione (DMTT).	MRK, OTC, SF, WRC.
Diphenylammonium propionate	MRK.
2-Heptadecyl-2-imidazoline (Glyodin)	UCC.
2-Mercaptobenzothiazole, monoethanolamine salt	VNC.
*Mercury fungicides:	
N-(Ethylmercuri)-p-toluene sulfonanilide	DUP.
Hydroxymercurichlorophenol	DUP.
Methylmercury quinolinolate	MRK.
2-(Phenylmercuriamino)ethyl acetate	CLY.
*Phenylmercuric acetate (PMA)	BKM, CLY, MRK, TRO, VIN, WRC.
Phenylmercuric ammonium acetate	MAL, TRO.
Phenylmercuric borate	WRC.
Phenylmercuric dimethyldithiocarbamate	WRC.
Phenylmercuric hydroxide	MRK.
Phenylmercuric lactate	MRK, WRC.
Phenylmercuric naphthonate	MRK.
*Phenylmercuric oleate	CLY, HNX, MRK, TRO, WRC.
Phenylmercuric propionate	MRK.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium lactate	CLY.
All other mercury fungicides	MAL.
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, HNX, MCI, SHP, SRR, TRO, WTC.
Pentachloronitrobenzene (PCNB)	OMC, OTC.
*Pentachlorophenol (PCP)	DOW, FRO, MON, RCI, SFD.
Pentachlorophenol, sodium salt	DOW, MON, RCI.
*8-Quinolinol (8-Hydroxyquinoline), copper salt	FIS, HNX, MON, MRK.
2,4,5,6-Tetrachloroisophthalonitrile	DA.
2,3,4,6-Tetrachlorophenol	DOW.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Captan).	CHO.
N-Trichloromethylthiophthalimide (Folpet)	CHO.
2,4,5-Trichlorophenol acid and salts:	
2,4,5-Trichlorophenol	DA, DOW, HK, HPC.
2,4,5-Trichlorophenol, ethanolamine salt	GAF.
2,4,5-Trichlorophenol, sodium salt	DOW.
2,4,6-Trichlorophenol	DOW, RBC.
Other cyclic fungicides	BKM, ORO.
*Herbicides and plant hormones:	
3-Amino-2,5-dichlorobenzoic acid, sodium salt	GAF.
4-Amino-3,5,6-trichloropicolinic acid (Picloram)	DOW.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)	DUP.
3-tert-Butyl-5-chloro-6-methyluracil	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)	GGY.
2-Chloro-4,6-bis(isopropylamino)-s-triazine (Propazine)	GGY.
2-Chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide (CDMA).	MON.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine (Atrazine).	GGY.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
2-Chloro-N-isopropyl acetanilide	MON.
N'-(4-Chlorophenoxy)phenyl N,N-dimethylurea (Chloroxuron).	CBA.
3-(p-Chlorophenyl)-1,1-dimethylurea (Monuron)	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea trichloroacetate	ACN.
3-Cyclohexyl-5,6-trimethyleneuracil	DUP.
2,6-Di-tert-butyl-p-tolylmethylcarbamate	HPC.
2,5-Dichloro-3-aminobenzoic acid, ammonium salt	AMC, GAF.
3,6-Dichloro-2-anisic acid (Dicamba)	VEL.
2,4-Dichlorobenzyltributylphosphonium chloride	SM.
2,5-Dichloro-3-nitrobenzoic acid	GAF.
2,5-Dichloro-3-nitrobenzoic acid, methyl ester	GAF.
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	RH.
3',4'-Dichloropropionanilide (Propanil)	CIS, MON, RH.
*1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)	ACY, ASL, CHF, FMT, USR.
N-(beta-0,0-Diisopropyl-dithiophosphorylethyl)-benzene sulfonamide (Bensulide).	SF.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamid)	ARA, CWN, UPJ.
1,1-Dimethyl-3-phenylurea (Fenuron)	DUP.
Dimethyl-tetrachloroterephthalate	DA.
Dinitrobutylphenol (DNBP)	CIS, DOW, FMN.
Dinitrobutylphenol, ammonium salt	DOW.
Dinitrobutyl phenol, triethanolamine salt	CIS, DOW, FMN.
Dinitrocresol (DNOC)	CIS.
Dinitrocresol, sodium salt	CIS, FMN.
2-Ethylamino-4-isopropylamino-6-methylmercapto-s-triazine (Ametryne).	GGY.
S-Ethyl cyclohexylethylthiocarbamate	SF.
S-Ethyl hexahydro-1H-azepine-1-carbothioate (Molinate)	SF.
Gibberellic acid	ABB, MRK.
3-(Hexahydro-4,7-methanoindan-5-yl)-1,1-dimethylurea (Norea).	HPC.
3-Indolebutyric acid	ARA.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)	PPG.
Isopropyl N-phenylcarbamate (IPC)	PPG.
Methyl 2-chloro-9-hydroxyfluorene-9-carboxylate	USB.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)	DUP.
2-Methylmercapto-4,6-bis(isopropylamino)-s-triazine (Prometryne).	GGY.
4-(Methylsulfonyl)-2,6-dinitro-N,N-dipropylaniline	SHC.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetamide	AMC.
1-Naphthaleneacetic acid (NAA)	AMC, THM.
1-Naphthaleneacetic acid, methyl ester	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.
4-Chloro-2-methylphenoxyacetic acid, potassium salt	GTH.
*2,4-Dichlorophenoxyacetic acid (2,4-D)	DA, DOW, HPC, MON, RDA.
*2,4-Dichlorophenoxyacetic acid esters and salts:	
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester	AMC.
2,4-Dichlorophenoxyacetic acid, butoxypolypropyleneglycol ester.	DOW.
*2,4-Dichlorophenoxyacetic acid, n-butyl ester	AMC, DA, HPC, MON, PBI, RIV, WOD.
*2,4-Dichlorophenoxyacetic acid, sec-butyl ester	DOW, MON, RDA.
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt	ALC, AMC, DA, DOW, HPC, PBI, RDA, RIV, TMH, WOD.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salt.	DOW.
2,4-Dichlorophenoxyacetic acid, ethyl ester	AMC.
2,4-Dichlorophenoxyacetic acid, 2-ethylhexyl ester	DA, HPC.
*2,4-Dichlorophenoxyacetic acid, iso-octyl ester	DOW, MON, PBI, RDA, RIV, WOD.
2,4-Dichlorophenoxyacetic acid, isopropyl ester	AMC, DOW, HPC, MON, RIV.
2,4-Dichlorophenoxyacetic acid, lithium salt	GTH.
2,4-Dichlorophenoxyacetic acid, sodium salt	RIV.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	
*2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)----------	DA, DOW, HPC, MON, THM.
*2,4,5-Trichlorophenoxyacetic acid esters and salts:	
2,4,5-Trichlorophenoxyacetic acid, amyl esters-------	HPC.
2,4,5-Trichlorophenoxyacetic acid, 2-butoxyethyl ester.	AMC.
2,4,5-Trichlorophenoxyyacetic acid, butoxypoly-propyleneglycol ester.	DOW.
*2,4,5-Trichlorophenoxyacetic acid, n-butyl ester-----	DA, HPC, MON, PBI, RIV, WOD.
2,4,5-Trichlorophenoxyacetic acid, 2-ethylhexyl ester.	DA, HPC.
*2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester---	DOW, MON, PBI, RIV, THM, TMH, WOD.
2,4,5-Trichlorophenoxyacetic acid, sodium salt-------	RIV.
2,4,5-Trichlorophenoxyacetic acid, triethylamine salt.	DOW, HPC, RIV.
Polychloro-tetrahydro-methanoindene (Polychlorodicyclo-pentadiene) isomers.	VEL.
*2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)--------	DOW, HPC, TMH.
2-(2,4,5-Trichlorophenoxy)propionic acid esters and salts:	
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-ethyl-hexyl ester.	HPC.
2-(2,4,5-Trichlorophenoxy)propionic acid, isooctyl ester.	RIV.
α,α,α-Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin).	LIL.
3-(m-Trifluoromethylphenyl)-1,1-dimethylurea (Fluometuron).	CBA.
Tris-(2,4-dichlorophenoxyethyl)phosphite (2,4-DEP)-------	USR.
Insect attractants and repellants:	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexanecarboxy-late (Trimedlure).	UOP.
N,N-Diethyltoluamide (DEET)----------	HPC, PFZ.
Di-n-propyl isocinchomeronate----------	MGK.
*Insecticides:	
3-sec-Amylphenyl-N-methylcarbamate----------	x.
2-sec-Butyl-4,6-dinitrophenyl-3,3-dimethylacrylate (Binapacryl).	FMN.
2-(p-tert-Butylphenoxy)cyclohexyl-2'-propynyl sulfite----	USR.
o-sec-Butylphenyl N-methylcarbamate----------	OTC.
Chlorinated insecticides:	
*Aldrin-toxaphene group:	
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor).	VEL.
Hexachloro-epoxy-octahydro-endo-endo-dimethano-naphthalene (Endrin).	VEL.
Hexachloro-epoxy-octahydro-endo-oxo-dimethano-naphthalene (Dieldrin).	SHC.
Hexachloro-hexahydro-endo-exo-dimethanonaphthalene (Aldrin).	SHC.
Octachloro-hexahydro-methanoindene (Chlordan)--------	VEL.
Terpene polychlorinates----------	HN.
Toxaphene (Chlorinated camphene)----------	HPC.
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane (DDD) (TDE).	ACN, RH.
1,1-Bis(p-chlorophenyl)-2-nitrobutane----------	COM.
1,1-Bis(p-chlorophenyl)-2-nitropropane----------	COM.
*α-Bis(p-chlorophenyl)β,β,β-trichloroethane (DDT)	ACN, DA, LEB, MTO, OMC.
2-(p-tert-Butylphenoxy)isopropyl-2'-chloroethyl sulfite.	USR.
Chlorobenzilate----------	GGY.
p-Chlorophenyl p-chlorobenzenesulfonate (Ovex)---------	DOW.
o-Chlorophenyl-N-methylcarbamate----------	OTC.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone (Tetradifon).	FMN, FMP.
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta-[cd] pentalen-2-one.	ACN.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Insecticides--Continued	
Chlorinated insecticides--Continued	
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.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	CHF, DUP.
2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	FMN.
Isobornyl thiocyanoacetate	HPC.
O-Isopropylphenyl N-methylcarbamate	OTC.
1-Naphthyl N-methylcarbamate (Carbaryl)	UCC.
*Organophosphorus insecticides:	
4-tert-Butyl-2-chlorophenylmethyl methylphosphoramidite.	DOW.
S-[[(p-Chlorophenyl)thio]methyl] O,O-diethyl phosphorodithioate (Carbophenothion).	SF.
2-Chloro-1-(2,4,5-trichlorophenyl)vinyl dimethyl phosphate.	SHC.
O,O-Diethyl O-3-chloro-4-methyl-1-oxo-2H-1-benzopyran-7-yl-phosphorothioate (Coumaphos).	CHG.
O,O-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate (Diazinon).	GGY.
O,O-Diethyl O-p-(methylsulfinyl)phenyl phosphorothioate.	CHG.
O,O-Diethyl O-p-nitrophenyl phosphorothioate (Parathion).	AMP, MON, SF.
O,O-Diethyl O-3,5,6-trichloro-2 pyridyl phosphorothiate.	DOW.
O,O-Dimethyl S-(p-chlorophenylthio)methyl phosphorodithioate.	SF.
O,O-Dimethyl O-[4-(methylthio)-m-tolyl] phosphorothioate (Fenthion).	CHG.
*O,O-Dimethyl O-p-nitrophenyl phosphorothioate (Methyl parathion).	AMP, MON, SF, VEL.
O,O-Dimethyl S-[4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl] phosphorodithioate.	CHG.
O,O-Dimethyl S-phthalimidomethyl phosphorodithioate	SF.
Dimethyl 2,4,5-trichlorophenyl phosphorothionate (Ronnel).	DOW.
2,3-p-Dioxane S,S-bis(O,O-diethylphosphorodithioate) (Dioxathion).	HPC.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-crotonate.	SHC.
O,O,O',O'-Tetramethyl O,O'-thiodi-p-phenylene phosphorodithioate.	ACY.
N-(Phenyl-2-nitropropyl)piperidine	MRK.
m-Tolyl-N-methylcarbamate	OTC.
Other cyclic insecticides	ORO.
Nematocides:	
O,O-Diethyl O-(2,4-dichlorophenyl) phosphorothioate	SM.
O,O-Diethyl O-2-pyrazinyl phosphorothioate (Thionazin)	ACY.
*Rodenticides:	
3-(α-Acetonylbenzyl)-4-hydroxycoumarin (Warfarin)	ABB, MOT, PEN.
2-Diphenylacetyl-1,3-indandione (Diphacinone)	NES.
2-Diphenylacetyl-1,3-indandione, sodium salt	NES.
2-Pivaloyl-1,3-indandione (Pindone)	MOT, PIC.
Synergists and adjuvants:	
α-[2-(2-n-Butoxyethoxy)-ethoxy]-4,5-methylenedioxy-2-propyltoluene (Piperonyl butoxide).	ALP, BKL, FMN, FMP.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
Synergists and adjuvants--Continued	
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-dicarboximide.	MGK.
Piperonal bis[2-(2-butoxyethoxy)ethyl]acetal	MGK.
All other	PEN.
All other cyclic pesticides and related products	CHG, GGY.
PESTICIDES AND RELATED PRODUCTS, ACYCLIC	
*Fungicides:	
Bis-1,4-bromoacetoxy-2-butene	VIN.
Cadmium succinate	MAL.
1-Chloro-2-nitropropane (Korax)	FMN.
Dimethyl thiocarbonyl disulfide	CLY.
Disodium cyanodithioimidocarbonate	BKM.
Dithiocarbamic acid fungicides:	
*Dimethyldithiocarbamic acid, ferric salt (Ferbam)	DUP, FMN, VNC, WRC.
Dimethyldithiocarbamic acid, manganese salt	FMN.
Dimethyldithiocarbamic acid, potassium salt	BKM.
Ethylene bis(dithiocarbamic acid), diammonium salt	CIS, RBC.
*Ethylene bis(dithiocarbamic acid), disodium salt (Nabam).	CIS, FMN, RH.
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb).	DUP, RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)	DUP, FMN, RH.
All other	VNC.
n-Dodecylguanidine acetate (Dodine)	ACY.
Mercury fungicides:	
Chloromethoxypropylmercuric acetate	TRO.
Ethylmercury phosphate	CHF.
3-Methyl(mercurithio)-1,2-propanediol	DUP.
Methylmercuric hydroxide	MRT.
Methylmercury nitrile	WRC.
Polyethylenethiuram disulfide (PETD)	FMN.
All other	BKM.
*Herbicides and plant hormones:	
Cacodylic acid	ASL.
2-Chloroallyl diethyldithiocarbamate (CDEC)	MON.
2,3-Dichloroallyl diisopropylthiolcarbamate (Diallate)	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)	DOW.
N-Dimethylaminosuccinamic acid	USR.
Ethyl-N,N-diisobutylthiolcarbamate	SF.
S-Ethyl di-N,N-propylthiocarbamate (EPTC)	SF.
Ethyl xanthogen disulfide	RBC.
Methanearsonic acid, disodium salt (DSMA)	ASL, CLY, DA, VIN.
Methanearsonic acid, dodecyl- and octylammonium salts	CLY, VIN.
Methanearsonic acid, monosodium salt (MSMA)	ASL, DA.
S-Propyl butylethylthiocarbamate (Pebulate)	SF.
S-Propyl dipropylthiocarbamate (Vernolate)	SF.
S,S,S-Tributyl phosphorotrithioate	CHG.
Tributyl phosphorotrithioate	SM.
Trichloroacetic acid, sodium salt (TCA)	DOW.
S-2,3,3-Trichloroallyl N,N-diisopropylthiolcarbamate (Tri-allate).	MON.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate	RH.
Metaldehyde	COM.
Organophosphorus insecticides:	
S-[1,2-Bis(ethoxycarbonyl)ethyl] 0,0-dimethyl phosphorodithioate (Malathion).	ACY.
2-Carbomethoxy-1-propen-2yl dimethyl phosphate	SHC.
1-Chloro-diethylcarbamoyl-1-propen-2yl-dimethyl phosphate (Phosphamidon).	CBA, SM.
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 O).	CHG.
0,0-Diethyl S-2-(ethylthio)ethyl phosphorothioate (Demeton S).	CHG.
0,0-Diethyl S-(ethylthio)methyl phosphorodithioate (Phorate).	ACY.

TABLE 2.--Pesticides and related products: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Insecticides--Continued	
Organophosphorus insecticides--Continued	
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide.	SHC.
0,0-Dimethyl-0-2,2-dichlorovinyl phosphate (DDVP)------	SHC.
0,0-Dimethyl (1-hydroxy-2,2,2-trichloroethyl)phosphonate (Trichlorfon).	CHG.
0,0-Dimethyl S-(N-methylcarbamoylmethyl) phosphorodithioate (Dimethoate).	ACY.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-crotonamide.	SHC.
S-[2-(Ethylsulfinyl)ethyl] 0,0-dimethyl phosphorodithioate (Oxydemetonmethyl).	CHG.
0,0,0',0'-Tetraethyl S,S'-methylene bisphosphorodithioate (Ethion).	FMN, FMP.
Tetraethyl pyrophosphate (TEPP)----------	ALC, AMP.
Tetra-n-propyl dithiopyrophosphate (ASPON)----------	SF.
2-Thiocyanoethyl dodecanoate----------	RH.
All other----------	BFG.
Nematocide:	
0-Ethyl S,S-dipropyl phosphorodithioate----------	SM.
2-Methyl-2-(methylthio)propionaldehyde 0-(methylcarbamoyl)oxime (Temik).	UCC.
*Rodenticides: Sodium fluoracetate----------	RBC.
*Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY.
*Soil fumigants:	
*1,2-Dibromo-3-chloropropane (DBCP)----------	AMP, BST, DOW, SHC.
1,3-Dichloropropene----------	DOW.
1,3-Dichloropropene, 1,2-dichloropropane----------	DOW, SHC.
*Methyl bromide (Bromomethane)----------	AMP, DOW, GTL, MCH.
N-Methyldithiocarbamic acid, sodium salt (Metham)--------	CHF, SF.
Trichloronitromethane (Chloropicrin)----------	DOW, IMC.

TABLE 3.--Pesticides and related products: Directory of manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

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.
AMP	American Potash & Chemical Corp., Subsidiary of Kerr-McGee Corp.
ARA	Arapahoe Chemicals Div. of Syntex Corp.
ASL	Ansul Chemical Co.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
BKL	Millmaster Onyx Corp., Millmaster Chemical Co. Div., Berkeley Chemical Dept.
BKM	Buckman Labs., Inc.
BST	Occidental Chemical Co.
CBA	CIBA Corp., CIBA Agrochemical Co.
CCA	Carlisle Chemical Works, Inc., Advance Div.
CHF	Chemical Formulators, Inc.
CHG	Chemagro Corp.
CHO	Stauffer Chemical Co., Calhio Chemical, Inc. Div.
CIS	Chemical Insecticide Corp.
CLY	W. A. Cleary Corp.
COM	Commercial Solvents Corp.
CWN	Upjohn Co., Carwin Organic Chemicals
DA	Diamond Shamrock Corp.
DOW	Dow Chemical Co.
DUP	E. I. duPont de Nemours & Co., Inc.
FER	Ferro Corp., Ferro Chemical Div.
FIS	Fisher Chemical Co., Inc.
	FMC Corp.:
FMN	Niagara Chemical Div.
FMP	Organic Chemicals Div.
FMT	Fairmount Chemical Co.
FRO	Vulcan Materials Co., Chemical Div.
GAF	GAF Corp., Dyestuff & Chemical Div.
GGY	Geigy Chemical Corp.
GOC	Gulf Oil Corp., U.S. Gulf Oil Chemical Dept.
GTH	Guth Chemical Co.
GTL	Great Lakes Chemical Corp.
HK	Hooker Chemical Corp.
HN	Tenneco Chemicals, Inc.:
HNX	Nuodex Div.
HPC	Hercules, Inc.
IMC	International Minerals & Chemical Corp.
LEB	Lebanon 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	Motomco, Inc.
MRK	Merck & Co., Inc.
MRT	Morton Salt Co., Morton Chemical Co. Div.
MTO	Montrose Chemical Corp. of Calif.
NES	Nease Chemical Co., Inc.
OMC	Olin Mathieson Chemical Corp. and Agricultural Div.
ORO	Chevron Chemical Co.
OTC	Ott Chemical Co.
PAS	Pennwalt Chemicals Corp.
PBI	Gordon Corp.
PEN	CPC International, Inc., Penick Div.
PFZ	Pfizer, Inc.
PIC	Pierce Organics, Inc.
PPG	PPG Industries, Inc.
RBC	Roberts Chemicals, Div. of Security Chemical, Inc.
RCI	Reichhold Chemicals, Inc.
RDA	Rhodia, Inc.
RH	Rohm & Haas Co.
RIV	Riverdale Chemical Co.
SF	Stauffer Chemical Co., Agricultural Div.
SFD	Sonford Chemical Co.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHP	Shepherd Chemical Co.
SM	Mobil Oil Corp., Mobil Chemical Co. Div., Industrial Chemical Div.
SRR	Stresen-Reuter International, International Minerals & Chemical Corp.
THM	Wm. T. Thompson Co., Thompson Chemicals Div.
TMH	Thompson-Hayward Chemical Co.
TRO	Troy Chemical Co.
UCC	Union Carbide Corp.
UOP	Universal Oil Products Co., UOP Chemical Div.
UPJ	Upjohn Co.
USB	U.S. Borax Research Corp.
USR	Uniroyal, Inc., Chemical Div.
VEL	Velsicol Chemical Corp.
VIN	Vineland Chemical Co.
VNC	Vanderbilt Chemical Corp.
WOD	Missouri Chemical Co.
WRC	Wood Ridge Chemical Corp.
WTC	Witco Chemical Co., Inc.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

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 1969 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. Statistics on production and sales of miscellaneous chemicals in 1969 are given in table 1; table 2 lists these products and identifies the manufacturers.

Production of miscellaneous cyclic and acyclic chemicals in 1969 totaled 75.7 billion pounds, or 12 percent more than the output of 67.5 billion pounds reported for 1968. Sales of miscellaneous chemicals in 1969 amounted to 34.8 billion pounds, valued at $4.0 billion, compared with 30.4 billion pounds, valued at $3.9 billion, in 1968.

The total output of miscellaneous cyclic chemicals in 1969 was 1.9 billion pounds, or 6.0 percent more than the output of 1.8 billion pounds reported for 1968. Sales in 1969 totaled 860 million pounds, valued at $325 million, compared with 903 million pounds, valued at $320 million, in 1968. In 1969 the most important groups of cyclic compounds were the lubricating oil additives, the output of which was 580 million pounds, and synthetic tanning materials, the output of which was 40 million pounds.

Total production of miscellaneous acyclic chemicals in 1969 was 73.8 billion pounds, or 12 percent more than the output of 65.7 billion pounds reported for 1968. Sales in 1969 totaled 33.9 billion pounds, valued at $3.7 billion, compared with 29.5 billion pounds, valued at $3.6 billion, in 1968. 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 1969, 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 16.2 billion pounds. The most important chemicals in this group were dichloroethane (production of 6.0 billion pounds in 1969 compared with 4.8 billion pounds in 1968) and vinyl chloride (3.7 billion pounds compared with 3.0 billion pounds). Output of nitrogen-

ous compounds totaled 13.3 billion pounds. The most important chemical in this group was urea (used principally in fertilizers and as a feed additive), production of which was 5.9 billion pounds in 1969, compared with 4.9 billion pounds in 1968.

Monohydric alcohols, which are used largely as solvents and intermediates, were the third largest group in 1969, with production of 11.2 billion pounds. The most important items in the group in terms of production were synthetic methanol (4.2 billion pounds in 1969, compared with 3.8 billion pounds in 1968), synthetic ethyl alcohol (2.4 billion pounds in 1969, compared with 2.1 billion pounds in 1968) and isopropyl alcohol (2.0 billion pounds in 1969, compared with 2.1 billion pounds in 1968). Aldehydes and ketones, which are also used largely as solvents and intermediates, were the next largest group with production of 10.0 billion pounds. The most important items in this group in 1969 were formaldehyde (4.4 billion pounds), acetaldehyde (1.7 billion pounds), and acetone (1.5 billion pounds).

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969

[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 manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Grand total	75,719,978	34,781,981	4,018,422	$0.12
MISCELLANEOUS CHEMICALS, CYCLIC				
Total	1,905,569	859,881	324,968	.38
Benzoic acid, sodium salt	9,745	9,464	2,859	.30
Benzoyl peroxide	6,694	6,464	6,106	.94
Butyl benzoate	2,647	1,908	810	.42
Cyclohexanone peroxide	35	...	...	...
2,6-Di-tert-butyl-p-cresol:				
Food grade	6,282	5,920	3,372	.57
Tech	22,230	17,453	9,195	.53
Enzymes	(2)	(2)	25,362	(2)
Flotation reagents	6,513	...	...	...
Gasoline additives, total	25,809	18,343	13,720	.75
N,N'-Di-sec-butyl-p-phenylenediamine	2,549	1,531	1,335	.87
All other[3]	23,260	16,812	12,385	.74
Hexamethylenetetramine, tech	97,027	77,129	11,667	.15
p-Hydroxybenzoic acid esters:				
Methyl p-hydroxybenzoate	759	726	1,137	1.57
Propyl p-hydroxybenzoate	251	232	477	2.06
Lubricating oil and grease additives, total	580,326	286,649	63,754	.22
Oil-soluble petroleum sulfonate, barium salt	23,700	...	...	...
Oil-soluble petroleum sulfonate, calcium salt	204,491	65,122	17,223	.26
Oil-soluble petroleum sulfonate, sodium salt	146,258	63,134	14,084	.22
All other	205,877	158,393	32,447	.20
4-Methylmorpholine	183	176	224	1.27
Morpholine	21,258	19,283	6,726	.35
Naphthenic acid salts, total[4 5]	28,062	26,360	7,178	.27
Calcium naphthenate	1,927	1,823	572	.31
Cobalt naphthenate	3,977	3,838	1,885	.49
Lead naphthenate	18,055	16,564	3,122	.19
Manganese naphthenate	1,510	1,741	481	.28
Zinc naphthenate	1,393	1,281	332	.26
All other	1,200	1,113	786	.71
Photographic chemicals:				
Benzotriazole	10	11	68	6.18
p-Diethylaminobenzenediazonium (p-Diazo-N,N-diethylaniline), zinc chloride salt	99	94	209	2.22
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride	34	34	104	3.06
Pinene, total	76,782	57,986	6,869	.12
α-Pinene	50,077	38,549	4,134	.11
β-Pinene	26,705	19,437	2,735	.14

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Tall oil salts, total[4]	8,858	8,165	2,330	$0.29
Calcium tallate	797	534	145	.27
Cobalt tallate	2,394	2,441	1,077	.44
Iron tallate	102	...	...	...
Lead tallate	4,377	3,978	791	.20
Manganese tallate	850	848	213	.25
All other	338	364	104	.29
Tanning materials, synthetic, total	40,164	39,322	9,162	.23
2-Naphthalenesulfonic acid, formaldehyde condensate and salts	37,438	36,702	7,581	.21
All other	2,726	2,620	1,581	.60
All other miscellaneous cyclic chemicals	971,801	284,162	153,639	.54
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total	73,814,409	33,922,100?	3,693,454	.11
Cellulose Esters and Ethers				
Total	1,147,917	344,806	141,335	.41
Cellulose esters, total	1,025,498	228,999	76,720	.34
Cellulose acetate	827,075	...	...	...
All other	198,423	228,999	76,720	.34
Cellulose ethers, total	122,419	115,807	64,615	.56
Sodium carboxymethylcellulose, 100%	61,586	62,349	26,254	.42
All other	60,833	53,458	38,361	.72
Lubricating Oil Additives				
Total	498,264	156,387	31,131	.20
Phosphorodithioates (Dithiophosphates)	105,077	25,841	8,221	.32
Sulfurized lard oil	3,147	2,735	440	.16
All other	390,040	127,811	22,470	.18
Nitrogenous Compounds				
Total[6]	13,289,747	7,339,424	698,881	.10
Acrylonitrile	1,156,585	561,632	65,950	.12
Amines, total	996,330	257,907	60,611	.24
Butylamines, total	26,176	20,434	5,198	.25
n-Butylamine, mono-	...	1,584	575	.36
Di-n-butylamine	3,015	2,330	769	.33
Diisobutylamine	7,640	8,035	2,104	.26
All other	15,521	8,485	1,750	.21
Ethylamines:				
Ethylamine, mono	15,482	14,780	2,153	.15
Diethylamine	9,900	4,919	1,146	.23
Triethylamine	...	5,633	1,977	.35
Ethylenediamine	55,591	47,565	10,082	.21
1,6-Hexanediamine (Hexamethylenediamine)	663,066	...	...	...
Methylamines:				
Methylamine, mono	22,214	14,811	1,286	.09
Dimethylamine	73,982	35,142	3,650	.10
Trimethylamine	21,194	14,896	1,474	.10
Propylamines:				
n-Propylamine, mono-	211	260	165	.63
Diisopropylamine	4,479	3,666	819	.22
Di-n-propylamine	9,622	8,569	2,384	.28
All other	94,413	87,232	30,277	.35

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Nitrogenous Compounds--Continued				
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	8,690	6,678	2,610	$0.39
1,1'-Azobisformamide	3,780	3,268	3,262	1.00
Caprolactam (2-Oxohexamethylenimine)	...	450,299	80,029	.18
2-Dimethylaminoethanol	3,863	2,510	1,126	.45
Erucamide	2,011	1,934	1,905	.98
Ethanolamines, total	255,139	211,145	26,100	.12
2-Aminoethanol (Monoethanolamine)	86,898	69,377	8,632	.12
2,2'-Iminodiethanol (Diethanolamine)	91,515	65,409	7,217	.11
2,2',2''-Nitrilotriethanol (Triethanolamine)	76,726	76,359	10,251	.13
2-Methyllactonitrile (Acetone cyanohydrin)	540,165	...	...	...
Nitriloacids and salts, total	108,093	...	...	...
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt	2,491	2,158	591	.27
(Diethylenetrinitrilo)pentaacetic acid, sodium salt	...	264	94	.36
(Ethylenedinitrilo)tetraacetic acid	...	1,288	697	.54
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	31,330	22,659	7,148	.32
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt	5,659	4,396	1,628	.37
All other	68,613	...	...	...
Oleamide (Octacene amide)	...	3,928	792	.20
Pentaerythritol tetranitrate	5,447	3,641	2,908	.80
Sarcosine	2,417	1,635	695	.43
Stearamide	787	792	348	.44
Stearic acid - ethylenediamine condensate (amine/acid ratio 1/2).	18,307	17,419	5,135	.30
Urea in compounds or mixtures (100% basis), total	(7) 5,944,309	5,315,428	(8) 133,779	.03
In feed compounds	670,926	681,697	19,387	.03
In liquid fertilizer	2,210,680	1,989,831	40,032	.02
In solid fertilizer	2,703,564	2,427,497	68,101	.03
All other	359,139	216,403	6,259	.03
All other nitrogenous compounds	4,243,824	470,443	303,473	.64
Acids, Acyl Halides and Anhydrides				
Total	5,747,331	1,213,635	180,432	.15
Acetic acid, synthetic, 100%	1,769,598	425,787	26,131	.06
Acetic anhydride, 100%	1,675,114	145,272	13,777	.09
Acrylic acid	84,891	13,197	3,591	.27
Adipic acid	1,219,621	119,072	18,735	.16
Butyric acid	...	981	254	.26
Chloroacetic acid, mono-	64,229	...	...	...
Dodecenylsuccinic anhydride	1,750	1,832	800	.44
Fumaric acid	47,108	45,931	8,260	.18
Gluconic acid, tech	3,325	3,655	1,086	.30
Lauroyl chloride	5,109	...	...	...
Maleic anhydride	200,708	120,667	17,646	.15
Palmitoyl chloride	283	...	...	...
Propionic acid	41,216	16,653	1,525	.09
All other acids, acyl halides and anhydrides	634,379	320,588	88,627	.28
Salts of Organic Acids				
Total	253,158	218,422	78,712	.36
Acetic acid salts, total	30,517	28,295	7,014	.25
Copper acetate	197	217	174	.80
Potassium acetate	3,285	2,539	766	.30
Sodium acetate	18,379	...	...	...

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Salts of Organic Acids--Continued				
Acetic acid salts--Continued				
Zinc acetate	791	643	240	$0.37
Zirconium acetate	...	215	80	.37
All other	7,865	24,681	5,754	.23
2-Ethylhexanoic acid (or Ethylcaproic acid) salts, total	5,133	5,401	3,323	.62
Calcium 2-ethylhexanoate	264	267	103	.39
Cobalt 2-ethylhexanoate	1,434	1,699	1,188	.70
Lead 2-ethylhexanoate	872	866	361	.42
Manganese 2-ethylhexanoate	167	160	52	.32
Zinc 2-ethylhexanoate	688	618	319	.52
All other	1,708	1,791	1,300	.73
Formic acid, ammonium salt	15	13	15	1.15
Gluconic acid, sodium salt, tech	14,814	14,496	3,730	.26
Linoleic acid salts[4]	268	257	80	.31
Mercaptoacetic (Thioglycolic) acid, salts	3,303	3,154	4,909	1.56
Oleic acid, copper salt	54	...	...	...
Polyacrylic acid salts	4,213	4,470	5,131	1.14
Propionic acid salts:				
Calcium propionate	13,393	12,635	2,751	.22
Sodium propionate	...	4,494	1,003	.22
Stearic acid salts, total[9]	62,765	52,652	17,797	.34
Aluminum stearates, total	4,545	4,303	1,610	.39
Aluminum distearate	3,772	3,566	1,329	.37
Aluminum monostearate and tristearate	773	737	281	.38
Calcium stearate	26,860	24,656	7,989	.32
Magnesium stearate	3,129	2,865	1,103	.38
Zinc stearate	17,821	15,154	5,266	.34
All other	10,410	5,674	1,829	.32
All other salts of organic acids	118,683	92,555	32,959	.36
Aldehydes and Ketones				
Total	9,994,436	3,974,229	211,035	.05
Acetaldehyde	1,651,889	...	...	...
Acetone, total	1,518,380	1,078,472	51,018	.05
From cumene	589,488	485,893	21,582	.04
From isopropyl alcohol	870,887	553,310	27,956	.05
All other	58,005	39,269	1,480	.04
2-Butanone (Methyl ethyl ketone)	484,372	423,708	40,789	.10
Chloral (Trichloroacetaldehyde)	62,355	...	...	...
Formaldehyde (37% by weight)	4,397,801	1,607,188	37,151	.02
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	77,511	33,863	4,333	.13
4-Methyl-2-pentanone (Methyl isobutyl ketone)	200,511	164,986	20,411	.12
All other aldehydes and ketones	1,601,617	666,012	57,333	.09
Alcohols, monohydric, Unsubstituted				
Total	11,150,255	5,057,020	307,124	.06
Alcohols, C_9 or lower, unmixed, total	10,490,130	4,604,265	245,087	.05
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)	404,725	256,194	22,921	.09
Isobutyl alcohol (Isopropylcarbinol)	100,664	90,232	5,865	.06
Ethyl alcohol, synthetic[10]	2,361,109	1,215,264	71,034	.06
2-Ethyl-1-hexanol	404,504	201,141	20,013	.10

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--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	13,711	5,259	601	$0.11
Iso-octyl alcohols	108,516	82,920	8,372	.10
Isopropyl alcohol	2,013,552	850,790	49,920	.06
Methanol, synthetic	4,205,886	1,620,906	43,454	.03
1-(and 2-)Octanol	28,148	7,192	1,459	.20
Propyl alcohol (Propanol)	68,059	58,086	6,381	.11
All other	781,256	216,281	15,067	.07
Alcohols, C_{10} and higher, unmixed, total	244,511	112,756	17,835	.16
Decyl alcohols	162,256	58,353	6,088	.10
1-Hexadecanol and other hexadecyl alcohols	12,925	7,393	1,751	.24
Stearyl and other octadecyl alcohols	13,086	7,832	1,414	.18
1-Tridecanol	...	29,068	5,301	.18
All other	56,244	10,110	3,281	.32
Mixtures of alcohols, total	415,614	339,999	44,202	.13
C_9 and lower, only	49,778	31,949	3,842	.12
C_{10} and higher, only	320,779	248,916	32,717	.13
C_6 to C_{12} and others[11]	45,057	59,134	7,643	.13
Polyhydric Alcohols and Their Esters and Ethers				
Total	5,532,270	4,243,509	484,194	.11
Polyhydric alcohols, total	3,666,318	2,822,178	264,661	.09
Ethylene glycol	2,570,947	1,936,013	123,963	.06
2-Methyl-2,4-pentanediol (Hexylene glycol)	42,355	...	...	...
2-Methyl-2-propyl-1,3-propanediol	...	11	14	1.27
Pentaerythritol	92,017	73,881	16,996	.23
Propylene glycol (1,2-Propanediol)	460,565	411,173	37,550	.09
Sorbitol	95,048	84.372	16,620	.20
All other	405,386	316,728	69,518	.22
Polyhydric alcohol esters	183,983	187,179	37,412	.20
Polyhydric alcohol ethers, total	1,681,969	1,234,152	182,121	.15
2-Butoxyethanol (Ethylene glycol monobutyl ether)	103,931	90,861	15,026	.17
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether)	17,188	10,440	2,434	.23
Diethylene glycol	288,664	204,875	15,572	.08
Dipropylene glycol	47,920	38,119	4,117	.11
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	137,158	65,487	9,564	.15
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)	28,948	22,691	3,585	.16
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)	20,396	8,824	1,874	.21
2-Methoxyethanol (Ethylene glycol monomethyl ether)	[12] 114,717	79,713	10,614	.12
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	13,166	8,646	1,021	.12
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)	16,445	...	...	...
Polyethylene glycol	42,957	41,039	9,409	.23
Polypropoxy ethers, total	368,965	313,450	51,320	.16
Glycerol tri(polyoxypropylene) ether	194,450	163,266	24,728	.15
All other	174,515	150,184	26,592	.18
Polypropylene glycol	225,638	...	...	...
Triethylene glycol	90,705	69,529	9,910	.14
All other ethers of polyhydric alcohols	165,171	280,478	47,675	.17

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Esters of Monohydric Alcohols				
Total	2,284,932	1,045,798	178,288	$0.17
n-Butyl acetate, unmixed	58,803	58,984	7,109	.12
Butyl acrylate	64,724	33,548	6,434	.19
Dibutyl maleate	11,254	9,604	1,698	.18
Diethyl carbonate (Ethyl carbonate)	1,202	1,298	500	.39
Dioctyl maleate	4,061	3,537	716	.20
Distearyl 3,3'-thiodipropionate	906	860	813	.95
Ethyl acetate, 85%	167,414	138,791	11,649	.08
Ethyl acrylate	199,720	68,115	12,556	.18
2-Ethyl-1-hexyl acrylate	33,146	27,009	6,562	.24
Iso-octyl mercaptoacetate	4,624	4,333	2,512	.58
Isopropyl acetate	...	44,951	4,867	.11
Methyl esters of tallow	273	357	48	.13
Methyl methacrylate	433,293	...	...	...
Phosphorus acid esters, not elsewhere specified	41,926	29,767	13,656	.46
Propyl acetate	21,080	15,137	1,866	.12
Vinyl acetate	729,480	292,629	29,074	.10
All other	513,026	316,878	78,228	.25
Halogenated Hydrocarbons				
Total	16,186,313	7,899,651	677,396	.09
Bromoethane (Ethyl bromide)	1,743	1,880	749	.40
Carbon tetrachloride	882,735	785,884	42,698	.05
Chlorinated paraffins	61,935	59,124	7,584	.13
Chlorodifluoromethane	...	77,938	43,319	.56
Chloroethane (Ethyl chloride)	678,808	267,503	16,599	.06
Chloroform	216,168	172,177	10,807	.06
Chloromethane (Methyl chloride)	402,809	166,146	8,729	.05
1,2-Dibromoethane (Ethylene dibromide)	309,943	...	...	...
Dichlorodifluoromethane	367,658	335,409	85,203	.25
1,2-Dichloroethane (Ethylene dichloride)	6,037,428	1,226,845	36,345	.03
Dichloromethane (Methylene chloride)	366,005	338,107	25,891	.08
Iodoethane (Ethyl iodide)	19	16	39	2.44
Iodomethane (Methyl iodide)	22	21	63	3.00
Tetrachloroethylene (Perchloroethylene)	635,251	611,625	42,529	.07
1,1,1-Trichloroethane (Methylchloroform)	324,311	298,873	33,288	.11
Trichloroethylene	596,821	561,536	39,626	.07
Trichlorofluoromethane	238,518	203,652	37,476	.18
Vinyl chloride, monomer (Chloroethylene)	3,735,942	2,358,741	103,100	.04
All other halogenated hydrocarbons	1,330,197	434,174	143,351	.33
All Other Miscellaneous Acyclic Chemicals				
Total	7,729,786	2,429,219	704,926	.29
2-Butanone peroxide	3,170	2,973	3,529	1.19
tert-Butyl hydroperoxide	...	317	412	1.30
tert-Butyl peroxide (Di-tert-butyl peroxide)	1,654	1,494	1,431	.96
Carbon disulfide	798,661	508,478	22,268	.04
Epoxides, ethers, and acetals:				
Ethylene oxide	3,407,733	437,528	32,833	.08
Ethyl ether, all grades	103,157	...	...	...
Propylene oxide	1,177,280	151,388	12,933	.08
Lauroyl peroxide	2,449	2,344	1,951	.83
Organo-silicon polymers	63,894	48,874	79,265	1.62
Phosgene (Carbonyl chloride)	505,023	...	...	...

See footnotes at end of table.

TABLE 1.--Miscellaneous chemicals: U.S. production and sales, 1969--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
All Other Miscellaneous Acyclic Chemicals--Continued				
Sodium formaldehyde sulfoxylate	4,751	4,270	1,040	$0.24
Sodium methoxide (Sodium methylate)	9,862	6,430	1,549	.24
Tetraethyllead	370,821	365,189	192,602	.53
Tetramethyllead[13]	76,061	...	...	...
Tetra(methyl-ethyl) leads	430,531	424,358	235,729	.56
Zinc formaldehyde sulfoxylate	750	752	323	.43
All other	773,989	474,824	119,061	.25

[1] Calculated from rounded figures.
[2] Not available.
[3] Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given in the "Plasticizers" report.
[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 in the "Pesticide and Related Products" report.
[6] Statistics exclude production and sales of fatty amines. Statistics on fatty amines are given in the "Surface-Active Agents" report.
[7] Production of urea in primary solution totaled 5,952,266 thousand pounds.
[8] Includes estimated values for sales of urea in nitrogen compounds.
[9] Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the "Surface-Active Agents" report.
[10] Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Alcohol Tax Unit, U.S. Internal Revenue Service.
[11] Of the total production, about 60% consisted of alcohols lower than C_{10} and about 40% consisted of alcohols higher than C_{10}.
[12] Compared with a revised production of 117,000,000 pounds in 1968.
[13] Includes production for use in synthesis of tetra(methyl-ethyl) leads.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969

[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	
Acetylcyclohexanesulfonyl peroxide	WTL.
Adenosine and derivatives	PLB.
2-Aminobenzothiazole	FMT.
1-(2-Aminoethyl)piperazine	JCC, UCC.
1-(3-Aminopropyl)morpholine	JCC.
Amyl p-dimethylaminobenzoate	VND.
Anisaldehyde bisulfite	GIV, SHL.
Arylalkyl phosphites	WES.
*Benzoic acid, sodium salt	HN, MON, PFZ, VEL, WSN.
p-Benzoquinone (p-Quinone)	EKT.
Benzothiazole	ACY.
*Benzoyl peroxide	AZT, CAD, NOC, RCI, UPR, WTL.
Biological stains	ACS, EK.
Bis-aminopropylpiperazine	JCC.
Bis(2,4-dichlorobenzoyl) peroxide	CAD, WTL.
2,4-Bis(4-hydroxy-3,5-di-tert-butylphenoxy)-6-(n-octylthio)-1,3,5-triazine.	GGY.
Bis(2-hydroxypropoxyphenyl)methane	JCC.
2,4-Bis(n-octylthio)-6-(4'-hydroxy-3',5'-di-tert-butylanilino)-1,3,5-triazine.	GGY.
Boron fluoride-phenol complex	ACS.
4-Bromoacetoxymethyl-m-dioxolane	EFH.
*Butyl benzoate	PFZ, TCC, VEL.
p-tert-Butylbenzoic acid, barium bis-salt	CCA.
2(and 3)-tert-Butyl-4-methoxyphenol	EKT.
tert-Butyl peroxybenzoate	AZT, UPR, WTL.
4-tert-Butylphenyl salicylate	DOW.
4-tert-Butylpyrocatechol	BKL, DOW.
Camphene	GLD, HPC.
Cellulose acetate phthalate	x.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)	OTC, PAS.
Chemical indicators	ACS, EK, FIN, GFS, LAM.
Chemical reagents	ACS, ARA, CLB, EK.
Chloramine B (Sodium derivative of N-chlorobenzenesulfonamide).	NES.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride.	DOW.
o-Chlorobenzamalononitrile	NCA.
Chlorophyllin, sodium-potassium-copper	KCH.
Cobalt phthalocyaninedisulfonate	ACS.
Cumene hydroperoxide	ACP, HPC, RCI.
1,3-(and 1,4-)Cyclohexadiene	ALD.
*Cyclohexanone peroxide	AZT, NOC, WTL.
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid) disubstituted, polyester salts: Barium and cadmium salts.	RCI.
Cyclohexene	EK.
Cyclohexenone and cyclopentenone	ALD.
1,4-Cyclohexylenedimethanol	EKT.
Cyclohexyl p-toluenesulfonate	ARS.
Cyclopropane	OH, OMS, TAE.
Cytidine and derivatives	PLB.
Decahydronaphthalene (Decalin)	DUP.
Decyl diphenyl phosphite	x.
Dehydroacetic acid, sodium salt	GAN.
Diaminohexanitrobiphenyl	NCA.
Diaminotrinitrobenzene	NCA.
2,5-Di-tert-amylhydroquinone	EKT.
Diamylphenyl hydrogen phosphate	SM.
1,4-Diazabicyclo(2.2.2)octane	HOU.
Diazodinitrophenol	HPC.
2,5-Di(benzoylperoxy)-2,5-dimethylhexane	UPR, WTL.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Dibromodimethylhydantoin	ARA.
2,6-Di-tert-butyl-p-cresol:	
*Food grade	ASH, HPC, KPT, PRD, SHC.
*Tech	ASH, EKT, HPC, KPT, PRD, SHC.
2,5-Di-tert-butylhydroquinone	EKT.
Di-tert-butyl diperoxyphthalate	WTL.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloroisocyanuric acid), and salts.	FMB, MON.
4,4'-Dichloro-3-trifluoromethylcarbonalide	GGY.
Dicyclohexylammonium nitrite	OMC.
Diethylamine salt of octylphenyl (and butoxyethyl) acid phosphate.	SM.
2,4-Dihydroxybenzophenone	DUP.
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.
2,2'-Dihydroxy-4-(octadecyloxy)benzophenone	ACY.
3,5-Diiodosalicylic acid	MRT.
Diisopropylbenzene hydroperoxide	HPC.
Diisopropyl-m,p-cresols	GIV.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT, GAF, UOP.
2,6-Dimethylmorpholine	DOW.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Di-n-octadecyl-3,5-di-tert-butyl-4-hydroxyphenyl phosphonate.	GGY.
1,2-Dioctylcyclobutane-3,4-bis(octamethylene isocyanate)	OTC.
Dioxane (1,4-Diethylene oxide)	DOW, UCC.
Dioxin	GIV.
2,5-Diphenyl-p-benzoquinone	EKT.
Dipropylene glycol salicylate	SBC.
Dithioammilide, monoethanolamine salt	ACY.
4-(Dodecyloxy)-2-hydroxybenzophenone	DUP, EKT.
*Enzymes:	
Hydrolytic:	
Amylases	BAX, CRN, GRP, MLS, OMS, PMP, RH, WBC.
Proteases	ARC, BAX, COM, GRP, MLS, PD, PFZ, PMP, WBC.
Other	ARC, BAX, GRP, MLS, OMS, RH, WBC.
Nonhydrolytic	ARC, MLS, PLB, WBC.
Ethyl cellulose phthalate	EK.
Ethylenediaminedi(o-hydroxyphenylacetic acid), ferric sodium salt.	GGY.
4-Ethylmorpholine	BRD, JCC.
*Flotation reagents:	
Dicresylphosphorodithioic acid (Dicresylthiophosphoric acid).	ACY.
Dicresylphosphorodithioic acid, ammonium salt	ACY.
Dicresylphosphorodithioic acid, sodium salt	KCU.
2,2'-Dimethylthiocarbanilide (Di-o-tolylthiourea)	DUP.
Rosin amines	HPC.
Thiocarbanilide (Diphenylthiourea)	ACS, ACY.
Fluorinated benzenoid chemicals	PIC.
Furan derivatives:	
2-Furaldehyde (Furfural)	QKO.
Tetrahydrofurfuryl alcohol	QKO.
Gallic acid	MAL.
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine	EKT.
6-tert-Butyl-o-cresol	TNA.
tert-Butylphenols, mixed	TNA.
2,6-Di-tert-butylphenol	TNA.
N,N'-Di-sec-butyl-o-phenylenediamine	x.
*N,N'-Di-sec-butyl-p-phenylenediamine	DUP, EKT, UPM.
2,6-Di-tert-butyl-α-dimethylamino-p-cresol	TNA.
2,6-Diethylaniline	TNA.
N,N'-Diisopropyl-p-phenylenediamine	DUP, x.
N,N'-Disalicylidene-1,2-propanediamine	DUP, EKT, TX, UPM.
Methylcyclopentadienylmanganese tricarbonyl	TNA.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Gasoline additives--Continued	
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, TNA, UPM, x.
Glyceryl p-aminobenzoate	VND.
Glyceryl tribenzoate	VEL.
Guanosine phosphates	PLB.
*Hexamethylenetetramine, tech	BOR, DUP, HKD, HMP, HN, PLS, UCC.
Hexanitrostilbene	NCA.
Homomenthyl salicylate	ARS.
Hydrindantin	HEX.
o-(2-Hydroxy-p-anisoyl)benzoic acid	ACY.
p-Hydroxybenzoic acid esters:	
Benzyl p-hydroxybenzoate	RSA.
Butyl p-hydroxybenzoate (Butylparaben)	HN, LEM.
Ethyl p-hydroxybenzoate (Ethylparaben)	HN, LEM, WSN.
n-Heptyl p-hydroxybenzoate (Heptylparaben)	WSN.
*Methyl p-hydroxybenzoate (Methylparaben)	ARS, HN, LEM, WSN.
*Propyl p-hydroxybenzoate (Propylparaben)	ARS, HN, LEM, WSN.
Other	HN, WSN.
2-Hydroxy-4-methoxybenzophenone	ACY, GAF.
2-Hydroxy-4-methoxy-5-sulfobenzophenone trihydrate	ACY.
2-Hydroxy-4-n-octoxybenzophenone	ACY.
Hydroxyphenylbenzotriazole derivatives	GGY.
2-Hydroxypropyl p-(N,N-bis-2-hydroxypropylamino)benzoate	SHL.
1-Hydroxy-2-pyridine (Omadine)	OMC.
2-Imidazolidinethione (1,3-Ethylene-2-thiourea)	PAS.
1,2,3-Indantrione monohydrate (Ninhydrin)	HEX.
Inosine phosphates	PLB.
Isobutyl vinyl ether - toluene, xylene polymers	GAF.
Isocyanuric acid	FMB, MON.
Isopropyl-o-cresols	CP.
p-Isopropyl-α-methylcinnamaldehyde	GIV.
Isopropylmorpholine	JCC.
Ketene dimer	EKT.
*Lubricating oil and grease additives:	
Chlorosulfurized and sulfurized compounds:	
Heterocyclic compounds, sulfurized	ORO.
Tall oil ester, sulfurized	LUB.
Terpenes, sulfurized	LUB.
Other	LUB, SOI.
Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt	CO.
*Oil-soluble petroleum sulfonate, barium salt	CO, LUB, TX.
*Oil-soluble petroleum sulfonate, calcium salt	CO, ENJ, LUB, ORO, SHO, TX, WTC.
Oil-soluble petroleum sulfonate, magnesium salt	CO.
*Oil-soluble petroleum sulfonate, sodium salt	CO, ENJ, MOR, PAR, SHO, SOC, SOI, WTC.
Phenol salts:	
Barium salt of nonylphenol	ENJ, CCA.
Calcium salt of octylphenol-formaldehyde	SHC.
Other	ENJ, GOC, LUB, MON, ORO, SIN, TX, x.
All other	ENJ, GOC, LUB, MON, ORO, SIN, x.
Maleic anhydride half esters, vinyl ether copolymers	GAF.
p-Menthane	HPC.
8-p-Menthyl hydroperoxide	HN, HPC.
p-Methoxybenzylidenemalonic acid, diethyl and dimethyl esters.	ACY.
4-Methoxyphenol	ASL, EKT.
Methylaziridine	ARS.
2,2'-Methylenebis(4-chlorophenol) (Dichlorophene)	GIV.
2,2'-Methylenebis(3,4,6-trichlorophenol) (Hexachlorophene)	GIV.
Methyl gallate	HSH.
Methylglucoside	CRN.
*4-Methylmorpholine	BRD, JCC, UCC.
Methyl phenyl phosphates	TNA.
1-Methyl-2-pyrrolidone, monomer	GAF.
*Morpholine	DOW, JCC, UCC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Morpholine salt of p-toluenesulfonic acid	AMB.
*Naphthenic acid salts:	
Aluminum naphthenate	HSH, WTC.
Barium naphthenate	CCA, MCI.
Cadmium naphthenate	CCA.
*Calcium naphthenate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
Cerium naphthenate	SHP.
Cobalt lead manganese naphthenate	HNX.
*Cobalt naphthenate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
Iron naphthenate	CCA, CCC, HNX, HSH, MCI, WTC.
Lead manganese naphthenate	CCA.
*Lead naphthenate	CCA, CCC, CCW, FER, HNX, HSH, MCI, SHP, SRR, TRO, TX, WTC.
Lithium naphthenate	CCA, MCI.
*Manganese naphthenate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
Nickel naphthenate	CCA.
Rare earths naphthenate	CCA.
Sodium naphthenate	CCA.
Strontium naphthenate	CCA.
*Zinc naphthenate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
o-Nitrobenzoic acid and sodium salt	WAY.
Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate	GGY.
Organic mercury compounds: Phenylmercuric borate	TRO.
Pentaerythritol tetrabenzoate	VEL.
Phenolthiosulfonic acid	GAF.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	DOW, JCC.
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-Phosphonylribose-1-pyrophosphate	PLB.
Photographic chemicals:	
N-(o-Acetamidophenethyl)-1-hydroxy-2-naphthamide	EKT.
2-(4-Amino-N-ethyl-m-toluidino)ethyl sulfate	EKT.
3-Amino-1,2,4-triazole	FMT.
*Benzotriazole	EK, FMT, MRT.
p-Benzylaminophenol hydrochloride	EK.
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.
2,5-Dibutoxy-4-morpholinobenzenediazonium salts	ESA.
2,5-Diethoxy-4-morpholinobenzenediazonium salts	ESA, FMT, GAF, IDC.
2,5-Diethoxy-4-thiocresoldiazonium salts	FMT.
*p-Diethylaminobenzenediazonium (p-Diazo-N,N-diethylaniline) zinc chloride salt.	ESA, FMT, GAF, IDC, MRT.
N,N-Diethyl-p-phenylenediamine hydrochloride	EKT, FMT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	EKT, IDC.
2,5-Dihydroxy-p-benzenedisulfonic acid salts	x.
2,5-Dihydroxybenzenesulfonic acid	EK.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline) - zinc chloride.	FMT, IDC.
4-(2',6'-Dimethylmorpholinyl)benzenediazonium chloride - zinc chloride.	IDC.
p-Diphenylaminediazonium sulfate	FMT.
p-(N-Ethylbenzimido)benzenediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline) - zinc chloride.	ESA, MRT.
*p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride	ESA, FMT, IDC.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate	FMT, IDC.
N-Ethyl-N-(β-methanesulfonamidoethyl)toluene-2,5-diamine sulfate.	EKT.
Hydroquinone (Hydroquinol)	EKT.
p-((2-Hydroxyethyl)methylamino)benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline) - zinc chloride.	ESA, FMT, IDC.
4-Methoxy-1-naphthol	x.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
p-Methylaminophenol sulfate	EK.
5-Methylbenzotriazole	EK, FMT.
4-Methyl-1-phenyl-3-pyrazolidinone	WAY.
4-Morpholinylbenzenediazonium salts	FMT, IDC.
6-Nitrobenzimidazole	EK, FMT.
Octylphenyl salicylate	EKT.
Phenyl-5-mercaptotetrazole	FMT.
1-Phenyl-3-pyrazolidinone	GGY, WAY.
4-Phenylpyrocatechol	x.
Polyvinyl cinnamate	WAY.
2-Resorcylic monoethanolamide	FMT.
4,4'-Thiodiresorcinol (Diresorcyl sulfide)	BKC.
1-(2,4,6-Trichlorophenyl)-3-(4-nitroanilino)-2-pyrazolin-5-one.	EKT.
All other	EK, EKT, FMT, IDC, x.
Phthalic acid, lead salt, dibasic	NTL.
Picramic acid, sodium salt	SDC.
*Pinene (α- and β-)	ARZ, CBY, GLD, HN, HPC, NCI.
Piperazine, ethoxylated	GAF.
Piperonal, sodium bisulfite complex	SHL.
Poly-4-(2-acryloxyethoxy)-2-hydroxybenzophenone	ACY.
Polyethylene terephthalate	DUP, EK.
Polyvinyl phthalate	EK.
Propyl gallate	EKT, HN, HSH.
Pyrogallol (Pyrogallic acid)	HSH, MAL.
Resorcinol monobenzoate	EKT.
Rosin acid salts:	
Aluminum resinate	JMS.
Calcium resinate	JMS.
Copper resinate	JMS.
Iron resinate	HSH, JMS.
Lead resinate	JMS.
Manganese resinate	JMS, WVA.
Zinc resinate	JMS.
Salicylanilide	DUP, FIN, LEM, PCW.
Salicylic acid, lead salt	NTL.
Sodium cresoxide (Cresylic acid, sodium salt)	DEX, GOC.
Sucrose benzoate	VEL.
Sulfosalicylic acid	LEM, MON, MRK.
*Tall oil salts (Linoleic-rosin acid salts):	
Barium zinc tallate	HSH.
Calcium manganese tallate	MCI.
*Calcium tallate	CCA, CCC, HNX, HSH, MCI, SRR, TRO, WTC.
*Cobalt tallate	CCA, CCC, FER, HNX, MCI, SHP, SRR, TRO, WTC.
Copper tallate	CCA, MCI, SHP.
*Iron tallate	CCA, MCI, SHP, SRR, WTC.
Lead manganese tallate	HSH, MCI.
*Lead tallate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
*Manganese tallate	CCA, CCC, FER, HNX, HSH, MCI, SHP, SRR, TRO, WTC.
Zinc tallate	HSH, MCI.
Tannic acid	MAL.
*Tanning materials, synthetic:	
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	GGY.
*2-Naphthalenesulfonic acid, formaldehyde condensate and salts.	AKS, DA, GRD, RH, TCD.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated).	RH.
Styrene maleic anhydride interpolymer, partial sodium salt.	DUP.
Sulfonyldiphenolsulfonic acid, formaldehyde condensate	GAF.
All other	AKS, GGY.
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.	GGY.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
1,3,6,8-Tetranitrocarbazole	SDC.
Tetraphenyltin	x.
Textile chemicals, other than surface-active agents:	
1,3-Bis(hydroxymethyl)-2-imidazolidone (Dimethylolethylene urea).	ACY, AKS.
4-Decyloxy-2-hydroxybenzophenone	GAF.
N^1,N^1-Diphenyl-1,2-propanediamine	SNW
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).	x.
2,2',4,4'-Tetrahydroxybenzophenone	GAF.
All other	CIB, GAF, x.
2,2'-Thiobis(4-chlorophenol)	GIV.
2,2'-Thiobis(4,6-dichlorophenol)	SDH.
(2,2'-Thiobis(4-octylphenolate))-n-butylamine nickel	ACY.
Thiophene	PAS.
o-Toluidine formaldehyde hydrochloride	RBC.
o-Tolylbiguanide	MON.
Triallyl cyanurate	ACY.
Triaryl phosphites	WES.
3,4',5-Tribromosalicylanilide	DOW, FIN, PCW.
3,4',5-Tribromosalicylanilide and 4,5-Dibromosalicylanilide mixtures.	FIN.
3,4,4'-Trichlorocarbanilide	MON.
Trichloromelamine	AMB, GAF, NES, WTH.
1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)trione (Trichloroisocyanuric acid).	MON.
Tri-(m,p-cresyl) borate	USB.
Tricyclohexyltin hydroxide	x.
Trimethylaminoethylpiperazine	JCC.
3,5,5-Trimethyl-2-cyclohexen-2-one (Isophorone)	ENJ, UCC.
2,4,6-Trinitroresorcinol, lead derivative	REM.
s-Trioxane	CEL.
Triphenylphosphine	CCW, x.
Triphenyl phosphite	HK, MON.
Tripheny1 sulfonium chloride	FIS.
Triphenyltin	x.
Uridine derivatives	PLB.
1-Vinyl-2-pyrrolidinone, monomer and polymer	GAF.
1-Vinyl-2-pyrrolidinone - acrylamide 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.
Nitrocellulose (Cellulose nitrate)	DUP, HPC.
*Cellulose ethers:	
Ethylcellulose	DOW, x.
Ethylhydroxyethylcellulose	x.
Hydroxyethylcellulose	UCC, x.
Hydroxypropylcellulose	x.
Methylcellulose	DOW.
*Sodium carboxymethylcellulose, 100%	BUK, DUP, HPC, KON, UCC, WMP, WYN.
Sodium carboxymethylhydroxyethylcellulose	x.
All other	KCH, UCC.
Lubricating Oil Additives	
*Phosphorodithioates (Dithiophosphates):	
Zinc di(butylhexyl) phosphorodithioate	ORO.
Zinc dihexyl phosphorodithioate	MON, SIN.
All other	ENJ, LUB, MON, SIN, x.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Lubricating Oil Additives--Continued	
Sulfurized butenes	LUB.
Sulfurized lard oil	CCW, GOC, NLC, WBG.
Sulfurized sperm oil	CCW, LUB, QCP, SIN.
All other	ALX, CCW, ENJ, GOC, HK, LUB, MON, ORO, SIN, SOI, TX.
Nitrogenous Compounds	
Acetamide	ACS.
Acetamidine hydrochloride	MRK.
Acetamidoethanol (N-Acetyl-ethanolamine)	ALB, RBC.
Acetone semicarbazone	NOR.
Acetonitrile	EKX, SOH, UCC.
*Acrylonitrile	ACY, BFG, DUP, MON, SOH, UCC.
Adiponitrile	DUP, MON.
Allyl-sec-butylcyanoacetic acid, ethyl ester	SDW.
1-Allyl-3-di(2-hydroxyethyl)thiourea	IDC.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea	FMT, IDC.
Allyl isothiocyanate, non-flavor grade	ARS.
*Amines:	
Allylamines	SHC.
*Butylamines:	
*n-Butylamine, mono-	PAS, UCC, VGC.
*Di-n-butylamine	PAS, UCC, VGC.
*Diisobutylamine	PAS, UCC, VGC.
Isobutylamine, mono-	ESC.
Tri-n-butylamine	PAS, UCC, VGC.
tert-Butylamine, mono-	MON, RH.
n-Butylethylamine	PAS.
n-Butylmethylamine	UCC.
Diethylenetriamine	DOW, JCC, UCC.
N,N-Diethylethylenediamine	ALB, CBP, PD.
N^1,N^1-Diethyl-1,4-pentanediamine (Novoldiamine)	SDH.
Diethylaminopropylamine	UCC.
N,N-Dimethyl-1,3-propanediamine	JCC.
Dimethylaminopropylamine	UCC.
Dipropylenetriamine	UCC.
Ethylamines:	
*Diethylamine	DUP, ESC, PAS, UCC.
Diethylamine hydrochloride	BKL.
*Ethylamine, mono-	ESC, PAS, UCC.
*Triethylamine	ESC, PAS, UCC.
*Ethylenediamine	DOW, JCC, UCC.
Ethylenediamine salts	EK, NES.
(2-Ethylhexyl)amine, mono-	VGC.
*1,6-Hexanediamine (Hexamethylenediamine)	CEL, DUP, ELP, MON.
n-Hexylamine	VGC.
3,3'-Iminobispropylamine	JCC, UCC.
Isopropylamines:	
*Diisopropylamine	ESC, PAS, UCC, VGC.
Isopropylamines, mono-	ESC, PAS, UCC, VGC.
Methylamines:	
*Dimethylamine	COM, DUP, ESC, GAF, PAS.
Dimethylamine hydrochloride	BKL, CFC, EK.
Dimethylamine sulfate	RH.
*Methylamine, mono-	COM, DUP, ESC, GAF, PAS.
Methylamine hydrochloride	RBC.
*Trimethylamine	COM, DUP, ESC, GAF, PAS.
n-Octylamine, mono-	VGC.
Pentaethylenehexamine	DOW, JCC.
Pentylamines (Amylamines):	
Dipentylamine	PAS, VGC.
Pentylamine, mono-	PAS.
Tripentylamine	PAS.
1,2-Propanediamine (Propylenediamine)	UCC.
1,3-Propanediamine (1,3-Diaminopropane)	JCC, x.
*Propylamines:	
*Dipropylamine	ESC, PAS, UCC, VGC.
*Propylamine, mono-	PAS, UCC, VGC.
Tetraethylenepentamine	DOW, JCC, UCC.

TABLE 2. --Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Amines--Continued	
N,N,N',N'-Tetramethyl-1,3-butanediamine	UCC.
Tetramethylethylenediamine	RH.
Triethylenetetramine	DOW, JCC, UCC.
Other amines	ALB, ALD, DUP, EK, JCC, ONX, NLC, NTL, UCC.
2-Amino-1-butanol	ACY, COM.
2-Aminoethanethiol (2-Mercaptoethylamine) hydrochloride	EVN.
2-Aminoethanol (Monoethanolamine) hydrochloride	WSN.
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-1-propanol	LIL.
3-Amino-1-propanol	UCC.
3-Amino-1-propylaminoethanol (N-Hydroxyethylpropanediamine).	JCC.
*1,1'-Azobisformamide	FMT, NPI, USR.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile).	DUP.
N,N-Bis(2-hydroxyethyl)-2-(stearamidomethoxy)ethylamine	CIB.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)	x.
Bis(perfluoroalkyl) phosphate, diethanolamine salt	DUP.
Bis(trimethylsilyl)acetamide	PIC.
N-Bromoacetamide	ARA.
N-Bromosuccinimide (Succinibromimide)	ARA, SDW.
2,3-Butanedione monoxime	EK.
2-Butanone oxime	ACP, ALB, CCA.
1-Butyl-3-ethyl-2-thiourea	PAS.
Butyl isocyanate	OTC, UPJ.
Butyraldehyde oxime	ACP.
n-Butyronitrile	EKX.
*Caprolactam (2-Oxohexamethylenimine)	ACP, CNP, DBC, UCC.
Chloroacetonitrile	BPC.
Chlorocholine chloride	ACY.
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride.	HEX, MCH, MRK.
3-Chloro-N,N-dimethylpropylamine	SK.
2-Chloro-N,N-dimethylpropylamine and hydrochloride	LIL, MCH.
3-Chloro-N,N-dimethylpropylamine hydrochloride	MCH.
2-Chloroethylamine hydrochloride	NES.
β-Chloroallyl-N-methylamine	LIL.
Chloro-N-(2-hydroxyethyl)acetamide	KF.
N-Chlorosuccinimide (Succinichlorimide)	ARA.
2-Chlorotriethylamine hydrochloride	MCH.
2-Chloro-N,N-diethylethylamine hydrochloride	HEX.
Choline base	RH.
Choline bisulfite	WAY.
Coco nitrile	ARC, ASH.
Coconut oil acids - ammonium condensate	PG.
Coconut oil amide	ARC.
Cottonseed oil nitrile	ASH.
Creatine and creatinine	PFN.
2-Cyanoacetamide	KF, MTR.
2-Cyanoacethydrazide	KF.
Cyanoacetic acid	KF.
Cyanoacetic acid, 2-ethylhexyl ester	GAF.
Cyanogen bromide	EK.
2-Dibutylaminoethanol	AAC, PAS.
1,3-Dibutyl-2-thiourea	PAS, RBC.
1,4-Dicyanobutene	x.
Diethanolamine polyoxypropylene ether	JCC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CEHMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Diethyl acetamidomalonate	SDW.
Diethylaminoethanethiol hydrochloride	RSA.
2-Diethylaminoethanol	AAC, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol	PAS.
2-Diethylaminoethyl methacrylate	DUP.
Diethylcarbamoyl chloride	CTN.
Diethyldithiocarbamic acid, sodium salt	EK, PAS.
N,N-Diethyldodecanamide	EK.
Diethylhydroxylamine	PAS.
1,3-Diethyl-2-thiourea	PAS, RBC.
Diisopropylaminoethanol	PAS, UCC.
2-Diisopropylaminoethyl methacrylate	DUP.
Diisopropylammonium nitrite	OMC.
N,N-Dimethylacetamide	DUP.
*2-Dimethylaminoethanol	AAC, DUP, JCC, PAS, RH, UCC.
3-Dimethylaminopropionitrile	ACY.
Dimethylaminoethyl methacrylate	x.
Dimethylamino-2-propanol	COM, PAS.
N-(3-Dimethylaminopropyl)oleamide	DUP.
Dimethylcarbamyl chloride	CTN, OTC.
N,N-Dimethylformamide	DUP.
1,1-Dimethylhydrazine	FMP.
Dithiooxamide	MAL.
2,5-Dithiobiurea	ACY.
*Erucamide	ARC, ASH, FIN, HUM.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)	DOW, JCC, MAT, OMC, SHC, UCC.
*2,2'-Iminodiethanol (Diethanolamine)	DOW, JCC, MAT, OMC, SHC, UCC.
*2,2',2''-Nitrilotriethanol (Triethanolamine)	DOW, JCC, MAT, OMC, SHC, UCC.
Ethoxymethylenemalononitrile	KF.
3-Ethoxypropionitrile	ACY.
Ethyl acetamidocyanoacetate	SDW.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS, UCC.
Ethyl carbamate	FMP.
Ethyl carbodiimide hydrochloride	OTC.
Ethyl cyanoacetate	KF.
Ethyleneimine, monomer	DOW.
Ethyleneimine, polymer	AAC, DOW.
2-Ethylhexyl cyanoacetate	KF.
N-Ethyl-N-hydroxyethyl-1,4-pentanediamine	SDW.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone	SDW.
Ethyl isocyanate	OTC.
Fish oil fatty acid amide	ASH, HUM.
Formamide	DUP.
Formamidine disulfide dihydrochloride	WAY.
Formamidine hydrochloride	KF.
Glycine (Aminoacetic acid), non-medicinal	CHT.
Glycine ethyl ester hydrochloride	BPC.
Glycine salts: Cupric glycinate	BPC.
Glycolonitrile	ACY.
Guanidine hydrochloride	ACY.
Hexadecyl nitrile	FOR.
Hexamethylenediamine carbamate	BKL.
Hexamethylenediammonium adipate (Nylon salt)	CEL, DUP, MON.
Hydracrylonitrile (Ethylene cyanohydrin)	UCC.
2-Hydrazinoethanol (2-Hydroxyethylhydrazine)	NOR.
Hydroxyethyl carbamate	JCC.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris(hydroxymethyl)nitromethane).	COM.
N-Hydroxymethylstearamide	ICI.
Hydroxypropyl carbamate	JCC.
3,3'-Iminodi-1,2-propanediol	DUP.
Isobutyl cyanoacetate	KF.
Isobutyronitrile	EKX, ESC.
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.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
3-Isopropoxypropionitrile	DUP.
3-Isopropoxypropylamine	DUP.
2-Isopropylaminoethanol	PAS.
Isopropyl ethylthionocarbamate	DOW.
Isopropyl isocyanate	OTC.
Lactonitrile	MON.
Lauronitrile (Dodecyl nitrile)	ASH.
Lysine diisocyanate methyl ester	MRK.
Malononitrile	KF, MTR.
Methacrylamide	RH, x.
Methacrylonitrile	SOH.
Methoxyamine hydrochloride	EK.
3-Methoxypropylamine	DUP, EKT, JCC.
N-Methylacetamide	EK.
2-Methylaminoethanol (N-Methylethanolamine)	BKL, UCC.
Methyl carbamate	BKL, FMP.
Methyl cyanoacetate	KF.
Methyl α-cyanoacrylate	EKT.
N,N'-Methylenebis(acrylamide)	ACY, SOH.
N,N'-Methylenebis(octadecanamide)	ARC.
Methylenebis(thiocyanate)	NLC.
N-Methylglucamine	DUP.
Methyl isocyanate	OTC, UCC.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)	UCC.
*2-Methyllactonitrile (Acetone cyanohydrin)	ACY, PAS, RH, x.
2-Methyl-2-nitro-1,3-propanediol	COM.
2-Methyl-2-nitro-1-propanol	COM.
Methylpolyethanolamine	COM, GAF.
N-Methyltaurine	GAF.
*Nitriloacids and salts:	
(Diethylenetrinitrilo)pentaacetic acid	HMP.
(Diethylenetrinitrilo)pentaacetic acid, monosodium hydrogen ferric salt.	GGY.
*(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt.	DOW, GGY, HMP.
*(Diethylenetrinitrilo)pentaacetic acid, sodium salt	CWL, GGY, RPC.
N,N-Dihydroxyethylglycine, sodium salt	CWL, DOW, HMP.
Ethanoldiglycine, disodium salt	HMP.
*(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine-tetraacetic acid).	DOW, GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt.	DOW, GGY.
(Ethylenedinitrilo)tetraacetic acid, disodium salt	DOW, EK, GGY, HMP, RPC.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate.	GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, manganese salt	GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt.	GGY, HMP, RPC.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt.	DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt.	GGY, HMP.
*(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt	CRT, CWL, DOW, GGY, HMP, HRT, RPC, x.
(Ethylenedinitrilo)tetraacetic acid, triammonium salt	DOW.
(Ethylenedinitrilo)tetraacetic acid, trisodium salt	GGY, HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid	GGY.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, iron salt.	HMP.
*(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt.	CRT, CWL, DOW, GGY, HMP, RPC, x.
Nitrilotriacetic acid	HMP.
Nitrilotriacetic acid, trisodium salt	DOW, GGY, HMP, MON.
Nitrilotriacetic acid, zinc salt	HMP.
Other	ALD, EK, GGY, HMP.
2-Nitro-1-butanol	COM.
Nitroethane	COM.
Nitromethane	COM.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
1-Nitropropane	COM.
2-Nitropropane	COM.
Nylon, 6 and 6/6 polymer for fiber	ALF, DBC, DUP, MON.
Octadecyl isocyanate	CWN, MOB, UPJ.
Octadecyloxymethyltriethylammonium chloride	DAN.
*Oleamide (Octadecene amide)	ARC, ASH, FIN, HUM.
Oleic acid, amine condensates	CCW.
Oleonitrile (Octadecene nitrile)	ARC, ASH.
Oleoylpalmitamide	FIN.
*Pentaerythritol tetranitrate	COM, DUP, HPC.
Pentyl nitrate (Amyl nitrate)	TNA.
Polyacrylamide	ACY, HPC, NLC.
Polyacrylonitrile	DUP.
Polyoxyalkylene amines	JCC.
n-Propyl carbamate	BKL.
Propyl isocyanate	OTC.
Propyl nitrate	TNA.
Quaternary ammonium compounds	EK, RSA, WAY.
Ricinolamide	TKL.
*Sarcosine (N-Methylaminoacetic acid)	GAF, GGY, HMP.
Semicarbazide base	FMT.
Semicarbazide hydrochloride	FMT.
Semioxamazide	NOR.
*Stearamide (Octadecane amide)	ARC, ASH, FIN, HUM.
*Stearic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW, CTN, GLY, ICI.
Stearic acid, other amine condensates	CIB.
Stearonitrile (Octadecanenitrile)	ARC.
Stearylerucamide	FIN.
Succinimide	ASH.
Tallow amide, hydrogenated	ARC, HUM.
Tall oil nitrile	ARC.
Tallow nitrile	ARC, ASH.
Tallow nitrile, hydrogenated	ARC, ASH.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine	WYN.
Tetramethylguanidine	ACY.
Thiosemicarbazide	ACY, FMT.
*Urea in compounds or mixtures, 100% basis:	
*In feed compounds	ACN, ACY, AGY, DUP, FTX, GCC, JDC, KET, MON, MSC, NIT, PPC, SHC, SOH, TER, TRI, VLN, WYC.
*In liquid fertilizer	ACN, AGY, AKL, APD, BOR, CFA, CNC, DUP, ESC, FCA, FTX, GCC, GOC, HKY, HPC, JDC, KET, MSC, OMC, PLC, PPC, SHC, SM, SNI, SOH, TER, VLN, WYC, x.
*In solid fertilizer	ACN, ACY, AGY, AKL, COL, DUP, GCC, GOC, HPC, JDC, MON, MSC, OMC, PPC, SHC, SNO, SOH, TER, TRI, VLN, WYC.
In plastics	ACN, DUP, MON, SHC, TRI.
All other	ACN, AGY, BOR, CNC, DUP, HKY, HPC, JDC, SHC, SNO, TER, WYC.
Urea - urethane copolymer	DUP.
All other nitrogenous compounds	ACY, ALB, ALD, BJL, BKL, CWN, DUP, EK, EKT, EVN, FIN, JCC, GAF, GNM, KF, LIL, MOB, MRK, NOR, OTC, PFN, PIC, REM, RSA, S, SNW, UCC, USB, x, x.
Acids, Acid Anhydrides, and Acyl Halides	
*Acetic acid, synthetic, 100%	BOR, CEL, EKT, HPC, MON, PUB, UCC.
*Acetic anhydride, 100%:	
From acetaldehyde	HPC.
From acetic acid	CEL, EKT, FMP.
From ethylene	UCC.
*Acrylic acid	BFG, CEL, DBC, UCC.
*Adipic acid	ACP, CEL, DUP, ELP, MON, RH.
Azelaic acid	EMR.
Behenic acid	ASH.
Brominated fatty acids	DUP.
Bromobutyric acid	GTL.
tert-Butylperoxymaleic acid	WTL.
Butylstannoic acid	CCW.
*Butyric acid	CEL, EKT, UCC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
Butyric anhydride	EKT, UCC.
Butyryl chloride	HK.
Castor oil fatty acids, dehydrated	BAC, DA.
*Chloroacetic acid, mono-	BUK, DA, DOW, HPC, MON.
Chloroacetyl chloride	DOW.
Citric acid	MLS, PFZ.
Crotonic acid (2-Butenoic acid)	EKT.
Decanoyl chloride	UPR, WTL.
Di-n-propylacetyl chloride	CTN.
Dipropylmalonic acid	CTN.
*Dodecenylsuccinic anhydride	ACS, HMY, MON.
Dodecylsuccinic anhydride	HN.
2-Ethylbutyric acid (Diethylacetic acid)	UCC.
2-Ethylhexanoic acid (α-Ethylcaproic acid)	EKT, UCC.
2-Ethylhecanoyl chloride	UPR, WTL.
Formic acid, 90%	DUP, UCC.
*Fumaric acid	ACS, HN, MON, NTL, PCC, PFZ.
*Gluconic acid, tech	CWL, DLI, PFZ, x.
Glutaric anhydride	UCC.
Glycolic acid (Hydroxyacetic acid)	DUP.
n-Hexadecenylsuccinic anhydride	HMY.
Isethionic acid (2-Hydroxyethanesulfonic acid)	GAF.
Isoascorbic acid	MRK, PFZ.
Isobutyric acid	EKT.
Isobutyric anhydride	EKT.
Isobutyryl chloride	WTL.
Iso-octanoic acid	UCC.
Itaconic acid (Methylenesuccinic acid)	PFZ.
2-Keto-D-gluconic acid	MRK.
Lactic acid:	
Edible, 100%	CLN, MON.
Technical, 100%	CLN, MON.
*Lauroyl chloride	CAD, GAF, HK, ONX, TEK, UPR, WTL.
Levulinic acid	QKO.
Maleic acid	ACS, PFN, PFZ.
*Maleic anhydride	ACS, HN, KPS, MON, PCC, PTT, RCI.
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.
2-Methylvaleric acid (2-Methylpentanoic acid)	UCC.
Neodecanoic acid	ENJ.
Neoheptanoic acid	ENJ.
Neopentanoic acid	ENJ.
Nonanoic acid (Pelargonic acid)	EMR, GIV.
Nonenylsuccinic anhydride	HMY.
Octadecylphosphonic acid	SM.
Octanoyl chloride	HK.
Octenylsuccinic anhydride	HMY.
Oleoyl chloride	GAF, HRT.
Oxalic acid	ACS, MAL, PFZ, SFI.
*Palmitoyl chloride	GAF, OPC, PD.
Pelargonyl chloride	WTL.
Peroxyacetic acid	FMB, UCC.
Pivaloyl chloride	WTL.
Polyacrylic acid	AAE, DA, RH.
Polygalacturonic acid	SKG.
*Propionic acid	CEL, COM, EKT, UCC.
Propionic anhydride	EKT, UCC.
Propionyl chloride	ABB, EK.
Sebacic acid	RH, WTH.
Sorbic acid (2,4-Hexadienoic acid)	UCC.
Succinic acid	ACS, BKC.
Succinic anhydride	ACS.
d-Tartaric acid	BKC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Acids, Acid Anhydrides, and Acyl Halides--Continued	
Tetrahydroxysuccinic acid (Dioxytartaric acid)	ACY.
Thioacetic acid	EK, EVN.
Thiolactic acid	EVN.
3,3'-Thiodipropionic acid	CCW, EVN.
Trichloroacetic acid	DOW.
Trichloroacetyl chloride	EK.
Valeric acid	UCC.
All other	ABB, ALD, CLB, CTN, EK, ENJ, GAF, HMY, PIC, RH, RSA, UCC, x, x.
Salts of Organic Acids	
*Acetic acid salts:	
Aluminum acetate	UCC.
Aluminum subacetate	ACY.
Ammonium acetate	ACS, BKC, MAL.
Ammonium titanyl acetate	DUP.
Barium acetate	ACS, BKC, MAL.
Butyltin acetates	CCW, x.
Cadmium acetate	BKC, MAL, SHP.
Calcium acetate	ACS, BKC, MAL.
Chromium acetate	ACY.
Cobalt acetate	BKC, HSH, SHP.
*Copper acetate	ACS, BKC, SHP, UCC.
Dibutyltin diacetate	CCW, x.
Lead acetate	ACS, BKC, MAL.
Lead subacetate	ACS, BKC, MAL.
Lead tetraacetate	ARA, UCC.
Magnesium acetate	ACS, BKC, SHP.
Manganese acetate	HSH, SHP.
Mercuric acetate	MAL.
Nickel acetate	BKC, HSH, SHP.
*Potassium acetate	ACS, BKC, CWL, MAL, UCC.
Silver acetate	MAL, RSA.
*Sodium acetate	ACS, BKC, CEL, DAN, EKT, MAL, UCC, WSN.
Sodium diacetate	UCC.
Strontium acetate	BKC.
*Zinc acetate	ACS, BKC, HSH, MAL, SHP, UCC.
*Zirconium acetate	HSH, NTL, TZC.
Other	CCW, DUP.
Adipic acid, ammonium salt	FIS.
Allylsulfonic acid, sodium salt	NES.
Chloroacetic acid, sodium salt	DOW.
Citric acid salts:	
Ammonium citrate	MAL, PFZ.
Calcium citrate	PFZ.
Ferric ammonium citrate	MAL, PFZ.
Ferric citrate	MAL.
Ferrous calcium citrate	BKL.
Potassium citrate	MLS, PFZ.
Sodium citrate	MLS, PFZ.
Other	PFZ.
Cottonseed oil acids, calcium salt	PD.
Di-n-propylacetic acid, sodium salt	CTN.
*2-Ethylhexanoic acid (α-Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate	WTC.
Barium 2-ethylhexanoate	CCA.
Cadmium 2-ethylhexanoate	CCA.
*Calcium 2-ethylhexanoate	CCA, CCC, FER, HNX, MCI, WTC.
*Cobalt 2-ethylhexanoate	CCA, CCC, FER, HNX, HSH, MCI, TRO, WTC.
Copper 2-ethylhexanoate	CCA.
Iron 2-ethylhexanoate	CCA, MCI.
*Lead 2-ethylhexanoate	CCA, CCC, HNX, HSH, MCI, NTL, TRO, WTC.
Lithium 2-ethylhexanoate	WTC.
*Manganese 2-ethylhexanoate	CCA, HNX, MCI, WTC.
Nickel 2-ethylhexanoate	MCI.
Potassium 2-ethylhexanoate	CCA.
Rare earths 2-ethylhexanoate	CCA.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
*2-Ethylhexanoic acid (α-Ethylcaproic acid) salts--Continued	
Stannous 2-ethylhexanoate	WTC.
Strontium 2-ethylhexanoate	CCA.
*Zinc 2-ethylhexanoate	CCA, HNX, HSH, MCI, WTC.
Zirconium 2-ethylhexanoate	CCA, CCC, HNX.
Other	EK, UCC, WTC, x.
Formic acid salts:	
Aluminum formate	UCC, WSN.
*Ammonium formate	ACS, RSA, WSN.
Calcium formate	COM.
Chromic formate	GAF.
Copper formate	CTN.
Lead formate	NTL.
Sodium formate, refined	ACS, BKC.
Sodium formate, tech	COM, HPC.
Glucoheptonic acid, zinc salt	PFN.
Gluconic acid salts:	
Ammonium gluconate	PFZ.
*Sodium gluconate	CWL, DLI, PFZ, PMP, x.
Glycolic acid, aluminum salt	CIB.
9H-Hexadecafluorononanoic acid, ammonium salt	DUP.
Humic acids, sodium salts	NLC.
Isoascorbic acid, sodium salt	MRK.
Lactic acid salts:	
Ammonium lactate	TCC.
Calcium lactate	SHF.
Other	PFN, REH, WTC.
Lauric acid salts:	
Barium cadmium laurate	CCA.
Dibutyltin dilaurate	x.
Zinc laurate	SNW.
*Linoleic acid salts:	
Calcium linoleate	CCA, SHP, SRR.
Cobalt linoleate	SHP.
Copper linoleate	SHP, WTC.
Lead linoleate	SHP, SRR.
Lead manganese linoleate	SDH.
Manganese linoleate	SHP, SRR.
Maleic acid salts:	
Dibutyltin maleate	x.
Lead (tribasic) maleate	NTL.
Malonic acid, calcium salt	GIV.
*Mercaptoacetic acid (Thioglycolic acid) salts:	
Ammonium mercaptoacetate	EVN, HAB, TNI.
Antimony mercaptoacetate	CCA.
Calcium mercaptoacetate	EVN.
Dibutyltin mercaptoacetate	CCA.
Potassium mercaptoacetate	EVN.
Sodium mercaptoacetate	EVN.
Mercaptopropionic acid, dibutyltin salt	CCA, x.
Methylsuccinic acid, disodium salt	SDW.
Neodecanoic acid salts:	
Cadmium neodecanoate	CCA.
Lead neodecanoate	CCA.
Zinc neodecanoate	CCA.
Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate	DA.
Barium cadmium octanoate	CCA.
Stannous octanoate	CCW.
Zinc octanoate	BKC.
Oleic acid salts:	
Aluminum oleate	WTC.
Ammonium oleate	MCI.
Barium zinc oleate	WTC.
Calcium oleate	MCI.
Chromium oleate	SHP.
Cobalt oleate	MCI.
*Copper oleate	MCI, SHP, WTC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Oleic acid salts--Continued	
Lead oleate	MCI, SHP, WTC.
Lithium oleate	MCI.
Manganese oleate	MCI.
Stannous oleate	CCW.
Zinc oleate	MCI.
Zirconium oleate	MCI.
Other	MCI.
Oxalic acid salts:	
Ammonium oxalate	ACS, BKC, PFZ.
Ferric ammonium oxalate	PFZ.
Ferric oxalate	PFZ.
Ferric sodium oxalate	PFZ.
Ferrous oxalate	BKL.
Potassium binoxalate	BKC.
Potassium oxalate	BKC, PFZ.
Sodium oxalate	BKC, MAL.
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.
Other	ACY.
*Polyacrylic acid salts:	
Ammonium polyacrylate	BFG.
Sodium polyacrylate	ALC, BFG, DA, GRD, JOR, RH.
Polymethacrylic acid, sodium salt	GRD.
Propionic acid salts:	
*Calcium propionate	PFZ, UCC, WSN.
*Sodium propionate	PFZ, UCC, WSN.
Zinc propionate	BKC.
Ricinoleic acid salts:	
Calcium ricinoleate	BAC.
Lithium ricinoleate	BAC.
Other	BAC.
Sodium ethyl oxalacetate	FMP.
Sodium polypectate	SKG.
Sodium sorbitol borate	APD.
Sorbic acid salts:	
Potassium sorbate	UCC.
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum distearate	ACY, DA, JTC, MAL, NOC, SYP, WTC, x.
*Aluminum monostearate	DA, MAL, SYP.
*Aluminum tristearate	DA, MAL, NOC, SYP, x.
Ammonium stearate	DA, NOC, WTC.
Barium stearate	DA, NOC, SYP, WTC.
Cadmium stearate	DA, SYP, WTC.
*Calcium stearate	ACY, DA, HNX, JTC, MAL, NOC, SYP, WTC, x.
Cobalt stearate	WTC.
Copper stearate	NOC, WTC.
Ferric stearate	MCI, NOC, WTC.
Ferrous stearate	NOC.
Lead stearate	DA, NTL, WTC.
Lead stearate, dibasic	NTL.
Lithium stearate	DA, SYP, WTC.
*Magnesium stearate	ACY, JTC, MAL, NOC, SYP, WTC, x.
Manganese stearate	NOC, WTC.
Nickel stearate	WTC.
Strontium stearate	WTC.
*Zinc stearate	ACY, CCA, DA, HNX, JTC, MAL, NOC, SYP, WTC, x.
All other	APD, DA, KCH, MAL, NOC, SYP.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Succinic acid, sodium salt	MAL.
Tartaric acid salts:	
Antimony potassium tartrate	PFZ.
Potassium bitartrate	ACY.
Potassium sodium tartrate	PFZ.
Sodium bitartrate	PFZ.
Vinylsulfonic acid, sodium salt	x.
Xanthic acid salts:	
Potassium ethylxanthate	ACY, DOW.
Potassium hexylxanthate	DOW.
Potassium isopropylxanthate	DOW.
Potassium pentylxanthate	ACY, DOW.
Potassium sec-pentylxanthate	DOW.
Sodium n-butylxanthate	KCC, USR.
Sodium sec-butylxanthate	ACY, DOW.
Sodium ethylxanthate	ACY, DOW.
Sodium isobutylxanthate	DOW.
Sodium isopropylxanthate	ACY, DOW.
All other salts of organic acids	CCW, CWN, DA, EK, FIS, NTL, PFN, PIC, RSA, SYP, x.
Aldehydes and Ketones	
*Acetaldehyde	CEL, COM, DUP, EKT, EKX, HPC, MON, PUB, SHC, UCC.
*Acetone:	
*From cumene	ACP, CLK, HPC, MON, PCC, SHC, SKO, SOC, UCC.
*From isopropyl alcohol	EKT, ENJ, SHC, UCC.
Other	CEL, DIX, HPC, OCC.
Acrolein (Acrylaldehyde)	SHC, UCC.
Aldol (Acetaldol)	UCC.
*2-Butanone (Methyl ethyl ketone)	ATR, CEL, DIX, EKT, ENJ, SHC, UCC.
Butyraldehyde	CEL, EKX, UCC.
*Chloral (Trichloroacetaldehyde)	DA, FMB, MTO.
5-Chloro-2-pentanone	SDW.
1-Chloro-1-penten-3-one (Chlorovinyl ethyl ketone)	x.
Chloro-2-propanone (Chloroacetone)	EK.
Crotonaldehyde	CEL, EKT, UCC.
Dichloroacetaldehyde	FMB.
Dihydropseudoionone	GIV.
1,4-Dihydroxy-2-butanone	GAF.
1,3-Dihydroxy-2-propanone (Dihydroxyacetone)	BAX.
2-Ethylbutyraldehyde	UCC.
2-Ethylhexanal (α-Ethylcaproaldehyde)	EKX, UCC.
*Formaldehyde (37% by weight)	ACN, BOR, CBC, CBD, CEL, COM, DUP, GAF, GOC, HKD, HN, HPC, MON, RCI, RH, UCC.
Glutaraldehyde	UCC.
Glyoxal	UCC.
2-Heptanone (Methyl amyl ketone)	UCC.
Heptyl methyl ketone	ARC.
Hexaldehyde	GIV.
2,5-Hexanedione (Acetonylacetone)	ACI, RBC, UCC.
2-Hydroxy-2-methyl-3-butanone	LOL.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	CEL, SHC, UCC.
Isobutyraldehyde	EKX, UCC.
Isodecaldehyde, mixed isomers	UCC.
Isovalerone (Diisobutyl ketone)	EKT, UCC.
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)	CLN.
4-Methoxy-4-methyl-2-pentanone	SHC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)	EKT, UCC.
Methyl nonyl ketone	ARC.
*4-Methyl-2-pentanone (Methyl isobutyl ketone)	EKT, ENJ, SHC, UCC.
4-Methyl-3-penten-2-one (Mesityl oxide)	SHC, UCC.
Methylpseudoionone	GIV.
2-Methylvaleraldehyde (2-Methylpentaldehyde)	UCC.
Paraformaldehyde	CEL, HN.
Paraldehyde (Paracetaldehyde)	UCC.
2,4-Pentanedione (Acetylacetone)	UCC.
3-Pentanone (Diethyl ketone)	HEX.
Propionaldehyde	EKX, UCC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Aldehydes and Ketones--Continued	
Pseudoionone	GIV.
Tetrahydropseudoionone	GIV.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)	UCC.
All other	ALD, CEL, EK, GIV, UCC.
Alcohols, Monohydric, Unsubstituted	
*Alcohols C_9 or lower, unmixed:	
Allyl alcohol	DOW, FMP, SHC.
Amyl alcohols:	
2-Methyl-1-butanol	UCC.
2-Methyl-2-butanol (tert-Amyl alcohol)	SHC.
1-Pentanol	UCC.
2-Pentanol	UCC.
Butyl alcohols:	
Primary:	
*Iso (Isopropylcarbinol)	DBC, EKX, SHC, UCC.
*Normal (n-Propylcarbinol)	CEL, CO, DBC, EKX, ENJ, SHC, TNA, UCC.
Secondary (Methylethylcarbinol)	ENJ, SHC.
Tertiary (Trimethylcarbinol)	SHC, x.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)	UCC.
*Ethyl alcohol, synthetic	CEL, EKX, ENJ, HPC, PUB, SHC, UCC, USI.
2-Ethyl-1-hexanol	CEL, EKX, ENJ, SHC, UCC.
2-Ethyl-4-methyl-1-pentanol	EKX.
Heptyl alcohol	EKX, GOC.
*Hexyl alcohol	CO, EKX, ENJ, PG, TNA, UCC.
Hexynol	CUC, LIL.
*Iso-octyl alcohols	ENJ, GOC, HOU, PCC, TID, UCC.
*Isopropyl alcohol	ENJ, SHC, UCC.
*Methanol, synthetic	ACN, BOR, CEL, COM, DUP, ESC, GOC, HN, HPC, MON, RH, UCC.
2-Methyl-3-butyn-2-ol	CUC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	SHC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)	CUC.
Nonyl alcohols	ENJ, GOC.
*1-Octanol	CO, DUP.
*2-Octanol (sec-Capryl alcohol)	RH, WTH.
Octanols, other	IFF, PG.
*Propyl alcohol (Propanol)	CEL, EKX, UCC.
2-Propyn-1-ol	GAF.
All other	CUC, EK, EKX, GYR, UCC.
*Alcohols C_{10} or higher, unmixed:	
*Decyl alcohols	CO, DUP, ENJ, GOC, HOU, PCC, TID, UCC.
3,9-Diethyl-6-tridecanol	UCC.
3,6-Dimethyl-3-octanol	CUC.
Dodecyl alcohol (Lauryl alcohol) (95%)	CO, DUP.
7-Ethyl-2-methyl-4-hendecanol	UCC.
*1-Hexadecanol (Cetyl alcohol) (95%)	ASH, DUP, GIV.
*Hexadecyl alcohols, other	CO, ENJ, PG.
*1-Octadecanol (Stearyl alcohol) (95%)	ASH, CO, DUP, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)	ASH, DUP.
Tetradecyl alcohols	CO, PG, UCC.
*1-Tridecanol	ENJ, GOC, HOU, TID, UCC.
2,6,8-Trimethyl-4-nonanol	UCC.
All other	GOC.
*Mixtures of alcohols:	
*C_9 and lower only:	
Amyl alcohols	ENJ, PUB, UCC.
Other	CEL, EKX.
*C_{10} and higher only	ASH, CO, ENJ, ICI, PG, SHC, TNA.
*C_6 to C_{12} and others	CO, EKX, GOC, PG, TNA.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Polyhydric Alcohols and Their Esters and Ethers	
*Polyhydric alcohols:	
1,4-Butanediol	GAF.
1,2(and 1,3)-Butanediol (Butylene glycol)	CEL.
1,2,4-Butanetriol	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	NEP.
2,5-Dimethyl-2,5-hexanediol	CUC.
2,5-Dimethyl-3-hexyne-2,5-diol	CUC.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	EKX.
*Ethylene glycol	APD, CAU, CEL, DOW, DUP, EKX, GAF, HCH, JCC, MAT, OMC, SHC, UCC, WYN.
2-Ethyl-1,3-hexanediol	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylol propane).	CEL.
Glycerol, synthetic	APD, DOW, FMP, SHC.
1,6-Hexanediol	CEL.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylol-ethane).	COM.
Mannitol	APD.
3-Mercapto-1,2-propanediol (Thioglycerol)	EVN.
Methylglycerol	APD.
*2-Methyl-2,4-pentanediol (Hexylene glycol)	CEL, SHC, UCC.
*2-Methyl-2-propyl-1,3-propanediol	ABB, ARS, BKL, COM.
*Pentaerythritol	CEL, COM, HN, HPC, RCI.
*Propylene glycol (1,2-Propanediol)	APD, CEL, DOW, JCC, OCC, OMC, UCC, WYN.
*Sorbitol	APD, BRD, MRK, PFZ.
2,2,4-Trimethyl-1,3-pentanediol	EKX.
All other	APD, CUC, PHR, PIC, UCC.
*Polyhydric alcohol esters:	
1,3-Butanediol dimethacrylate	SAR.
2-(2-Butoxyethoxy)ethyl acetate	EKT, UCC.
2-Butoxyethyl acetate	EKT, UCC.
Diethylene glycol chloroformate	PPG.
2-(2-Ethoxyethoxy)ethyl acetate	EKT.
2-Ethoxyethyl acetate	DOW, EKT, UCC.
Ethylene glycol diacetate	EKT, UCC.
Ethylene glycol dimercaptoacetate	EVN.
Ethylene glycol dimethacrylate	CTN, SAR.
Ethylene glycol hydroxyacetate	CCA.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol trimethacrylate.	SAR.
Glyceryl monoacetate (Monoacetin)	HAL.
Glyceryl triacetate (Triacetin)	EKT, UCC.
Glyceryl trioleate	GRO, HAL.
Glycol adipate	x.
Hydroxyethyl methacrylate	AAC.
Hydroxypropyl methacrylate	JCC.
2-Methoxyethyl acetate	UCC.
Methoxytriethyleneglycol acetate	RBC.
Pentaerythritol caprylate	DRW.
Pentaerythritol pelargonate	DRW.
Polyethylene glycol dimethacrylate	SAR.
Sucrose octa-acetate	PD.
Tetraethylene glycol dimethacrylate	SAR.
Triethylene glycol dimethacrylate	SAR, USB.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	EKX.
All other	EK, EVN, SAR, UCC, x.
*Polyhydric alcohol ethers:	
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).	UCC
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether).	UCC.
Bis(hydroxyethyl) ether butynediol	GAF.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether.	ASL.
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl ether).	ASL, OMC.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--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	
*2-Butoxyethanol (Ethylene glycol monobutyl ether)	DOW, EKX, JCC, OMC, SHC, UCC.
*2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether).	DOW, EKX, OMC, SHC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether).	DOW, OMC, UCC.
1-Butoxyethoxy-2-propanol	UCC.
*Diethylene glycol	CAU, DOW, EKX, GAF, HCH, JCC, MAT, OMC, SHC, UCC. WYN.
Dimethoxyethane (Ethylene glycol dimethyl ether)	ASL.
*Dipropylene glycol	CEL, DOW, JCC, OCC, OMC, UCC.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOW, EKX, JCC, OMC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether).	DOW, EKX, JCC, OMC, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).	DOW, OMC, UCC.
2-[2-(Hexyloxy)ethoxy]ethanol	UCC.
Isobutoxyethanol	EKX, UCC.
1-Isobutoxy-2-propanol (Propylene glycol isobutyl ether).	DOW.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)	DOW, EKX, JCC, HCH, OMC, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether).	DOW, EKX, JCC, HCH, OMC, 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, JCC, UCC.
3-(3-Methoxypropoxy)propanol	DOW, JCC, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol	DOW.
Methyl butynoxyethanol	CUC.
Polybutylene glycol	NLC.
Polyethoxyethylsorbitol	APD, TCH.
*Polyethylene glycol	DOW, DUP, GAF, HDG, JCC, MAT, NLC, OMC, UCC, WYN.
*Polypropoxy ethers:	
*Glycerol tri (polyoxypropylene) ether	JCC, OMC, UCC, WYN.
*Other	APD, DA, DOW, HDG, JCC, UCC, WYN.
*Polypropylene glycol	DOW, JCC, HDG, NLC, OMC, UCC, WYN.
Polytetramethylene ether glycol	DUP, QKO, x.
Tetraethylene glycol	DOW, EKX, UCC.
1,1,3,3-Tetramethoxypropane	KF, UCC.
2,2'-Thiodiethanol (Thiodiglycol)	UCC.
*Triethylene glycol	CAU, DOW, EKX, GAF, HCH, JCC, MAT, OMC, UCC.
Tripropylene glycol	DOW, UCC.
All other	DOW, EKX, GAF, UCC.
Esters of Monohydric Alcohols	
Allyl methacrylate	x.
Amyl acetates, 90%:	
Isopentyl acetate (Isoamyl acetate)	NW.
n-Pentyl acetate	PFW.
Mixed	PFW, PUB, UCC.
Butyl acetates:	
Iso	EKT, EKX, ENJ, UCC.
*Normal	CEL, EKT, ENJ, PUB, SHC, UCC.
Secondary	ENJ, HPC, PUB, SHC.
Tertiary	EK.
*Butyl acrylate	CEL, DBC, RH, UCC.
n-Butyl 4,4-bis(tert-butylperoxy)valerate	WTL.
Butyl chloroacetate	MON.
Butyl lactate	COM.
Butyl maleate, mono-	PCC.
tert-Butyl peroxyacetate	AZT, WTL.
tert-Butyl peroxy-2-ethylhexanoate	AZT, UPR, WTL.
tert-Butyl peroxyisobutyrate	AZT, UPR, WTL.
tert-Butyl peroxyisopropylcarbonate	PPG, WTL.
tert-Butyl peroxypivalate	AZT, WTL.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
Cetyl lactate	VND.
Diallyl maleate	RCI.
Di(sec-butyl) chloroformate	WTL.
Dibutyl fumarate	MON, PFZ, RCI, RUB.
*Dibutyl maleate	CUC, DUP, MON, PCC, RCI, RUB.
Di(sec-butyl) peroxydicarbonate	WTL.
Diethyl sec-butylethylmalonate	ABB.
Diethyl butylmalonate	BPC.
Diethyl sec-butylmalonate	ABB.
*Diethyl carbonate (Ethyl carbonate)	CTN, FMP, OTC.
Diethyl diethylmalonate (Diethyl malonic ester)	BPC, LIL.
Diethyl (ethoxymethylene)malonate	KF.
Diethyl ethylmalonate (Ethyl malonic ester)	LIL.
Diethyl ethyl(1-methylbutyl)malonate (Ethyl-1-methyl butyl malonic ester).	ABB.
Di(2-ethylhexyl) chloroformate	WTL.
Di(2-ethyl-1-hexyl) fumarate	RUB.
Di(2-ethyl-1-hexyl) maleate	HRT, RUB.
Di(2-ethyl-1-hexyl) peroxydicarbonate	WTL.
Diethyl maleate	ACY, UCC.
Diethyl malonate (Malonic ester)	ABB, KF, LIL.
Diethyl (1-methylbutyl)malonate	ABB.
Diethyl oxalate (Ethyl oxalate)	FMP.
Diisobutyl maleate	RUB.
Di-iso-nonyl maleate	RUB.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)	PPG, WTL.
Dilauryl maleate	DUP.
Dilauryl 3,3'-thiodipropionate	ACY, CCW, EVN, HAB.
Dimethyl acetylenedicarboxylate	EK.
Dimethyl carbonate	CTN, OTC.
2,5-Dimethylhexane 2,5-diperoctoate	UPR.
Dimethyl maleate	AAC.
Dimethyl malonate	KF.
Dimethyl methoxymethylene malonate	KF.
Di(4-methyl-2-pentyl) maleate	RUB.
Dimyristyl 3,3'-thiodipropionate	CCW.
*Dioctyl maleate	MON, PCC, RCI, RUB.
*Distearyl 3,3'-thiodipropionate	ACY, CCW, EVN, HAB.
Dithiobis(stearyl propionate)	EVN.
Ditridecyl maleate	RUB.
Di(tridecyl) 3,3'-thiodipropionate	ACY, EVN.
*Ethyl acetate (85%)	CEL, EKT, EKX, ENJ, HPC, MON, PUB, UCC.
Ethyl acetoacetate	EKT, UCC.
*Ethyl acrylate	CEL, DBC, RH, UCC.
Ethyl chloroacetate	DOW, KF, MON.
Ethyl chloroformate	CTN, FMP, OTC.
Ethylene carbonate	JCC.
Ethyl formate	COM.
2-Ethyl-1-hexyl acetate	EKT, UCC.
*2-Ethyl-1-hexyl acrylate	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate	x.
Ethylidene diacetate	CEL.
Ethyl propionate	NW.
Ethyl silicate (Tetraethoxysilane)	SFA.
Ethyl sulfate (Diethyl sulfate)	UCC.
Ethyl thioglycolate	EVN.
Fatty acid esters, not included with plasticizers or surface-active agents:	
Dimethyl brassylate	EMR.
Ethyl stearate	ARS.
Hexadecyl stearate	ICI.
Isopropyl linoleate	VND.
Methyl esters of coconut oil	PG.
*Methyl esters of tallow	BFR, CHL, HUM.
Methyl 12-hydroxystearate	BAC, HUM.
Methyl stearate	DA, PG.
Myristyl myristate	VND.
All other	DA, GAF.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
Glycidyl acrylate	AAE.
Glycidyl methacrylate	AAE.
Hexyl acetate	ENJ.
Isobutyl acrylate	DBC, RH, UCC.
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, HPC, UCC.
Isopropyl chloroformate	CTN, PPG.
Lauryl lactate	VND.
Methallylidene diacetate	UCC.
Methyl acetate	EK, MON, UCC.
Methyl acetoacetate	EKT, UCC.
Methyl acrylate, monomer	CEL, DBC, RH.
Methyl borate	MHI, SFA.
Methyl chloroacetate	DOW, KF.
Methyl chloroformate	CTN, FMP.
Methyl dichloroacetate	KF, PD.
Methyl formate	DUP.
*Methyl methacrylate, monomer	ACY, DUP, RH.
4-Methyl-2-pentyl acetate	SHC, UCC.
Methyl sulfate (Dimethyl sulfate)	DUP.
Methyl vinyl acetate	UCC.
Myristyl lactate	VND.
Octadecyl 3-mercaptopropionate	EVN.
*Phosphorus acid esters:	
Bis(2-ethylhexyl) hydrogen phosphate	UCC.
Bis(2-ethylhexyl) hydrogen phosphite	SM.
Butyl hydrogen phosphates	SM.
Dibutyl butylphosphonate	SM.
Dibutyl hydrogen phosphite	SM.
Didodecyl hydrogen phosphate	DUP.
Diethyl phosphorochloridothionate	SF.
Diisopropyl hydrogen phosphite	SM.
Dimethyl hydrogen phosphite	SM.
Dimethyl methylphosphonate	SM.
Dimethyl phosphorochloridothionate	SF.
Dioleyl hydrogen phosphite	SM.
Iso-octyl hydrogen phosphate	SM.
Methyl hydrogen phosphates	HK.
Oleyl hydrogen phosphate	SM.
Triamyl phosphite	SM.
Tributyl phosphate	COM.
Tributyl phosphite	SFI, SM.
Tridecyl phosphite	HK.
Triethyl phosphite	SM.
Triiso-octyl phosphite	SM.
Triisopropyl phosphite	SM.
Trimethyl phosphate	TNA.
Trimethyl phosphite	SM.
Tris(2-chloroethyl) phosphite	SM.
Tris(chloroisopropyl) thionophosphate	TNA.
Tris(2,3-dibromopropyl) phosphate	MCH.
Tris(2-ethylhexyl) phosphite	SM.
Tris(octadecyl) phosphite	SM.
All other	ALD, DUP, EK, MON, SM, TNA, WES.
*Propyl acetate	CEL, EKT, PUB, UCC.
Propylene carbonate	DOW, JCC.
Tetraoctyl orthosilicate	MON.
Titanic acid esters:	
Tetrabutyl titanate	DUP.
Tetraisopropyl titanate	DUP.
Tetrakis(2-ethylhexyl) titanate	DUP.
Other	DUP.
Triethyl orthoacetate	KF.
Triethyl orthoformate	KF.
Triethyl orthopropionate	KF.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Esters of Monohydric Alcohols--Continued	
Triisodecyl orthoformate	KF.
Trimethyl orthoformate	KF.
*Vinyl acetate, monomer	BOR, CEL, CUC, DUP, MON, NSC, UCC.
All other	ALD, CCA, CEL, DUP, EK, EMR, EVN, FMP, HAL, KF, LIL, PCC, PUB, RH, RT, TNI, UCC, UPR, VND.
Halogenated Hydrocarbons	
1-Bromobutane (n-Butyl bromide)	ABB, BPC, 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-Bromo-3-methylbutane (Isoamyl bromide)	LIL.
1-Bromo-3-methyl-2-butene	SDW.
1-Bromo-octadecane	DUP, GAF.
1-Bromopentane (n-Amyl bromide)	BPC, EK.
2-Bromopentane (1-Methylbutyl bromide)	ABB, LIL.
1-Bromopropane (n-Propyl bromide)	BPC, EK.
2-Bromopropane (Isopropyl bromide)	BPC.
3-Bromopropene (Allyl bromide)	DOW.
Bromotrichloromethane	MCH.
Bromotrifluoromethane	x.
*Carbon tetrachloride	ACS, DA, DOW, FMB, FRO, PPG, SFI, TNA.
*Chlorinated paraffins:	
35%-64% chlorine	CCH, DA, DVC, HK, HPC, ICI, KPS, 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.
1-Chloro-1,1-difluoroethane	ACS, DUP, PAS.
*Chlorodifluoromethane	ACS, DUP, KAI, PAS, UCC.
*Chloroethane (Ethyl chloride)	AME, DOW, DUP, HPC, PPG, SHC, TNA.
*Chloroform	ACS, DA, DOW, DUP, FRO, SFI.
2-Chloro-3-hexyne	LIL.
*Chloromethane (Methyl chloride)	ACS, ANM, 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	HK, MMM.
Chlorotrifluoromethane	DUP, PAS, UCC.
Dibromodifluoromethane	DOW.
*1,2-Dibromoethane (Ethylene dibromide)	DOW, ETD, GTL, HCH, MCH, TNA.
Dibromomethane (Methylene bromide)	DOW, UCC.
1,2-Dibromo-1,1,2,2-tetrafluoroethane	DUP.
Dichlorobutadiene	DUP.
1,3-Dichloro-2-butene	DUP.
1,4-Dichlorobutene	DUP.
*Dichlorodifluoromethane	ACS, DUP, KAI, PAS, UCC.
*1,2-Dichloroethane (Ethylene dichloride)	ACS, AME, BFG, CO, DA, DOW, FRO, JCC, PPG, 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, UCC.
1,1-Difluoroethane	ACS, DUP.
Difluorotetrachloroethane	DUP, UCC.
Diiodomethane (Methylene iodide)	NTB, SDW.
Hexafluoropropylene, monomer	CLB, DUP.
Iodobutane (Butyl iodide)	CLB, RSA.
*Iodoethane (Ethyl iodide), tech	CLB, EK, FMT, RSA.
Iodoform (Triiodomethane)	NTB.
*Iodomethane (Methyl iodide)	CLB, EK, FMT, RSA.
1-Iodoperfluorohexane	TKL, x.
Octafluorocyclobutane	DUP.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOW.
Tetrabromoethane	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)	DUP.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Halogenated Hydrocarbons--Continued	
*Tetrachloroethylene (Perchloroethylene)	DA, DOW, DUP, FRO, HK, PPG, SFI, TNA, TTX.
Tetrafluoroethylene, monomer	DUP, PAS, TKL.
Tetrafluoroethylene, polymer	ACP, DUP, PAS, TKL.
Tetrafluoromethane	DUP.
*1,1,1-Trichloroethane (Methyl chloroform)	DOW, PPG, TNA.
1,1,2-Trichloroethane (Vinyl trichloride)	DOW, UCC.
*Trichloroethylene	DA, DOW, DUP, HK, PPG, TNA, TTX.
*Trichlorofluoromethane	ACS, DUP, KAI, PAS, UCC.
1,2,3-Trichloropropane	DOW, SHC.
1,2,3-Trichloropropene	DOW.
Trichlorotrifluoroethane	ACS, DUP, UCC.
Vinyl bromide (Bromoethylene)	DOW.
*Vinyl chloride, monomer (Chloroethylene)	ACS, AME, BFG, CO, DA, DOW, HN, MNO, PPG, TNA, UCC.
Vinyl fluoride	x.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	DOW, x.
Vinylidene fluoride	x.
All other	CLB, DUP, DVC, EK, GAF, SDW, UCC.
All Other Miscellaneous Acyclic Chemicals	
Acetyl peroxide	AZT, WTL.
Aluminum isopropoxide (Aluminum isopropylate)	CHT, KCH.
*2-Butanone peroxide	AZT, CAD, NOC, RCI, UPR, WTL.
*tert-Butyl hydroperoxide	AZT, CAD, NOC, UPR, WTL.
*tert-Butyl peroxide (Di-tert-butyl peroxide)	AZT, CAD, NOC, SHC, UPR, WTL.
Butyrolactone	GAF.
*Carbon disulfide	ACS, FMB, PAS, PPG, SFI.
2-Chloroethanol (Ethylene chlorohydrin)	UCC.
Decanoyl peroxide	UPR, WTL.
Dialdehyde starch	MLS.
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.
2,5-Dimethyl-2,5-dihydroperoxyhexane	UPR.
Epoxides, ethers, and acetals:	
Acetone dimethylacetal (2,2-Dimethoxypropane)	DOW.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	AAC, DOW.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKL.
Bis(2-chloroethyl) ether (Dichlorodiethyl ether)	DOW, UCC.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).	DOW.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)	DOW.
Butylene oxide	DOW.
Butyl ether (Di-n-butyl ether)	PUB, UCC.
Butyl vinyl ether	GAF.
2-Chloro-1,1-dimethoxyethane (Dimethyl chloroacetal)	LIL.
2-Chloroethyl vinyl ether	UCC.
Chloromethyl methyl ether	BPC, HK, RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether	DOW.
Epichlorohydrin	DOW, SHC.
*Ethylene oxide	CAU, CEL, DOW, EKX, GAF, HCH, JCC, MAT, NWP, OMC, SHC, SNO, UCC, WYN.
*Ethyl ether:	
Absolute	MAL.
Tech	ENJ, HPC, UCC, USI.
U.S.P	MAL, OMS.
Ethyl vinyl ether	GAF, UCC.
Glycidol (2,3-Epoxy-1-propanol)	DIX, OTC.
Isobutyl vinyl ether	GAF.
Isopropyl ether	ENJ, SHC, UCC.
Methylal (Dimethoxymethane)	CEL.
Methyl ether (Dimethyl ether)	COM, DUP, UCC.
Methyl vinyl ether	GAF, UCC.
*Propylene oxide	CEL, DOW, JCC, OCC, OMC, UCC, WYN.
Other	ALD, EK, EVN, GAF, ICI, UCC.
Ethanedithiol	RBC.
Ethanethiol	EK.
2-(Ethylmercapto)ethanol	PLC.
Fats and oils, chemically modified	ABB, CHL, DOM, SDW.
Glucono-delta-lactone	DLT, PFZ.

TABLE 2.--Miscellaneous chemicals: Items for which U.S. production or sales were reported, identified by manufacturer, 1969--Continued

Chemical	Manufacturers' identification codes (according to list in table 3)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
All Other Miscellaneous Acyclic Chemicals--Continued	
Glutaraldehyde bis(sodium bisulfite)	IDC.
Hexachlorodimethyl sulfone	SFA.
n-Hexadecyl disulfide	PAS.
Hydrocarbons:	
1-Butyne (Ethylacetylene)	CUC.
n-Dodecane	HMY.
Ethylene, from ethyl alcohol, medicinal grade	OH.
Hexadecane	HMY.
Myrcene	IFF, NCI.
n-Octane	HMY.
1-Octadecene	HMY.
Propyne (Methylacetylene)	CUC.
Other	HMY.
*Lauroyl peroxide	AZT, CAD, TEK, UPR, WTL.
Magnesium methylate	MRT.
Methanesulfanol	PAS.
Methyldisulfide	CRZ.
Methyl sulfide (Dimethyl sulfide)	CRZ.
Methyl sulfoxide	CRZ.
Organo-aluminum compounds:	
Diethylaluminum iodide	TSA.
Ethylaluminum chlorides	TNA, TSA.
Isobutylaluminum chlorides	TNA, TSA.
Methylaluminum chlorides	TNA.
Triethylaluminum	TNA, TSA.
Triisobutylaluminum	TNA, TSA.
Other	TNA, TSA.
Organo-boron compounds	ACS, SFA.
Organo-lead compounds:	
*Tetraethyllead	DUP, HCH, NLC, TNA.
*Tetramethyllead	DUP, NLC, TNA.
*Tetra(methyl-ethyl)lead	DUP, HCH, TNA.
Organo-lithium compounds	FTE.
Organo-magnesium halides	ARA, x.
Organo-mercury compounds	NTB.
Organo-silicon compounds:	
Monomers	DCC, TRC, UCC.
*Polymers	DCC, ORO, SFA, SPD, UCC.
Organo-tin compounds:	
Bis(tributyltin) oxide	CCW, x.
Dibutyltin dichloride	CCW, x.
Dibutylmethoxytin (Dibutyl tin methoxide)	CCA.
Other	CCA, PCW, x.
Perchloromethanethiol (Perchloromethyl mercaptan)	CHO.
Perlargonyl peroxide	WTL.
*Phosgene (Carbonyl chloride)	ACS, CTN, DUP, MOB, OMC, OTC, PPG, RUC, UCC, UPJ, VDM.
Pine oil, synthetic	CBY, NCI.
β-Propiolactone	CEL.
Propionyl peroxide	WTL.
Rare sugars	PFN, RSA.
Sodium ethoxide	FMP.
Sodium formaldehyde bisulfite	EK, IDC.
*Sodium formaldehyde sulfoxylate	DA, RH, ROY.
*Sodium methoxide (Sodium methylate)	DA, DUP, OMC, RBC, SFA.
Sodium vinyl sulfonate	CUC.
Succinyl peroxide	WTL.
Tetrakis(hydroxymethyl)phosphonium chloride	HK.
Tributylphosphine	CCW.
Tridecyl mercaptan	PAS.
Trioctylphosphine oxide	EK.
*Zinc formaldehyde sulfoxylate	DA, RH, ROY.
Other	ALD, ALX, ARS, CUC, DA, EK, GAF, LCI, NES, PIC, RSA, SDW, SFA, TNA, UCC, WTL, x, x.

TABLE 3.--Miscellaneous chemicals: Directory of Manufacturers, 1969

ALPHABETICAL DIRECTORY BY CODE

Code	Name of company
AAC	Alcolac Chemical Corp.
AAE	American Aniline & Extract Co.
ABB	Abbott Laboratories
ACI	Aceto Industrial Chemical Corp.
	Allied Chemical Corp.:
ACN	Agricultural Div.
ACP	Plastics Div.
ACS	Specialty Chemicals Div.
ACY	American Cyanamid Co.
AGY	Agway, Inc., Nitrogen Div.
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.
ANM	Ancon Chemical Corp.
APD	Atlas Chemical Industries, Inc.
ARA	Arapahoe Chemicals Div. of Syntex Corp.
ARC	Armour Industrial Chemical Co.
ARM	USS Agri-Chemicals, Inc.
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., American Viscose Div.
AZT	Dart Industries, Inc., Aztec Chemicals Div.
BAC	Baker Castor Oil Co.
BAX	Baxter Laboratories, Inc.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
BFR	Branchflower Co.
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., Benzol Products Div.
BRD	Baird Chemical Industries, Inc.
BUK	Buckeye Cellulose Corp.
CAD	Chemetron-Noury Corp.
CAU	Calcasieu Chemical Corp.
CBC	Georgia-Pacific Corp., Coos Bay Div.
CBP	Ciba Pharmaceutical Co.
CBY	Crosby Chemicals, Inc.
CCA	Carlisle Chemical Works, Inc., Advance Div.
CCC	Chase Chemical Corp.
CCH	Pearsall Chemical Co.
CCW	Carlisle Chemical Works, Inc.
CEL	Celanese Corp.:
	Celanese Chemical Co.
	Celanese Fibers Co.
	Celanese Plastics Co.
CFA	Cooperative Farm Chemicals Association
CFC	Sun Chemical Corp.
CHL	Chemol, Inc.
CHO	Stauffer Chemical Co., Calhio Chemicals, Inc. Div.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.
CIB	Ciba Chemical & Dye Co.
CLB	Columbia Organic Chemicals Co., Inc.
CLK	Clark Oil & Refining Corp., Clark Chemical Co.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.
CNC	Columbia Nitrogen Corp.
CNP	Columbia Nipro Co.
CO	Continental Oil Co.
COL	Collier Carbon & Chemical Corp.
COM	Commercial Solvents Corp.
CP	Colgate-Palmolive Co.
CRN	CPC International, Inc.
CRT	Crest Chemical Corp.
CRZ	Crown Zellerbach Corp., Chemical Products Div.
CTN	Chemetron Corp., Organic Chemical Div.
CUC	Air Reduction Co., Inc., Airco Chemicals & Plastics
CWL	Stauffer Chemical Co., Cowles Chemical Div.
CWN	Upjohn Co., Carwin Organic Chemicals
DA	Diamond Shamrock Corp.
DAN	Dan River Mills, Inc.
DBC	Dow Badische Co.
DCC	Dow Corning Corp.
DEX	Dexter Chemical Corp.
DIX	Dixie Chemical Co.
DLI	Dawe's Laboratories, Inc.
DOM	Dominion Products, Inc.
DOW	Dow Chemical Co.
DRW	Drew Chemical Corp.
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	Enjay Chemical Co.
ESA	East Shore Chemical Co., Inc.
ESC	Escambia Chemical Corp.
ETD	Ethyl-Dow Chemical Co.
EVN	Evans Chemetics, Inc.
FCA	Farmers Chemical Association, Inc.
FER	Ferro Corp., Ferro Chemical Div.
FIN	Fine Organics, Inc.
FIS	Fisher Chemical Co., Inc.
	FMC Corp.:
FMB	Inorganic Chemicals Div.
FMP	Organic Chemicals Div.
FMT	Fairmount Chemical Co., Inc.
FRO	Vulcan Materials Co., Chemicals Div.
FTE	Foote Mineral Co.
FTX	Central Farmer's Fertilizer Co., Fel-Tex Plant
GAF	GAF Corp., Dyestuff & Chemical Div.
GAN	Gane's Chemical Works, Inc.
GCC	W. R. Grace & Co., Agricultural Chemical Group
GFS	G. Frederick Smith Chemical Co.
GGY	Geigy Chemical Corp.
GIV	Givaudan Corp.
GLD	SCM Corp., Glidden-Durkee Div.
GLY	Glyco Chemicals, Inc.

TABLE 3.--Miscellaneous chemicals: Directory of Manufacturers, 1969--Continued

Code	Name of company
GOC	Gulf Oil Corp.-U.S., Gulf Oil Co., Chemicals Dept.
GPR	Grain Processing Corp.
GRD	W. R. Grace & Co., Polymers & Chemicals Div.
GRO	Millmaster Onyx Corp., A. Gross & Co. Div.
GTL	Great Lakes Chemical Corp.
GYR	Goodyear Tire & Rubber Co.
HAB	Halby Products Co., Inc.
HAL	C. P. Hall Co. of Illinois
HCH	Houston Chemical Corp.
HDG	Hodag Chemical Corp.
HEX	Hexagon Laboratories, Inc.
HK	Hooker Chemical Corp.:
HKD	Durez Plastics Div.
HKY	Hawkeye Chemical Co.
HMP	W. R. Grace & Co., Hampshire Chemical Div.
HMY	Humphrey Chemical Co.
HN	Tenneco Chemicals, Inc.:
HNX	Nuodex Div.
HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Div.
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.
IDC	Industrial Dyestuff Co.
IFF	International Flavors & Fragrances, Inc.
JCC	Jefferson Chemical Co., Inc.
JDC	Nipak, Inc.
JMS	J. Meyer & Sons, 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.
KET	Ketona Chemical Corp.
KF	Kay-Fries Chemicals, Inc.
KON	H. Kohnstamm & Co., Inc.
KPS	Koppers Pittsburgh Co.
KPT	Koppers Co., Inc., Organic Materials Div.
LAM	LaMotte Chemical Products Co.
LCI	Lachat Chemicals, Inc.
LEM	B. L. Lemke & Co., Inc.
LIL	Eli Lilly & Co., Inc.
LUB	Lubrizol Corp.
MAL	Mallinckrodt Chemical Works
MAT	Matador Chemical Co., Inc.
MCH	Michigan Chemical Corp.
MCI	Mooney Chemicals, Inc.
MET	M & T Chemicals, Inc.
MHI	Ventron Corp., Metal Chemicals Div.
MLS	Miles Laboratories, Inc., Marschall Div.
MMM	Minnesota Mining & Manufacturing Co.
MNO	Monochem, Inc.
MOB	Mobay Chemical Co.
MON	Monsanto Co.
MOR	Mineral Oil Refining Co.
MRK	Merck & Co., Inc.
MRT	Morton Chemical Co.
MSC	Mississippi Chemical Corp.
MTO	Montrose Chemical Corp. of California
MTR	Chris-Craft Industries, Inc., Montrose Chemical Div.
NCA	Northrop Carolina, Inc.
NCI	Union Camp Corp., Chemical Div.
NEP	Nepera Chemical Co., Inc.
NES	Nease Chemical Co., Inc.
NEV	Neville Chemical Co.
NIT	Nitrin, Inc.
NLC	Nalco Chemical Co.
NOC	Norac Co., Inc. and Mathe Chemical Co. Div.
NOR	Norwich Pharmacal Co.
NPI	National Polychemicals, Inc.
NSC	National Starch & Chemical Corp.
NTB	National Biochemical Co.
NTL	National Lead Co.
NW	Northwestern Chemical Co.
NWP	Northern Petrochemicals Co.
OCC	Oxirane Chemical Co.
OH	Air Reduction Co., Inc., Ohio Medical Products 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.
OTC	Ott Chemical Co.
PAR	Pennsylvania Refining Co.
PAS	Pennwalt Corp.
PCC	USS Chemicals Div. of U.S. Steel Corp.
PCW	Pfister Chemical Works
PD	Parke, Davis & Co.
PFN	Pfanstiehl Laboratories, Inc.
PFW	Polak's Frutal Works, Inc.
PFZ	Pfizer, Inc.
PG	Procter & Gamble Co.
PHR	Pharmachem Corp.
PIC	Pierce Organics, 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 Corp.
PUB	Publicker Industries, Inc.
QCP	Quaker Chemical Corp.
QKO	Quaker Oats Co.
RBC	Roberts Chemicals Div. of Security Chemicals, Inc.
RCI	Reichhold Chemicals, Inc.
REH	Reheis Chemical Co. Div. of Armour Pharmaceutical Co.
REM	Remington Arms Co., Inc.
RH	Rohm & Haas Co.
ROY	Royce Chemical Co.
RPC	Millmaster Onyx Corp., Refined-Onyx Div.

TABLE 3.--Miscellaneous chemicals: Directory of Manufacturers, 1969--Continued

Code	Name of company
RSA	R.S.A. Corp.
RT	F. Ritter & Co.
RUB	Hooker Chemical Corp., Ruco Div.
RUC	Rubicon Chemicals, Inc.
S	Sandoz-Wander, Inc.
SAR	Sartomer Resins, Inc.
SBC	Scher Bros.
SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
	Sterling Drug, Inc.:
SDH	Hilton-Davis Chemical Co. Div.
SDW	Winthrop Laboratories Div.
SF	Stauffer Chemical Co.:
SFA	Specialty Chemical Div.
SFI	Industrial Div.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHF	Kraftco Corp., Sheffield Chemical Co. Div.
SHL	Nitine, Inc. Div. of Shulton, Inc.
SHO	Shell Oil Co.
SHP	Shepherd Chemical Co.
SIN	Atlantic Richfield Co., Products Div., Mid-Continent Area
SK	Smith, Kline & French Laboratories
SKG	Sunkist Growers, Inc.
SKO	Skelly Oil Co.
SM	Mobil Oil Corp., Mobil Chemical Co. 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., Silicone Products Dept.
SRR	Stresen-Reuter International, International Minerals & Chemical Corp.
SYP	Synthetic Products Co.
TAE	Chemetron Corp., National Cylinder Gas Div.
TCC	Tanatex Chemical Corp.
TCD	Tenneco Chemical, Inc., Tenneco Colors Div.
TCH	Trylon Chemicals, 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.
TOC	Tanatex Chemical Corp.
TRC	Toms River Chemical Corp.
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 Div.
UPJ	Upjohn Co.
UPM	Universal Oil Products Co.
UPR	Witco Chemical Corp., U.S. Peroxygen Div.
USB	U.S. Borax Research Corp.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.
USR	Uniroyal, Inc., Chemical Div.
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.
WES	Weston Chemical Corp.
WM	Wilson Pharmaceutical & Chemical Corp., Wilson-Martin Div.
WMP	Warner Machine Products, Inc., Warner Chemical Div.
WOB	Woburn Chemical Corp.
WSN	Mallinckrodt Chemical Works, Washine Div.
WTC	Witco Chemical Co., Inc.
	Pennwalt Corp.:
WTH	Harchem Div.
WTL	Lucidol Div.
WYC	Wycon Chemical Co.
WYN	Wyandotte Chemicals Corp.

Note.--For complete names and addresses of the above reporting companies, refer to table 1 in the Appendix.

APPENDIX

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1969 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
ABB	Abbott Laboratories	14th St. and Sheridan Rd., N. Chicago, IL 60664.
ABS	Abex Corp., American Brakelok Div	2401 S. Loudoun (Paper Mill Rd.), Winchester, VA 22601.
ACI	Aceto Industrial Chemical Corp.	126-02 Northern Blvd., Flushing, New York, NY 11368.
ACE	Acme Chemical Co	2506 N. 32d St., Milwaukee, WI 53245.
AGY	Agway, Inc., Nitrogen Div	1446 Buffalo St., Olean, NY 10760.
HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Div.	1339 Chestnut St., Philadelphia, PA 19107.
	Air Reduction Co., Inc.:	
CUC	Airco Chemicals & Plastics	150 E. 42d St., New York, NY 10017.
OH	Ohio Medical Products Div	1400 E. Washington Ave., Madison, WI 53701.
ALC	Alco Chemical Corp	Trenton Ave. and William St., Philadelphia, PA 19134.
AAC	Alcolac Chemical Corp	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.:	
ACN	Agricultural Div	40 Rector St., New York, NY 10006.
ALF	Fibers Div	1411 Broadway, New York, NY 10018.
ACP	Plastics Div	P. O. Box 365, Morristown, NJ 07960.
ACS	Specialty Chemicals Div	Columbia Rd. & Park Ave., Morristown, NJ 07960.
ACU	Union Texas Petroleum Div	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.
AML	Amalgamated Chemical Corp	Ontario and Rorer Sts., Philadelphia, PA 19134.
AMC	Amchem Products, Inc	Brookside Ave., Ambler, PA 19002.
AES	Amerace-Esna Corp., Chemical Specialties Div.	74 Hudson Ave., Tanafly, NJ 07670.
DLH	Amerada Hess, Hess Oil & Chemical Div	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	100 Park Ave., New York, NY 10017.
AME	American Chemical Corp	2112 E. 223d St., 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.
APT	American Petrochemical Corp., Mol Rez Div	3134 California St., NE., Minneapolis, MN 55426.
AMP	American Potash & Chemical Corp., Sub. of Kerr-McGee Corp	Robert S. Kerr Ave., Oklahoma City, OK 73102.
ASY	American Synthetic Rubber Corp	P. O. Box 360, Louisville, KY 40201.
APL	Ameripol, Inc	3135 Euclid Ave., Cleveland, OH 44115.
ALB	Ames Laboratories, Inc	200 Rock Lane, Milford, CT 06460.
ACC	Amoco Chemical Corp	130 E. Randolph Dr., Chicago, IL 60601.
ANM	Ancon Chemical Corp	1 Stanton St., Marinette, WI 54143.
ASL	Ansul Chemical Co	1 Stanton St., Marinette, WI 54143.
APX	Apex Chemical Co., Inc	200 S. 1st St., Elizabethport, NJ 07206.
HAP	Applied Plastics Co	130 Penn St., El Segundo, CA 90245.
ARA	Arapahoe Chemicals Div. of Syntex Corp	2855 Walnut St., Boulder, CO 80302.
ARD	Ardmore Chemical Co., Inc	840 Valley Brook Ave., Lyndhurst, NJ 07071.
ARN	Arenol Chemical Corp	40-33 23d St., Long Island City, NJ 11101.
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	Armour Industrial Chemical Co	111 E. Wacker Dr., Chicago, IL 60601.
AGP	Armour-Dial, Inc	111 E. Wacker Dr., Chicago, IL 60601.
ARP	Armour Pharmaceutical Co	P. O. Box 511, Kankakee, IL 60901.
ARK	Armstrong Cork Co	Liberty and Charlotte Sts., Lancaster, PA 17604.
APV	Armstrong Paint Chemcon, Inc	1330 S. Kilbourn Ave., Chicago, IL 60623.
ARL	Arol Chemical Products Co	371 Wayne St., Jersey City, NJ 07302.
ARS	Arsynco, Inc	P. O. Box 8, Carlstadt, NJ 07072.
ASH	Ashland Oil & Refining Co	1401 Winchester Ave., Ashland, KY 41101.
	Ashland Chemical Co. Div	170 N. High St., Columbus, OH 43215.
BLA	Astor Products, Inc. Sub. of Winn-Dixie Stores, Inc	P. O. Box B, Jacksonville, FL 32203.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
AST	Astra Pharmaceutical Products, Inc----------	7-1/2 Neponset St., Worcester, MA 01606.
ATP	Atco Chemical Industrial Products, Inc., Fine Chemicals Div.	93 Main St., Franklin, NJ 07416.
ATL	Atlantic Chemical Corp----------	10 Kingsland Rd., Nutley, NJ 07110.
	Atlantic Richfield Co.:	
ATR	ARCO Chemical Co. Div----------	260 S. Broad St., Philadelphia, PA 19101.
SIN	Products Div., Mid-Continent Area----------	155 N. Wacker Dr., Chicago, IL 60606.
APD	Atlas Chemical Industries, Inc----------	Wilmington, DE 19899 and P. O. Box 87, Joplin, MO 64801.
APR	Atlas Processing Co----------	P. O. Box 9188, 3546 Midway St., Shreveport, LA 71109.
ABR	Atomic Basic Chemicals Corp----------	P. O. Box 146, Eighty-four, PA 15330.
AVS	Avisun Corp----------	River Rd. & Grantham Lane, New Castle, DE 19720.
BAS	BASF Corp----------	Ft. of Central Ave., S. Kearny, NJ 07032.
BRP	BP Oil Corp----------	Midland Bldg., Cleveland, OH 44115.
BRD	Baird Chemical Industries----------	22-10 Route 208, Fair Lawn, NJ 07410.
BAC	Baker Castor Oil Co----------	40 Avenue A, Bayonne, NJ 07002.
BKC	J. T. Baker Chemical Co----------	222 Red School Lane, Phillipsburg, 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.
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., Canajoharie, NY 13317.
BCM	Belding Chemical Industries----------	1439 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.
BUC	Blackman-Uhler Chemical Co----------	P.O. Box 5627, Spartanburg, SC 29301.
BOR	Borden, Inc., Borden Chemical Div----------	350 Madison Ave., New York, NY 10017.
MCB	Borg-Warner Corp., Marbon Chemical Div--------	P.O. Box 68, Washington, WV 26181.
BOY	Boysen Paint Co----------	42d & Linden Sts., Oakland, CA 94608.
BFR	Branchflower Co----------	4501 Shilshole Ave., NW., Seattle, WA 98101.
BRS	Bristol-Meyers Co., Bristol Laboratories Div--	Thompson Rd., E. Syracuse, NY 13201.
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. (U.S.A.), Inc--------	1 Scarsdale Rd., Tuckahoe, NY 10707.
CRN	CPC International, Inc.:	International Plaza, Englewood Cliffs, NJ 07632.
ACR	Acme Resin Co. Div----------	1401 Circle Ave., Forest Park, IL 60130.
PEN	Penick Div----------	100 Church St., New York, NY 10008.
CBT	Samuel Cabot, Inc----------	246 Summer St., Boston, MA 02210.
CAU	Calcasieu Chemical Corp----------	P.O. Box 1522, Lake Charles, LA 70601.
CBM	Carborundum Co., Coated Abrasives----------	Walmore Rd., Niagara Falls, NY 14302.
CGL	Cargill, Inc----------	Cargill Bldg., Minneapolis, MN 55402.
CCW	Carlisle Chemical Works, Inc----------	West St.; Reading, OH 45215.
CCA	Advance Div----------	500 Jersey Ave., New Brunswick, NJ 08903.
CM	Carpenter-Morton Co----------	376 3d St., Everett, MA 02149.
CRS	Carus Chemical Co., Inc----------	1375 8th St., LaSalle, IL 61301.
CEL	Celanese Corp. of America----------	522 5th Ave., New York, NY 10036.
	Celanese Coatings Co----------	1495 S. 11th St., Louisville, KY 40208.
FTX	Central Farmers Fertilizer Co., Fel-Tex Div---	P.O. Box 68, Fremont, NB 68025.
UPL	Champion Papers, Inc., U.S. Plywood Div., California Operations, Shasta Area	P.O. Box 2713, Redding, CA 96002.
CCL	Charlotte Chemical Laboratories----------	P.O. Box 948, Charlotte, NC 28201.
CPP	Charmin Paper Products Co----------	800 Hoberg St., Green Bay, WI 54305.
CCC	Chase Chemical Corp----------	3527 Smallman St., Pittsburgh, PA 15201.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.	1715 W. 38th St., Chattanooga, TN 37409.
CHG	Chemagro Corp----------	P.O. Box 4913, Station "F", Kansas City, MO 64120.
CBD	Chembond Corp----------	P.O. Box 270, Springfield, OR 97477.
	Chemetron Corp.:	
TAE	National Cylinder Gas Div----------	840 N. Michigan Ave., Chicago, IL 60611.
CTN	Organic Chemical Div----------	P.O. Box 480, Newport, TN 37821.
HSC	Pigments Div----------	P.O. Box 2166, Huntington, WV 25722.
CAD	Chemetron-Noury Corp----------	2153 Lockport-Olcott Rd., Burt, NY 14028.
CI	Chem-Fleur, Inc----------	200 Pulaski St., Newark, NJ 07105.
CHF	Chemical Formulators, Inc----------	P.O. Box 26, Nitro, WV 25143.
CIS	Chemical Insecticide Corp----------	30 Whitman Ave., Metuchen, NJ 08840.
CKL	Chemlek Laboratories, Inc----------	4040 W. 123d St., Alsip, IL 60658.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
CHL	Chemol, Inc	P.O. Box 20687, Greensboro, NC 27420.
CPX	Chemplex Co	3100 Golf Rd., Rolling Meadows, IL 60008.
ORO	Chevron Chemical Co	200 Bush St., San Francisco, CA 94120.
CPC	Childs Pulp Colors, Inc	43 Summit St., Brooklyn, NY 11231.
MTR	Chris-Craft Industries, Inc., Montrose Chemical Div.	100 Lister Ave., Newark, NJ 07105.
CIB	Ciba Chemical & Dye Co	Route 208, Fair Lawn, NJ 07410.
CRA	Ciba Argochemical Co	556 Morris Ave., Summit, NJ 07901.
CBP	Ciba Pharmaceutical Co	556 Morris Ave., Summit, NJ 07901.
CBA	Ciba Products Co	556 Morris Ave., Summit, NJ 07901.
	Cities Service Co.:	
LVY	Levey Div	380 Madison Ave., New York, NY 10017.
CPG	Petrochemicals Group	380 Madison Ave., New York, NY 10017.
CSO	Cities Service Oil Co	P.O. Box 300, Tulsa, OK 74101.
CLK	Clark Oil & Refining Corp., Clark Chemical Co-	131st St. & Kedzie Ave., Blue Island, IL 60406.
CLY	W. A. Cleary Corp	P.O. Box 749, New Brunswick, NJ 08903.
CLI	Clintwood Chemical Co	4342 S. Wolcoth Ave., Chicago, IL 60609.
CSP	Coastal States Petrochemical Co	P.O. Drawer, 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.
SUG	Colonial Sugars Co., Sucro-Chemical Div	Gramercy, LA 70052.
CNP	Columbia Nipro Corp	P.O. Box 1483, Augusta, GA 30903.
CNC	Columbia Nitrogen Corp	P.O. Box 1483, Augusta, GA 30903.
CLB	Columbia Organic Chemicals Co., Inc	912 Drake St., Columbia, SC 29205.
CBN	Columbian Carbon Co., Inc., Chemicals Div.	P.O. Box 1522, Lake Charles, LA 70601.
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	P.O. Box 3623, Ponce, PR 00731.
CPI	Commonwealth Petrochemicals, Inc. Sub of Commonwealth Oil Refining Co., Inc.	P.O. Box 3623, Ponce, PR 00731.
SED	Conchemco, Inc	18th & Garfield Sts., Kansas City, MO 64127.
CON	Concord Chemical Co., Inc	17th & Federal Sts., Camden, NJ 08105.
CPL	Conoco Plastics	P.O. Box 236, Wilton, CT 06897.
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.
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.
CMC	Cos-Mar Co	P.O. Box 11, Carville, LA 70721.
CRT	Crest Chemical Corp	225 Emmet St., Newark, NJ 07114.
CRD	Croda, Inc	51 Madison Ave., New York, NY 10010.
ALT	Crompton & Knowles Corp., Althouse Div	500 Pear St., Reading, PA 19603.
CBY	Crosby Chemicals, Inc	P.O. Box 460, DeRidder, LA 70634.
CCP	Crown Central Petroleum Corp	P.O. Box 1168, Baltimore, MD 21203.
MRA	Crown Metro, Inc	12 Dudley St., Providence, RI 02905.
CRZ	Crown Zellerbach Corp., Chemical Products Div-	Camas, WA 98607.
CUL	Culver Chemical Co	1502 N. 25th St., Melrose Park, IL 60160.
CUT	Cutter Laboratories, Inc	4th and Parker Sts., Berkeley, CA 94710.
DAN	Dan River Mills, Inc	Danville, VA 24541.
	Dart Industries, Inc.:	
AZT	Azetec Chemicals Div	P.O. Box 756, Elyria, OH 44035.
FBF	Fiberfil Div	1701 N. Heidelbach Ave., Evansville, IL 47717.
RIK	Riker Laboratories Div	19901 Nordhoff St., Northridge, CA 91324.
DYS	Davies-Young Co	705 Albany St., Dayton, OH 45401.
DLI	Dawe's Laboratories, Inc	4800 S. Richmond St., Chicago, IL 60632.
DEG	Degen Oil & Chemical Co	200 Kellogg St., Jersey City, NJ 07305.
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., Waukegan, IL 60085.
DPI	Diamond Plastics, Inc	P.O. Box 666, Paramount, CA 90723.
DA	Diamond Shamrock Corp	300 Union Commerce Bldg., Cleveland, OH 44114.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
TDC	Diversey Corp., Diversey Chemical Co. Div-----	212 W. Monroe St., Chicago, IL 60606.
DIX	Dixie Chemical Co----------	3635 W. Dallas Ave., Houston, TX 77019.
DCP	Dixie Chemical Products, Inc----------	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----------	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.
DRW	Drew Chemical Corp----------	416 Division St., Boonton, NJ 07005.
DUN	Frank W. Dunne Co----------	1007 41st St., Oakland, CA 94608.
CAP	Duplan Corp., Rochester Button Div----------	300 State St., Rochester, NY 14614.
DUP	E. I. duPont de Nemours & Co., Inc----------	DuPont Bldg., Wilmington, DE 19898.
DSC	Dye Specialties, Inc----------	26 Journal Sq., Jersey City, NJ 07306.
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 Barney Ave., Muskegon, MI 49443.
ECL	Eastside Chemical Laboratory----------	12880 Bellevue-Richmond Rd., Bellevue, WA 98004.
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 & PCS	Emery Industries, Inc----------	4300 Carew Tower, Cincinnati, OH 45202 and 8733 S. Dice Rd., Santa Fe Springs, CA 90670.
EMK	Emkay Chemical Co----------	319 2d St., Elizabeth, NJ 07206.
EN	Endo Laboratories, Inc----------	1000 Stewart Ave., Garden City, NY 11530.
ENO	Eneco, Inc----------	P.O. Box 398, Memphis, TN 38101.
ENJ	Enjay Chemical Co----------	P.O. Box 201, Florham Park, NJ 07932.
NPP	Enjay Fibers & Laminates Co. Div----------	Odenton, MD 21113.
EPC	Epoxylite Corp----------	1428 N. Tyler Ave., S. El Monte, CA 91733.
ESC	Escambia Chemical Corp----------	P.O. Box 467, Pensacola, Fl 32570.
TNA	Ethyl Corp----------	330 S. 4th St., Richmond, VA 23217.
ETD	Ethyl-Dow Chemical Co----------	Midland, MI 48640.
EVN	Evans Chemetics, Inc----------	90 Tokeneke Rd., Darien, CT 06820.
	FMC Corp.:	
AV	American Viscose Div----------	1617 John F. Kennedy Blvd., Philadelphia, PA 19103.
FMB	Inorganic Chemicals Div----------	633 3d Ave., New York, NY 10017 and Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FMN	Niagara Chemical Div----------	100 Niagara St., Middleport, NY 14105.
FMP	Organic Chemicals Div----------	633 3d Ave., New York, NY 10017.
	Nitro Plant----------	633 3d Ave., New York, NY 10017.
FRP	FRP Company	P.O. Box 349, Baxley, GA 31513.
FAB	Fabricolor Manufacturing Corp----------	24-1/2 Van Houten St., Paterson, NJ 07505.
FMT	Fairmount Chemical Co., Inc----------	117 Blanchard St., Newark, NJ 07105.
FOC	Farac Oil & Chemical Co. Div. of Handschy Chemical Co.	13601 S. Ashland Ave., Riversale, IL 60627.
KNG	Far-Best Corp., O. L. King Div----------	640 Gilman St., Berkeley, CA 94710.
FCA	Farmers Chemical Association, Inc----------	P.O. Box 87, Harrison, TN 37341.
FRM	Farmer's Chemical Co----------	P.O. Box 591, 3713 W. Main St., Kalamazoo, MI 49005.
FAR	Farnow, Inc----------	77 Jacobus Ave., S. Kearny, NJ 07032.
FEL	Felton International, Inc----------	599 Johnson Ave., Brooklyn, NY 11237.
	Ferro Corp.:	
FER	Ferro Chemical Div----------	P.O. Box 349, 7050 Kreck Rd., Bedford, OH 44146.
OTA	Ottawa Chemical Div----------	700 N. Wheeling St., Toledo, OH 43605.
FIN	Fine Organics, Inc----------	205 Main St., Lodi, NJ 07644.
	Firestone Tire & Rubber Co.:	
FRL	Firestone Foam Products Co----------	P.O. Box 2290, Fall River, MA 02777.
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----------	580 Sylvan Ave., Englewood, NJ 07632.
FIS	Fisher Melamine Corp----------	580 Sylvan Ave., Englewood, NJ 07632.
FLM	Fleming Laboratories, Inc----------	P.O. Box 10372, 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----------	4614 Spring Grove Ave., Cincinnati, OH 45232.

TABLE 1.-- Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
FG	Foster Grant Co., Inc	289 N. Main St., Leominster, MA 01453.
FH	Foster-Heaton Co	16 E. 5th St., Paterson, NJ 07524.
FCD	France, Campbell & Darling, Inc	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.:	
	Dyestuff & Chemical Div	P.O. Box 12, Linden, NJ 07036.
	Textile Chemical Div	1228 Chestnut St., Chattanooga, TN 37402.
GAN	Gane's Chemical Works, Inc	535 5th Ave., New York, NY 10017.
GGY	Geigy Chemical Corp	444 Saw Mill River Rd., Ardsley, NY 10502.
GE	General Electric Co	1 Plastics Ave., Pittsfield, MA 01201.
GE	Laminated Products Dept	1 Plastics Ave., Coshoctor, OH 43812.
GEI	Insulating Materials Dept	1 River Rd., Schenectady, NY 12305.
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	General Mills Chemicals, Inc	4620 W. 77th St., Minneapolis, MN 55435.
GNM	Chemical Div	Quimby Street, Ossining, NY 10562.
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.
	Georgia-Pacific Corp.:	
PSP	Bellingham Div	P.O. Box 1236, Bellingham, WA 98225.
CBC	Coos Bay Div	P.O. Box 869, Coos Bay, OR 97420.
TID	Getty Oil Co	Delaware City, DE 19706.
TNI	Gillette Chemical Co. Div. of Gillette Co	P.O. Box 362, N. Chicago, IL 60064.
GIL	Gilman Paint & Varnish Co	W. 8th and Pine Sts., Chattanooga, TN 37401.
GIV	Givaudan Corp	125 Delawanna Ave., Clifton, NJ 07014.
GLY	Glyco Chemicals, Inc	Greenwich, CT 06830.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	3135 Euclid Ave., Cleveland, OH 44137.
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.
GRC	Dubois Chemicals Div	634 Broadway, Cincinnati, OH 45202.
HMP	Hampshire Chemical Div	Poisson Ave., Nashua, NH 03060.
GRH	Hatco Chemical Div	629 Amboy St., Edison, NJ 08817.
MRO	Marco Chemical Div	1711 W. Elizabeth Ave., Linden, NJ 07036.
GRD	Polymers & Chemicals Div	50 Independence Rd., Octon, MA 01720.
GRL	Vestal Laboratories Div	4963 Manchester Ave., St. Louis, MO 63110.
GPR	Grain Processing Corp	1600 Oregon St., Muscatine, LA 52761.
GRA	Great American Chemical Corp	85 Water St., Fitchburg, MA 01420.
GTL	Great Lakes Chemical Corp	P.O. Box 2200, West Lafayette, IN 47906.
GRW	Great Western Sugar Co	P.O. Box 5308, Terminal Annex, Denver, CO 80217.
GRV	Guardsman Chemical Coatings, Inc	1350 Steele Ave., SW., Grand Rapids, MI 49502.
	Gulf Oil Corp.--U.S.	
GOC	Gulf Oil Co., Chemicals Dept	P.O. Box 2100, Houston, TX 77001.
PGU	Gulf Adhesives	632 N. Cannon Ave., Lansdale, PA 19446.
GTH	Guth Corp	332 S. Center St., Hillside, IL 60162.
HNC	H & N Chemical Co	90 Maltese Dr., Totowa, NJ 07512.
HLI	Haag Laboratories, Inc	14010 S. Seeley Ave., Blue Island, IL 60406.
HAB	Halby Products Co., Inc	600 Terminal Ave., New Castle, DE 19720.
HAL	C. P. Hall Co. of Illinois	7300 S. Central Ave., Chicago, IL 60638.
HAM	Hampden Color & Chemical Co	126 Memorial Dr., Springfield, MA 01101.
HAN	Hanna Chemical Coatings Corp	P.O. Box 147, Columbus, OH 43216.
HSH	Harshaw Chemical Co. Div. of Kewanee Oil Co	1945 E. 97th St., Cleveland, OH 44106.
HRT	Hart Products Corp	1440 Broadway, New York, NY 10018.
HVG	Haveg Industries, Inc	900 Greenbank Rd., Wilmington, DE 19808.
HKY	Hawkeye Chemical Co	P.O. Box 899, Clinton, LA 52733.
HCR	Hercor Chemical Corp	P.O. Box 3623, Ponce, PR 00731.
HPC	Hercules, Inc	910 Market St., Wilmington, DE 19899.
IMP	Imperial Color & Chemical Dept	P.O. Box 231, Glen Falls, NY 12803.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory or manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
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 10469.
HDG	Hodag Chemical Corp	7247 N. Central Park Ave., Skokie, IL 60076.
HOF	Hoffmann-LaRoche, Inc	324 Kingsland St., Nutley, NJ 07110.
HFT	Hoffman-Taff, Inc	P.O. Box 1246 S.S.S., Springfield, MO 65805.
HK	Hooker Chemical Corp	Buffalo Ave. & 47th St., Niagara Falls, NY 14302.
HKD	Durez Div	Walck Rd., N. Tonawanda, NY 14121.
RUB	Ruco Div	New South Rd., Hicksville, NY 11802.
EFH	E. F. Houghton & Co	303 W. Lehigh Ave., Philadelphia, PA 19133.
HCH	Houston Chemical Corp	1 Gateway Center, Pittsburgh, PA 15222.
HMY	Humphrey Chemical Co	Devine St., North Haven, CT 06473.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.	P.O. Box 0, Lincon, RI 02865.
HNT	Huntington Laboratories, Inc	P.O. Box 710, Huntington, IN 46750.
HUS	Husky Briquetting, Inc	P.O. Box 380, Cody, WY 82414.
HYN	Hynson, Westcott & Dunning, Inc	Charles and Chase Sts., Baltimore, MD 21201.
ICI	ICI America, Inc	151 South St., Stamford, CT 06904.
RAY	ITT Rayonier, Inc	161 E. 42d St., New York, NY 10017.
CSB	Imoco-Gateway Corp., Chemical Services Div	Howard & West Sts., Baltimore, MD 21230.
IBI	Industrial Biochemicals, Inc	U.S. Highway #1, Edison, NJ 08817.
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 & ICF	Inmont Corp	1133 Avenue of the Americas, New York, NY 10036.
IFF	International Flavors & Fragrances, Inc	521 W. 57th St., New York, NY 10019.
IMC	International Minerals & Chemical Corp	5401 Old Orchard Rd., Skokie, IL 60078.
IPC	Interplastic Corp., Commercial Resins Div	2015 NE. Broadway St., Minneapolis, MN 55413.
ISC	Interstate Chemical Co	501 Santa Fe, Kansas City, MO 64105.
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 43601.
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.
JOB	Jones-Blair Paint Co	6969 Denton Dr., 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 Div	P.O. Box 337, Gramercy, LA 70052.
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.
KEL	Kelly-Pickering Chemical Corp	956 Bransten Rd., San Carlos, CA 94070.
	Kennecott Copper Corp.:	
KCC	Chino Mines Div	Hurley, NM 88043.
KCU	Utah Copper Div	P.O. Box 11299, Salt Lake City, UT 84111.
KPI	Kenrich Petrochemicals, Inc	Foot of E. 22d St., Bayonne, NJ 07002.
KET	Ketona Chemical Corp	P.O. Box 6565, Tarrant Branch, Birmingham, AL 35217.
KYS	Keysor Chemical Corp	26000 Springfield Rd., 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	180 Hamilton Ave., Lodi, NJ 07644.
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. Organic Materials Div	Koppers Bldg., Pittsburgh, PA 15219.
KPS	Koppers Pittsburgh Co	Koppers Bldg., Pittsburgh, PA 15219.
	Kraftco Corp.:	
HUM	Humko Products Div	5050 Poplar Ave., Memphis, TN 38117.
SHF	Sheffield Chemicals Div	2400 Morris Ave., Union, NJ 07083.
KYN	Kyanize Paints, Inc	2d and Boston Sts., Everett, MA 02149.
LCI	Lachat Chemicals, Inc	20200 Ashland Ave., Chicago Heights, IL 60411.
LKL	Lakeside Laboratories Div. of Colgate-Palmolive Co.	1707 E. North Ave., Milwaukee, WI 53201.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
LKY	Lake States Div. of St. Regis Paper Co	603 W. Davenport St., Rhinelander, WI 54501.
LAK	Lakeway Chemical Co	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.
LEB	Lebanon Chemical Corp	P.O. Box 180, Lebanon, PA 17042.
BCN	Lehn & Fink Products, Inc. Beacon Div	33 Richdale Ave., Cambridge, MA 02140.
LEM	B. L. Lemke & Co., Inc	195-203 Main St., Lodi, NJ 07644.
LEN	Leonard Refineries, Inc	E. Superior St., Alma, MI 48801.
LEV	Lever Brothers Co	390 Park Ave., New York, NY 10022.
LVR	C. Lever Co	Howard and Huntington Sts., Philadelphia, PA 19133.
LPC	Lignin Products Co., Inc	P.O. Box 1440, Erie, PA 16512.
LIL	Eli Lilly & Co	307 E. McCarty St., Indianapolis, IN 46206 and G.P.O. Box 4388, San Juan, PR 00936.
LUB	Lubrizol Corp	29400 Lakeland Blvd., Wickliffe, OH 44092.
LUE	George Lueders & Co., Inc	427 Washington St., New York, NY 10013.
MET	M & T Chemicals, Inc	Woodridge Rd. & Randolph Ave., P.O. Box 1104, Rahway, NJ 07065.
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.
MOC	Marathon Oil Co., Texas Refining Div	P.O. Box 1191, Texas City, TX 77590.
MRB	Marblette Co. Div. of Allied Products Corp	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 27260.
	Martin-Marietta Corp.:	
AMS	Ridgway Color & Chemical Div	75 Front St., Ridgway, PA 15853.
SDC	Southern Dyestuff Co. 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.
MAT	Matador Chemical Co., Inc	P.O. Box 2256, Wichita, KS 67201.
NOC	Mathe Chemical Co. Div. of Norac Co., Inc	169 Kennedy Dr., Lodi, NJ 07644.
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.
MRK	Merck & Co., Inc	Lincoln Ave., Rahway, NJ 07065.
MER	Merichem Co	1914 Haden Rd., Houston, TX 77015.
JMS	J. Meyer & Sons, Inc	4321 N. 4th St., Philadelphia, PA 19140.
MCH	Michigan Chemical Corp	351 E. Ohio St., Chicago, IL 60611.
PFP	Midwest Manufacturing Corp	Oak St. and Bluff Rd., Burlington, IA 52601.
	Miles Laboratories, Inc.:	
MLS	Marschall Div	Myrtle & McNaughton Sts., Elkhart, IN 46514.
UNS	Union Div	900 19th St., Granite City, IL 62040.
	Millmaster Onyx Corp.:	
GRO	A. Gross & Co. Div	99 Madison Ave., New York, NY 10016.
BKL	Millmaster Chemical Div., Berkeley 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.
MOR	Mineral Oil Refining Co	P.O. Drawer C, Dickinson, TX 77539.
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.
WOD	Missouri Chemical Co	P.O. Box 788, St. Joseph, MO 64502.
MOB	Mobay Chemical Co	Penn Lincoln Parkway, W. Pittsburgh, PA 15205.
SM	Mobil Chemical Co	P.O. Box 3868, Beaumont, TX 77704; 7301 Bessemer Ave., Cleveland, OH 44127; 12815 Elmwood St., Cleveland, OH 44111 and P.O. Box 250, Edison, NJ 08817.
SM	Mobil Oil Corp	P.O. Box 900, Dallas, TX 75221.
SM	Mobil Chemical Co., Industrial Chemical Div.	401 E. Main St., Richmond, VA 23219.
MFG	Molded Fiber Glass Companies, Inc	4601 Benefit Ave., Ashtabula, OH 44004.
MOA	Mona Industries, Inc	65 E. 23d St., Paterson, NJ 07524.
MNO	Monochem, Inc	P.O. Box 488, Geismar, LA 70734.
MON	Monsanto Co	P.O. Box 120, Santa Clara, CA 95052; 800 N. Lindbergh Blvd., St. Louis, MO 63166 and 200 N. 7th St., Kenilworth, NJ 07033.
	Bircham Bend Plant	190 Grochmal Ave., Indian Orchard, MA 01051.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
MON	Monsanto Co--Continued	
	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 and P.O. Box 1507, Pensacola, FL 32502.
MTO	Montrose Chemical Corp. of California	500 S. Virgil Ave., Los Angeles, CA 90005.
MCI	Mooney Chemicals Inc	2301 Scranton Rd., Cleveland, OH 44113.
MR	Benjamin Moore & Co	548 5th Ave., New York, NY 10036.
MCP	Moretex Chemical Products, Inc	314 W. Henry St., P.O. Box 1799, Spartanburg, SC 29301.
MRT	Morton Chemical Co	110 N. Wacher Dr., Chicago, IL 60606.
PAT	Morton International, Inc., Morton Chemical Co., Div.	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.
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.
NTL	National Lead Co	111 Broadway, New York, NY 10006.
USI	National Petro Chemical Corp	99 Park Ave., New York, NY 10016.
NPI	National Polychemicals, Inc	51 Eames St., Wilmington, MA 01887.
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 17, Harriman, NY 10926.
NEV	Neville Chemical Co	Neville Island P.O., Pittsburgh, PA 15225.
NIL	Nilok Chemicals, Inc	5030 Millington Rd., P.O. Box 27134, Memphis, TN 38127.
JDC	Nipak, Inc	301 S. Harwood St., Dallas, TX 75221.
SHL	Nitini, Inc. Div. of Shulton, Inc	697 Rt. 46, Clifton, NJ 07015.
NIT	Nitrin, Inc	P.O. Box 233, Cordova, IL 61242.
NON	A. P. Nonweiler Co	P.O. Box 1007, Oshkosh, WI 54901.
NOC	Norac Co., Inc	405 S. Motor Ave., Azusa, CA 91703.
NEO	Norda Essential Oil & Chemical Co., 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.
NWP	Northern Petrochemical Co	2200 E. Devon Ave., Des Plaines, IL 60018.
NCA	Northrop Carolina, Inc	P.O. Box 3049, Asheville, NC 28802.
NW	Northwestern Chemical Co	120 N. Aurora St., W. Chicago, IL 60185.
VAC	Varney Div	2001 Afton Rd., Janesville, WI 53545.
NPC	Northwest Petrochemical Corp	P.O. Box 99, Anacortes, WA 98221.
NOR	Norwich Pharmacal Co	17 Eaton Ave., Norwich, NY 13815.
NCW	Nostrip Chemical Works, Inc	P.O. Box 160, Pedricktown, NJ 08067.
NVT	Novamont Corp., Neal Works	P.O. Box 189, Kenova, WV 25530.
CMG	Nyanza, Inc	Magunko Rd., Ashland, MA 01721.
OBC	O'Brien Corp	2001 W. Washington Ave., South Bend, IN 46621.
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.
THC	Thompson Plastics	P.O. Box 317, Assonet, MA 02702.
OPC	Orbis Products Corp	475 10th Ave., New York, NY 10018.
ORG	Organics, Inc	1724 W. Greenleaf Ave., Chicago, IL 60628.
BSW	Original Bradford Soap Works, Inc	200 Providence St., W. Warwick, RI 02893.
OSB	C. J. Osborn Co	1301 W. Blancke St., Linden, NJ 07036.
OTC	Ott Chemical Co	500 Agard Rd., Muskegon, MI 49945.
OCF	Ownes-Corning Fiberglas Corp	P.O. Box 901, Toledo, OH 43601.
OCC	Oxirane Chemical Co	10801 Choate Rd., Houston, TX 77062.
PLB	P-L Biochemicals, Inc	1037 W. McKinley Ave., Milwaukee, WI 53205.
PPG	PPG Industries, Inc	1 Gateway Center, Pittsburgh, PA 15222.
FBR	Pabco Paint Corp	1710 59th St., P.O. Box 8502, Emeryville, CA 94608.
AMR	Pacific Resins & Chemical Co	3400 13th Ave. SW., Seattle, WA 98134.
PAN	Pan American Petroleum Corp	P.O. Box 591, Tulsa, OK 74102.
PNT	Pantasote Co. of New York, Inc	26 Jefferson St., Passaic, NJ 07055.
PD	Parke, Davis & Co	Jos. Campau at the River, Detroit, MI 48207.
PSC	Passaic Color & Chemical Co	28-36 Paterson St., Paterson, NJ 07501.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
CHP	C. H. Patrick & Co., Inc	P.O. Box 2526, Greensville, SC 29602.
CCH	Pearsall Co	P.O. Box 108, Phillipsburg, NJ 08865.
PEK	Peck's Products Co	610 E. Clarence Ave., St. Louis, MO 63147.
PCH	Peerless Chemical Co	3850 Oakman Blvd., Detroit, MI 48204.
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.
WTH	Harchem Div	P.O. Box 220, Dover, NJ 44622.
WTL	Lucidol Div	1740 Military Rd., Buffalo, NY 14240.
PER	Perry & Derrick Co., Inc	2510 Highland Ave., Norwood, OH 45212.
PHF	Peter Hand, Inc	2 E. Madison St., Waukegan, IL 60085.
UDI	Petrochemicals Co., Inc	1825 E. Spring St., Long Beach, CA 90806.
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	P.O. Box 15, Ridgefield, NJ 07657.
PFZ	Pfizer Inc	235 E. 42d St., New York, NY 10017.
PHR	Pharmachem Corp	Broad and Wood Sts., Bethlehem, PA 18018.
PLC	Phillips Petroleum Co	440 Frank Phillips Bldg., Bartlesville, OK 74003.
	Phillips Pacific Chemical Co	P.O. Box 6008, Kennewich, WA 99336.
PPR	Phillips Puerto Rico Cove, Inc	GPO Box 4129, San Juan, PR 00936.
PIC	Pierce Organics, Inc	P.O. Box 98, Rockford, IL 61105.
PIL	Pilot Chemical Co	11756 Burke St., Santa Fe Springs, CA 90670.
PCI	Pioneer Chemical Works, Inc	P.O. Box 237, Route 73, Maple Shade, NJ 08052.
PPL	Pioneer Plastics Corp	Pionite Rd., Auburn, ME 04210.
PIT	Pitt-Consol Chemical Co	191 Doremus Ave., Newark, NJ 07105.
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.
PLU	Plumb Chemical Corp	4837 James St., Philadelphia, PA 19137.
PFW	Polak's Frutal Works, Inc	33 Sprague Ave., Middletown, NY 10940.
PYL	Polychemical Laboratories, Inc	490 Hunts Point Ave., Bronx, NY 10474.
POL	Polymer Corp	2120 Fairmont Ave., Reading, PA 19603.
PII	Polymer Industries, Inc	Viaduct Rd., Springdale, CT 06879.
PYR	Poly Resins	11655 Wicks St., Sun Valley, CA 91352.
PYZ	Polyrez Co., Inc	P.O. Box 320, Woodbury, NJ 08096.
PVI	Polyvinyl Chemicals, Inc. Div. of Beatrice Foods Co.	730 Main St., Wilmington, MA 01887.
GRS	Pontiac Refining Corp	P.O. Box 9176, Corpus Christi, TX 78408.
PRT	Pratt & Lambert, Inc	P.O. Box 22, Buffalo, NY 14240.
PMP	Premier Malt Products, Inc	917 W. Juneau Ave., Milwaukee, WI 53201.
PPC	Premier Petrochemical Co	P.O. Box 100, Pasadena, TX 77501.
PCR	Princeton Chemical Research, Inc	P.O. Box 651, Princeton, NJ 08540.
PG	Procter & Gamble Co	Ivorydale Technical Ctr., Cincinnati, OH 45217.
PC	Proctor Chemical Co., Inc	P.O. Box 399, Salisbury, NC 28144.
PRD	Productol Chemical Co., Inc	615 S. Flower St., Los Angeles, CA 90017.
PRC	Products Research & Chemical Corp	2919 Empire Ave., Burbank, CA 91504.
PUB	Publicker Industries, Inc	1429 Walnut St., Philadelphia, PA 19102.
PTO	Puerto Rico Chemical Co., Inc	P.O. Box 496, Arecibo, PR 00612.
PRX	Purex Corp., Ltd	5101 Clark Ave., Lakewood, CA 90712 and 2244 N. Elston Ave., Chicago, IL 60614.
PUR	Puritan Chemical Co	916 Ashby St., NW., Atlanta, GA 30318.
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 90810.
RAB	Raybestos-Manhattan, Inc., Raybestos Div	75 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 & CCO	Reichhold Chemicals, Inc	525 N. Broadway, White Plains, NY 10602 and 2508 E. Bailey Rd., Cuyahoga Falls, OH 44221.
RIL	Reilly Tar & Chemical Corp	1615 Merchants Bank, Indianapolis, IN 46204.
REL	Reliance Universal, Inc	6901 Cavalcade St., Houston, TX 77001.
	Rel-Rez Div	4730 Crittenden Dr., Louisville, KY 40221.
REM	Remington Arms Co., Inc	939 Barnum Ave., Bridgeport, CT 06602.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
RTF	Retzloff Chemical Co	P.O. Box 45296, Houston, TX 77045.
RCC	Rexene Polymers Co	P.O. Box 37, Paramus, NJ 07652.
RDA	Rhodia, Inc	600 Madison Ave., New York, NY 10022.
RCD	Richardson Co	2708 Lake St., Melrose Park, IL 60160.
PLA	Polymeric Div	425 Morgan Lane, West Haven, CT 06516.
RT	F. Ritter & Co	4001 Goodwin Ave., Los Angeles, CA 90039.
RTC	Ritter Chemical Co., Inc	403 W. Main St., Amsterdam, NY 12010.
RIV	Riverdale Chemical Co	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc	51 Madison Ave., New York, NY 10010.
RBC	Roberts Chemicals Div. of Security Chemicals, Inc.	P.O. Box 546, Nitro, WV 25143.
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.
RSB	Rosenberg Bros. & Co	100 Landing Ave., Smithtown, NY 11787.
ROY	Royce Chemical Co	P.O. Box 237, E. Rutherford, NJ 07073.
RUC	Rubicon Chemicals, Inc	P.O. Box 517, Geosmar, LA 70734.
GLD	SCM Corp.: Glidden-Durkee Div	2333 W. Logan Blvd., Chicago, IL 60647.
NPR	Safeway Stores, Inc., Brookside Div	1111 Marina Blvd., San Leandro, CA 94577.
SLM	Salem Oil & Grease Co	60 Grove St., Salem, MA 01970.
SAL	Salsbury Laboratories	2000 Rockford Rd., Charles City, IA 50616.
SLV	Salvo Chemical Corp	Military Rd., Rothschild, WI 54474.
S	Sandoz-Wander, Inc	P.O. Box 357, Fair Lawn, NJ 07410.
	Sandoz Color & Chemical Div	Route No. 10, Hanover, NJ 07936.
SAR	Sartomer Resins, Inc	P.O. Box 56, Essington, PA 19029.
SCF	Schaefer Varnish Co., Inc	1350 S. 15th St., Louisville, KY 40210.
SCN	Schenectady Chemicals, Inc	Congress St. and 10th Ave., 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.
SEA	Seaboard Chemicals, Inc	30 Foster St., Salem, MA 01970.
SRL	G. D. Searle & Co	P.O. Box 5110, Chicago, IL 60680.
SEL	Selney Co., Inc	185 Court St., Brooklyn, NY 11201.
SEY	Seydel-Woolley & Co., Inc	762 Marietta Blvd., NW., Atlanta, GA 30318.
SHA	Shanco Plastics & Chemicals, Inc	111 Wales St., Tonawanda, NY 14150.
SWC	Shell & Commonwealth Chemicals, Inc	P.O. Box 3623, Ponce, PR 00731.
SHO	Shell Oil Co	P.O. Box 2463, Houston, TX 77001.
SHC	Shell Chemical Co. Div	52 W. 52d St., New York, NY 10020.
SHP	Shepherd Chemical Co	5000 Poplar 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.
SOG	Signal Oil & Gas Co	P.O. Box 5008, Houston, TX 77012.
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	3960 E. Washington Blvd., Los Angeles, CA 90023.
SIP	Sipes 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.
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	341 Commercial St., Malden, MA 02148.
SFD	Sonford Chemical Co	P.O. Box 127, Port Neches, TX 77651.
SNC	Sonoco Products Co	2d St., Hartsville, SC 29550.
STC	Sou-Tex Chemical Co., Inc	E. Catawba Ave., Mount Holly, NC 28120.
SAC	Southeastern Adhesives Co	P.O. Box 791, Lenoir, NC 28645.
SOP	Southern Chemical Products Co	420 Lower Boundary St., P.O. Box 205, Macon, GA 31202.
SPE	Southern Petrochemicals Corp	2121 S. Columbia, Tulsa, OK 74114.
SOS	Southern Sizing Co	P.O. Box 90987, East Point, GA 30344.
SPL	Spaulding Fibre Co., Inc	310 Wheeler St., Tonawanda, NY 14150.
OMS	E. R. Squibb & Sons, Inc	Georges Rd., New Brunswich, NJ 08903.
UBS	Staley Chemicals	320 Schuyler Ave., Kearny, NJ 07032.
STA	A. E. Staley Manufacturing Co	22d and Eldorado Sts., Decatur, IL 62525.
SMC	Stamford Chemical Industries	P.O. Box 1131, Stamford, CT 06940.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	1251 Beaver Channel Parkway, Clinton, IA 52733.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
SBI	Standard Brands Chemical Industries, Inc------	P.O. Drawer K, Dover, DE 19901.
SCP	Standard Chemical Products, Inc----------	1301 Jefferson St., Hoboken, NJ 07030.
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.
SPY	Standard Pyroxoloid Corp----------	85 Pleasant St., Leominster, MA 01453.
STG	Stange Co----------	342 N. Western Ave., Chicago, IL 60612.
	Stauffer Chemical Co.:	
SF	Agricultural Div----------	299 Park Ave., New York, NY 10017.
BPC	Benzol Products Div----------	Menlo Park Office Bldg., Edison, NJ 08817.
CHO	Calhio Chemicals Div----------	299 Park Ave., New York, NY 10017.
CWL	Cowles Chemical Div----------	12000 Shaker Blvd., Cleveland, OH 44120.
SFI	Industrial Chemical Div----------	299 Park Ave., New York, NY 10017.
SFA	Specialty Chemical Div----------	299 Park Ave., New York, NY 10017.
STP	Stepan Chemical Co----------	R.R. #1, Elwood, IL 60421.
MYW	Maywood Div----------	100 W. Hunter Ave., Maywood, NJ 07607.
	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.
SRR	Stresen-Reuter International, International Minerals & Chemical Corp.	400 W. Roosevelt Ave., Bensenville, IL 60106.
STY	Styrochem Corp. Sub. of Commonwealth Oil Refining Co., Inc.	P.O. Box 3623, Ponce, PR 00731.
SBP	Sugar Beet Products Co----------	302 Waller St., Saginaw, MI 48605.
CFC	Sun Chemical Corp----------	1106 Harrison Ave., Kearny, NJ 07032.
SNA	Ansbacher-Siegle Div----------	441 Tompkins Ave., Staten Island, NY 10305.
SNW	Chemicals Div----------	Route 91, Wood River Junction, RI 02894.
FCL	Federal Color Laboratories Div----------	4526 Chickering Ave., Cincinnati, OH 45232.
TV	General Printing Ink Div----------	135 W. Lake St., North Lake, IL 60164.
SKG	Sunkist Growers, Inc----------	720 E. Sunkist St., Ontario, CA 91764.
SUN	Sun Oil Co., Sunoco Div----------	1608 Walnut St., Philadelphia, PA 19103.
SNO	SunOlin Chemical Co----------	P.O. Box F, Claymont, DE 19703.
SNT	Suntide Refining Co----------	P.O. Box 2608, Corpus Christi, TX 78403.
SWT	Swift & Co., Swift Chemical Co. Div----------	1211 W. 22d St., Oak Brook, IL 60521.
SYP	Synthetic Products Co----------	1636 Wayside Rd., Cleveland, OH 44112.
SYV	Synvar Corp----------	917 Washington St., Wilmington, DE 19899.
TCC	Tanatex Chemical Corp----------	P.O. Box 388, Lyndhurst, NJ 07071.
CST	Charles S. Tanner Co----------	450 Furman Hall Rd., Greensville, SC 29608.
TEK	Teknor Apex Co----------	505 Central Ave., Pawtucket, RI 02662.
HN	Tenneco Chemicals, Inc----------	280 Park Ave., New York, NY 10017.
CIK	Cal/Ink Div----------	711 Camelia St., Berkeley, CA 94710.
HNX	Nuodex Div----------	P.O. Box 2, Piscataway, NJ 08854.
TCD	Tenneco Colors Div----------	P.O. Box 51, Reading, PA 19603.
TOC	Tenneco Oil Co., Refining & Marketing Accounting.	P.O. Box 2511, Houston, TX 77001.
TEN	Tennessee Copper Co. Div. of Tennessee Corp--	Copperhill, TN 37317.
TER	Terra Chemicals International, Inc----------	610 Davidson Bldg., 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----------	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----------	2140 S. 88th St., Edwardsville, KS 66022.
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 28302.
THM	Wm. T. Thomspon Co., Thompson Chemicals Div.	10512 Baur Blvd., St. Louis, MO 63132.
TMH	Thompson-Hayward Chemical Co----------	5200 Speaker Rd., Kansas City, KS 66110.
TZC	Tizon Chemical Corp----------	Flemington, NJ 08822.
TRC	Toms River Chemical Corp----------	P.O. Box 71, Toms River, NJ 08753.
ACT	Arthur C. Trask Co----------	327 S. LaSalle St., Chicago, IL 60604.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
TRI	Triad Chemical	P.O. Box 310, Donaldsonville, LA 70346.
TRO	Troy Chemical Co	338 Wilson Ave., Newark, NJ 07105.
TCH	Trylon Chemicals, Inc	P.O. Box 600, Mauldin, SC 29662.
JTC	Joseph Turner & Co	Pleasant View Terrace, Ridgefield, NJ 07451.
ARM	USS Agri-Chemicals, Inc	P.O. Box 1685, Atlanta, GA 30301.
PCC	USS Chemicals Div. of U.S. Steel Corp	Grant Bldg., Pittsburgh, PA 15219.
UHL	Paul Uhlich & Co., Inc	90 West St., New York, NY 10006.
UNG	Ungerer & Co	161 Avenue of the Americas, New York, NY 10013.
NCI	Union-Camp Corp., Chemical Div	P.O. Box 6170, Jacksonville, FA 32205.
UCC	Union Carbide Corp	270 Park Ave., New York, NY 10017.
UOC	Union Oil Co. of California	Union Oil Center, Los Angeles, CA 90017.
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, 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.
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.
UVC	Universal Chemicals Corp	1224 Mendon Rd., Ashton, RI 02864.
UPM	Universal Oil Products Co	30 Algonquin Rd., Des Plaines, IL 60018.
UOP	UOP Chemical Div	State Highway 17, E. Rutherford, NJ 07073.
UPJ	Upjohn Co	7171 Portage Rd., Kalamazoo, MI 49001.
CWN	Carwin Organic Chemicals	Sackett Point Rd., North Haven, CT 06413.
VAL	Valchem	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 Winfield St., E. Norwalk, CT 06801.
VND	Van Dyk & Co., Inc	Main & Williams Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp	341 E. Ohio St., Chicago, IL 60611.
	Ventron Corp.:	
WRC	Chemicals Div	Park Place E., Wood Ridge, NJ 07075.
MHI	Metal Chemicals Div	Congress St., Beverly, MA 01915.
VB	Vermilye-Bell	21707 Bothell Way, Bothell, WA 98011.
VPC	Verona Corp	Iorio Ct., P.O. Box 385, Union, NJ 07083.
VPT	Vickers Refining Co., Inc	P.O. Box 2240, Wichita, KS 67201.
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	12335 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.
WMP	Warner Machine Products, Inc., Warner Chemical Div.	1200 Rochester Ave., Muncie, IN 47302.
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.
WES	Weston Chemical Co., Inc	103 Spring Valley Rd., Montvale, NJ 07645.
WVA	Westvaco Corp.:	
	Chemical Div., Tall Oil Dept	P.O. Box 5207, N. Charleston, SC 29406.
	Polychemicals Div	P.O. Box 5207, N. Charleston, SC 29406.
WRD	Weyerhaeuser Co	115 S. Palmetto Ave., Marshfield, WI 54449.
WBG	White & Bagley Co	P.O. Box 1171, Worcester, MA 01601.
WHI	White & Hodges, Inc	576 Lawrence St., Lowell, MA 01852.
WHL	Whitmoyer Laboratories, Inc	19 N. Railroad St., Myerstown, PA 17067.
WHC	Whittaker Corp., 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.
	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.

TABLE 1.--Synthetic organic chemicals: Alphabetical directory of manufacturers, by company, 1969--Continued

Identification code	Name of company	Office address
WTC	Witco Chemical Co., Inc----------	P.O. Box 305, Paramus, NJ 07652.
IPI	Isocyanate Products Div----------	P.O. Box 1681, Wilmington, DE 19899.
UPR	U.S. Peroxygen Div----------	850 Morton Ave., Richmond, CA 94804.
WCC	Witfield Chemical Div----------	P.O. Box 1243, Wilmington, CA 90744.
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.
WYN	Wyandotte Chemicals Corp----------	1609 Biddle Ave., Wyandotte, MI 48192.
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.

Table 2 summarizes for 1968 and 1969, U.S. imports of benzenoid chemicals and products entered under the Tariff Schedules of the United States (TSUS), schedule 4, part 1, subparts B and C. The data, which were obtained by analyzing invoices covering imports through the principal U.S. customs districts, are given in detail in a separate report of the Tariff Commission. [1]

Industrial organic chemicals that are entered under Schedule 4, part 1B, consist chiefly of benzenoid intermediates and small quantities of acyclic compounds which are derived in whole or in part from benzenoid compounds. Also included are mixtures and small quantities of finished products not specially provided for in part 1C (e.g., rubber-processing chemicals). In 1969, general imports entered under part 1B and analyzed by the Tariff Commission comprised 653 items with a total weight of 78.2 million pounds, and an invoice value of $38.9 million compared with 71.4 million pounds, with an invoice value of $38.8 million in 1968. In 1969, 365 items were declared to be "competitive" (duty based on "American selling price"). In terms of value, 46 percent of all the intermediates imported came from West Germany; 21 percent, from Japan; and 10 percent, from Switzerland.

Finished organic chemical products entered under part 1C include dyes, pigments, medicinals, flavor and perfume materials, and certain other specified products. In 1969, imports comprised 2,205 listed items, with a total weight of 60.0 million pounds and an invoice value of $77.7 million, compared with 2,198 items, with a total weight of 55.4 million pounds and an invoice value of $68.4 million in 1968. Dyes were the most important group of finished products, with imports valued at $37.2 million or 47.9 percent of the value of all imports under 1C.

TABLE 2.--*Industrial organic chemicals and finished benzenoid products: U.S. general imports, classified by use, 1968 and 1969*

Product	1968		1969	
	Quantity	Invoice value	Quantity	Invoice value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
Industrial organic chemicals [1]	71,426	38,820	78,188	38,899
Finished benzenoid products, total	55,414	68,436	59,969	77,712
Dyes, total	19,133	33,722	23,123	37,217
Acid	3,055	-	2,826	-
Azoic dyes	[2] -	-	6	-
Azoic components:				
Fast color bases	798	-	681	-
Fast color salts	297	-	249	-
Naphthol AS and its derivatives	716	-	946	-
Basic	1,356	-	1,659	-
Direct	1,155	-	1,209	-
Disperse	3,743	-	5,525	-
Fiber-reactive	1,909	-	2,009	-
Fluorescent brightening agents	423	-	1,089	-
Mordant	411	-	331	-
Solvent	385	-	389	-
Sulfur	154	-	83	-
Vat	4,585	-	5,912	-
All other [3]	146	-	209	-
Pigments (toners and lakes)	1,990	4,307	3,356	6,241
Medicinals and pharmaceuticals	4,134	11,710	4,963	13,929
Flavor and perfume materials	2,478	4,022	2,739	4,920
All other [4]	27,679	14,675	25,788	15,405

[1] Includes intermediates and small quantities of unspecified finished products.
[2] Imports of azoic dyes in 1968 were 353 pounds.
[3] Includes ingrain dyes.
[4] Includes organic pesticides and related products, plasticizers, surface-active agents, and textile assistants.

Source: Compiled from the records of the U.S. Bureau of Customs.

[1] *Imports of Benzenoid Chemicals and Products, 1969*, TC Publication 328, 1970 [processed].