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UNITED STATES TARIFF COMMISSION

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**SYNTHETIC  
ORGANIC CHEMICALS**

**United States Production  
and Sales, 1963**

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**TC Publication 143**



**RECENT REPORTS OF THE UNITED STATES TARIFF COMMISSION ON SYNTHETIC  
ORGANIC CHEMICALS**

**\*Synthetic Organic Chemicals, United States Production and Sales, 1958 (Rept. No. 205, 2d ser., 1959)**

**\*Synthetic Organic Chemicals, United States Production and Sales, 1959 (Rept. No. 206, 2d ser., 1960)**

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UNITED STATES. TARIFF COMMISSION

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**SYNTHETIC  
ORGANIC CHEMICALS**

**United States Production  
and Sales, 1963**

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

U.S. GOVERNMENT PRINTING OFFICE  
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**TC Publication 143**

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# CONTENTS

	Page
Introduction-----	v
Summary-----	vii
PART I. PRODUCTION AND SALES OF TAR CRUDE, AND CRUDE DERIVED FROM PETROLEUM AND NATURAL GAS	
Tars-----	1
Tar crudes-----	2
Crude products from petroleum and natural gas for chemical conversion-----	4
PART II. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED SYNTHETIC ORGANIC CHEMICALS, BY GROUPS	
General-----	7
Cyclic intermediates-----	10
Dyes-----	14
Synthetic organic pigments-----	26
Medicinal chemicals-----	31
Flavor and perfume materials-----	36
Plastics and resin materials-----	38
Rubber-processing chemicals-----	42
Elastomers (synthetic rubbers)-----	43
Plasticizers-----	44
Surface-active agents-----	46
Pesticides and other organic agricultural chemicals-----	52
Miscellaneous synthetic organic chemicals-----	53
PART III. ALPHABETICAL LIST OF INDIVIDUAL PRODUCTS, BY GROUPS, AND NAMES OF MANUFACTURERS	
Tar crudes-----	61
Crude products from petroleum and natural gas for chemical conversion-----	62
Cyclic intermediates-----	64
Dyes-----	91
Synthetic organic pigments-----	116
Medicinal chemicals-----	120
Flavor and perfume materials-----	137
Plastics and resin materials-----	143
Rubber-processing chemicals-----	147
Elastomers (synthetic rubbers)-----	151
Plasticizers-----	152
Surface-active agents-----	155
Pesticides and other organic agricultural chemicals-----	170
Miscellaneous synthetic organic chemicals-----	176
Directory of manufacturers-----	205
APPENDIXES	
A. U.S. imports of coal-tar intermediates and finished coal-tar products-----	225
B. Glossary of synonymous names of cyclic intermediates-----	226
C. Cross-reference list of <i>Colour Index</i> and common names of synthetic organic pigments--	244



## Introduction

This is the forty-seventh 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 report presents statistics for 1963 on production and sales of crude organic chemicals derived from coal, natural gas, and petroleum; of intermediates; and of finished synthetic organic chemical products. The finished products are grouped according to their principal use--dyes, synthetic organic pigments, medicinal chemicals, flavor and perfume materials, plastics and resin materials, rubber-processing chemicals, elastomers, plasticizers, surface-active agents, pesticides and other organic agricultural chemicals, and miscellaneous chemicals. The use classifications of finished synthetic organic chemicals are based principally on the manufacturers' annual reports to the Tariff Commission; other sources include trade associations, the chemical literature, chemical dictionaries, encyclopedias, and consultants in the chemical industry. With a few exceptions, the report does not cover organic chemicals (such as wood-distillation products, essential oils, and naval stores) that are derived from natural (vegetable) sources by simple extraction or distillation. The Commission has compiled the statistics given in this report from information supplied by the 783 primary manufacturers listed in part III.

The first section of the report includes the statistics on all products and groups of products which conform to the general rules of publishability. The second section lists all the chemicals and chemical products on which data were reported and identifies the manufacturers of each. 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 usually bearing some relationship to the company name. The identification symbols are permanent and, except for such changes as may be necessary, will be used in all future reports in this series. Like the five immediately preceding reports, this report includes data on only those individual chemicals for which the volume of production or sales in the year covered exceeded 1,000 pounds or for which the value of sales exceeded \$1,000. Data for chemicals produced in Puerto Rico are included in the report, but no data were reported from Alaska or Hawaii.

The raw materials referred to in this report are obtained from coal, crude petroleum, natural gas, and certain other natural materials, such as vegetable oils, fats, rosin, and grains. 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 and are therefore virtually complete.

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 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<sup>1</sup>); and
- (4) Produced and held in stock.

<sup>1</sup> 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 bona fide 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 value, 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; the statistics on certain plastics and resins, which are reported on a dry basis; and the data on sales of antibiotics, which are reported on the basis of specific conditions mentioned in the section on medicinal chemicals. 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 weighted averages for products which vary widely in unit values and in the quantities sold.

In this report, 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 not given if there are fewer than three producers. 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.<sup>2</sup>

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.

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<sup>2</sup> Sec. 5, U. S. C. 139b and sec. 18, U. S. C. 1905.

## Summary

Combined production of all synthetic organic chemicals, tars, tar crudes, and crude products from petroleum and natural gas in 1963 was 120,928 million pounds--an increase of 7.5 percent over the output in 1962 (see table 1). Sales of these materials in 1963, which totaled 63,898 million pounds, valued at \$8,517 million, were 0.8 percent larger than in 1962 in terms of quantity and 2.4 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 contain some duplication.

In 1963, production of all synthetic organic chemicals, including cyclic intermediates and finished chemical products, totaled 70,343 million pounds, or 9.6 percent more than the output in 1962. Production of plastics and resin materials (8,968 million pounds) was 12.9 percent larger in 1963 than in 1962; that of cyclic intermediates (12,768 million pounds) was 12.0 percent larger; that of miscellaneous chemicals (41,153 million pounds) was 9.5 percent larger; and that of medicinal chemicals (139 million pounds) was 9.2 percent larger.

The output of most of the other groups of synthetic organic chemicals also increased in 1963 compared with 1962. Production of dyes (204 million pounds) was 8.0 percent greater; that of plasticizers (835 million pounds) was 6.9 percent greater; that of synthetic organic pigments (39 million pounds) was 6.0 percent greater; that of pesticides and other organic agricultural chemicals (763 million pounds) was 4.6 percent greater; that of rubber-processing chemicals (234 million pounds) was 2.3 percent greater; and that of surface-active agents (1,981 million pounds) was 1.6 percent greater. The output of flavor and perfume materials in 1963 (74 million pounds) was 3.3 percent below the output of 76 million pounds in 1962.

TABLE 1.-- *Synthetic organic chemicals and their raw materials: U.S. production and sales, 1962 and 1963*

Chemical	Production			Sales					
				Quantity			Value		
	1962	1963	Increase or decrease (-), 1963 over 1962 <sup>1</sup>	1962	1963	Increase or decrease (-), 1963 over 1962 <sup>1</sup>	1962	1963	Increase or decrease (-), 1963 over 1962 <sup>1</sup>
	Million pounds	Million pounds	Percent	Million pounds	Million pounds	Percent	Million dollars	Million dollars	Percent
Grand total-----	112,478	120,928	7.5	63,416	63,898	0.8	8,313	8,517	2.4
Tar-----	6,694	6,719	.4	3,181	2,907	-8.6	38	32	-17.9
Tar crudes-----	8,654	8,745	1.1	5,255	5,485	4.4	130	119	-8.2
Crude products from petroleum and natural gas-----	32,960	35,121	6.6	20,352	18,460	-9.3	655	573	-12.6
Synthetic organic chemicals, total-----	64,170	70,343	9.6	34,628	37,046	7.0	7,490	7,793	4.0
Intermediates-----	11,400	12,768	12.0	4,572	5,429	18.7	632	643	1.7
Dyes-----	189	204	8.0	178	187	5.0	227	240	5.5
Synthetic organic pigments-----	37	39	6.0	32	34	6.1	74	80	7.1
Medicinal chemicals-----	127	139	9.2	104	114	9.9	601	639	6.4
Flavor and perfume materials-----	76	74	-3.3	63	67	5.6	76	77	1.9
Plastics and resin materials-----	7,942	8,968	12.9	7,116	7,516	5.6	1,884	2,003	6.3
Rubber-processing chemicals-----	228	234	2.3	172	177	3.0	115	119	3.7
Elastomers (synthetic rubbers)---	3,134	3,185	1.6	2,730	2,836	3.9	774	767	-1.0
Plasticizers-----	781	835	6.9	666	750	12.6	168	168	.1
Surface-active agents-----	1,949	1,981	1.6	1,758	1,790	1.8	317	325	2.5
Pesticides and other organic agricultural chemicals-----	730	763	4.6	634	651	2.8	346	369	6.6
Miscellaneous chemicals-----	37,577	41,153	9.5	16,603	17,495	5.4	2,276	2,363	3.9

<sup>1</sup> Percentages calculated from figures rounded to thousands.





# PART I. PRODUCTION AND SALES OF TARS, TAR CRUDES, AND CRUDES DERIVED FROM PETROLEUM AND NATURAL GAS

## 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 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 from coal in 1963 was 672 million gallons, or 3.3 percent more than the 650 million gallons produced in 1962. U.S. production of water-gas and oil-gas tar was not reported to the Commission for 1963; production of these tars in 1962 amounted to 19 million gallons (see table 2).

Total consumption of tar in 1963 amounted to 692 million gallons, of which 573 million gallons was consumed by distillation, 91 million gallons as fuel, and 27 million gallons in miscellaneous uses.

TABLE 2.--*Tar: U.S. production and consumption, 1962 and 1963*

[In thousands of gallons. Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported]

Product	1962	1963
PRODUCTION		
Total-----	669,398	671,876
Water-gas and oil-gas tar <sup>1</sup> -----	19,286	...
Coal tar from coke-oven byproduct plants <sup>2</sup> -----	650,112	671,876
CONSUMPTION		
Total-----	676,531	691,509
Tar consumed by distillation, total-----	609,639	573,096
Coal tar distilled or topped by coke-oven operators <sup>2</sup> -----	306,137	289,569
Coal tar, water-gas and oil-gas tar distilled by producers and tar distillers <sup>3</sup> --	303,502	283,527
Tar consumed chiefly as fuel <sup>2</sup> -----	46,373	91,313
Tar consumed otherwise than by distillation or as fuel, total-----	20,519	27,100
Coal tar consumed at coke-oven plants for roads and upkeep <sup>2</sup> -----	541	558
Coal tar, water-gas tar, and oil-gas tar processed at tar refineries, crude tar consumed for upkeep at such refineries, and tar consumed in making gas and in special-purpose tar blends <sup>4</sup> -----	19,978	<sup>5</sup> 26,542

<sup>1</sup> Reported to the American Gas Association for 1962.

<sup>2</sup> Reported to the U.S. Bureau of Mines.

<sup>3</sup> 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.

<sup>4</sup> Water-gas tar and oil-gas tar reported to the American Gas Association for 1962.

<sup>5</sup> Excludes data for water-gas tar and oil-gas tar.

## 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, and creosote oil. Some of the products produced from coal tar are identical with those produced from petroleum and natural gas. Data for materials derived from these latter sources are included, for the most part, in or with the statistics for materials derived from coal tar, which are shown in tables 3 and 4 A.<sup>1</sup>

Total domestic production of industrial and specification grades of benzene in 1963 amounted to 647 million gallons--18.5 percent more than the 546 million gallons reported for 1962. These totals include data for benzene produced from tars, light oil, and petroleum. Sales of benzene by coke-oven operators and petroleum operators in 1963 amounted to 421 million gallons, valued at \$96 million, compared with 405 million gallons, valued at \$99 million, in 1962. In 1963 the output of toluene from all sources (including material produced for use in blending in aviation fuel) amounted to 406 million gallons--12.5 percent more than the 361 million gallons reported for 1962. Sales of toluene in 1963 were 207 million gallons, valued at \$35 million, compared with 207 million gallons, valued at \$40 million in 1962. The output of xylene in 1963 (including that produced for blending in motor fuels) was 335 million gallons, compared with 354 million gallons in 1962. About 98 percent of the xylene produced in 1963 was obtained from petroleum sources.

Production of crude naphthalene in 1963 (including 288 million pounds of petroleum-derived naphthalene) amounted to 627 million pounds, compared with 591 million pounds in 1962. Sales of coal-tar-derived naphthalene<sup>2</sup> in 1963 were 209 million pounds, valued at \$7 million, compared with 262 million pounds, valued at \$12 million, in 1962. In 1963 the output of creosote oil

TABLE 3.-- Tar and tar crudes: Summary of U.S. production of specified products, average 1950-54, annual 1962 and 1963

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

Chemical	Unit of quantity	Average 1950-54	1962	1963	Increase, or decrease (-)	
					1963 over 1950-54	1963 over 1962
Tar <sup>1</sup> -----	1,000 gal--	876,070	669,398	671,876	Percent -23.3	Percent 0.4
Benzene: <sup>2</sup>						
Tar distillers <sup>3</sup> -----	1,000 gal--	41,389	14,039	9,098	-78.0	-35.2
Coke-oven operators-----	1,000 gal--	163,356	114,227	112,427	-31.2	-1.6
Petroleum operators-----	1,000 gal--	46,635	418,131	525,889	1,027.7	25.8
Total-----	1,000 gal--	251,380	546,397	647,414	157.5	18.5
Toluene:						
Tar distillers-----	1,000 gal--	7,497	2,981	3,204	-57.3	7.5
Coke-oven operators-----	1,000 gal--	32,981	27,231	25,794	-21.8	-5.3
Petroleum operators-----	1,000 gal--	80,725	330,709	377,205	367.3	14.1
Total-----	1,000 gal--	121,203	360,921	406,203	235.1	12.5
Xylenes, mixed:						
Tar distillers-----	1,000 gal--	1,373	...	509	-62.9	...
Coke-oven operators-----	1,000 gal--	9,028	7,578	6,888	-23.7	-9.1
Petroleum operators-----	1,000 gal--	78,188	346,593	327,460	318.8	-5.5
Total-----	1,000 gal--	88,589	...	334,857	278.0	...
Naphthalene, crude:						
Solidifying at less than 79° C. <sup>5</sup> ----	1,000 lb---	307,537	424,205	338,715	10.1	-20.2
Petroleum naphthalene, all grades----	1,000 lb---	...	167,089	288,240	...	72.5
Total-----	1,000 lb---	307,537	591,294	626,955	103.9	6.0
Creosote oil (Dead oil) <sup>6</sup> -----	1,000 gal--	109,946	82,261	87,894	-20.1	6.8

<sup>1</sup> Includes data for oil-gas, water-gas, and gas-retort tar reported to the American Gas Association for 1950-54 and for 1962 only, and for coal tar reported to the Division of Bituminous Coal, U.S. Bureau of Mines.

<sup>2</sup> Includes data for motor-grade benzene in 1950-54. Separate statistics on production of motor-grade benzene have not been published since 1954. Production in recent years, if any, has been negligible.

<sup>3</sup> Includes data for benzene produced from imported crude light oil.

<sup>4</sup> Includes data for material produced for use in blending motor fuels. Statistics are not comparable with monthly figures, which included some o-xylene now shown in table 7A.

<sup>5</sup> 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.

<sup>6</sup> Includes data for creosote oil produced by tar distillers and coke-oven operators and used only in wood preserving. Data for production of creosote oil in coal-tar solution have been excluded because the figures for 1950-54 are not comparable with the figures for 1962 and 1963. Production figures for 1950-54 are for the distillate sold or consumed as such; and, for 1962 and 1963, the production of the distillate is on a 100-percent-creosote basis.

<sup>1</sup> See also table 4B, pt. III, which lists these products alphabetically and identifies the manufacturers.

<sup>2</sup> For sales of petroleum-derived naphthalene, see table 5A.

TABLE 4A.--Tar crudes: U.S. production and sales, 1963

[Listed below are all tar crudes for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 4B in pt. III 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 <sup>1</sup>
Crude light oil: Coke-oven operators-----	1,000 gal--	218,166	32,610	1,000 dollars 3,633	\$0.11
Intermediate light oil: Coke-oven operators-----	1,000 gal--	4,847	3,378	374	.11
Light-oil distillates:					
Benzene, specification and industrial grades, total-	1,000 gal--	647,414	...	...	...
Tar distillers <sup>2</sup> -----	1,000 gal--	9,098	...	...	...
Coke-oven operators-----	1,000 gal--	112,427	110,200	24,192	.22
Petroleum operators-----	1,000 gal--	525,889	310,671	72,088	.23
Toluene, all grades, total <sup>3</sup> -----	1,000 gal--	406,203	...	...	...
Tar distillers-----	1,000 gal--	3,204	...	...	...
Coke-oven operators-----	1,000 gal--	25,794	24,826	4,849	.20
Petroleum operators-----	1,000 gal--	377,205	182,332	30,414	.17
Xylenes, mixed, total <sup>3</sup> -----	1,000 gal--	334,857	130,622	24,663	.19
Tar distillers-----	1,000 gal--	509	413	129	.31
Coke-oven operators-----	1,000 gal--	6,888	7,124	1,694	.24
Petroleum operators-----	1,000 gal--	327,460	123,085	22,840	.19
Solvent naphtha, total-----	1,000 gal--	9,090	7,714	1,587	.21
Tar distillers-----	1,000 gal--	5,529	4,355	874	.20
Coke-oven operators-----	1,000 gal--	3,561	3,359	713	.21
Other light-oil distillates, total-----	1,000 gal--	11,444	9,059	1,213	.13
Tar distillers-----	1,000 gal--	4,105	3,570	481	.13
Coke-oven operators-----	1,000 gal--	7,339	5,489	732	.13
Naphthalene, crude (tar distillers and coke-oven operators), total <sup>4</sup> -----	1,000 lb--	338,715	209,097	7,130	.03
Solidifying at--					
Less than 74° C-----	1,000 lb--	45,914	47,544	1,102	.02
74° C. to less than 79° C-----	1,000 lb--	292,801	161,553	6,028	.04
Crude tar-acid oils:					
Tar distillers-----	1,000 gal--	526	532	171	.32
Coke-oven operators-----	1,000 gal--	25,170	26,183	4,804	.18
Creosote oil (Dead oil) (tar distillers and coke-oven operators) (100% creosote basis), total <sup>5</sup> -----	1,000 gal--	98,110	93,443	19,681	.21
Distillate as such (100% creosote basis)-----	1,000 gal--	87,894	83,556	16,614	.20
Creosote content of coal-tar solution (100% creosote basis)-----	1,000 gal--	10,216	9,887	3,067	.31
All other distillate products <sup>6</sup> -----	1,000 gal--	31,793	19,298	3,417	.18
Tar, road-----	1,000 gal--	58,042	56,766	8,303	.15
Tar (crude and refined) for other uses <sup>7</sup> -----	1,000 gal--	18,228	17,743	3,352	.19
Pitch of tar:					
Hard (water softening point above 160° F.)-----	1,000 tons-	848	590	23,521	39.87
Other <sup>8</sup> -----	1,000 tons-	940	465	15,763	33.90

<sup>1</sup> Unit value per gallon, pound, or ton, as specified.

<sup>2</sup> Includes data for benzene produced from imported crude light oil.

<sup>3</sup> Includes data for material produced for use in blending motor fuels.

<sup>4</sup> 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.

<sup>5</sup> Statistics include data only for creosote oil sold for, or used in, wood preserving. In 1963, production of creosote in coal-tar solution (100% solution basis) amounted to 15,792 thousand gallons; sales were 16,050 thousand gallons, valued at 3,067 thousand dollars, with a unit value of \$0.19 per gallon.

<sup>6</sup> Includes data for pyridine crude bases in addition to those for crude cresylic acid and neutral oils produced by tar distillers, and for crude sodium phenolate produced by coke-oven operators.

<sup>7</sup> Includes data for tar used for paint, pipe covering, saturating, and other uses.

<sup>8</sup> Includes soft and medium pitch of tar (water softening points less than 110° F., and 110° F. to 160° F. ASTM D61-24), pitch of tar coke, and pitch emulsion.

Note.--Statistics for materials produced in coke and gas-retort ovens are compiled by the Division of Bituminous Coal, 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.

(100-percent creosote basis), used principally in wood preserving, was 98 million gallons, compared with 91 million gallons in 1962. Production of road tar in 1963 was 58 million gallons, compared with 62 million gallons in 1962.

Some of the products included in the statistics in table 4A 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. After duplication has been eliminated insofar as possible, it is estimated that the net value of the output of these products and of tar burned as fuel was \$406 million in 1963, compared with \$423 million in 1962 and \$440 million in 1961.

### Crude Products From Petroleum and Natural Gas for Chemical Conversion

Crude products that are derived from petroleum and natural gas 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 processes (see table 5A<sup>3</sup>). 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. In this report, every effort has been made to exclude data on materials that are used as fuel. However, data are included on

TABLE 5A.-- *Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1963*

[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 5B in pt. III 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 <sup>1</sup>
Grand total-----	1,000 pounds 35,120,735	1,000 pounds 18,460,167	1,000 dollars 573,144	Per pound \$0.031
AROMATICS AND NAPHTHENES <sup>2</sup>				
Total-----	11,292,008	6,845,885	163,575	.024
Alkyl aromatics, distillates, and solvents-----	1,875,909	2,024,373	23,271	.011
Benzene (1° and 2°), total-----	3,881,061	2,292,752	72,088	.031
Benzene, 1°-----	3,091,652	...	...	...
Benzene, 2°-----	789,409	...	...	...
Cresylic acid, crude-----	31,441	14,031	401	.028
Naphthalene, all grades-----	288,240	232,783	11,806	.051
Naphthenic acids, total-----	25,335	13,596	1,228	.090
Acid No. 150-199-----	4,535	3,920	355	.090
All other-----	20,800	9,676	873	.090
Toluene, all grades, total-----	2,742,280	1,325,553	30,414	.023
Nitration grade, 1°-----	1,711,445	1,032,914	24,697	.024
Pure commercial grade, 2°-----	115,666	...	...	...
All other <sup>3</sup> -----	915,169	292,639	5,717	.020
Xylenes, mixed, total-----	2,360,986	887,442	22,840	.026
3°-----	541,161	198,455	5,654	.028
5°-----	565,920	244,383	5,610	.023
All other <sup>3</sup> -----	1,253,905	444,604	11,576	.026
All other aromatics and naphthenes <sup>4</sup> -----	86,756	55,355	1,527	.028

See footnotes at end of table.

<sup>3</sup> See also table 5B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 5A.--Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1963--Continued

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
ALIPHATIC HYDROCARBONS				
Total-----	1,000 pounds 23,828,727	1,000 pounds 11,614,282	1,000 dollars 409,569	Per pound \$0.035
C <sub>2</sub> hydrocarbons, total-----	8,886,184	2,549,555	104,120	.041
Acetylene <sup>5</sup> -----	355,642	14,431	1,485	.103
Ethane-----	1,012,990	326,865	2,925	.009
Ethylene-----	7,517,552	2,208,259	99,710	.045
C <sub>3</sub> hydrocarbons, total-----	6,257,833	4,045,022	61,890	.015
Propane-----	3,045,598	2,488,749	24,424	.010
Propane-propylene mixture-----	502,247	...	...	...
Propylene-----	2,709,988	1,556,273	37,466	.024
C <sub>4</sub> hydrocarbons, total-----	6,324,923	3,762,385	198,932	.053
1,3-Butadiene, grade for rubbers (elastomers)-----	2,324,362	1,362,401	146,071	.107
Butadiene and butylene fractions-----	504,447	...	...	...
n-Butane-----	1,465,596	817,575	9,408	.012
1-Butene-----	...	13,222	906	.068
1-Butene and 2-butene mixture <sup>6</sup> -----	944,764	885,940	27,892	.031
Isobutane-----	618,015	284,368	3,528	.012
Isobutylene-----	212,799	146,090	5,601	.038
All other <sup>7</sup> -----	254,940	252,789	5,526	.022
C <sub>5</sub> hydrocarbons, total-----	521,049	85,536	3,844	.045
Isoprene (2-methyl-1,3-butadiene)-----	94,739	...	...	...
All other <sup>8</sup> -----	426,310	...	...	...
All other aliphatic hydrocarbons and derivatives, total--	1,838,738	1,171,784	40,783	.035
Diisobutylene (Diisobutene)-----	29,105	27,156	1,735	.064
n-Heptane-----	92,690	...	...	...
Heptenes, mixed-----	158,427	70,923	2,397	.034
Hexane-----	163,570	...	...	...
Nonene (Tripropylene)-----	144,101	121,172	3,608	.030
Polybutene <sup>9</sup> -----	146,436	122,921	6,882	.056
Hydrocarbon derivatives <sup>10</sup> -----	15,863	14,347	4,688	.327
Tetrapropylene-----	400,305	335,198	10,589	.032
All other <sup>11</sup> -----	688,241	480,067	10,884	.023

<sup>1</sup> Calculated from rounded figures.

<sup>2</sup> 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 aromatic chemicals from all sources are given in table 4A "Tar Crudes."

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

<sup>4</sup> Includes data for 90-percent benzene, sodium cresylate, sodium carbolate and phenate, and miscellaneous cyclic hydrocarbons.

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

<sup>6</sup> The statistics represent principally the butene content of crude refinery gases from which butadiene is manufactured.

<sup>7</sup> Includes data for 1-butene, 2-butene, mixed butylenes, and mixed olefins.

<sup>8</sup> Includes data for pentanes, pentenes, and C<sub>5</sub> hydrocarbon mixtures.

<sup>9</sup> Includes compounds having a molecular weight of 3,000 or less.

<sup>10</sup> Includes data for di-tert-butyl disulfide and miscellaneous mercaptans.

<sup>11</sup> Includes data for alpha olefins, methane, octanes, 1-dodecene, eicosane, and hydrocarbon mixtures.

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 35,121 million pounds in 1963, or 6.6 percent more than the 32,960 million pounds reported for 1962. The larger output in 1963 is accounted for chiefly by increased production of benzene, naphthalene, toluene, ethylene, propylene, and 1,3-butadiene. Sales of crude chemicals from petroleum in 1963 were 18,460 million pounds, valued at \$573 million, compared with 20,352 million pounds, valued at \$656 million, in 1962.

The output of all aromatic and naphthenic products amounted to 11,292 million pounds in 1963, compared with 10,152 million pounds in 1962. Sales in 1963, which amounted to 6,846 million pounds, valued at \$164 million, were 534 million pounds larger, and valued at \$2 million less, than those in 1962. Naphthalene was produced from petroleum sources in substantially greater quantities in 1963 than in 1962. The output of 1° and 2° benzene from petroleum amounted to

3,881 million pounds in 1963--25.8 percent more than the 3,086 million pounds produced in 1962. The output of toluene in 1963 was 2,742 million pounds--14.1 percent more than the 2,404 million pounds produced in 1962. Production of xylene was 2,361 million pounds in 1963, compared with 2,499 million pounds in 1962. These figures include toluene and xylene used in blends in aviation and motor-grade gasolines. The output of naphthenic acids amounted to 25 million pounds in 1963, about the same as that produced in 1962. Production of cresylic acid in 1963--31 million pounds--was 4.5 percent more than in 1962.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 23,829 million pounds in 1963, compared with 22,808 million pounds in 1962. Sales of these products were 11,614 million pounds, valued at \$410 million, in 1963, compared with 14,040 million pounds, valued at \$490 million, in 1962. The statistics on production of acetylene (table 5A) include only acetylene produced from natural gas 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 1961, the latest year for which statistics were published, production of acetylene for chemical synthesis from all sources amounted to 801 million pounds. Production of ethylene was 7,518 million pounds in 1963, or 19.6 percent more than the 6,283 million pounds produced in 1962. The output of propane and propylene, including mixtures, was 6,258 million pounds in 1963--6.6 percent less than the 6,700 million pounds produced in 1962. Production of 1,3-butadiene, one of the principal ingredients of S-type synthetic rubber, was 2,324 million pounds in 1963, compared with 2,144 million pounds in 1962. The output of 1,3-butadiene in 1963--the largest on record--was 8.4 percent more than that in 1962.

## PART II. PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED SYNTHETIC ORGANIC CHEMICALS, BY GROUPS

### General

On the basis of their principal uses, the synthetic organic chemicals covered in this report are classified either as intermediates or as finished products. Finished products, in turn, are grouped as follows: Dyes, synthetic organic pigments, medicinal chemicals, flavor and perfume materials, plastics and resin materials, rubber-processing chemicals, elastomers (synthetic rubbers), plasticizers, surface-active agents, pesticides and other organic agricultural chemicals, and miscellaneous synthetic organic chemicals. Most of these groups are further subdivided, according to chemical classes, into cyclic and acyclic compounds. As most of the intermediates 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 1963 was 70,343 million pounds, or 9.6 percent more than the output of 64,170 million pounds reported for 1962 (see table 6). Sales of synthetic organic chemicals in 1963 amounted to 37,046 million pounds, valued at \$7,793 million, compared with 34,628 million pounds, valued at \$7,490 million, in 1962. Production of all cyclic products (intermediates and finished products combined) in 1963 totaled 22,490 million pounds, or 8.7 percent more than the 20,690 million pounds produced in 1962. The output of acyclic organic chemicals in 1963 amounted to 47,853 million pounds--10.0 percent more than the 43,480 million pounds reported for 1962.

TABLE 6.-- *Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1962 and 1963*

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

Chemical	Average 1957-59	1962	1963	Increase, or decrease (-)	
				1963 over 1957-59	1963 over 1962
Organic chemicals, cyclic and acyclic, grand total:				Percent	Percent
Production-----	45,598,853	64,169,916	70,343,302	54.3	9.6
Sales-----	23,744,812	34,628,386	37,046,363	56.0	7.0
Sales value-----	5,743,764	7,490,218	7,793,226	35.7	4.0
Cyclic, total:					
Production-----	14,381,651	20,689,673	22,490,017	56.4	8.7
Sales-----	8,829,037	12,253,042	13,477,603	52.6	10.0
Sales value-----	2,785,100	3,472,358	3,631,620	30.4	4.6
Acyclic, total:					
Production-----	31,217,202	43,480,243	47,853,285	53.3	10.0
Sales-----	14,915,775	22,375,344	23,568,760	58.0	5.3
Sales value-----	2,958,664	4,017,860	4,161,606	40.6	3.6
1. Intermediates, Cyclic					
Production-----	7,343,167	11,399,541	12,768,168	73.9	12.0
Sales-----	2,919,264	4,572,116	5,428,713	86.0	18.7
Sales value-----	481,920	632,249	642,884	33.4	1.7
2. Dyes, Cyclic					
Production-----	150,830	188,904	204,046	35.3	8.0
Sales-----	141,731	178,031	186,951	31.9	5.0
Sales value-----	182,513	227,231	239,676	31.3	5.5
3. Synthetic Organic Pigments, Cyclic					
Production-----	38,603	37,156	39,399	2.1	6.0
Sales-----	30,218	31,602	33,534	11.0	6.1
Sales value-----	58,648	74,313	79,600	35.7	7.1

TABLE 6.--*Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1962 and 1963 --Continued*

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

Chemical	Average 1957-59	1962	1963	Increase, or decrease (-)	
				1963 over 1957-59	1963 over 1962
4. Medicinal Chemicals					
Cyclic:				Percent	Percent
Production-----	70,654	87,724	94,125	33.2	7.3
Sales-----	54,151	68,228	73,606	35.9	7.9
Sales value-----	535,297	567,396	605,080	13.0	6.6
Acyclic:					
Production-----	31,592	39,707	45,071	42.7	13.5
Sales-----	28,738	35,399	40,314	40.3	13.9
Sales value-----	35,660	33,383	33,875	-5.0	1.5
5. Flavor and Perfume Materials					
Cyclic:					
Production-----	27,312	42,771	41,338	51.4	-3.4
Sales-----	22,446	32,049	34,671	54.5	8.2
Sales value-----	33,903	47,260	51,446	51.7	8.9
Acyclic:					
Production-----	19,033	33,496	32,430	70.4	-3.2
Sales-----	19,958	31,399	32,343	62.1	3.0
Sales value-----	21,912	28,702	25,940	18.4	-9.6
6. Plastics and Resin Materials					
Cyclic:					
Production-----	2,278,862	3,159,236	3,489,361	53.1	10.4
Sales-----	1,900,032	2,685,314	2,886,387	51.9	7.5
Sales value-----	518,501	665,679	736,760	42.1	10.7
Acyclic:					
Production-----	2,628,779	4,782,410	5,479,112	108.4	14.6
Sales-----	2,438,853	4,430,423	4,629,750	89.8	4.5
Sales value-----	864,523	1,217,962	1,266,359	46.5	4.0
7. Rubber-Processing Chemicals					
Cyclic:					
Production-----	159,182	195,900	199,282	25.2	1.7
Sales-----	115,704	148,139	152,835	32.1	3.2
Sales value-----	74,479	97,363	101,757	36.6	4.5
Acyclic:					
Production-----	29,150	32,521	34,350	17.8	5.6
Sales-----	22,127	23,985	24,367	10.1	1.6
Sales value-----	14,289	17,055	16,906	18.3	-9.9
8. Elastomers (Synthetic Rubbers)					
Cyclic:					
Production-----	1,938,732	2,263,105	2,174,183	12.1	-3.9
Sales-----	1,726,757	1,907,319	1,925,751	11.5	1.0
Sales value-----	404,897	464,581	434,474	7.3	-6.5
Acyclic:					
Production-----	521,811	871,290	1,010,731	93.7	16.0
Sales-----	509,262	823,068	910,544	78.8	10.6
Sales value-----	199,627	309,745	332,457	66.5	7.3
9. Plasticizers					
Cyclic:					
Production-----	348,210	570,963	621,687	78.5	8.9
Sales-----	297,423	486,050	557,979	87.6	14.8
Sales value-----	83,509	103,705	103,000	23.3	-7.7
Acyclic:					
Production-----	118,118	209,980	212,837	80.2	1.4
Sales-----	100,984	179,885	191,771	89.9	6.6
Sales value-----	38,772	64,358	65,181	68.1	1.3



TABLE 6.--*Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1962 and 1963--Continued*

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

Chemical	Average 1957-59	1962	1963	Increase, or decrease (-)	
				1963 over 1957-59	1963 over 1962
10. Surface-Active Agents					
Cyclic:				Percent	Percent
Production-----	852,314	1,301,878	1,308,791	53.6	0.5
Sales-----	800,432	1,221,295	1,222,238	52.7	.1
Sales value-----	127,936	162,509	159,963	25.0	-1.6
Acyclic:					
Production-----	502,715	646,689	671,867	33.6	3.9
Sales-----	432,135	537,099	567,445	31.3	5.6
Sales value-----	113,215	154,618	165,011	45.8	6.7
11. Pesticides and Other Organic Agricultural Chemicals					
Cyclic:					
Production-----	440,384	584,975	597,072	35.6	2.1
Sales-----	375,627	496,583	498,082	32.6	.3
Sales value-----	150,837	271,266	286,045	89.6	5.4
Acyclic:					
Production-----	105,080	144,743	166,405	58.4	15.0
Sales-----	91,938	137,379	153,389	66.8	11.7
Sales value-----	49,049	75,035	83,095	69.4	10.7
12. Miscellaneous Chemicals					
Cyclic:					
Production-----	733,401	857,520	952,565	29.9	11.1
Sales-----	445,252	426,316	476,856	7.1	11.9
Sales value-----	132,660	158,806	190,935	43.9	20.2
Acyclic:					
Production-----	27,260,924	36,719,407	40,200,482	47.5	9.5
Sales-----	11,271,780	16,176,707	17,018,837	51.0	5.2
Sales value-----	1,621,617	2,117,002	2,172,782	34.0	2.6

The following tabulation shows, by chemical groups, the number of companies that reported production in 1963 of one or more of the chemicals included in the groups listed in table 6:

Chemical group	Number of companies	Chemical group	Number of companies
Intermediates -----	195	Rubber-processing chemicals -----	31
Dyes -----	51	Elastomers (synthetic rubbers)-----	34
Synthetic organic pigments -----	41	Plasticizers -----	63
Medicinal chemicals -----	116	Surface-active agents -----	191
Flavor and perfume materials -----	51	Pesticides and other organic agricultural chemicals	87
Plastics and resin materials -----	316	Miscellaneous chemicals -----	319

## Cyclic Intermediates

Cyclic intermediates are synthetic organic chemicals derived principally from coal-tar crudes produced by destructive distillation (pyrolysis) of coal and from petroleum and natural gas. 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 general, the way in which the greater part of the output of a given chemical is consumed determines its use classification in this report. Table 7A<sup>1</sup> gives statistics on production and sales of cyclic intermediates in 1963. Individual statistics given in the table represent more than 80 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. In 1963 about two-fifths of the total output of cyclic intermediates was sold; the rest was consumed chiefly by the producing plants in the manufacture of more advanced intermediates and finished products.

Total production of cyclic intermediates in 1963--12,768 million pounds--was the largest on record, and was 12.0 percent larger than the output of 11,400 million pounds reported for 1962. The larger output of cyclic intermediates in 1963 was attributable to increased demand by a number of industries that consume large quantities of intermediates, particularly those industries that produce dyes and plasticizers. Sales of cyclic intermediates in 1963 amounted to 5,429 million pounds, valued at \$643 million, compared with 4,572 million pounds, valued at \$632 million, in 1962. In terms of quantity, sales of cyclic intermediates in 1963 were 18.7 percent larger than those in 1962 and, in terms of value, 1.7 percent larger.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1963

[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 7B in pt. III lists alphabetically all cyclic intermediates for which data on production or sales were reported and identifies the manufacturer of each. Appendix B lists alphabetically all the important common names of cyclic intermediates usually encountered in the trade and gives the corresponding standard (*Chemical Abstracts*) name under which data are presented in tables 7A and 7B]

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	12,768,168	5,428,713	642,884	\$0.12
Acetanilide, tech-----	3,548	...	...	...
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	385	155	240	1.55
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	24	...	...	...
1-Aminoanthraquinone and salt-----	1,234	...	...	...
2-Aminoanthraquinone and salt-----	752	...	...	...
6-Amino-3,4'-azodi(benzenesulfonic acid)-----	36	...	...	...
1-Amino-4-benzamidoanthraquinone-----	59	...	...	...
6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid-----	14	...	...	...
2-Amino-p-benzenedisulfonic acid [SO <sub>3</sub> H=1]-----	25	...	...	...
1-Amino-4-bromo-2-anthraquinonesulfonic acid and sodium salt-----	187	10	36	3.60
2-Amino-1-bromo-3-chloroanthraquinone-----	18	...	...	...
1-Amino-2-bromo-4-(p-toluidino)anthraquinone-----	26	...	...	...
1-Amino-5-chloroanthraquinone-----	83	...	...	...
1-Amino-5(and 8)-chloroanthraquinone-----	10	...	...	...
o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	106	...	...	...
6-Amino-4-chloro-1-phenol-2-sulfonic acid-----	15	...	...	...
2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	1,062	467	441	.94
6-Amino-4-chloro-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	...	244	316	1.30
1-Amino-2,4-dibromoanthraquinone-----	222	...	...	...
1-Amino-4-hydroxyanthraquinone-----	10	...	...	...

See footnotes at end of table.

<sup>1</sup>See also table 7B, pt. III, which lists these products alphabetically and identifies the manufacturers; appendix A, which shows imports of intermediates and related products during 1961-63; and appendix B, which is a glossary of synonymous names of cyclic intermediates.

TABLE 7A. --Cyclic intermediates: U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1-Amino-2-methoxy-4-(p-toluenesulfonamido)anthraquinone-----	12	...	...	...
4'-Amino-N-methylacetanilide-----	18	...	...	...
2-Amino-1,5-naphthalenedisulfonic acid-----	59	...	...	...
3-Amino-1,5-naphthalenedisulfonic acid (Cassella acid)-----	164	...	...	...
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	1,001	...	...	...
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	725	35	35	\$1.00
2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	3,980	...	...	...
5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	189	...	...	...
5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed)---	215	...	...	...
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	97	53	85	1.60
8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	427	...	...	...
8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	231	...	...	...
8-Amino-2-naphthol-----	77	...	...	...
8-Amino-1-naphthol-3,6-disulfonic acid (H acid), monosodium salt--	3,212	...	...	...
1-Amino-2-naphthol-4-sulfonic acid (1,2,4-acid)-----	1,206	...	...	...
6-Amino-1-naphthol-3-sulfonic acid (J acid), sodium salt-----	546	...	...	...
7-Amino-1-naphthol-3-sulfonic acid (Gamma acid), sodium salt-----	580	141	205	1.45
2-Amino-5-nitrobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	56	...	...	...
2-Amino-4-nitrophenol-----	132	...	...	...
2-Amino-1-phenol-4-sulfonamide-----	57	...	...	...
2-Amino-1-phenol-4-sulfonic acid-----	111	...	...	...
p-(p-Aminophenylazo)benzenesulfonic acid-----	110	...	...	...
4-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	221	...	...	...
6-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	250	...	...	...
16-Aminoviolanthrone-----	16	...	...	...
2-Amino-3,5-xylenesulfonic acid [SO <sub>3</sub> H=1]-----	94	...	...	...
Aniline (Aniline oil)-----	154,648	56,076	7,771	.14
Anilinomethanesulfonic acid and salt-----	194	...	...	...
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)-----	344	...	...	...
6-Anilino-1-naphthol-3-sulfonic acid (Phenyl J acid)-----	48	...	...	...
o-Anisidine-----	1,588	547	407	.74
o-Anisidinomethanesulfonic acid-----	274	...	...	...
Anthra [1,9] pyrazol-6(2H)-one (Pyrazoleanthrone)-----	8	...	...	...
Anthraquinone, 100%-----	4,123	...	...	...
1,5-Anthraquinonedisulfonic acid-----	175	...	...	...
1,8-Anthraquinonedisulfonic acid, potassium salt-----	268	...	...	...
2,6-Anthraquinonedisulfonic acid and salt-----	217	...	...	...
1-Anthraquinonesulfonic acid and salt-----	2,561	...	...	...
N,N'-(1,5-Anthraquinonylene)dianthranilic acid-----	43	...	...	...
Anthrarufin (1,5-Dihydroxyanthraquinone)-----	291	...	...	...
Benzaldehyde, tech-----	3,605	3,871	1,568	.40
1-Benzamido-5-chloroanthraquinone-----	96	...	...	...
7H-Benz[de]anthracen-7-one (Benzanthrone)-----	2,129	...	...	...
Benzidine hydrochloride and sulfate-----	1,325	860	924	1.07
Benzoic acid, tech-----	15,320	6,988	1,230	.18
o-Benzoylbenzoic acid-----	5,286	...	...	...
3,3'-Bianthra[1,9]pyrazole-6,6'(2H,2'H)-dione (Pyrazoleanthrone yellow)-----	11	...	...	...
[4,4'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	450	...	...	...
[1,1'-Binaphthalene]-8,8'-dicarboxylic acid-----	48	...	...	...
1,4-Bis[1-anthraquinonylamino]anthraquinone-----	128	...	...	...
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)-----	110	...	...	...
3-Bromo-7H-benz[de]anthracen-7-one (Bromobenzanthrone)-----	231	...	...	...
1-Bromo-4-methylaminanthraquinone-----	37	...	...	...
1-Chloroanthraquinone-----	205	...	...	...
2-Chloroanthraquinone-----	773	...	...	...
o-Chlorobenzaldehyde-----	392	...	...	...
Chlorobenzene, mono-----	518,817	69,073	4,584	.07
o-(p-Chlorobenzoyl)benzoic acid-----	1,214	...	...	...
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	8,164	1,580	262	.17
1-Chloro-2-methylanthraquinone-----	363	...	...	...
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	289	267	234	.88
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	413	249	209	.84
1-Chloro-5-nitroanthraquinone-----	95	...	...	...
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	18,879	10,715	655	.06
1-Chloro-2(and 4)-nitrobenzene (Chloronitrobenzenes, o- and p)---	3,920	...	...	...
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)-----	6,435	...	...	...

See footnotes at end of table.

TABLE 7A.--Cyclic intermediates; U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
4-Chloro-3-nitrobenzenesulfonamide-----	164	...	...	...
4-Chloro-3-nitrobenzenesulfonic acid-----	190	...	...	...
4-Chloro-3-nitrobenzenesulfonyl chloride-----	141	...	...	...
o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	134	...	...	...
4-Chloro-2-nitrotoluene-----	696	...	...	...
$\alpha$ -Chlorotoluene (Benzyl chloride)-----	39,738	7,363	1,372	\$0.19
5-Chloro-o-toluidine [NH <sub>2</sub> =1] and hydrochloride-----	471	...	...	...
4-Chloro- $\alpha,\alpha$ -trifluoro-3-nitrotoluene-----	21	...	...	...
Cresols, total <sup>2</sup> -----	64,505	50,150	10,220	.20
o- and p-Cresols-----	23,424	20,007	6,217	.31
(m,p)-Cresol, total-----	27,491	19,132	2,515	.13
From coal tar-----	8,539	5,130	708	.14
From petroleum-----	18,952	14,002	1,807	.13
(o,m,p)-Cresol <sup>3</sup> -----	13,590	11,011	1,488	.14
Cresylic acid, refined, total <sup>2</sup> -----	55,853	38,987	4,381	.11
From coal tar-----	21,691	21,271	2,588	.12
From petroleum-----	34,162	17,716	1,793	.10
Cumene-----	433,179	...	...	...
Cyclohexane-----	1,078,698	825,341	33,522	.04
Cyclohexanol-----	...	3,807	1,011	.27
Cyclohexanone-----	225,214	...	...	...
1,4-Diaminoanthraquinone-----	72	...	...	...
2,6-Diaminoanthraquinone-----	93	...	...	...
4,4'-Diamino-2,2'-biphenyldisulfonic acid-----	9	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	2,082	...	...	...
4,5'-Dibenzamido-1,1'-iminodanthraquinone-----	135	...	...	...
1,5-Dibenzoylnaphthalene-----	106	...	...	...
3,9-Dibromo-7H-benz[de]anthracen-7-one-----	265	...	...	...
2,5-Dichloroaniline and hydrochloride [NH <sub>2</sub> =1]-----	140	...	...	...
1,5-Dichloroanthraquinone-----	79	...	...	...
1,8-Dichloroanthraquinone-----	90	...	...	...
o-Dichlorobenzene-----	52,332	39,338	4,045	.10
o (and p)-Dichlorobenzene-----	13,378	14,247	458	.03
p-Dichlorobenzene-----	74,614	59,806	5,749	.10
3,3'-Dichlorobenzidine base and salts-----	1,982	1,740	2,111	1.21
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	292	...	...	...
2,6-Dichloro-4-nitroaniline-----	172	97	169	1.74
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	396	...	...	...
2,5-Dichlorosulfanilic acid [SO <sub>3</sub> H=1]-----	116	...	...	...
2,6-Dichlorotoluene-----	22	...	...	...
p-Diethylaminobenzaldehyde-----	23	...	...	...
N,N-Diethylaniline-----	1,330	879	491	.56
1,5-Dihydroxy-4,8-dinitroanthraquinone-----	83	...	...	...
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	437	...	...	...
2,5-Dimethoxyaniline-----	61	...	...	...
3,3'-Dimethoxybenzidine-----	473	378	657	1.74
N,N-Dimethylaniline-----	9,512	5,315	1,182	.22
N,N-Dimethylbenzylamine-----	41	...	...	...
2,2'-Dimethyl-1,1'-bianthraquinone-----	202	...	...	...
N,N-Dimethyl-p-nitrosoaniline-----	81	...	...	...
4,5-Dinitrochrysazin-----	159	...	...	...
2,4-Dinitrophenol, tech-----	1,035	...	...	...
4,4'-Dinitro-2,2'-stilbenedisulfonic acid-----	3,423	...	...	...
1,5-Diphenoxyanthraquinone-----	46	...	...	...
1,4-Di(p-toluidino)anthraquinone-----	164	...	...	...
Dodecylbenzene <sup>4</sup> -----	489,896	414,007	35,545	.09
Dodecylphenol-----	16,047	...	...	...
N-Ethylaniline, refined-----	735	...	...	...
2-(N-Ethylanilino)ethanol-----	102	...	...	...
$\alpha$ -(N-Ethylanilino)-p-toluenesulfonic acid-----	583	...	...	...
Ethylbenzene-----	2,450,866	347,393	13,849	.04

See footnotes at end of table.

TABLE 7A. --Cyclic intermediates; U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
N-Ethyl-N-phenylbenzylamine-----	771	...	...	...
2-Ethyl-2-phenylmalonic acid, diethyl ester-----	488	...	...	...
3-(N-Ethyl-m-toluidino)propionitrile-----	63	...	...	...
o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)-----	188	17	40	\$2.35
p-Hydrazinobenzenesulfonic acid-----	130	...	...	...
p-Hydroxybenzoic acid, methyl ester-----	250	162	219	1.35
p-Hydroxybenzoic acid, propyl ester-----	40	22	44	2.00
1,1'-Iminobis[4-aminoanthraquinone]-----	118	...	...	...
1,1'-Iminobis[5-benzamidoanthraquinone]-----	38	...	...	...
6,6'-Iminobis[1-naphthol-3-sulfonic acid]-----	10	...	...	...
1,1'-Iminobis[4-nitroanthraquinone]-----	103	...	...	...
1,1'-Iminodianthraquinone (Dianthrime)-----	121	...	...	...
Isocyanic acid derivatives, total-----	130,613	117,006	68,954	.59
Diphenylmethane 4,4'-diisocyanate (MDI)-----	3,553	1,683	2,065	1.23
Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)-----	116,823	107,989	61,731	.57
All other-----	10,237	7,334	5,158	.70
4,4'-Isopropylidenediphenol (Bisphenol A)-----	72,392	31,284	7,728	.25
Isoviolanthrone (Isodibenzanthrone)-----	45	...	...	...
Leuco-1,4-diaminoanthraquinone-----	303	...	...	...
Leuco tetrahydroxyanthraquinone-----	60	...	...	...
Metanilic acid (m-Aminobenzenesulfonic acid)-----	619	...	...	...
1-Methylaminoanthraquinone-----	147	...	...	...
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	1,079	397	230	.58
2-Methyl-1-nitroanthraquinone-----	112	...	...	...
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	143	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	252	231	378	1.64
$\alpha$ -Methylstyrene-----	11,270	...	...	...
1,4,5,8-Naphthalenetetracarboxylic acid-----	44	...	...	...
Naphthalic anhydride-----	37	...	...	...
Naphthionic acid (4-Amino-1-naphthalenesulfonic acid)-----	277	...	...	...
2-Naphthol-3,6-disulfonic acid, disodium salt-----	1,453	...	...	...
2-Naphthol-6-sulfonic acid (Schaeffer's acid) and sodium salt-----	377	131	107	.82
Naphth[1,2]oxadiazole-5-sulfonic acid-----	928	...	...	...
p-Nitroaniline-----	9,808	6,890	2,978	.43
4-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	83	...	...	...
5-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	284	...	...	...
1-Nitro-2-anthraquinonecarboxylic acid-----	35	...	...	...
5-Nitro-1-anthraquinonesulfonic acid-----	102	...	...	...
Nitrobenzene-----	219,971	9,421	868	.09
m-Nitrobenzenesulfonic acid and sodium salt-----	2,092	2,065	888	.43
m-Nitrobenzenesulfonyl chloride-----	23	...	...	...
m-Nitrobenzoic acid and sodium salt-----	259	...	...	...
3-Nitro-1,5-naphthalenedisulfonic acid-----	128	...	...	...
7(and 8)-Nitronaphth[1,2]oxadiazole-5-sulfonic acid-----	913	...	...	...
p-Nitrophenol-----	16,161	...	...	...
5-Nitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	5,403	...	...	...
3-Nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	86	...	...	...
4-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	11	...	...	...
5-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	300	...	...	...
2-Nitro-p-toluidine [NH <sub>2</sub> =1]-----	1,195	633	734	1.16
16-Nitroviolanthrone-----	101	...	...	...
Nonylphenol-----	46,453	15,252	1,844	.12
1-(7-Oxo-7H-benz[de]anthracen-3-ylamino)anthraquinone-----	266	...	...	...
1,1'-(7-Oxo-7H-benz[de]anthracen-3,9-ylenediimino)dianthraquinone-----	453	...	...	...
5-Oxo-1-(p-sulphophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T)-----	42	...	...	...
3,4,9,10-Perylenetetracarboxylic diimide-----	30	...	...	...
Phenol, grand total <sup>2</sup> -----	935,378	480,289	45,705	.10
Natural, total-----	50,679	52,041	4,831	.09
From coal tar-----	37,639	40,780	3,711	.09
From petroleum-----	13,040	11,261	1,120	.10
Synthetic, total-----	884,699	428,248	40,874	.10
From cumene-----	325,282	219,395	19,272	.09
Other synthetic-----	559,417	208,853	21,602	.10

See footnotes at end of table.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1-Phenol-4-sulfonic acid-----	5,459	6,276	755	\$0.12
Phenylacetic acid, potassium salt-----	935	915	335	.37
Phenylacetoneitrile ( $\alpha$ -Tolunitrile)-----	1,475	726	419	.58
p-Phenylazocaniline (p-Aminoazobenzene) and hydrochloride-----	161	...	...	...
Phthalic anhydride-----	458,630	225,787	21,973	.10
2-Picoline ( $\alpha$ -Picoline) <sup>5</sup> -----	...	260	103	.40
Piperidine-----	442	...	...	...
Propiophenone-----	504	...	...	...
Pyranthrone-----	24	...	...	...
2° Pyridine <sup>5</sup> -----	3,053	3,068	2,095	.68
Quinaldine-----	24	...	...	...
Quinizarin-----	1,414	67	62	.93
2-Quinizarinsulfonic acid-----	28	...	...	...
Salicylic acid, tech-----	24,643	3,229	1,120	.35
Styrene, all grades-----	2,154,363	1,096,279	101,538	.09
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt-----	2,410	...	...	...
4-Sulfoanthranilic acid-----	9	...	...	...
Terephthalic acid-----	...	980	250	.26
Terephthalic acid, dimethyl ester-----	330,927	...	...	...
1,4,5,8-Tetrachloroanthraquinone-----	48	...	...	...
o(and p)-Toluenesulfonic acid-----	5,415	3,832	553	.14
o-(p-Toluoyl)benzoic acid-----	639	...	...	...
4-(o-Tolylazo)-o-toluidine-----	397	...	...	...
6,6'-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea)-----	272	...	...	...
Violanthrone (Dibenzanthrone)-----	601	...	...	...
o-Xylene-----	303,967	220,908	7,634	.03
p-Xylene-----	262,528	246,965	22,583	.09
All other cyclic intermediates-----	1,951,955	995,442	218,783	.22

<sup>1</sup> Unit values calculated from rounded figures.

<sup>2</sup> Includes data for coke ovens and gas-retort ovens, reported to the Division of Bituminous Coal, U.S. Bureau of Mines, Department of the Interior, and for tar and petroleum refineries and other producers, reported to the U.S. Tariff Commission.

<sup>3</sup> Includes some mixed cresols. Figures include (o,m,p)-cresol from coal tar and from petroleum.

<sup>4</sup> Includes tridecylbenzene.

<sup>5</sup> Includes data for coke ovens and gas-retort ovens, reported to the Division of Bituminous Coal, U.S. Bureau of Mines, Department of the Interior, and for tar refineries and other producers, reported to the U.S. Tariff Commission.

In 1963, production of two of the largest volume intermediates amounted to over 2 billion pounds each. The output of ethylbenzene totaled 2,451 million pounds (21.9 percent more than in 1962) and that of styrene, 2,154 million pounds (10.9 percent more than in 1962). Ethylbenzene is used almost entirely in the manufacture of styrene, which, in turn, is used almost entirely in the manufacture of plastics materials and synthetic rubber. The output of other large-volume intermediates in 1963 compares with the output in 1962 as follows: Cyclohexane, 24.9 percent larger; phenol, 13.3 percent larger; phthalic anhydride, 7.3 percent larger; nitrobenzene, 10.2 percent larger; aniline, 12.5 percent larger; and toluene diisocyanate (80/20 mixture), 24.6 percent larger. Production of dodecylbenzene (including tridecylbenzene) in 1963 was 8.2 percent smaller than that in 1962, and that of monochlorobenzene was 6.4 percent smaller. Production of ortho-xylene amounted to 304 million pounds in 1963, compared with 272 million pounds in 1962--representing an increase of 11.9 percent.

### Dyes

Dyes are synthetic organic chemicals derived from cyclic intermediates. About three-fourths of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; the rest are used chiefly by the industries that produce organic pigments, paper, and leather. Of the several thousand different synthetic dyes that are known, more than two 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.

Table 8A<sup>2</sup> shows U.S. production and sales of dyes in 1963, total and by individual dyes, using the *Colour Index* classification and terminology (which was used for the first time in the Commission's 1958 report).

Total domestic production of dyes in 1963 amounted to 204 million pounds--8.0 percent more than the 189 million pounds produced in 1962, and 22.5 percent more than the 167 million pounds reported for 1961. Sales of dyes in 1963 amounted to 187 million pounds, valued at \$240 million, compared with 178 million pounds, valued at \$227 million, in 1962. In terms of quantity, sales of dyes in 1963 were 5.0 percent larger than in 1962, and in terms of value, 5.5 percent larger.

For many important individual low- and medium-priced dyes for which statistics are given in table 8A, production was larger in 1963 than in 1962. The output of Vat Blue 6 was 3.2 million pounds in 1963, or 22.6 percent more than the 2.6 million pounds produced in 1962. Other important dyes whose output was substantially larger in 1962 than in 1962 were Direct Black 80 (35.4 percent), Vat Green 9 (29.0 percent), and Disperse Blue 3 (18.2 percent).

TABLE 8A.-- *Coal-tar dyes: U.S. production and sales, 1963*

[Listed below are all coal-tar 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 8B in pt. III 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 <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	204,046	186,951	239,676	\$1.28
ACID DYES				
Total-----	17,858	16,287	32,812	2.01
Acid yellow dyes, total-----	2,739	2,341	5,293	2.26
Acid Yellow 3-----	27	37	130	3.51
Acid Yellow 11-----	61	32	64	2.00
Acid Yellow 17-----	487	438	923	2.11
Acid Yellow 23-----	295	228	505	2.21
Acid Yellow 36-----	254	257	357	1.39
Acid Yellow 40-----	99	102	282	2.76
Acid Yellow 42-----	37	24	48	2.00
Acid Yellow 44-----	22	17	51	3.00
Acid Yellow 54-----	60	69	157	2.28
Acid Yellow 73-----	...	59	134	2.27
Acid Yellow 99-----	96	87	190	2.18
All other-----	1,301	991	2,452	2.47
Acid orange dyes, total-----	2,532	2,442	3,511	1.44
Acid Orange 1-----	29	26	69	2.65
Acid Orange 7-----	779	704	593	.84
Acid Orange 8-----	298	322	342	1.06
Acid Orange 10-----	358	320	407	1.27
Acid Orange 24-----	417	460	598	1.30
Acid Orange 60-----	39	30	75	2.50
All other-----	612	580	1,427	2.46
Acid red dyes, total-----	3,427	2,804	5,425	1.93
Acid Red 1-----	724	620	698	1.13
Acid Red 4-----	195	179	316	1.77
Acid Red 14-----	90	78	107	1.37
Acid Red 18-----	161	153	173	1.13

See footnotes at end of table.

<sup>2</sup> See also table 8B, pt. III, which lists these products and identifies the manufacturers, and appendix A (table 23), which shows imports of dyes during 1961-63.

TABLE 8A.--Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
ACID DYES--Continued				
Acid red dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Acid Red 26-----	124	73	82	\$1.12
Acid Red 37-----	72	61	166	2.72
Acid Red 73-----	213	208	451	2.17
Acid Red 85-----	177	165	274	1.66
Acid Red 87-----	540	110	206	1.87
Acid Red 88-----	131	150	206	1.37
Acid Red 89-----	35	34	61	1.79
Acid Red 114-----	81	77	147	1.91
Acid Red 115-----	...	19	29	1.53
Acid Red 137-----	127	125	399	3.19
Acid Red 151-----	24	...	...	...
Acid Red 182-----	27	30	99	3.30
Acid Red 186-----	...	8	27	3.38
All other-----	706	714	1,984	2.78
Acid violet dyes, total-----	459	433	824	1.90
Acid Violet 1-----	33	44	63	1.43
Acid Violet 3-----	102	113	206	1.82
Acid Violet 7-----	104	86	121	1.41
Acid Violet 12-----	...	38	57	1.50
Acid Violet 17-----	86	63	130	2.06
Acid Violet 43-----	11	8	28	3.50
All other-----	123	81	219	2.70
Acid blue dyes, total-----	2,896	2,793	8,233	2.95
Acid Blue 7-----	72	57	186	3.26
Acid Blue 9-----	534	477	560	1.17
Acid Blue 22-----	37	37	124	3.35
Acid Blue 25-----	59	65	343	5.28
Acid Blue 40-----	14	14	61	4.36
Acid Blue 41-----	90	77	272	3.53
Acid Blue 43-----	18	33	217	6.58
Acid Blue 45-----	523	525	1,777	3.38
Acid Blue 78-----	28	30	200	6.67
Acid Blue 90-----	16	...	...	...
Acid Blue 113-----	321	291	442	1.52
Acid Blue 158 and 158A-----	195	192	443	2.31
All other-----	989	995	3,608	3.63
Acid green dyes, total-----	709	652	1,714	2.63
Acid Green 3-----	184	149	174	1.17
Acid Green 9-----	14	14	63	4.50
Acid Green 12-----	...	8	38	4.75
Acid Green 16-----	...	54	190	3.52
Acid Green 20-----	18	27	53	1.96
Acid Green 25-----	187	164	590	3.60
Acid Green 50-----	...	47	73	1.55
All other-----	306	189	533	2.82
Acid brown dyes, total-----	731	664	1,521	2.29
Acid Brown 14-----	317	290	403	1.39
All other-----	414	374	1,118	2.99
Acid black dyes, total-----	4,365	4,158	6,291	1.51
Acid Black 1-----	1,724	1,591	1,852	1.16
Acid Black 24-----	123	117	204	1.74
Acid Black 48-----	39	33	167	5.06
All other-----	2,479	2,417	4,068	1.66

See footnotes at end of table.



TABLE 8A.--Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
AZOIC DYES AND COMPONENTS				
Azoic Compositions				
Total-----	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
	2,100	2,125	3,717	\$1.75
Azoic Yellow 1-----	32	44	56	1.27
Azoic Yellow 2-----	24	14	27	1.93
Azoic Orange 3-----	58	45	98	2.18
Azoic red dyes, total-----	698	517	930	1.80
Azoic Red 1-----	139	102	188	1.84
Azoic Red 2-----	97	72	143	1.99
Azoic Red 6-----	305	212	375	1.77
All other-----	157	131	224	1.71
Azoic Blue 3-----	64	53	91	1.72
Azoic Brown 9-----	202	127	411	3.24
Azoic Black 4-----	295	320	435	1.36
All other azoic compositions-----	727	1,005	1,669	1.66
Azoic Diazo Components, Bases (Fast Color Bases)				
Total-----	1,420	1,268	1,947	1.54
Azoic Diazo Component 4, base-----	33	37	48	1.30
Azoic Diazo Component 10, base-----	...	6	16	2.67
Azoic Diazo Component 12, base-----	266	276	367	1.33
Azoic Diazo Component 13, base-----	467	445	540	1.21
Azoic Diazo Component 32, base-----	281	278	438	1.58
Azoic Diazo Component 48, base-----	35	37	66	1.78
All other azoic diazo components, bases-----	338	189	472	2.50
Azoic Diazo Components, Salts (Fast Color Salts)				
Total-----	2,333	2,197	2,340	1.06
Azoic Diazo Component 1, salt-----	20	19	23	1.21
Azoic Diazo Component 2, salt-----	10	9	14	1.56
Azoic Diazo Component 3, salt-----	235	263	203	.77
Azoic Diazo Component 5, salt-----	190	178	220	1.24
Azoic Diazo Component 6, salt-----	14	12	13	1.08
Azoic Diazo Component 8, salt-----	84	68	67	.99
Azoic Diazo Component 9, salt-----	335	319	205	.64
Azoic Diazo Component 10, salt-----	69	67	104	1.55
Azoic Diazo Component 11, salt-----	69	60	109	1.82
Azoic Diazo Component 12, salt-----	152	141	159	1.13
Azoic Diazo Component 13, salt-----	493	433	318	.73
Azoic Diazo Component 20, salt-----	13	19	56	2.95
Azoic Diazo Component 28, salt-----	175	167	190	1.14
Azoic Diazo Component 36, salt-----	24	35	63	1.80
Azoic Diazo Component 42, salt-----	8	8	21	2.62
Azoic Diazo Component 48, salt-----	55	49	63	1.29
Azoic Diazo Component 49, salt-----	54	47	152	3.23
All other azoic diazo components, salts-----	333	303	360	1.19
Azoic Coupling Components (Naphthol AS and Derivatives)				
Total-----	3,018	2,432	4,826	1.98
Azoic Coupling Component 2-----	201	69	73	1.06
Azoic Coupling Component 3-----	18	20	59	2.95

See footnotes at end of table.

TABLE 8A.-- Coal-tar dyes: U.S. production and sales, 1963 --Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
AZOIC DYES AND COMPONENTS--Continued				
Azoic Coupling Components (Naphthol AS and Derivatives)--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Azoic Coupling Component 4-----	33	31	63	\$2.03
Azoic Coupling Component 5-----	24	29	84	2.90
Azoic Coupling Component 7-----	767	748	1,455	1.95
Azoic Coupling Component 14-----	165	...	...	...
Azoic Coupling Component 17-----	211	174	324	1.86
Azoic Coupling Component 18-----	922	736	867	1.18
Azoic Coupling Component 20-----	172	...	...	...
Azoic Coupling Component 21-----	94	63	133	2.11
Azoic Coupling Component 29-----	19	16	35	2.19
Azoic Coupling Component 34-----	...	9	20	2.22
Azoic Coupling Component 35-----	30	23	121	5.26
All other azoic coupling components-----	362	514	1,592	3.10
BASIC DYES				
Total-----	8,750	7,787	18,142	2.33
Basic Yellow 2-----	683	659	1,415	2.15
Basic orange dyes, total-----	980	943	1,727	1.83
Basic Orange 1-----	249	228	262	1.15
Basic Orange 2-----	420	438	529	1.21
Basic Orange 21-----	236	205	669	3.26
All other-----	75	72	267	3.71
Basic Red 2-----	176	171	505	2.95
Basic Violet 1-----	1,247	939	1,212	1.29
Basic Violet 4-----	31	38	111	2.92
Basic Violet 10-----	...	245	900	3.67
Basic Violet 16-----	83	56	204	3.64
Basic blue dyes, total-----	1,032	832	2,661	3.20
Basic Blue 1-----	14	20	87	4.35
Basic Blue 7-----	167	...	...	...
Basic Blue 9-----	415	297	676	2.28
Basic Blue 26-----	73	62	188	3.03
All other-----	363	453	1,710	3.77
Basic Green 1-----	78	73	252	3.45
Basic Green 4-----	514	477	1,262	2.65
Basic Brown 1-----	215	218	292	1.34
Basic Brown 4-----	665	602	797	1.32
All other basic dyes-----	3,046	2,534	6,804	2.68
DIRECT DYES				
Total-----	28,399	27,677	41,660	1.51
Direct yellow dyes, total-----	4,959	4,811	8,844	1.84
Direct Yellow 4-----	392	349	750	2.15
Direct Yellow 5-----	82	83	247	2.98
Direct Yellow 6-----	893	854	1,335	1.56
Direct Yellow 11-----	735	742	923	1.24
Direct Yellow 12-----	393	353	881	2.50
Direct Yellow 26-----	8	7	18	2.57
Direct Yellow 28-----	228	231	476	2.06
Direct Yellow 29-----	91	84	127	1.51
Direct Yellow 44-----	388	386	666	1.73
Direct Yellow 50-----	209	250	480	1.92
Direct Yellow 59-----	27	30	43	1.43

See footnotes at end of table.

TABLE 8A.--Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
DIRECT DYES--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Direct yellow dyes--Continued				
Direct Yellow 81-----	...	18	28	\$1.56
Direct Yellow 84-----	175	138	228	1.65
All other-----	1,338	1,286	2,642	2.05
Direct orange dyes, total-----	1,850	1,672	3,710	2.22
Direct Orange 1-----	13	...	...	...
Direct Orange 8-----	149	123	180	1.46
Direct Orange 15-----	182	169	203	1.20
Direct Orange 26-----	70	58	112	1.93
Direct Orange 34-----	91	75	169	2.25
Direct Orange 37-----	57	57	140	2.46
Direct Orange 39-----	72	86	176	2.05
Direct Orange 72-----	247	213	498	2.34
Direct Orange 73-----	...	43	131	3.05
Direct Orange 81-----	36	49	151	3.08
Direct Orange 102-----	186	174	476	2.74
All other-----	747	625	1,474	2.36
Direct red dyes, total-----	3,398	3,281	6,974	2.13
Direct Red 1-----	206	201	336	1.67
Direct Red 2-----	384	396	654	1.65
Direct Red 4-----	...	30	83	2.77
Direct Red 10-----	...	17	25	1.47
Direct Red 13-----	54	62	100	1.61
Direct Red 16-----	72	40	80	2.00
Direct Red 23-----	283	268	608	2.27
Direct Red 24-----	283	243	465	1.91
Direct Red 26-----	135	123	328	2.67
Direct Red 28-----	171	167	203	1.22
Direct Red 31-----	18	19	68	3.58
Direct Red 37-----	77	72	189	2.62
Direct Red 39-----	58	48	138	2.88
Direct Red 75-----	34	27	93	3.44
Direct Red 79-----	194	221	501	2.27
Direct Red 80-----	525	510	1,000	1.96
Direct Red 81-----	291	275	695	2.53
Direct Red 83-----	85	94	160	1.70
Direct Red 122-----	27	...	...	...
Direct Red 149-----	...	7	40	5.71
Direct Red 152-----	18	12	44	3.67
All other-----	483	449	1,164	2.59
Direct violet dyes, total-----	186	210	579	2.76
Direct Violet 1-----	12	15	30	2.00
Direct Violet 9-----	133	139	332	2.39
Direct Violet 48-----	...	22	91	4.14
All other-----	41	34	126	3.71
Direct blue dyes, total-----	5,435	5,418	7,859	1.45
Direct Blue 1-----	254	237	548	2.31
Direct Blue 2-----	1,662	1,707	1,504	.88
Direct Blue 6-----	444	388	218	.56
Direct Blue 8-----	28	37	69	1.86
Direct Blue 14-----	102	93	89	.96
Direct Blue 15-----	59	53	75	1.42
Direct Blue 22-----	19	20	44	2.20
Direct Blue 24-----	7	11	16	1.45
Direct Blue 25-----	41	41	114	2.78
Direct Blue 26-----	...	10	15	1.50
Direct Blue 67-----	21	29	115	3.97
Direct Blue 71-----	82	69	181	2.62
Direct Blue 76-----	303	325	576	1.77
Direct Blue 78-----	77	80	240	3.00

See footnotes at end of table.

TABLE 8A.--Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
DIRECT DYES--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Direct blue dyes--Continued				
Direct Blue 80-----	282	282	436	\$1.55
Direct Blue 86-----	968	959	1,547	1.61
Direct Blue 98-----	115	114	196	1.72
Direct Blue 120 and 120A-----	92	136	263	1.93
Direct Blue 126-----	125	105	244	2.32
All other-----	754	722	1,369	1.90
Direct green dyes, total-----	961	963	2,068	2.15
Direct Green 1-----	208	185	215	1.16
Direct Green 6-----	335	389	443	1.14
Direct Green 8-----	14	21	24	1.14
Direct Green 12-----	22	...	...	...
Direct Green 38-----	...	14	53	3.79
All other-----	382	354	1,333	3.77
Direct brown dyes, total-----	1,974	1,904	2,534	1.33
Direct Brown 1 and 1A-----	397	347	366	1.05
Direct Brown 2-----	182	202	299	1.48
Direct Brown 6-----	80	86	100	1.16
Direct Brown 31-----	91	94	263	2.80
Direct Brown 74-----	63	53	88	1.66
Direct Brown 95-----	668	669	482	.72
Direct Brown 111-----	...	48	168	3.50
Direct Brown 154-----	179	159	219	1.38
All other-----	314	246	549	2.23
Direct black dyes, total-----	9,636	9,418	9,092	.97
Direct Black 4-----	262	257	268	1.04
Direct Black 9-----	48	50	66	1.32
Direct Black 19-----	...	181	287	1.59
Direct Black 22-----	796	836	708	.85
Direct Black 37-----	11	12	16	1.33
Direct Black 38-----	5,977	5,921	4,852	.82
Direct Black 51-----	73	90	242	2.69
Direct Black 80-----	1,682	1,455	1,542	1.06
All other-----	787	616	1,111	1.80
DISPERSE DYES				
Total-----	11,318	9,526	22,198	2.33
Disperse yellow dyes, total-----	1,819	1,566	3,258	2.08
Disperse Yellow 1-----	...	18	43	2.39
Disperse Yellow 3-----	660	617	1,127	1.83
Disperse Yellow 5-----	52	52	170	3.27
Disperse Yellow 23-----	49	46	125	2.72
Disperse Yellow 37-----	118	109	176	1.61
All other-----	940	724	1,617	2.23
Disperse orange dyes, total-----	684	612	1,059	1.73
Disperse Orange 3-----	105	91	150	1.65
Disperse Orange 5-----	60	62	138	2.23
Disperse Orange 17-----	196	139	163	1.17
All other-----	323	320	608	1.90
Disperse red dyes, total-----	1,813	1,421	4,063	2.86
Disperse Red 1-----	226	190	292	1.5
Disperse Red 5-----	61	51	59	1.16
Disperse Red 11-----	16	33	178	5.39
Disperse Red 13-----	23	22	30	1.36
Disperse Red 15-----	...	90	258	2.87
Disperse Red 17-----	136	125	136	1.09
All other-----	1,351	910	3,110	3.42

See footnotes at end of table.

TABLE 8A. --Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
DISPERSE DYES--Continued				
Disperse Violet 1-----	45	24	90	\$3.75
Disperse Violet 4-----	...	34	121	3.56
Disperse blue dyes, total-----	4,526	3,684	10,730	2.91
Disperse Blue 1-----	365	272	1,043	3.83
Disperse Blue 3-----	1,535	1,175	1,957	1.67
Disperse Blue 7-----	223	226	1,232	5.45
Disperse Blue 64-----	133	...	...	...
All other-----	2,270	2,011	6,498	3.23
Disperse brown dyes-----	197	125	210	1.68
Disperse Black 1-----	356	324	406	1.25
Disperse Black 9-----	1,380	1,259	1,281	1.02
All other disperse dyes-----	498	477	980	2.05
FIBER-REACTIVE DYES				
Fiber-reactive dyes-----	1,132	1,061	4,375	4.12
FLUORESCENT BRIGHTENING AGENTS <sup>2</sup>				
FOOD, DRUG, AND COSMETIC COLORS				
Total-----	2,405	2,546	10,242	4.02
Food, Drug, and Cosmetic Dyes				
Total-----	2,195	2,343	9,178	3.92
FD&C Blue No. 1-----	43	50	591	11.82
FD&C Red No. 2-----	617	654	1,862	2.85
FD&C Red No. 3-----	36	39	696	17.85
FD&C Red No. 4-----	322	315	1,585	5.03
FD&C Yellow No. 5-----	531	590	1,977	3.35
FD&C Yellow No. 6-----	440	533	1,594	2.99
All other food, drug, and cosmetic dyes-----	206	162	873	5.39
Drug and Cosmetic and External Drug and Cosmetic Dyes				
Total-----	210	203	1,064	5.24
D&C Red No. 7-----	...	12	45	3.75
D&C Red No. 8-----	7	4	10	2.50
D&C Red No. 19-----	5	6	32	5.33
D&C Red No. 21-----	...	34	107	3.15
All other drug and cosmetic and external drug and cosmetic dyes-----	198	147	870	5.92
MORDANT DYES				
Total-----	4,056	4,165	5,545	1.33
Mordant yellow dyes, total-----	211	206	368	1.79
Mordant Yellow 1-----	...	37	47	1.27
Mordant Yellow 8-----	11	8	15	1.88
All other-----	200	161	306	1.90
Mordant orange dyes, total-----	143	136	224	1.65
Mordant Orange 1-----	35	32	49	1.53
All other-----	108	104	175	1.68

See footnotes at end of table.

TABLE 8A.--Coal-tar dyes; U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MORDANT DYES--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Mordant red dyes, total-----	128	119	328	\$2.76
Mordant Red 7-----	35	45	87	1.93
All other-----	93	74	241	3.26
Mordant blue dyes, total-----	86	63	181	2.87
Mordant Blue 1-----	45	34	109	3.21
All other-----	41	29	72	2.48
Mordant brown dyes, total-----	300	298	714	2.40
Mordant Brown 1-----	82	53	116	2.19
Mordant Brown 19-----	...	10	25	2.50
Mordant Brown 40-----	16	15	43	2.87
All other-----	202	220	530	2.41
Mordant black dyes, total-----	3,176	3,330	3,697	1.11
Mordant Black 3-----	...	16	23	1.44
Mordant Black 5-----	54	44	67	1.52
Mordant Black 11-----	2,411	2,661	2,738	1.03
Mordant Black 13-----	88	37	124	3.35
Mordant Black 17-----	435	401	393	.98
Mordant Black 38-----	19	25	83	3.32
All other-----	169	146	269	1.84
All other mordant dyes-----	12	13	33	2.54
SOLVENT DYES				
Total-----	7,649	6,850	11,826	1.73
Solvent yellow dyes, total-----	1,062	850	1,790	2.11
Solvent Yellow 2-----	24	27	41	1.52
Solvent Yellow 3-----	43	38	62	1.63
Solvent Yellow 14-----	722	555	609	1.10
Solvent Yellow 47-----	57	42	213	5.07
All other-----	216	188	865	4.60
Solvent orange dyes, total-----	242	226	540	2.39
Solvent Orange 3-----	26	14	35	2.50
Solvent Orange 7-----	85	96	151	1.57
Solvent Orange 20-----	22	...	...	...
All other-----	109	116	354	3.05
Solvent Red 26-----	296	231	421	1.82
Solvent Red 49-----	29	27	163	6.04
Solvent violet dyes, total-----	427	414	827	2.00
Solvent Violet 8-----	307	297	439	1.48
All other-----	120	117	388	3.32
Solvent blue dyes, total-----	808	732	3,317	4.53
Solvent Blue 38-----	172	157	766	4.88
All other-----	636	575	2,551	4.44
Solvent green dyes, total-----	68	68	324	4.76
Solvent Green 3-----	41	40	205	5.12
All other-----	27	28	119	4.25
Solvent brown dyes-----	74	64	228	3.56
All other solvent dyes-----	4,643	4,238	4,216	.99

See footnotes at end of table.

TABLE 8A. --Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
SULFUR DYES <sup>2</sup>				
VAT DYES				
Total-----	1,000 pounds 52,596	1,000 pounds 48,815	1,000 dollars 46,347	Per pound \$0.95
Vat yellow dyes, total-----	2,858	2,719	3,782	1.39
Vat Yellow 2, 8-1/2%-----	1,758	1,633	1,484	.91
Vat Yellow 4, 12-1/2%-----	427	492	620	1.26
All other-----	673	594	1,678	2.82
Vat orange dyes, total-----	2,281	1,957	4,571	2.34
Vat Orange 1, 20%-----	453	356	1,007	2.83
Solubilized Vat Orange 1, 26%-----	15	12	79	6.58
Vat Orange 2, 12%-----	400	290	632	2.18
Vat Orange 4, 6%-----	89	95	267	2.81
Vat Orange 5, 10%-----	171	150	238	1.59
Solubilized Vat Orange 5, 30%-----	...	4	40	10.00
Vat Orange 7, 11%-----	170	191	519	2.72
Vat Orange 9, 12%-----	152	105	259	2.47
Vat Orange 15, 10%-----	401	400	855	2.14
All other-----	430	354	675	1.91
Vat red dyes, total-----	904	864	2,097	2.43
Vat Red 1, 13%-----	420	406	690	1.70
Solubilized Vat Red 1, 37%-----	5	...	...	...
Vat Red 13, 11%-----	33	69	201	2.91
Vat Red 15, 10%-----	144	119	152	1.28
Vat Red 32, 20%-----	38	30	104	3.47
All other-----	264	240	950	3.96
Vat violet dyes, total-----	1,121	1,022	1,904	1.86
Vat Violet 1, 11%-----	408	417	672	1.61
Vat Violet 2, 20%-----	33	34	85	2.50
Vat Violet 9, 12%-----	...	78	295	3.78
Vat Violet 13, 6-1/4%-----	468	408	638	1.56
Vat Violet 17, 12-1/2%-----	32	28	90	3.21
All other-----	180	57	124	2.18
Vat blue dyes, total-----	20,550	18,993	11,610	.61
Vat Blue 4, 10%-----	...	72	142	1.97
Vat Blue 5, 16%-----	242	276	272	.99
Vat Blue 6, 8-1/3%-----	3,211	2,856	3,076	1.08
Solubilized Vat Blue 6, 17-1/2%-----	47	32	200	6.25
Vat Blue 14, 8-1/3%-----	582	453	559	1.23
Vat Blue 18, 13%-----	905	793	1,298	1.64
Vat Blue 20, 14%-----	1,117	992	1,328	1.34
All other-----	14,446	13,519	4,735	.35
Vat green dyes, total-----	11,434	10,649	7,857	.74
Vat Green 1, 6%-----	4,929	4,612	2,672	.58
Vat Green 3, 10%-----	3,209	2,699	1,974	.73
Solubilized Vat Green 3, 26%-----	8	7	48	6.86
Vat Green 8, 8-1/2%-----	1,423	1,361	1,002	.74
Vat Green 9, 12-1/2%-----	1,722	1,410	1,359	.96
All other-----	143	560	802	1.43
Vat brown dyes, total-----	5,440	5,053	6,870	1.36
Vat Brown 1, 11%-----	1,000	922	1,713	1.86
Vat Brown 3, 11%-----	865	809	1,434	1.77
Vat Brown 5, 13%-----	240	213	307	1.44
All other-----	3,335	3,109	3,416	1.10

See footnotes at end of table.

TABLE 8A.--Coal-tar dyes: U.S. production and sales, 1963--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
VAT DYES--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Vat black dyes, total-----	8,008	7,558	7,656	\$1.01
Vat Black 9, 16 $\frac{1}{2}$ -----	177	154	384	2.49
Vat Black 25, 12-1/2 $\frac{1}{2}$ -----	3,377	2,849	2,192	.77
Vat Black 27, 12-1/2 $\frac{1}{2}$ -----	907	786	1,029	1.31
All other-----	3,547	3,769	4,051	1.07
All other dyes <sup>3</sup> -----	61,012	54,215	33,699	.62

<sup>1</sup> Calculated from rounded figures.<sup>2</sup> Included in "All other dyes."<sup>3</sup> Includes oxidation bases, ingrain dyes, miscellaneous dyes, sulfur dyes, and fluorescent brightening agents (production of fluorescent brightening agents in 1963 increased somewhat over 1962). Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

On the other hand, the output of a few important dyes was smaller in 1963 than in 1962. Production of Direct Black 38 was 6.0 million pounds in 1963, or 7.2 percent less than the 6.4 million pounds produced in 1962; that of Vat Green 1 was 4.9 million pounds, or 7.4 percent less than the 5.3 million pounds reported for 1962. Other important dyes whose output was smaller in 1963 than in 1962 were Vat Yellow 2 (24.3 percent), Mordant Black 11 (23.9 percent), Vat Green 8 (16.6 percent), Direct Blue 2 (16.0 percent), and Vat Black 25 (12.9 percent).

Table 9 summarizes production and sales of dyes in 1963, by class of application. Three classes of dyes accounted for 48.4 percent of the total output of dyes in 1963. Vat dyes accounted for 25.8 percent of the total; direct dyes, for 13.9 percent; and acid dyes, for 8.8 percent. In 1963 the output of two of the three classes was larger than in 1962. Production of direct dyes was 3.6 percent larger, and that of acid dyes, 11.8 percent larger. Production of vat dyes in 1963 was about the same as in 1962.

Of the remaining classes, the output of fiber-reactive dyes was 1.1 million pounds in 1963, or 107 percent more than the 546,000 pounds in 1962 but 5.4 percent less than the 1.2 million pounds produced in 1961. Production of azoic dyes and components was 17.4 percent larger in 1963 than in 1962; basic dyes, 15.0 percent larger; and disperse dyes, 9.5 percent larger. Production of solvent dyes in 1963 was about the same as in 1962. On the other hand, the output of mordant dyes was 26.5 percent smaller in 1963 than in 1962, and that of food, drug, and cosmetic colors, 10.7 percent smaller.

Table 10 shows production and sales of dyes in 1963 by chemical class. In 1963, three chemical classes of dyes accounted for approximately one-half of all the dyes produced: Azo dyes accounted for 26.2 percent of the total; anthraquinone dyes, for 20.1 percent; and stilbene dyes, for 7.8 percent. The output of two of these three classes was larger in 1963 than in 1962: Stilbene dyes was 14.0 percent larger; and azo dyes, 2.9 percent larger. The output of anthraquinone dyes in 1963 was 3.6 percent smaller than in 1962. Of the remaining chemical classes, production of eight classes was larger in 1963 than in 1962, and production of one class--xanthene--was smaller in 1963 than in 1962. Production of triarylmethane dyes in 1963 was about the same as that in 1962. In terms of value of sales, the most important classes of dyes in 1963 were the azo dyes (\$87.1 million), the anthraquinone dyes (\$61.1 million), the stilbene dyes (\$25.1 million), and the azoic dyes (\$12.8 million).



TABLE 9.--Coal-tar dyes: U.S. production and sales, by class of application, 1963

Class of application	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	204,046	186,951	239,676	\$1.28
Acid-----	17,858	16,287	32,812	2.01
Azoic dyes and components:				
Azoic compositions-----	2,100	2,125	3,717	1.75
Azoic diazo components, bases (Fast color bases)-----	1,420	1,268	1,947	1.54
Azoic diazo components, salts (Fast color salts)-----	2,333	2,197	2,340	1.06
Azoic coupling components (Naphthol AS and derivatives)-----	3,018	2,432	4,826	1.98
Basic-----	8,750	7,787	18,142	2.33
Direct-----	28,399	27,677	41,660	1.51
Disperse-----	11,318	9,526	22,198	2.33
Fiber-reactive-----	1,132	1,061	4,375	4.12
Food, drug, and cosmetic colors-----	2,405	2,546	10,242	4.02
Mordant-----	4,056	4,165	5,545	1.33
Solvent-----	7,649	6,850	11,826	1.73
Vat-----	52,596	48,815	46,347	.95
All other <sup>2</sup> -----	61,012	54,215	33,699	.62

<sup>1</sup> Calculated from rounded figures.<sup>2</sup> Includes oxidation bases, ingrain dyes, miscellaneous dyes, sulfur dyes, and fluorescent brightening agents (production of fluorescent brightening agents in 1963 increased somewhat over 1962). Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 10.--Coal-tar dyes: U.S. production and sales, by chemical class, 1963

Chemical class	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	204,046	186,951	239,676	\$1.28
Anthraquinone-----	40,934	36,722	61,084	1.66
Azo, total-----	53,359	51,294	87,135	1.70
Monoazo-----	16,200	15,702	31,440	2.00
Disazo-----	16,016	15,327	26,094	1.70
Trisazo-----	10,855	10,644	11,447	1.08
Polyazo-----	2,233	2,172	3,625	1.67
Not specified-----	8,055	7,449	14,529	1.95
Azoic-----	8,871	8,022	12,830	1.60
Ketone imine-----	695	672	1,452	2.16
Methine-----	758	647	2,299	3.55
Nitro-----	652	568	1,016	1.79
Oxazine-----	107	92	347	3.77
Phthalocyanine-----	1,457	1,432	3,806	2.66
Quinoline-----	464	392	1,294	3.30
Stilbene-----	15,935	14,616	25,072	1.72
Thiazine-----	469	344	964	2.80
Thiazole-----	417	393	858	2.18
Triarylmethane-----	5,979	5,243	11,955	2.28
Xanthene-----	1,311	688	3,144	4.57
All other <sup>2</sup> -----	72,638	65,826	26,420	.40

<sup>1</sup> Calculated from rounded figures.<sup>2</sup> Includes acridine, aminoketone, azine, coumarin, hydroxyketone, indigoid, nitroso, sulfur, vat sulfur, and miscellaneous dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

### Synthetic Organic Pigments

As the terms are used in this report, synthetic organic pigments are toners and lakes. They are used in paints and related products, in printing inks, and in plastics and resin materials.

Statistics on production and sales of all synthetic organic pigments in 1963 are given in table 11A.<sup>3</sup> 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 12. Prior to 1961, statistics for toners included the quantities and values of extenders and diluents. Beginning in 1961, data were collected for both the 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* rather than by their common names.<sup>4</sup>

Total production of synthetic organic pigments in 1963 was 39.4 million pounds--6.0 percent more than the 37.2 million pounds produced in 1962 and 12.4 percent more than the 35.1 million pounds produced in 1961. Total sales of synthetic organic pigments in 1963 amounted to 33.5 million pounds, valued at \$79.6 million, compared with 31.6 million pounds, valued at \$74.3 million, in 1962 and 29.5 million pounds, valued at \$66.3 million, in 1961. In terms of quantity, sales of synthetic organic pigments in 1963 were 6.1 percent larger than in 1962 and 13.8 percent larger than in 1961; in terms of value, sales in 1963 were 7.1 percent larger than in 1962 and 20.0 percent larger than in 1961.

Production of toners in 1963 amounted to 35.6 million pounds--6.3 percent more than the 33.4 million pounds reported for 1962. Sales in 1963 were 30.1 million pounds, valued at \$76.2 million, compared with 28.4 million pounds, valued at \$70.7 million, in 1962. Sales in 1963 were thus 6.1 percent larger than in 1962 in terms of quantity, and 7.7 percent larger in terms of value. Production of red toners in 1963 amounted to 17.2 million pounds, or 48.4 percent of the total output of toners. The individual toners produced in the largest quantities in 1963 were Pigment Blue 15, alpha form, 3.3 million pounds; Pigment Green 7, 3.1 million pounds; Pigment Red 49, barium toners, 3.0 million pounds; Pigment Yellow 12, 2.9 million pounds; and Pigment Red 48, 2.2 million pounds.

Production of lakes totaled 3.8 million pounds in 1963--3.7 percent more than the 3.7 million pounds reported in 1962. Sales of lakes in 1963 amounted to 3.4 million pounds, valued at \$3.4 million, compared with sales in 1962 of 3.2 million pounds, valued at \$3.6 million. Sales in 1963 were thus 6.5 percent larger than in 1962 in terms of quantity, but 4.1 percent smaller in terms of value. Pigment Blue 24, with an output of 1.9 million pounds, was the lake produced in largest quantity in 1963.

Table 12 gives data on sales by commercial forms for each of 16 selected pigments or groups of pigments. Pigment Yellow 12, Pigment Red 90, Pigment Blue 19, and Pigment Blue 24 were sold principally in flushed form. The remaining 12 pigments or groups of pigments for which data are shown were sold principally in dry full-strength form.

<sup>3</sup> See also table 11B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 23 in appendix A, which shows imports of synthetic organic pigments during the years 1961-63.

<sup>4</sup> See appendix C, which lists the common names of all the pigments mentioned in this report.

TABLE 11A.--Synthetic organic pigments: U.S. production and sales, 1963

[Listed below are all toners and lakes 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 11B in pt. III lists all toners and lakes for which data on production or sales were reported and identifies the manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	39,399	33,534	79,600	\$2.37
TONERS				
Total-----	35,557	30,112	76,165	2.53
Yellow toners, total-----	5,386	3,886	9,790	2.52
Hansa yellows, total-----	976	811	2,029	2.50
Pigment Yellow 1, C.I. 11 680-----	526	420	801	1.91
Pigment Yellow 3, C.I. 11 710-----	110	69	166	2.41
Other Hansa yellows-----	340	322	1,062	3.30
Benzidine yellows, total-----	4,275	2,992	6,974	2.33
Pigment Yellow 12, C.I. 21 090-----	2,900	1,923	4,187	2.18
Pigment Yellow 13, C.I. 21 100-----	165	95	300	3.16
Pigment Yellow 14, C.I. 21 095-----	989	816	1,943	2.38
Pigment Yellow 17, C.I. 21 105-----	154	111	369	3.32
Other benzidine yellows-----	67	47	175	3.72
All other-----	135	83	787	9.48
Orange toners, total-----	714	631	3,161	5.01
Pigment Orange 2, C.I. 12 060-----	...	60	89	1.48
Pigment Orange 5, C.I. 12 075-----	169	149	232	1.56
Pigment Orange 13, C.I. 21 110-----	110	104	345	3.32
Pigment Orange 16, C.I. 21 160-----	152	133	366	2.75
All other-----	283	185	2,129	11.51
Red toners, total-----	17,192	14,601	30,221	2.07
Naphthol reds, total-----	747	574	2,403	4.19
Pigment Red 2, C.I. 12 310-----	49	44	128	2.91
Pigment Red 5, C.I. 12 490-----	112	67	333	4.97
Pigment Red 13, C.I. 12 395-----	7	5	22	4.40
Pigment Red 17, C.I. 12 390-----	84	79	237	3.00
Pigment Red 18, C.I. 12 350-----	14	5	17	3.40
Pigment Red 22, C.I. 12 315-----	104	113	334	2.96
Pigment Red 23, C.I. 12 355-----	121	119	449	3.77
Pigment Red 31, C.I. 12 360-----	20	14	74	5.29
Other naphthol reds-----	236	128	809	6.32
Pigment Red 1, C.I. 12 070, dark-----	212	190	232	1.22
Pigment Red 1, C.I. 12 070, light-----	281	234	283	1.21
Pigment Red 3, C.I. 12 120-----	1,850	1,393	2,136	1.53
Pigment Red 4, C.I. 12 085-----	314	266	371	1.39
Pigment Red 38, C.I. 21 120-----	165	133	600	4.51
Pigment Red 48, C.I. 15 865-----	2,205	2,059	3,802	1.85
Pigment Red 49, C.I. 15 630:-----				
Barium toner-----	3,048	2,726	2,656	.97
Calcium toner-----	1,624	1,487	1,523	1.02
Sodium toner-----	331	297	313	1.05
Pigment Red 52, C.I. 15 860-----	713	669	996	1.49
Pigment Red 53, C.I. 15 585, barium toner-----	1,723	1,457	1,857	1.27
Pigment Red 54, C.I. 14 830, calcium toner-----	...	34	79	2.32
Pigment Red 57, C.I. 15 850, calcium toner-----	870	767	1,141	1.49
Pigment Red 63, C.I. 15 880-----	52	40	77	1.92
Pigment Red 81, C.I. 45 160, PMA-----	174	170	1,058	6.22
Pigment Red 81, C.I. 45 160, PTA-----	116	119	759	6.38
Pigment Red 90, C.I. 45 380-----	1,214	653	1,181	1.81
All other-----	1,553	1,333	8,754	6.57
Violet toners, total-----	1,019	948	3,171	3.34
Pigment Violet 1, C.I. 45 170, PMA-----	59	59	171	2.90
Pigment Violet 1, C.I. 45 170, PTA-----	36	39	246	6.31
Pigment Violet 3, C.I. 42 535, fugitive-----	398	380	575	1.51
Pigment Violet 3, C.I. 42 535, PMA-----	370	322	929	2.88
Pigment Violet 3, C.I. 42 535, PTA-----	42	37	155	4.19
All other-----	114	111	1,095	9.86

See footnotes at end of table.

TABLE 11A. --Synthetic organic pigments: U.S. production and sales, 1963 --Continued

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
TONERS--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Blue toners, total-----	7,433	6,654	19,626	\$2.95
Pigment Blue 1, C.I. 42 595, FMA-----	147	147	715	4.86
Pigment Blue 1, C.I. 42 595, PTA-----	28	28	136	4.86
Pigment Blue 9, C.I. 42 025, FMA-----	3	4	17	4.25
Pigment Blue 9, C.I. 42 025, PTA-----	12	11	61	5.55
Pigment Blue 14, C.I. 42 600, FMA-----	52	54	494	9.15
Pigment Blue 15, C.I. 74 160, alpha form-----	3,291	2,903	8,129	2.80
Pigment Blue 15, C.I. 74 160, beta form-----	1,734	1,430	4,321	3.02
Pigment Blue 19, C.I. 42 750A-----	1,905	1,865	4,575	2.45
Pigment Blue 25, C.I. 21 180-----	74	...	...	...
All other-----	187	212	1,178	5.56
Green toners, total-----	3,570	3,179	9,828	3.09
Pigment Green 1, C.I. 42 040, FMA-----	11	11	62	5.64
Pigment Green 1, C.I. 42 040, PTA-----	6	6	34	5.67
Pigment Green 2, C.I. 42 040 and 49 005, FMA-----	47	47	242	5.15
Pigment Green 2, C.I. 42 040 and 49 005, PTA-----	41	37	225	6.08
Pigment Green 4, C.I. 42 000, FMA-----	...	11	43	3.91
Pigment Green 4, C.I. 42 000, PTA-----	9	9	30	3.33
Pigment Green 7, C.I. 74 260-----	3,067	2,761	8,266	2.99
Pigment Green 8, C.I. 10 006-----	188	162	224	1.38
All other-----	201	135	702	5.20
Brown toners-----	127	97	231	2.38
Black toners-----	116	116	137	1.18
LAKES				
Total-----	3,842	3,422	3,435	1.00
Yellow lakes-----	...	160	222	1.39
Red lakes, total-----	811	...	...	...
Pigment Red 60, C.I. 16 105-----	100	96	151	1.57
Pigment Red 83, C.I. 58 000-----	70	66	222	3.36
(Acid Red 26), C.I. 16 150-----	567	575	261	.45
All other-----	74	...	...	...
Violet lakes, total-----	107	106	218	2.06
Pigment Violet 5, C.I. 58 055-----	93	91	197	2.16
All other-----	14	15	21	1.40
Blue lakes, total-----	1,933	1,549	1,834	1.18
Pigment Blue 24, C.I. 42 090-----	1,901	1,518	1,814	1.19
All other-----	32	31	20	.65
Black lakes: (Natural Black 3), C.I. 75 291-----	104	97	94	.97
All other lakes <sup>2</sup> -----	887	773	433	.56

<sup>1</sup> Calculated from rounded figures.<sup>2</sup> Includes all brown, green, and orange lakes and all other black lakes, production of yellow lakes, and sales of all other red lakes.

TABLE 12.--U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1963

Selected pigments by commercial forms	Sales		
	Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 dollars	Per pound
Pigment Yellow 12, C.I. 21 090, total-----	1,923	4,365	\$2.27
Dry full-strength toner-----	745	1,622	2.18
Dry extended toner, dry dispersions, and aqueous dispersions <sup>3 4</sup> -----	61	165	2.70
Flushed color-----	1,117	2,578	2.31
Pigment Yellow 13, C.I. 21 100; Pigment Yellow 14, C.I. 21 095; and Pigment Yellow 17, C.I. 21 105, total-----	1,022	2,796	2.74
Dry full-strength toner-----	714	1,977	2.77
Dry extended toner and dry dispersions <sup>3</sup> -----	40	110	2.75
Aqueous dispersions <sup>4</sup> -----	136	330	2.43
Flushed color-----	132	379	2.87
Pigment Red 3, C.I. 12 120, total-----	1,393	2,116	1.52
Dry full-strength toner and dry extended toner <sup>3</sup> -----	902	1,358	1.51
Aqueous dispersions <sup>4</sup> -----	60	99	1.65
Flushed color-----	431	659	1.53
Pigment Red 48, C.I. 15 865, total-----	2,059	3,826	1.86
Dry full-strength toner-----	1,902	3,507	1.84
Dry extended toner-----	35	67	1.91
Dry dispersions-----	32	68	2.12
Aqueous dispersions <sup>4</sup> and flushed color <sup>3</sup> -----	90	184	2.04
Pigment Red 49, C.I. 15 630, barium toner, total-----	2,726	2,829	1.04
Dry full-strength toner-----	1,886	1,837	.97
Dry extended toner, dry dispersions, and aqueous dispersions <sup>3 4</sup> -----	10	14	1.40
Flushed color-----	830	978	1.18
Pigment Red 49, C.I. 15 630, calcium toner, total-----	1,487	1,583	1.06
Dry full-strength toner-----	1,073	1,097	1.02
Aqueous dispersions <sup>4</sup> and flushed color <sup>3</sup> -----	414	486	1.17
Pigment Red 49, C.I. 15 630, sodium toner, total-----	297	327	1.10
Dry full-strength toner-----	190	203	1.07
Dry extended toner, aqueous dispersions, <sup>4</sup> and flushed color <sup>3</sup> -----	107	124	1.16
Pigment Red 53, C.I. 15 585, barium toner, total-----	1,457	1,913	1.32
Dry full-strength toner-----	971	1,237	1.27
Flushed color-----	486	676	1.39
Pigment Red 90, C.I. 45 380, total-----	653	1,265	1.94
Dry full-strength toner and dry extended toner <sup>3</sup> -----	65	116	1.78
Flushed color-----	588	1,149	1.95
Pigment Violet 3, C.I. 42 535, fugitive, total-----	380	580	1.53
Dry full-strength toner and dry extended toner <sup>3</sup> -----	247	377	1.53
Aqueous dispersions <sup>4</sup> and flushed color <sup>3</sup> -----	133	203	1.53
Pigment Violet 3, C.I. 42 535, permanent (PMA and PTA), total-----	359	1,060	2.95
Dry full-strength toner-----	221	617	2.79
Dry extended toner-----	28	150	5.36
Dry dispersions and aqueous dispersions <sup>3 4</sup> -----	25	54	2.16
Flushed color-----	85	239	2.81
Pigment Blue 15, C.I. 74 160, alpha form, total-----	2,903	8,307	2.86
Dry full-strength toner-----	1,450	4,061	2.80
Dry extended toner-----	482	1,608	3.34
Dry dispersions-----	111	346	3.12
Aqueous dispersions <sup>4</sup> -----	683	1,814	2.66
Flushed color-----	177	478	2.70
Pigment Blue 15, C.I. 74 160, beta form, total-----	1,430	4,320	3.02
Dry full-strength toner-----	913	2,876	3.15
Dry extended toner and dry dispersions <sup>3</sup> -----	27	88	3.26
Aqueous dispersions <sup>4</sup> and flushed color <sup>3</sup> -----	490	1,356	2.77

See footnotes at end of table.

TABLE 12.-- U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1963--Continued

Selected pigments by commercial forms	Sales		
	Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 dollars	Per pound
Pigment Blue 19, C.I. 42 750A, total-----	1,865	4,603	\$2.47
Dry full-strength toner and dry extended toner <sup>3</sup> -----	181	441	2.44
Aqueous dispersions <sup>4</sup> and flushed color <sup>3</sup> -----	1,684	4,162	2.47
Pigment Blue 24, C.I. 42 090 <sup>3</sup> -----	1,518	2,156	1.42
Pigment Green 7, C.I. 74 260, total-----	2,761	8,289	3.00
Dry full-strength toner-----	1,846	5,419	2.94
Dry extended toner and dry dispersions <sup>3</sup> -----	352	1,253	3.56
Aqueous dispersions <sup>4</sup> -----	425	1,178	2.77
Flushed color-----	138	439	3.18

<sup>1</sup> Quantity of the various commercial forms is given in terms of dry full-strength toner (or dry lake) content.

<sup>2</sup> Calculated from rounded figures.

<sup>3</sup> Separate data on these commercial forms may not be published without revealing the operations of individual companies.

<sup>4</sup> Includes presscake.

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.

## Medicinal Chemicals

Medicinal chemicals include the medicinal and feed grades of all organic chemicals having therapeutic value, whether obtained by chemical synthesis, by fermentation, by extraction from naturally occurring plant or animal substances, or by refining the technical grade material. They include alkaloids, antibiotics, antihistamines, hormones, sulfa drugs, sympathomimetic agents, tranquilizers, vitamins, and other therapeutic agents for human or veterinary use and for animal feed supplements.

Statistics on the production of medicinal chemicals are in terms of 100-percent content of the medicinal chemical itself, exclusive of all diluents or other materials used in mixing or compounding tablets, solutions, and suspensions for consumer use. Except for antibiotics, the statistics on sales include only that part of the original (primary) production that was sold in undiluted or uncompounded form. Sales of antibiotics include all sales by the primary producers, both diluted and undiluted, in bulk or in dosage forms.

Statistics on U.S. production and sales of medicinal chemicals in 1963 are given in table 13A.<sup>5</sup> Total production of medicinal chemicals in 1963 amounted to 139 million pounds, or 9.2 percent more than the 127 million pounds produced in 1962, and 18.4 percent more than the 118 million pounds produced in 1961. Total sales of medicinal chemicals in 1963 amounted to 114 million pounds, valued at \$639 million, compared with sales in 1962 of 104 million pounds, valued at \$601 million, and sales in 1961 of 92 million pounds, valued at \$577 million. Sales in 1963 were thus 9.9 percent larger than in 1962 and 23.2 percent larger than in 1961 in terms of quantity, and 6.4 percent larger than in 1962 and 10.8 percent larger than in 1961 in terms of value.

Since 1962, the data published on medicinal chemicals have been divided into antibiotics and benzenoid and nonbenzenoid groups, instead of into cyclic and acyclic groups as in previous years. Totals for the cyclic and acyclic groups are shown in this report, however, in order to permit comparison of the statistics for 1963 with those for the years prior to 1962. Production of cyclic medicinal chemicals in 1963 amounted to 94 million pounds, or 7.3 percent more than the output of 88 million pounds reported for 1962. Sales of cyclic medicinals in 1963 amounted to 74 million pounds, valued at \$605 million, compared with sales in 1962 of 68 million pounds, valued at \$567 million. Production of acyclic medicinals in 1963 amounted to 45 million pounds, or 13.5 percent more than the output of 40 million pounds reported for 1962. Sales of acyclic medicinals in 1963 amounted to 40 million pounds, valued at \$34 million, compared with sales in 1962 of 35 million pounds, valued at \$33 million.

Production of antibiotics for all uses in 1963 amounted to 6.7 million pounds, of which 4.2 million pounds was for human or veterinary use and 2.5 million pounds was for animal feed supplements, food preservation, and crop spraying. Sales amounted to 5.5 million pounds, valued at \$388 million. The most important antibiotics, in terms of value, were the penicillin salts and tetracycline. Production of penicillin salts, for all uses, amounted to 957 trillion U.S.P. units; sales totaled 715 trillion U.S.P. units, valued at \$71.7 million. Production of tetracycline for human or veterinary use amounted to 192 million grams of activity; sales totaled 150 million grams of activity, valued at \$66.5 million.

Production of benzenoid medicinals in 1963 amounted to 76.0 million pounds; sales totaled 59.7 million pounds, valued at \$151 million. The benzenoid medicinal chemicals that were produced in largest quantity in 1963 were acetylsalicylic acid (aspirin), 28.4 million pounds; salicylic acid, 12.1 million pounds; and sulfa drugs, 4.6 million pounds.

Production of nonbenzenoid medicinals in 1963 amounted to 56.5 million pounds; sales totaled 48.7 million pounds, valued at \$100 million. The most important nonbenzenoid medicinal chemical, in terms of quantity, was choline chloride, production of which amounted to 23.8 million pounds.

Production of all vitamins, both benzenoid and nonbenzenoid, amounted to 14.9 million pounds in 1963; sales amounted to 10.5 million pounds, valued at \$64.5 million. The most important vitamins, in terms of value, were vitamins A, B<sub>12</sub>, and C. Production of vitamin A alcohol and esters amounted to 499 trillion U.S.P. units; sales totaled 448 trillion U.S.P. units, valued at \$22.5 million. Production of vitamin B<sub>12</sub> amounted to 857,000 grams; sales amounted to 516,000 grams, valued at \$8.5 million. Production of vitamin C (ascorbic acid) and derivatives amounted to 7.9 million pounds; sales totaled 5.2 million pounds, valued at \$10.8 million.

<sup>5</sup> See also table 13B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 23 in appendix A, which shows imports of coal-tar medicinal chemicals and pharmaceuticals during the years 1961-63.

TABLE 13A. -- Medicinal chemicals: U.S. production and sales, 1963

[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 13B in pt. III lists alphabetically all medicinal chemicals for which data on production or sales were reported and identifies the manufacturer of each]

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity	Value	Unit value <sup>3</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	139,196	113,920	638,955	\$5.61
Cyclic <sup>4</sup> -----	94,125	73,606	605,080	8.22
Acyclic <sup>4</sup> -----	45,071	40,314	33,875	.84
ANTIBIOTICS <sup>5</sup>				
Total-----	6,689	5,494	388,112	70.64
For human or veterinary use, total-----	4,180	3,170	330,916	104.39
Bacitracin-----	10	8	1,275	159.38
Dihydrostreptomycin-----	...	440	5,461	12.41
Neomycin, base-----	80	50	4,881	97.62
dl- $\alpha$ -Phenoxyethylpenicillin and potassium salt-----	...	19	4,353	229.11
Potassium penicillin G-----	323	269	17,163	63.80
Procaine penicillin G-----	637	524	11,473	21.90
Other penicillin G salts-----	57	38	10,687	281.24
Tetracycline-----	424	330	66,473	201.43
All other <sup>6</sup> -----	2,649	1,492	209,150	140.18
For animal feed supplements, food preservation, and crop spraying, total-----	2,509	2,324	57,196	24.61
Bacitracin-----	185	172	3,875	22.53
Procaine penicillin G-----	352	319	2,382	7.47
All other <sup>6</sup> -----	1,972	1,833	50,939	27.79
BENZENOID <sup>7</sup>				
Total-----	75,975	59,703	150,862	2.53
Alkaloids and related products, total-----	47	42	4,020	95.71
Dihydrocodeinone bitartrate-----	1	1	300	300.00
Homatropine methyl bromide-----	2	2	60	30.00
All other-----	44	39	3,660	93.85
p-Aminobenzoic acid and derivatives-----	705	634	2,284	3.60
Antihistamines, total-----	287	169	6,046	35.78
2-[p-Chloro- $\alpha$ -(2-dimethylaminoethyl)benzyl]pyridine (Chlorpheniramine) maleate-----	24	7	326	46.57
2-[3-(Dimethylamino)-1-phenylpropyl]pyridine (Pheniramine) maleate-----	13	14	489	34.93
All other-----	250	148	5,231	35.34
Antimony, arsenic, bismuth, and mercury compounds, total <sup>8</sup> -----	2,346	...	...	...
Bismuth subgallate-----	38	24	88	3.67
All other-----	2,308	...	...	...
Barbiturates:				
5-Ethyl-5-phenylbarbituric acid (Phenobarbital)-----	351	281	739	2.63
5-Ethyl-5-phenylbarbituric acid, sodium salt-----	10	10	41	4.10
Benzothiadiazine dioxide derivatives-----	...	34	4,756	139.88
Dyes, medicinal-----	500	...	...	...
Estrogens, steroid and nonsteroid-----	13	11	422	38.36
p-Hydroxyacetanilide-----	384	423	557	1.32
p-Hydroxybenzoic acid esters:				
Methyl p-hydroxybenzoate-----	277	247	467	1.89
Propyl p-hydroxybenzoate-----	132	139	322	2.32
Imidazoline derivatives-----	1	( <sup>9</sup> )	57	128.96
Phenols and derivatives, total-----	1,774	934	1,324	1.42
Guaiacol glyceryl ether-----	26	27	95	3.52
All other-----	1,748	907	1,229	1.36

See footnotes at end of table.



TABLE 13A.--Medicinal chemicals: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity	Value	Unit value <sup>3</sup>
BENZENOID <sup>7</sup> --Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
8-Quinololinol and derivatives, total-----	178	101	316	\$3.13
5,7-Diiodo-8-quinololinol-----	37	20	55	2.75
8-Quinololinol-----	103	...	...	...
8-Quinololinol benzoate-----	1	2	8	4.00
8-Quinololinol sulfate-----	9	9	32	3.56
All other-----	28	70	221	3.16
Salicylic acid and derivatives, total-----	44,541	39,300	21,503	.55
Acetylsalicylic acid (Aspirin)-----	28,400	24,693	13,467	.55
Salicylic acid-----	12,055	10,525	4,105	.39
Salicylic acid salts-----	1,459	1,655	1,207	.73
All other-----	2,627	2,427	2,724	1.12
Sulfonamides and sulfones, total-----	6,412	2,012	9,977	4.96
Phenylsulfonyleurea derivatives-----	982	...	...	...
Sulfa drugs-----	4,639	...	...	...
All other-----	791	2,012	9,977	4.96
Sympathomimetic (Adrenergic) agents, total-----	341	287	3,982	13.87
d-, l-, and dl-N, $\alpha$ -Dimethylphenethylamine (Desoxyephedrine) base hydrochloride-----	27	20	145	7.25
d- and dl- $\alpha$ -Methylphenethylamine (Amphetamine and Dextroamphetamine) base and salts-----	57	...	...	...
Norephedrine hydrochloride-----	171	166	1,311	7.90
Phenylephrine hydrochloride-----	45	44	1,772	40.27
All other-----	41	57	754	13.23
Tranquillizers, total-----	214	4	287	71.75
Phenothiazine derivatives-----	...	3	170	56.67
All other-----	214	1	117	117.00
Vitamins, total-----	4,282	3,141	21,705	6.91
B <sub>2</sub> (Riboflavin) (100%)-----	577	555	5,952	10.72
B <sub>12</sub> (All grades) <sup>10</sup> -----	2	1	8,519	8,519.00
K <sub>3</sub> (Menadione)-----	17	3	21	7.00
Niacin (Nicotinic acid) (All grades)-----	2,542	1,629	1,884	1.16
Niacinamide (Nicotinamide)-----	783	773	1,456	1.88
All other-----	361	180	3,873	21.52
All other benzenoid medicinals-----	13,180	11,910	71,969	6.04
NONBENZENOID <sup>11</sup>				
Total-----	56,532	48,723	99,981	2.05
Amino acids-----	3,057	3,283	4,256	1.30
Barbiturates-----	562	189	1,607	8.50
Bile acids and salts-----	253	...	...	...
Bismuth and mercury compounds <sup>8</sup> -----	25	...	...	...
Camphor and derivatives, total-----	71	98	93	.95
Camphoric acid-----	5	...	...	...
All other-----	66	98	93	.95
Carbohydrates and derivatives, total-----	894	838	1,007	1.20
Calcium gluconate (including feed grade)-----	608	522	313	.60
All other-----	286	316	694	2.20
Choline derivatives, total-----	24,172	23,275	5,444	.23
Choline bitartrate-----	207	186	180	.97
Choline chloride, all grades-----	23,809	22,973	5,102	.22
Choline dihydrogen citrate-----	81	77	73	.95
Succinylcholine dichloride-----	6	...	...	...
All other-----	69	39	89	2.28

See footnotes at end of table.

TABLE 13A.--Medicinal chemicals: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity	Value	Unit value <sup>3</sup>
NONBENZENOID <sup>11</sup> --Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Hormones, total-----	118	33	18,742	\$567.94
Hydrocortisone alcohol and acetate-----	10	8	2,174	271.75
Prednisone-----	1	1	389	389.00
All other-----	107	24	16,179	674.12
Hydantoin derivative: Allantoin-----	17	22	139	6.32
Piperazine and derivatives, total-----	5,157	3,546	3,255	.92
Piperazine-----	...	921	900	.98
Piperazine hydrochloride-----	543	578	676	1.17
Piperazine phosphate-----	174	166	165	.99
All other-----	4,440	1,881	1,514	.80
Purine derivatives, total-----	2,399	2,271	5,667	2.50
Caffeine, natural and synthetic-----	2,313	2,214	4,830	2.18
Theophylline ethylenediamine (Aminophylline)-----	44	...	...	...
All other-----	42	57	837	14.68
Tranquilizers-----	1,063	957	2,912	3.04
Trihalogenated compounds-----	43	41	137	3.34
Uracil derivatives-----	1	1	231	231.00
Vitamins, total-----	10,592	7,378	42,769	5.80
A, total <sup>10</sup> -----	557	506	22,459	44.39
A palmitate, except feed grade-----	180	170	7,469	43.94
All other-----	377	336	14,990	44.61
C (Ascorbic acid) and derivatives, total-----	7,851	5,196	10,849	2.09
Ascorbic acid-----	6,459	4,085	8,354	2.04
All other-----	1,392	1,111	2,495	2.25
D <sub>2</sub> (Irradiated ergosterol) <sup>10</sup> -----	1	1	242	242.00
Pantothenic acid and derivatives, total-----	1,573	1,112	3,587	3.23
Pantothenic acid, dl-calcium salt-----	1,279	875	2,129	2.43
All other-----	294	237	1,458	6.15
All other nonbenzenoid vitamins-----	610	563	5,632	10.00
All other nonbenzenoid medicinals-----	8,108	6,791	13,722	2.02

<sup>1</sup> The data on production are those for medicinal chemicals in bulk; they do not include finished preparations, such as tablets, capsules, and ampoules, which are manufactured from bulk chemicals.

<sup>2</sup> Except for antibiotics, sales include only that part of the original production which is sold in undiluted or uncompounded form, including that sold in bulk and that sold in packages (tablets, ampoules, etc.). Sales of antibiotics include all forms (both undiluted or uncompounded and diluted or compounded), including that sold in bulk and that sold in packages.

<sup>3</sup> Calculated from rounded figures.

<sup>4</sup> Since 1962, medicinal chemicals have been divided into antibiotics, benzenoid, and nonbenzenoid groups, instead of into cyclic and acyclic groups, as in previous reports. Totals for the cyclic and acyclic groups are shown in this report in order to facilitate comparison of the statistics for 1963 with those for the years prior to 1962.

<sup>5</sup> For statistical purposes, reported quantities of antibiotics have been converted from grams of activity or U.S.P. units to pounds by means of the following conversion factors: Procaine penicillin G, 453.6 million units=1 pound; penicillin V salts, 768.9 million units=1 pound; other penicillin salts and hygromycin B, 756 million units=1 pound; atterrimin and bacitracin, 22.7 million units=1 pound; polymyxin B sulfate, 2,812.3 million units=1 pound; all other antibiotics, 453.6 grams of activity=1 pound. Statistics for all individually publishable antibiotics are given in the following tabulation in terms of million U.S.P. units (MU), billion U.S.P. units (BU), or kilograms of activity (Kg.):

Antibiotic	Production	Sales		
		Quantity	Value	Unit value
Bacitracin (MU), total-----	4,425,947	4,102,405	1,150	\$1.26
For human or veterinary use-----	217,927	187,882	1,275	6.79
For other uses-----	4,208,020	3,914,523	3,875	.99

Footnotes continued on page 35.

## Footnotes for table 13A--Continued

Antibiotic	Production	Sales		
		Quantity	Value	Unit value
Dihydrostreptomycin, for human or veterinary use (Kg.)-----	...	199,574	1,000 dollars 5,461	\$27.36
Neomycin base, for human or veterinary use (Kg.)----	36,372	22,715	4,881	214.88
Penicillin salts, (BU), total-----	957,013	714,637	71,690	100.32
dl- $\alpha$ -Phenoxyethyl penicillin and potassium salt, for human or veterinary use-----	...	14,011	4,353	310.68
Potassium penicillin G, for human or veterinary use-----	243,838	203,119	17,163	84.50
Procaine penicillin G, total-----	448,558	382,651	13,855	36.21
For human or veterinary use-----	288,962	237,894	11,473	48.23
For other uses-----	159,596	144,757	2,382	16.46
Other penicillin G salts, for human or veterinary use-----	43,080	28,350	10,687	376.97
Other penicillin salts, for all uses-----	221,537	86,506	25,632	296.30
Streptomycin, for all uses (Kg.)-----	496,040	394,814	9,340	23.66
Tetracycline, for human or veterinary use (Kg.)----	192,175	149,717	66,473	443.99

<sup>6</sup> Includes "All other" penicillin salts and streptomycin, for which separate statistics cannot be published by use category, because publication might reveal the operations of individual companies. Statistics for "All other" penicillin salts and streptomycin are given in terms of grams or U.S.P. units in footnote 5 above.

<sup>7</sup> The term "benzenoid," as used in this report, describes any cyclic medicinal chemical, other than antibiotics, whose molecule contains any one or more of the following types of rings: 6-membered carbocyclic rings with conjugated double bonds, e.g., the benzene ring or the quinone ring; 6-membered heterocyclic rings with 1 hetero atom and conjugated double bonds, e.g., the pyridine ring; or 6-membered heterocyclic rings with 2 hetero atoms and conjugated double bonds, except the pyrimidine ring, e.g., the pyrazine ring or the pyridazine ring.

<sup>8</sup> Production of all antimony, arsenic, and bismuth compounds, both benzenoid and nonbenzenoid, amounted to 2,289,000 pounds. Production of all mercury compounds, both benzenoid and nonbenzenoid, amounted to 82,000 pounds.

<sup>9</sup> Sales of imidazole derivatives amounted to 442 pounds.

<sup>10</sup> For statistical purposes, reported quantities of vitamins A, B<sub>12</sub>, and D<sub>2</sub> have been converted from grams or U.S.P. units to pounds by means of the following conversion factors: Vitamin A acetate, 1.307 billion units=1 pound; vitamin A alcohol, 1.510 billion units=1 pound; vitamin A palmitate, 0.816 billion units=1 pound; vitamin B<sub>12</sub>, 453.6 grams=1 pound; vitamin D<sub>2</sub>, 18.14 billion units=1 pound. Statistics for these vitamins are given in the following tabulation in terms of grams or U.S.P. units:

Vitamin	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
Vitamin A, total-----	Billion units	498,908	447,701	1,000 dollars 22,459	\$50.17
Palmitate, except feed grade-----	----do-----	146,891	139,126	7,469	53.69
All other-----	----do-----	352,017	308,575	14,990	48.58
Vitamin B <sub>12</sub> -----	Grams-----	857,191	515,802	8,519	16.52
Vitamin D <sub>2</sub> -----	Billion units	20,341	15,076	242	16.05

<sup>11</sup> The term "nonbenzenoid," as used in this report, describes any cyclic or acyclic medicinal chemical, other than antibiotics, whose molecule does not contain any of the types of rings described in footnote 7 above. All acyclic compounds and any cyclic compound whose molecule contains only one or more of the following types of rings are classified as "nonbenzenoid": Fully or partially reduced rings, e.g., the piperidine ring or the cyclohexadiene ring; rings with more or less than 6 members, e.g., the imidazole ring or the azepine ring; heterocyclic rings with more than 2 hetero atoms, e.g., the triazine ring; or the pyrimidine ring.

## Flavor and Perfume Materials

Flavor and perfume materials are chemicals--with desirable flavors or odors--that are used in the manufacture of foods, beverages, cosmetics, and soaps, and to disguise unpleasant odors in industrial products. This report includes data on materials derived from natural products by actual chemical processes and from coal tar; it does not include data on purely natural products, such as floral essences, essential oils, and other materials that are obtained by simple extraction or by distillation from natural vegetable and animal sources.

The flavor and perfume materials covered in this report are grouped as either cyclic or acyclic materials, according to their chemical structure. Cyclic materials are further classified as (1) benzenoid and naphthalenoid, and (2) terpenoid, heterocyclic, and alicyclic. Statistics on production and sales of flavor and perfume materials in 1963 are given in table 14A.<sup>6</sup>

Production of flavor and perfume materials in 1963 amounted to 73.8 million pounds--3.3 percent less than the output of 76.3 million pounds in 1962. Sales in 1963 amounted to 67.0 million pounds, valued at \$77.4 million, compared with 63.4 million pounds, valued at \$76.0 million, in 1962.

Production of cyclic flavor and perfume materials in 1963 amounted to 41.3 million pounds--3.4 percent less than the 42.8 million pounds reported for 1962. Sales of cyclic flavor and perfume materials in 1963 were 34.7 million pounds, valued at \$51.4 million, compared with 32.0 million pounds, valued at \$47.3 million, in 1962. The individual chemical in the cyclic group that was produced in the greatest volume in 1963 was methyl salicylate (4.1 million pounds). Production of synthetic sweeteners, as a group, accounted for 5.7 million pounds.

The output of acyclic flavor and perfume materials in 1963 amounted to 32.4 million pounds--3.2 percent less than the 33.5 million pounds reported for 1962. By far the most important of the acyclic materials was monosodium glutamate, production of which totaled 30.4 million pounds. Sales of acyclic flavor and perfume materials in 1963 amounted to 32.3 million pounds, valued at \$25.9 million, compared with 31.4 million pounds, valued at \$28.7 million, in 1962.

TABLE 14A.--Flavor and perfume materials: U.S. production and sales, 1963

[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 14B in pt. III lists alphabetically 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 <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	73,768	67,014	77,386	\$1.15
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total-----	41,338	34,671	51,446	1.48
Benzenoid and Naphthalenoid				
Total-----	19,934	18,490	22,605	1.22
4-Allylveratrole (Eugenyl methyl ether)-----	13	10	32	3.09
Anethole (p-Propenylanisole)-----	1,393	1,284	1,007	.78
p-Anisaldehyde (p-Methoxybenzaldehyde)-----	806	688	1,022	1.48
Benzophenone <sup>2</sup> -----	288	205	215	1.05
Benzyl acetate-----	1,183	1,274	521	.41
Benzyl alcohol <sup>2</sup> -----	1,889	2,080	844	.41
Benzyl cinnamate-----	5	4	14	3.47
Benzyl propionate-----	11	11	13	1.14
Cinnamaldehyde-----	851	815	566	.69
Cinnamyl alcohol-----	215	181	245	1.35
$\alpha,\alpha$ -Dimethylphenethyl acetate-----	13	18	86	4.90
2-Ethoxynaphthalene (Ethyl $\beta$ -naphthyl ether)-----	14	...	...	...
Eugenol-----	327	299	546	1.83
Isobutyl phenylacetate (Isobutyl $\alpha$ -toluate)-----	32	25	23	.93
Isobutyl salicylate-----	69	57	57	1.00
Isoeugenol-----	102	91	265	2.93
Isopentyl salicylate (Amyl salicylate)-----	343	427	293	.69

See footnotes at end of table.

<sup>6</sup>See also table 14B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 23 in appendix A, which shows imports of coal-tar flavor and perfume materials during the years 1961-63.

TABLE 14A.-- *Flavor and perfume materials: U.S. production and sales, 1963--Continued*

Material	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued				
Benzenoid and Naphthalenoid--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
p-Isopropyl- $\alpha$ -methylhydrocinnamaldehyde (Cyclamen aldehyde)	197	179	514	\$2.87
Methyl anthranilate-----	335	97	211	2.17
Methyl cinnamate-----	98	82	144	1.77
Methyl phenylacetate (Methyl $\alpha$ -toluate)-----	22	13	11	.83
Methyl salicylate (Synthetic wintergreen oil)-----	4,065	3,828	2,098	.55
$\alpha$ -Pentylcinnamaldehyde ( $\alpha$ -Amylcinnamaldehyde)-----	475	463	646	1.40
Phenethyl acetate-----	87	76	82	1.08
Phenethyl phenylacetate (Phenethyl $\alpha$ -toluate)-----	6	6	20	3.55
4-Propenylveratrole (Isoeugenyl methyl ether)-----	9	8	32	3.93
All other benzenoid and naphthalenoid materials-----	7,086	6,269	13,098	2.09
Terpenoid, Heterocyclic, and Alicyclic				
Total-----	21,404	16,181	28,841	1.78
Cedrol-----	...	65	133	2.04
Cedryl acetate-----	84	93	194	2.10
Citral (Geranial)-----	229	95	386	4.08
Citronellol-----	539	416	992	2.39
Citronellyl acetate-----	17	17	46	2.68
Citronellyl formate-----	22	23	79	3.46
Coumarin-----	953	901	2,295	2.55
Essential oils, chemically modified-----	189	183	202	1.10
Geraniol-----	551	420	782	1.86
Geranyl acetate-----	53	45	117	2.56
Geranyl formate-----	7	7	26	3.78
Hydrocoumarin (3,4-Dihydrocoumarin)-----	23	21	89	4.17
Hydroxycitronellal-----	506	482	2,712	5.63
Hydroxycitronellal, dimethyl acetal-----	6	5	35	6.82
Ionones-----	293	254	1,146	4.51
Isobornyl acetate-----	1,461	1,318	527	.40
Linalool-----	...	447	1,163	2.60
Linalyl acetate-----	423	268	1,001	3.73
Menthol, synthetic, tech. and U.S.P-----	347	321	1,320	4.12
Methylionones, total-----	459	406	2,042	5.03
$\alpha$ , $\beta$ , $\gamma$ , and $\delta$ , individually-----	317	268	1,348	5.03
$\alpha$ and $\beta$ , mixed-----	142	138	694	5.03
Nerol-----	12	5	50	9.56
Piperonal (Heliotropin)-----	272	247	515	2.09
Rhodinol-----	13	11	310	29.00
Sweeteners, synthetic-----	5,715	4,853	6,745	1.39
Terpineols-----	3,284	3,148	811	.26
Terpinyl acetate-----	610	688	299	.43
Vetivenyl acetate-----	20	16	370	22.89
All other terpenoid, heterocyclic, and alicyclic materials-----	5,316	1,426	4,454	3.12
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
Total-----	32,430	32,343	25,940	.80
Allyl hexanoate (Allyl caproate)-----	24	22	68	3.05
Decanal (Capraldehyde) ( $C_{10}$ )-----	12	11	46	4.01
Ethyl butyrate-----	261	245	166	.68
Ethyl hexanoate (Ethyl caproate)-----	6	...	...	...
Glutamic acid, monosodium salt (Monosodium glutamate)-----	30,393	30,453	23,714	.78
4-Hydroxyundecanoic acid, $\gamma$ -lactone ( $\gamma$ -Undecalactone)-----	6	6	31	5.18
Isopentyl butyrate (Amyl butyrate)-----	61	53	43	.81
Lauraldehyde (Dodecyl aldehyde) ( $C_{12}$ )-----	...	16	101	6.15
All other acyclic materials-----	1,667	1,537	1,771	1.15

<sup>1</sup> Calculated from the unrounded figures.<sup>2</sup> Includes some technical grade.

## Plastics and Resin Materials

Plastics and resin materials are condensation or polymerization products of organic chemicals containing necessary fillers, plasticizers, and extenders. At some stage in their manufacture they exist in such physical condition that they can be shaped or processed by the application of heat and pressure. Some types of plastics may be molded, cast, or extruded into finished or semifinished forms. Other types are used as adhesives, for the treatment of textiles and paper, and for protective coatings. Still other types of plastics materials may be processed into sheets, rods, and tubes, which are further manufactured into finished articles. Except for vinyl resins, the statistics given in the following tables are based on the total weight of the materials, excluding liquids. Statistics for vinyl resins are given on the basis of resin content.

Statistics on production and sales of plastics and resins in 1963 are given in table 15A<sup>7</sup> according to chemical composition and broad end uses. In general, this table follows 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-63). However, data are included for plastics materials which

TABLE 15A.--Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1963

[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 15B in pt. III 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 <sup>1</sup>
Grand total-----	1,000 pounds, dry basis <sup>2</sup> 8,968,473	1,000 pounds, dry basis <sup>2</sup> 7,516,137	1,000 dollars 2,003,119	Per pound \$0.27
Plastics and resin materials, benzenoid-----	3,489,361	2,886,387	736,760	.26
Plastics and resin materials, nonbenzenoid-----	5,479,112	4,629,750	1,266,359	.27
THERMOSETTING RESINS				
Total-----	2,715,676	2,158,410	604,927	.28
Alkyd resins, total-----	605,949	309,204	83,846	.27
Protective coatings:				
Phthalic anhydride type, total-----	512,164	230,367	63,676	.28
Unmodified-----	363,048	162,727	43,030	.26
Modified-----	149,116	67,640	20,646	.31
Polybasic acid type-----	69,552	51,967	10,417	.20
All other uses <sup>3</sup> -----	24,233	22,567	8,198	.36
Sales for export-----	...	4,303	1,555	.36
Coumarone-indene and petroleum polymer resins, total-----	343,742	325,321	31,587	.10
Floor tile-----	109,340	96,700	...	...
Rubber compounding-----	57,499	55,207	...	...
All other uses-----	176,903	146,710	...	...
Sales for export-----	...	26,704	...	...
Epoxy resins:				
Unmodified, total-----	81,404	82,140	52,197	.64
Bonding and adhesives-----	...	10,870	...	...
Protective coatings-----	...	39,263	...	...
Reinforced plastics-----	...	10,823	...	...
All other uses-----	...	13,536	...	...
Sales for export-----	...	7,648	...	...
Modified-----	5,874	2,825	2,642	.94
Polyester resins, <sup>4</sup> total-----	254,858	228,592	77,211	.34
Reinforced plastics:				
Sheets, flat and corrugated-----	...	35,141	...	...
All other-----	...	141,392	...	...
Surface coatings-----	...	1,840	...	...
All other uses-----	...	44,336	...	...
Sales for export-----	...	5,883	...	...
Silicone resins-----	9,878	9,622	22,832	2.37

See footnotes at end of table.

<sup>7</sup>See also table 15B, pt. III, which lists these products according to chemical composition, and identifies the manufacturers.

TABLE 15A.-- *Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1963--Continued*

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
THERMOSETTING RESINS--Continued				
	1,000 pounds, dry basis <sup>2</sup>	1,000 pounds, dry basis <sup>2</sup>	1,000 dollars	Per pound
Phenolic and other tar acid resins, total-----	740,514	601,811	159,042	\$0.26
Molding materials-----	229,309	207,764	...	...
Bonding and adhesive resins for:				
Laminating-----	105,423	63,749	...	...
Coated and bonded abrasives-----	19,308	17,127	...	...
Friction materials-----	27,503	24,559	...	...
Thermal insulation-----	103,569	44,295	...	...
Foundry or shell molding-----	49,009	44,478	...	...
Plywood-----	71,718	69,544	...	...
Fibrous and granulated wood-----	21,845	21,547	...	...
All other bonding and adhesive uses-----	30,903	26,880	...	...
Protective coatings, unmodified and modified-----	31,959	22,504	...	...
All other uses-----	49,968	46,498	...	...
Sales for export-----	...	12,866	...	...
Polyurethane and diisocyanate resins-----	50,394	47,590	33,356	.70
Rosin modifications, total-----	95,461	88,854	19,076	.21
Rosin and rosin esters, unmodified (ester gums)-----	58,121	54,525	9,860	.18
All other-----	37,340	34,329	9,216	.27
Styrene-alkyd polyesters and styrenated alkyds-----	6,281	6,531	1,711	.26
Urea and melamine resins, total-----	<sup>5</sup> 517,847	453,608	119,929	.26
Textile treating and coating resins-----	52,638	46,525	...	...
Paper treating and coating resins-----	48,273	35,597	...	...
Bonding and adhesive resins for:				
Laminating-----	42,922	27,031	...	...
Plywood-----	120,305	110,434	...	...
Fibrous and granulated wood-----	67,187	58,892	...	...
All other bonding and adhesive uses-----	15,835	15,165	...	...
Protective coatings-----	50,891	34,858	...	...
All other uses (including molding)-----	119,796	108,505	...	...
Sales for export-----	...	16,601	...	...
All other thermosetting resins <sup>6</sup> -----	3,474	2,312	1,498	.65
THERMOPLASTIC RESINS				
Total-----	6,252,797	5,357,727	1,398,192	.26
Cellulose plastics materials, total-----	151,979	144,387	99,592	.69
Sheets, continuous:				
Under 0.003 gage-----	17,957	16,235	...	...
0.003 gage and over-----	33,852	30,556	...	...
All other sheets, rods, and tubes-----	4,769	5,586	...	...
Molding and extrusion materials and exports-----	95,401	92,010	...	...
Polyamide resins <sup>7</sup> -----	61,625	51,435	48,786	.95
Styrene type plastics materials:				
Production and sales-----	<sup>8</sup> 1,494,130	1,361,610	315,338	.23
Used by reporting companies in processing-----	...	114,269	...	...
Sales and use, total-----	...	1,475,879	...	...
Molding-----	...	696,456	...	...
Textile and paper treating and coating-----	...	115,376	...	...
Emulsion paint-----	...	43,608	...	...
Extrusion-----	...	191,397	...	...
All other uses-----	...	299,115	...	...
Sales for export-----	...	129,927	...	...

See footnotes at end of table.

TABLE 15A.--*Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1963--Continued*

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
THERMOPLASTIC RESINS--Continued				
	1,000 pounds, dry basis <sup>2</sup>	1,000 pounds, dry basis <sup>2</sup>	1,000 dollars	Per pound
Vinyl resins (resin content basis):				
Polyvinyl acetate:				
Production and sales-----	240,648	194,609	61,760	\$0.32
Used by reporting companies in processing-----	...	41,278	...	...
Sales and use, total-----	...	235,887	...	...
Emulsion paint-----	...	79,110	...	...
Adhesives-----	...	99,304	...	...
Bonding and sizing-----	...	12,628	...	...
All other uses-----	...	42,299	...	...
Sales for export-----	...	2,546	...	...
Polyvinyl chloride and copolymer resins:				
Production and sales-----	1,385,845	1,207,102	218,114	.18
Used by reporting companies in processing-----	...	158,832	...	...
Sales and use, total-----	...	1,365,934	...	...
Calendering:				
Film, under 6 mils-----	...	83,059	...	...
Sheet, 6 mils and over-----	...	200,479	...	...
Flooring-----	...	205,140	...	...
Coating, bonding, and adhesives:				
Paper and textile coating (including calendering)-----	...	128,413	...	...
Flooring-----	...	52,314	...	...
Extrusion:				
Wire and cable-----	...	183,654	...	...
Garden hose-----	...	8,349	...	...
All other extrusions-----	...	125,179	...	...
Molding:				
Records-----	...	78,481	...	...
Slush and rotational molding-----	...	33,633	...	...
All other moldings-----	...	18,803	...	...
All other uses-----	...	206,022	...	...
Sales for export-----	...	42,408	...	...
All other vinyl resins:				
Production and sales-----	133,833	90,663	57,875	.64
Used by reporting companies in processing-----	...	40,008	...	...
Sales and use, total-----	...	130,671	...	...
Polyolefin plastics materials:				
Polyethylene, density 0.940 and below:				
Production and sales-----	1,754,041	1,515,617	275,339	.18
Used by reporting companies in processing-----	...	236,068	...	...
Sales and use, total-----	...	1,751,685	...	...
Injection molding-----	...	187,331	...	...
Blow molding-----	...	35,033	...	...
Extrusions:				
Film and sheet-----	...	617,877	...	...
Wire and cable coating-----	...	172,073	...	...
Extrusion coating on paper and other substrates-----	...	209,255	...	...
Pipe-----	...	27,643	...	...
All other extrusions-----	...	18,642	...	...
All other uses-----	...	186,808	...	...
Sales for export-----	...	297,023	...	...
Polyethylene, density over 0.940:				
Production and sales-----	515,905	392,541	91,972	.23
Used by reporting companies in processing-----	...	61,852	...	...
Sales and use, total-----	...	454,393	...	...
Injection molding-----	...	71,513	...	...
Blow molding-----	...	195,971	...	...
Extrusions:				
Film and sheet-----	...	19,522	...	...
Wire and cable coating-----	...	13,373	...	...
Pipe-----	...	16,521	...	...
All other extrusions (including extrusion coating and filament)-----	...	21,180	...	...
All other uses-----	...	72,056	...	...
Sales for export-----	...	44,257	...	...

See footnotes at end of table.



TABLE 15A.--Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1963--Continued

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
THERMOPLASTIC RESINS--Continued				
	1,000 pounds, dry basis <sup>2</sup>	1,000 pounds, dry basis <sup>2</sup>	1,000 dollars	Per pound
Polyolefin plastics materials--Continued				
Polypropylene:				
Production and sales-----	196,910	146,486	42,463	\$0.29
Used by reporting companies in processing-----	...	26,019	...	...
Sales and use, total-----	...	9 172,505	...	...
Molding-----	...	9 84,420	...	...
Extrusion-----	...	9 67,349	...	...
All other uses (including export)-----	...	9 20,736	...	...
All other thermoplastic resins <sup>10</sup> -----	317,881	253,277	186,953	.74

<sup>1</sup> Calculated from rounded figures.

<sup>2</sup> For the purposes 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.

<sup>3</sup> Includes saturated polyesters for urethanes.

<sup>4</sup> 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.

<sup>5</sup> Production includes 368 million pounds of urea-formaldehyde type, and 149 million pounds of melamine-formaldehyde type.

<sup>6</sup> Includes data for acetone-formaldehyde resins, furane resins, and other thermosetting resins, which were produced in small quantities.

<sup>7</sup> Includes both nylon and non-nylon types.

<sup>8</sup> Production includes straight polystyrene, 515 million pounds; rubber modified polystyrene, 564 million pounds; styrene-butadiene copolymers, 188 million pounds; and all other, including ABS and SAN, 227 million pounds.

<sup>9</sup> Partially estimated.

<sup>10</sup> Includes data for acrylic, fluorocarbon, polycarbonate, polyether, polyoxymethylene, polyterpene, and other thermoplastic resins.

are not covered in the monthly report and for a number of smaller producers that do not report monthly. The monthly data for 1963, moreover, were returned to the reporting companies for verification or correction. In consequence, many of the figures in the following table are revised from those shown in the monthly release of March 20, 1964, which contained yearend cumulative totals for 1963. The figures in the thermoplastics section of the table under "Used by reporting companies in processing" represent captive use of the materials. The quantities reported under "Sales and use" in this section include data for captive consumption, and for outside sales as defined in the introduction to this volume.

In 1963, total U.S. production of synthetic plastics and resin materials, including cellulose, amounted to 8,968 million pounds, or 10.7 percent more than the 8,100 million pounds reported for 1962. Sales of synthetic plastics and resin materials in 1963 amounted to 7,516 million pounds, valued at \$2,003 million. Production of benzenoid plastics and resin materials in 1963 amounted to 3,489 million pounds, and that of nonbenzenoid materials, to 5,479 million pounds. These figures compare with production in 1962 of 3,159 million pounds, and 4,941 million pounds, respectively. Production of all thermosetting resins in 1963 was 2,716 million pounds, and that of thermoplastic resins was 6,253 million pounds.

In 1963, polyethylene, polystyrene, and polyvinyl chloride resins were the materials produced in the largest volume. The total output of high-density and low-density polyethylene resins in 1963 amounted to 2,270 million pounds, compared with 2,016 million pounds in 1962. Sales of polyethylene resins in 1963 were 1,908 million pounds, valued at \$367 million. Production of polystyrene and copolymer resins in 1963 was 1,494 million pounds, compared with 1,274 million pounds in 1962. Sales of styrene resins in 1963 were 1,362 million pounds, valued at \$315 million. The output of polyvinyl chloride and copolymer resins in 1963 amounted to 1,386 million pounds, compared with 1,215 million pounds in 1962. Sales of polyvinyl chloride resins in 1963 totaled 1,207 million pounds, valued at \$218 million. Other synthetic plastics and resin materials produced in 1963 in large volume were phenolic and other tar acid resins (741 million pounds), alkyd resins (606 million pounds), urea and melamine resins (518 million pounds), coumarone-indene resins (344 million pounds), polyester resins (255 million pounds), and polyvinyl acetate resins (241 million pounds).

## Rubber-Processing Chemicals

Rubber-processing chemicals are organic compounds that are added to natural and synthetic rubbers to give them qualities necessary for their conversion into finished rubber goods. In this report, statistics are given for cyclic and acyclic compounds, by use--such as accelerators, antioxidants, and peptizers. Statistics on production and sales of rubber-processing chemicals in 1963 are given in table 16A.<sup>8</sup>

Production of rubber-processing chemicals as a group in 1963 amounted to 234 million pounds, or 2.3 percent more than the 228 million pounds reported for 1962. The larger total output of rubber-processing chemicals in 1963 is attributable principally to increased production of antioxidants and thiuram and thiazole accelerators. Sales of rubber-processing chemicals in 1963 amounted to 177 million pounds, valued at \$119 million, compared with 172 million pounds, valued at \$114 million, in 1962.

TABLE 16A. --Rubber-processing chemicals: U.S. production and sales, 1963

[Listed below are all rubber-processing chemicals for which any reported data on production or sales may be published. Table 16B in pt. III 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 <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	233,632	177,202	118,663	\$0.67
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total-----	199,282	152,835	101,757	.67
Accelerators, total-----	74,101	49,849	29,804	.60
Aldehyde-amines-----	1,774	1,260	1,265	1.00
Dithiocarbamic acid derivatives-----	325	240	387	1.61
Thiazole derivatives, total-----	62,477	39,839	21,188	.53
N-Cyclohexyl-2-benzothiazolesulfenamide-----	7,213	5,784	3,660	.63
2,2'-Dithiobis(benzothiazole)-----	18,388	9,746	4,941	.51
2-Mercaptobenzothiazole-----	7,102	5,668	2,257	.40
All other <sup>2</sup> -----	29,774	18,641	10,330	.55
All other accelerators-----	9,525	8,510	6,964	.82
Antioxidants, amino and hydroxy compounds, total <sup>3</sup> -----	96,208	77,456	54,635	.71
Amino compounds, total-----	79,239	64,819	42,375	.65
N,N'-Diphenyl-p-phenylenediamine-----	1,994	1,690	1,575	.93
All other-----	77,245	63,129	40,800	.65
Hydroxy compounds, total-----	16,969	12,637	12,260	.97
Phenol, alkylated-----	7,168	3,494	1,869	.53
All other-----	9,801	9,143	10,391	1.14
N-Nitrosodiphenylamine-----	2,651	1,982	1,114	.56
Peptizers-----	4,853	4,513	3,070	.68
All other cyclic rubber-processing chemicals <sup>4</sup> -----	21,469	19,035	13,134	.69
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total-----	34,350	24,367	16,906	.69
Accelerators, total-----	21,602	13,037	10,639	.82
Dithiocarbamic acid derivatives, total <sup>5</sup> -----	11,526	7,012	5,747	.82
Dibutyldithiocarbamic acid, sodium salt-----	792	366	285	.78
Dibutyldithiocarbamic acid, zinc salt-----	1,316	1,143	1,342	1.17
Diethyldithiocarbamic acid, zinc salt-----	974	699	609	.87
Dimethyldithiocarbamic acid, potassium salt-----	268	63	30	.48
Dimethyldithiocarbamic acid, sodium salt-----	5,464	2,255	865	.38
Dimethyldithiocarbamic acid, zinc salt-----	1,066	939	764	.81
All other-----	1,646	1,547	1,852	1.20

See footnotes at end of table.

<sup>8</sup>See also table 16B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 16A.--Rubber-processing chemicals: U.S. production and sales, 1963-- Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Accelerators--Continued				
Thiurams, total <sup>6</sup> -----	9,795	5,854	4,710	\$0.80
Bis(dimethylthiocarbamoyl)disulfide-----	5,375	4,278	3,141	.73
Bis(dimethylthiocarbamoyl)sulfide-----	1,229	927	992	1.07
All other-----	3,191	649	577	.89
All other accelerators-----	281	171	182	1.06
Dodecyl mercaptans-----	8,963	8,604	3,954	.46
All other acyclic rubber-processing chemicals <sup>7</sup> -----	3,785	2,726	2,313	.85

<sup>1</sup> Calculated from rounded figures.

<sup>2</sup> Includes small quantities produced and sold for uses other than rubber processing.

<sup>3</sup> Data on production and sales of aldehyde and acetone amine antioxidants are included below in "All other cyclic rubber-processing chemicals."

<sup>4</sup> Includes aldehyde and acetone amines, blowing agents, inhibitors, modifiers, stabilizers, and tackifiers.

<sup>5</sup> 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 reported in the section "Pesticides and Other Organic Agricultural Chemicals."

<sup>6</sup> Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.

<sup>7</sup> Includes blowing agents, peptizers, modifiers, and conditioning and lubricating agents.

The output of cyclic rubber-processing chemicals in 1963 amounted to 199 million pounds, or 1.7 percent more than the 196 million pounds reported for 1962. Sales in 1963 were 153 million pounds, valued at \$102 million, compared with 148 million pounds, valued at \$97 million, in 1962. Of the total output of cyclic rubber-processing chemicals in 1963, accelerators accounted for 37.2 percent and amino and hydroxy antioxidants, for 48.3 percent. Production of amino and hydroxy antioxidants, which amounted to 96.2 million pounds in 1963, included 79.2 million pounds of amino compounds and 17.0 million pounds of hydroxy compounds. In 1962 the output of amino antioxidants amounted to 75.1 million pounds, and that of hydroxy antioxidants, to 18.2 million pounds. Sales of amino antioxidants in 1963 were 64.8 million pounds, valued at \$42.4 million; sales of hydroxy antioxidants were 12.6 million pounds, valued at \$12.3 million.

Production of acyclic rubber-processing chemicals in 1963 amounted to 34.4 million pounds, compared with the 32.5 million pounds reported for 1962. Sales in 1963 totaled 24.4 million pounds, valued at \$16.9 million, compared with 24.0 million pounds, valued at \$17.1 million, in 1962. Accelerators, principally dithiocarbamic acid derivatives and tetramethylthiuram sulfides, accounted for about 63.0 percent of the output of acyclic rubber-processing chemicals in 1963. Peptizers and modifiers--chiefly dodecyl mercaptans--together with blowing agents and lubricating and conditioning agents, accounted for 37.1 percent of the output in the acyclic group.

### Elastomers (Synthetic Rubbers)

The synthetic rubber industry in the United States had its beginning during World War II and has continued to thrive since that time. The styrene-butadiene, or S-type, rubber, which was the first to be developed, is a general-purpose material used in the manufacture of tires and other rubber goods; it is still the most important type of synthetic rubber, in terms of quantity produced. Several other types of synthetic rubbers are also produced in large quantities; among them are the polybutadiene-acrylonitrile type, or N-type, the polybutadiene-isoprene type, or Butyl-type, neoprene, and stereo elastomers. Production of stereo elastomers, or synthetic natural rubbers, was reported separately for the first time in 1962.

The total output of all types of elastomers in the United States in 1963 amounted to 3,185 million pounds--slightly more than the 3,134 million pounds reported for 1962. Sales of elastomers covered in this report amounted to 2,836 million pounds, valued at \$767 million, in 1963, compared with 2,730 million pounds, valued at \$774 million, in 1962. Statistics on the production and sales of elastomers are given in table 17A.<sup>9</sup>

<sup>9</sup>See also table 17B, pt. III, which lists these products alphabetically and identifies the manufacturers.

Production of cyclic elastomers, which consisted chiefly of the polybutadiene-styrene type (S-type), amounted to 2,174 million pounds in 1963, compared with 2,263 million pounds in 1962. Sales of these elastomers amounted to 1,926 million pounds, valued at \$434 million, in 1963, compared with 1,907 million pounds, valued at \$465 million, in 1962. Production of polyurethane type elastomers in 1963 amounted to 6 million pounds.

TABLE 17A. --Elastomers (synthetic rubbers):<sup>1</sup> U.S. production and sales, 1963

[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 17B in pt. III lists alphabetically all elastomers for which data on production or sales were reported and identifies the manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value <sup>2</sup>
Grand total-----	1,000 pounds <sup>3</sup> 3,184,914	1,000 pounds <sup>3</sup> 2,836,295	1,000 dollars 766,931	Per pound \$0.27
ELASTOMERS, CYCLIC				
Total-----	2,174,183	1,925,751	434,474	.23
Polybutadiene-styrene type (S-type)-----	2,149,823	<sup>4</sup> 1,910,652	422,382	.22
Polybutadiene-styrene-vinylpyridine type-----	18,301	10,538	6,689	.63
Polyurethane type-----	6,059	4,561	5,403	1.18
ELASTOMERS, ACYCLIC				
Total-----	1,010,731	910,544	332,457	.37
Polybutadiene-acrylonitrile type (N-type)-----	108,368	95,506	46,189	.48
Polychloroprene type (Neoprene)-----	288,714	...	...	...
Polyisobutylene-isoprene type (Butyl)-----	242,235	...	...	...
Silicone elastomers-----	8,234	6,406	25,768	4.02
Stereo elastomers-----	312,807	...	...	...
All other acyclic elastomers <sup>5</sup> -----	50,373	<sup>4</sup> 808,632	260,500	.32

<sup>1</sup> 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.

<sup>2</sup> Calculated from rounded figures.

<sup>3</sup> Elastomer-content basis.

<sup>4</sup> Partly estimated.

<sup>5</sup> Includes data for the production and sales of polyalkylene sulfide, and polyisobutylene elastomers, and natural rubber modifications; and for sales of neoprene, Butyl, and stereo 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. Revised statistics on production of polyurethane elastomers for 1961 and 1962 are 3,330,000 pounds and 4,126,000 pounds, respectively.

The output of acyclic elastomers, including N-type, neoprene, Butyl, silicone, and stereo elastomers, amounted to 1,011 million pounds in 1963, compared with the 871 million pounds reported for 1962. Sales of these elastomers amounted to 911 million pounds, valued at \$332 million, in 1963, compared with 823 million pounds, valued at \$310 million, in 1962. The output of silicone elastomers in 1963 amounted to 8.2 million pounds, and that of stereo elastomers, to 313 million pounds.

### Plasticizers

Plasticizers are organic chemicals that are added to synthetic plastics and resin materials to (1) improve workability during fabrication, (2) extend or modify the natural properties of these 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 are given in table 18A.<sup>10</sup>

<sup>10</sup>See also table 18B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 18A. --Plasticizers:<sup>1</sup> U.S. production and sales, 1963

[Listed below are all plasticizers for which reported data 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 18B in pt. III 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 <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	834,524	749,750	168,181	\$0.22
PLASTICIZERS, CYCLIC				
Total-----	621,687	557,979	103,000	.18
Phosphoric acid esters:				
Cresyl diphenyl phosphate <sup>3</sup> -----	11,278	9,440	2,538	.27
Tricresyl phosphate <sup>3</sup> -----	30,713	30,963	9,003	.29
Triphenyl phosphate-----	10,034	3,013	1,068	.35
Phthalic anhydride esters, total-----	521,943	467,491	76,187	.16
Butyl octyl phthalate-----	17,903	17,006	2,483	.15
Di(2-butoxyethyl) phthalate-----	557	537	170	.32
Dibutyl phthalate-----	18,183	14,011	2,885	.21
Dicyclohexyl phthalate-----	6,543	3,967	1,517	.38
Diethyl phthalate-----	14,602	9,612	1,867	.19
Diethyl phthalate-----	595	579	117	.20
Diisodecyl phthalate-----	66,914	52,519	7,903	.15
Di(2-methoxyethyl) phthalate-----	6,946	...	...	...
Dimethyl phthalate-----	3,843	3,432	720	.21
Diethyl phthalates, total-----	275,829	255,973	37,595	.15
Di(2-ethylhexyl) phthalate-----	175,398	160,518	23,712	.15
Diiso-octyl and mixed dioctyl phthalates-----	100,431	95,455	13,883	.15
Diisodecyl phthalate-----	7,643	5,737	1,216	.21
Octyl decyl phthalates, total-----	17,823	17,943	3,166	.18
Iso-octyl isodecyl phthalate-----	709	716	114	.16
n-Octyl n-decyl phthalate-----	17,114	17,227	3,052	.18
All other phthalic anhydride esters-----	84,562	86,175	16,548	.19
Trimellitic acid esters-----	882	756	330	.44
All other cyclic plasticizers <sup>4</sup> -----	46,837	46,316	13,874	.30
PLASTICIZERS, ACYCLIC <sup>5</sup>				
Total-----	212,837	191,771	65,181	.34
Adipic acid esters, total-----	28,255	23,004	6,653	.29
Di(2-(2-butoxyethoxy)ethyl) adipate-----	493	497	237	.48
Di(2-ethylhexyl) adipate-----	6,032	4,244	1,118	.26
Diisobutyl adipate-----	461	438	168	.38
Diisodecyl adipate-----	7,920	6,094	1,817	.30
Diiso-octyl adipate-----	3,967	2,961	787	.27
Octyl decyl adipate-----	8,226	7,886	2,313	.29
All other-----	1,156	884	213	.24
Azelaic acid esters-----	16,254	15,325	4,539	.30
Complex linear polyesters and polymeric plasticizers-----	35,740	33,451	13,936	.42
Epoxidized esters, total-----	58,752	54,455	15,973	.29
Epoxidized soya oils-----	39,965	37,538	10,776	.29
Octyl epoxy tallates-----	15,915	13,940	3,924	.28
All other-----	2,872	2,977	1,273	.43
Glycerol monoricinoleate-----	237	199	78	.39
Isopropyl myristate-----	1,833	1,814	595	.33
Isopropyl palmitate-----	892	868	265	.31

See footnotes at end of table.

TABLE 18A.--Plasticizers:<sup>1</sup> U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>2</sup>
PLASTICIZERS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Oleic acid esters, total-----	10,037	7,974	1,876	\$0.24
Butyl oleate-----	2,999	1,863	382	.20
Glycerol trioleate (Triolein)-----	3,480	3,258	654	.20
Isopropyl oleate-----	536	100	23	.23
Methyl oleate-----	1,173	948	169	.13
n-Propyl oleate-----	480	386	76	.20
All other-----	1,369	1,419	572	.40
Phosphoric acid esters-----	12,068	9,797	3,943	.40
Sebacic acid esters:				
Dibutyl sebacate-----	4,276	2,744	1,717	.63
Di(2-ethylhexyl) sebacate-----	7,580	7,740	4,414	.57
Stearic acid esters, total-----	7,433	7,135	1,728	.24
n-Butyl stearate-----	2,739	2,618	638	.24
All other-----	4,694	4,517	1,090	.24
Triethylene glycol di(caprylate-caprate)-----	2,022	1,778	578	.32
All other acyclic plasticizers <sup>6</sup> -----	27,458	25,487	8,886	.35

<sup>1</sup> Does not include data for clearly defined extenders or secondary plasticizers.

<sup>2</sup> Calculated from rounded figures.

<sup>3</sup> Includes material produced for use as motor-fuel additive.

<sup>4</sup> Includes data for toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

<sup>5</sup> Dibutyl maleate is now published in table 22A, "Miscellaneous Chemicals."

<sup>6</sup> Includes data for citric and acetylcitric, lauric, myristic, palmitic, ricinoleic, sebacic and tartaric acid esters, glycerol and glycol esters of certain fatty acids, glycerol tripropionate, and other acyclic plasticizers.

Total U.S. production of plasticizers in 1963 amounted to 835 million pounds--representing an increase of 6.9 percent over the output of 781 million pounds reported for 1962. Sales in 1963 of the plasticizers covered by this report amounted to 750 million pounds, valued at \$168 million, compared with 666 million pounds, valued at \$168 million, in 1962.

Production of cyclic plasticizers in 1963, which consisted chiefly of the esters of phthalic anhydride and phosphoric acid, amounted to 622 million pounds, compared with 571 million pounds in 1962. Sales of cyclic plasticizers in 1963 amounted to 558 million pounds, valued at \$103 million, compared with 486 million pounds, valued at \$104 million, in the previous year.

Production of acyclic plasticizers in 1963 amounted to 213 million pounds, compared with 210 million pounds in 1962. Sales of acyclic plasticizers in 1963 amounted to 192 million pounds, valued at \$65 million, compared with 180 million pounds, valued at \$64 million in 1962. Production of complex linear polyesters in 1963 amounted to 36 million pounds, and that of epoxidized esters, to 59 million pounds. Other products included in the acyclic class are the esters of adipic, azelaic, oleic, sebacic, and stearic acids.

### Surface-Active Agents

The surface-active agents covered in this report include synthetic organic detergents and wetting, emulsifying, and dispersing agents that function in either aqueous or nonaqueous systems. Soaps, waxes, and plasticizers are not included. The data are reported in terms of 100-percent organic, surface-active ingredients, and thus exclude all inorganic salts, water, and other diluents. Originally developed as soap substitutes for the textile industry, surface-active agents have proved valuable in many other applications. A major part of the output of surface-active agents is consumed in the form of packaged household and industrial detergents. The remainder is used as wetting, dispersing, penetrating, and emulsifying agents in the processing of textiles and leather, in ore flotation and oil-drilling operations, and in the manufacture of paints, agricultural sprays, lubricants, cosmetics, foods, pharmaceuticals, and many other products.

Statistics on U.S. production and sales of surface-active agents in 1963 are given in table 19A.<sup>11</sup> Total production of surface-active agents in 1963 amounted to 1,981 million pounds--1.6 percent more than the 1,949 million pounds produced in 1962, and 14.5 percent more than the 1,729 million pounds produced in 1961. Sales in 1963 totaled 1,790 million pounds, valued at \$325 million, compared with 1,758 million pounds, valued at \$317 million, in 1962, and 1,583 million pounds, valued at \$292 million, in 1961. Sales in 1963 were thus 1.8 percent larger than in 1962 and 13.0 percent larger than in 1961 in terms of quantity, and 2.5 percent larger than in 1962 and 11.4 percent larger than in 1961 in terms of value.

TABLE 19A.--Surface-active agents: U.S. production and sales, 1963

[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 19B in pt. III lists all surface-active agents for which data on production or sales were reported and identifies the manufacturer of each]

Chemical	Production <sup>1</sup>	Sales		
		Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,980,658	1,789,683	324,974	\$0.18
Amphoteric-----	3,321	3,169	2,066	.65
Anionic-----	1,368,802	1,316,423	186,850	.14
Cationic-----	83,436	74,921	34,892	.47
Nonionic-----	525,099	395,170	101,166	.26
BENZENOID SURFACE-ACTIVE AGENTS				
Total-----	1,308,791	1,222,238	159,963	.13
Not Sulfated or Sulfonated				
Total-----	244,704	195,533	39,439	.20
Amides, amines, and quaternary ammonium salts, total-----	6,403	6,345	6,065	.96
Benzyltrimethylammonium chloride-----	250	224	236	1.05
Benzyltrimethylammonium chloride-----	676	716	597	.83
(3,4-Dichlorobenzyl)trimethylammonium chloride-----	29	...	...	...
(Dodecylbenzyl)trimethylammonium chloride-----	219	228	108	.47
Heterocyclic compounds-----	544	530	680	1.28
Oxygen-containing compounds-----	806	758	933	1.23
All other-----	3,879	3,889	3,511	.90
Carboxylic acid esters and ethers, total-----	236,108	188,074	32,959	.18
Dodecylphenol, ethoxylated-----	45,366	...	...	...
Iso-octylphenol, ethoxylated-----	1,091	...	...	...
Nonylphenol, ethoxylated-----	124,963	96,831	15,814	.16
Phenol, ethoxylated-----	4,049	...	...	...
Other carboxylic acid esters and ethers-----	60,639	91,243	17,145	.19
Phosphoric and polyphosphoric acid esters and salts, total-----	2,193	1,114	415	.37
Nonylphenol, ethoxylated and phosphated-----	2,036	955	354	.37
All other-----	157	159	61	.38
Sulfated and Sulfonated				
Total-----	1,064,087	1,026,705	120,524	.12
Alkylphenols, ethoxylated and sulfated, total-----	39,342	...	...	...
Nonylphenol, ethoxylated and sulfated-----	21,484	21,414	4,496	.21
All other-----	17,858	...	...	...

See footnotes at end of table.

<sup>11</sup>See also table 19B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 19A.--Surface-active agents: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales		
		Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
BENZENOID SURFACE-ACTIVE AGENTS--Continued				
<i>Sulfated and Sulfonated--Continued</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Benzenesulfonates, total-----	597,414	584,604	92,358	\$0.16
Benzene-, toluene-, and xylenesulfonates, total-----	...	58,951	4,979	.08
Toluenesulfonic acid, potassium salt-----	...	15,057	1,325	.09
Toluenesulfonic acid, sodium salt-----	10,077	9,835	785	.08
Xylenesulfonic acid, ammonium salt-----	16,191	...	...	...
Xylenesulfonic acid, sodium salt-----	19,287	16,905	1,508	.09
All other-----	...	17,154	1,361	.08
Dodecylbenzenesulfonates, total-----	412,219	...	...	...
Dodecylbenzenesulfonic acid-----	60,966	57,883	14,772	.26
Dodecylbenzenesulfonic acid, calcium salt-----	8,699	5,115	1,547	.30
Dodecylbenzenesulfonic acid, isopropylamine salt-----	3,832	3,835	1,149	.30
Dodecylbenzenesulfonic acid, mixed alkylamine salt----	378	277	85	.31
Dodecylbenzenesulfonic acid, sodium salt-----	326,994	330,175	42,557	.13
Dodecylbenzenesulfonic acid, triethanolamine salt----	3,375	2,973	888	.30
All other-----	7,975	...	...	...
Other benzenesulfonates, total-----	139,640	125,395	26,381	.21
Tridecylbenzenesulfonic acid, sodium salt-----	104,714	...	...	...
All other <sup>3</sup> -----	34,926	125,395	26,381	.21
Lignosulfonates, total-----	415,035	395,610	13,698	.03
Lignosulfonic acid, calcium salt-----	317,268	299,666	9,381	.03
All other-----	97,767	95,944	4,317	.04
Naphthalenesulfonates, total-----	6,893	6,014	2,173	.36
Butylnaphthalenesulfonic acid and sodium salt-----	929	433	98	.23
Diisopropylnaphthalenesulfonic acid-----	283	...	...	...
Isopropylnaphthalenesulfonic acid-----	420	222	122	.55
All other-----	5,261	5,359	1,953	.36
Other benzenoid surface-active agents, sulfated and sulfonated <sup>4</sup> -----	5,403	19,063	7,799	.41
NONBENZENOID SURFACE-ACTIVE AGENTS				
Total-----	671,867	567,445	165,011	.29
<i>Not Sulfated or Sulfonated</i>				
Total-----	386,068	297,143	108,302	.36
Amides, amines, and quaternary ammonium salts, total-----	146,683	134,767	58,714	.44
Acyclic quaternary ammonium salts, total-----	22,039	20,541	8,913	.43
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	19,075	17,686	6,535	.37
Dodecyltrimethylammonium bromide and chloride-----	215	241	284	1.18
Hexadecyltrimethylammonium salts-----	487	473	465	.98
All other-----	2,262	2,141	1,629	.76
Amines salts, total-----	2,581	2,334	948	.41
Amine acetates-----	1,880	1,786	620	.35
Oleic acid, triethanolamine salt-----	110	...	...	...
All other-----	591	548	328	.60
Amines, alkoxyated, total-----	9,886	9,558	3,313	.35
(Hydrogenated tallow alkyl)amine, ethoxylated-----	155	...	...	...
(Mixed alkyl)amine, ethoxylated-----	1,564	1,473	727	.49
Rosin amine, ethoxylated-----	904	1,015	319	.31
(Tallow alkyl)amine, ethoxylated-----	437	...	...	...
All other-----	6,826	7,070	2,267	.32
Fatty acid - alkanolamine condensates, total-----	67,245	61,220	23,372	.38
Diethanolamine condensates, total-----	49,977	44,840	15,915	.35
Capric acid-----	204	...	...	...
Coconut oil acids (amine/acid ratio=2/1)-----	11,095	9,073	5,663	.62
Coconut oil acids (amine/acid ratio=1/1)-----	15,426	14,991	4,354	.29
Lauric acid-----	16,541	15,131	4,251	.28
Oleic acid (amine/acid ratio=2/1)-----	1,531	1,266	356	.28

See footnotes at end of table.



TABLE 19A. --Surface-active agents: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales		
		Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued				
Not Sulfated or Sulfonated--Continued				
Amides, amines, and quaternary ammonium salts--Continued				
Fatty acid - alkanolamine condensates--Continued				
Diethanolamine condensates--Continued				
Oleic acid (amine/acid ratio=1/1)-----	659	656	201	\$0.31
Stearic acid-----	1,916	1,668	655	.39
Tall oil acids-----	422	...	...	...
All other-----	2,183	2,055	435	.21
Other alkanolamine condensates, total-----	17,268	16,380	7,457	.46
Stearic acid - ethanolamine condensates:				
(Amine/acid ratio=1/1)-----	85	58	22	.38
(All other ratios)-----	70	68	29	.43
All other-----	17,113	16,254	7,406	.46
Fatty acid - polyamine condensates, total-----	11,027	10,785	2,997	.28
Stearic acid - diethylenetriamine condensate-----	632	482	289	.60
All other-----	10,395	10,303	2,708	.26
Fatty acid - polyamine condensates, ethoxylated, total---	7,539	5,058	3,559	.70
Stearic acid - ethylenediamine condensate, monoethoxy-				
lated-----	1,934	1,273	1,276	1.00
All other-----	5,605	3,785	2,283	.60
Heterocyclic compounds, total-----	4,017	3,862	2,090	.54
2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline----	508	...	...	...
2-Heptadecyl-1-(2-hydroxyethyl)-2-imidazoline-----	96	87	52	.60
All other-----	3,413	3,775	2,038	.54
N-Substituted amino acids and polypeptides-----	3,902	3,088	5,503	1.78
Other amides, amines, and quaternary ammonium salts-----	18,447	18,321	8,019	.44
Carboxylic acid esters, total-----	112,031	94,174	30,829	.33
Diethylene glycol esters, total-----	2,675	2,397	805	.34
Diethylene glycol monolaurate-----	750	760	235	.31
Diethylene glycol mono-oleate-----	105	144	39	.27
Diethylene glycol monostearate-----	1,302	971	284	.29
All other-----	518	522	247	.47
Ethylene glycol esters, total-----	1,402	1,420	452	.32
Ethylene glycol monostearate-----	565	545	202	.37
All other-----	837	875	250	.29
Glycerol esters, total-----	61,458	52,512	13,915	.26
Complex glycerol esters <sup>5</sup> -----	3,251	1,852	807	.44
Glycerol mono- and diesters of chemically defined				
fatty acids, total-----	19,370	18,611	5,592	.30
Glycerol distearate-----	210	153	49	.32
Glycerol mono-oleate-----	807	728	257	.35
Glycerol monostearate-----	18,248	17,622	5,245	.30
All other-----	105	108	41	.38
Glycerol mono- and diesters of mixed fatty acids-----	38,837	32,049	7,516	.23
Polyethylene glycol esters, total-----	20,494	14,303	5,004	.35
Polyethylene glycol esters of chemically defined fatty				
acids, total-----	13,592	8,995	3,488	.39
Polyethylene glycol dilaurate-----	771	719	251	.35
Polyethylene glycol dioleate-----	2,256	776	265	.34
Polyethylene glycol distearate-----	370	347	136	.39
Polyethylene glycol monolaurate-----	3,056	1,946	784	.40
Polyethylene glycol mono-oleate-----	2,745	1,878	731	.39
Polyethylene glycol monostearate-----	4,054	3,214	1,276	.40
All other-----	340	115	45	.39
Polyethylene glycol mono- and diesters of mixed fatty				
acids, total-----	6,902	5,308	1,516	.29
Polyethylene glycol coconut oil ester-----	320	187	51	.27
Polyethylene glycol tall oil ester-----	5,058	3,732	880	.24
All other-----	1,524	1,389	585	.42
Other carboxylic acid esters, total-----	26,002	23,542	10,653	.45
Ethoxylated anhydrosorbitol mono-oleate-----	2,727	2,666	1,225	.46
Ethoxylated anhydrosorbitol monostearate-----	1,547	1,543	710	.46
1,2-Propanediol monolaurate-----	203	211	81	.38
1,2-Propanediol monostearate-----	1,014	924	279	.30
All other-----	20,511	18,198	8,358	.46

See footnotes at end of table.

TABLE 19A. --Surface-active agents: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales		
		Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued				
Not Sulfated or Sulfonated--Continued				
Ethers, total-----	109,486	51,649	13,497	\$0.26
Castor oil, ethoxylated-----	2,129	1,944	686	.35
n-Dodecyl alcohol, ethoxylated-----	51,343	1,846	877	.48
Lanolin, ethoxylated-----	63	68	29	.43
9-Octadecenyl alcohol, ethoxylated-----	1,629	1,697	823	.48
n-Octadecyl alcohol, ethoxylated-----	...	168	69	.41
Tridecyl alcohol, ethoxylated-----	7,586	6,739	1,508	.22
All other-----	46,736	39,187	9,505	.24
Fatty acids, potassium and sodium salts, total-----	13,807	13,550	3,147	.23
Castor oil acids, sodium salt-----	9	8	3	.38
Coconut oil acids, potassium salt-----	53	52	16	.31
Lauric acid, potassium salt-----	56	56	25	.45
Oleic acid, potassium salt-----	740	470	60	.13
Oleic acid, sodium salt-----	1,423	1,416	261	.18
Rosin acids, sodium salt-----	49	48	13	.27
Stearic acid, sodium salt-----	1,911	1,948	981	.50
Tall oil acids, potassium salt-----	4,563	4,555	798	.18
Tall oil acids, sodium salt-----	240	238	35	.15
Tallow acids, potassium and sodium salts-----	1,400	1,397	141	.10
All other-----	3,363	3,362	814	.24
Phosphoric and polyphosphoric acid esters, total-----	3,592	2,535	1,717	.68
Alcohols, phosphated and polyphosphated, total-----	3,043	2,173	1,446	.67
2-Ethylhexyl phosphate, sodium salt-----	104	135	49	.36
All other-----	2,939	2,038	1,397	.69
Other phosphoric and polyphosphoric acid esters-----	549	362	271	.75
Other nonbenzenoid surface-active agents, not sulfated or sulfonated-----	469	468	398	.85
Sulfated and Sulfonated				
Total-----	285,799	270,302	56,709	.21
Dicarboxylic acid amides, sulfated and sulfonated-----	1,206	...	...	...
Dicarboxylic acid esters, sulfated and sulfonated, total--	4,407	4,469	2,251	.50
Sulfosuccinic acid, bis(2-ethylhexyl) ester-----	3,439	3,044	1,522	.50
All other-----	968	1,425	729	.51
Fats, oils, and waxes, sulfated and sulfonated, total----	29,286	19,105	3,662	.19
Animal (including fish and marine animal) fats and oils, sulfated and sulfonated, total-----	17,938	...	...	...
Cod oil, sulfonated-----	2,114	1,582	224	.14
Grease, other than wool, sulfonated-----	636	582	90	.15
Neat's-foot oil, sulfonated-----	1,014	398	71	.18
Sperm oil, sulfonated-----	6,512	3,983	738	.19
Tallow, sulfonated-----	7,276	5,767	646	.11
All other-----	386	...	...	...
Vegetable oils, sulfated and sulfonated, total-----	...	5,810	1,614	.28
Castor oil, sulfonated-----	6,796	3,468	1,014	.29
Coconut oil, sulfonated-----	1,347	710	180	.25
Peanut oil, sulfonated-----	1,377	1,271	319	.25
Rice-bran oil, sulfonated-----	367	113	26	.23
Soybean oil, sulfonated-----	217	197	63	.32
All other-----	...	51	12	.24
Other fats, oils, and waxes, sulfated and sulfonated <sup>6</sup> ----	1,244	983	279	.28
Other nonbenzenoid surface-active agents, sulfated and sulfonated, total-----	250,900	246,728	50,796	.21
n-Butyl sulfo-oleate-----	686	638	170	.27
Coconut oil acids - ethanolamine condensate, sulfated, potassium salt-----	44	44	47	1.07

See footnotes at end of table.

TABLE 19A. --Surface-active agents: U.S. production and sales, 1963--Continued

Chemical	Production <sup>1</sup>	Sales		
		Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued				
<i>Sulfated and Sulfonated--Continued</i>				
Other nonbenzenoid surface-active agents, sulfated and sulfonated--Continued	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
n-Dodecyl sulfate, ammonium salt-----	1,436	1,448	790	\$0.55
n-Dodecyl sulfate, sodium salt-----	13,151	11,596	6,008	.52
n-Dodecyl sulfate, triethanolamine salt-----	6,714	6,260	1,924	.31
Isopropyl sulfo-oleate-----	828	531	161	.30
N-Methyl-N-oleoyltaurine-----	2,993	2,948	1,597	.54
Oleic acid, sulfonated-----	2,910	1,880	598	.32
n-Propyl sulfo-oleate-----	1,031	1,081	264	.24
Tridecyl alcohol, ethoxylated and sulfated, sodium salt-----	776	...	...	...
All other <sup>7</sup> -----	220,331	220,302	39,237	.18

<sup>1</sup> All quantities are given in terms of 100-percent organic surface-active ingredient.

<sup>2</sup> Calculated from rounded figures.

<sup>3</sup> Includes production of "All other" benzene-, toluene-, and xylenesulfonates and sales of "All other" dodecylbenzenesulfonates.

<sup>4</sup> Includes sales of "All other" alkylphenols, ethoxylated and sulfated.

<sup>5</sup> E.g., glycerol lactate palmitate and glycerol diacetyltartrate monostearate.

<sup>6</sup> Includes sales of "All other" animal and fish oils, sulfated and sulfonated, and production of "All other" vegetable oils, sulfated and sulfonated.

<sup>7</sup> Includes alcohols, alkanes, amines, ethers, fatty acid amides, fatty acid esters, and quaternary ammonium compounds, sulfated and sulfonated.

Production of anionic materials in 1962 amounted to 1,369 million pounds, or 69.1 percent of total production; sales of anionic materials were 1,316 million pounds, valued at \$187 million. Production of those surface-active agents which are generally considered nonionic amounted to 525 million pounds, or 26.5 percent of the total; sales were 395 million pounds, valued at \$101 million. Production of cationic materials amounted to 83 million pounds, or 4.2 percent of the total; sales totaled 75 million pounds, valued at \$35 million. Production of amphoteric materials amounted to 3.3 million pounds, or approximately 0.2 percent of the total; sales totaled 3.2 million pounds, valued at \$2.1 million.

Production of benzenoid surface-active agents in 1963 amounted to 1,309 million pounds, or 0.5 percent more than the 1,302 million pounds reported for 1962. Sales of benzenoid surface-active agents in 1963 totaled 1,222 million pounds, valued at \$160 million, compared with sales in 1962 of 1,221 million pounds, valued at \$163 million. Of the benzenoid surface-active agents for which individual statistics are shown in the table, those produced in largest quantity were dodecylbenzenesulfonic acid, sodium salt, 327 million pounds; lignosulfonic acid, calcium salt, 317 million pounds; nonylphenol, ethoxylated, 125 million pounds; tridecylbenzenesulfonic acid, sodium salt, 105 million pounds; and dodecylbenzenesulfonic acid, 61 million pounds.

Production of nonbenzenoid surface-active agents in 1963 amounted to 672 million pounds, or 3.9 percent more than the 647 million pounds reported for 1962. Sales of nonbenzenoid surface-active agents in 1963 totaled 567 million pounds, valued at \$165 million, compared with the 537 million pounds, valued at \$155 million, reported for 1962. Of the nonbenzenoid surface-active agents for which individual statistics are shown in the table, those produced in largest quantity were n-dodecyl alcohol, ethoxylated, 51 million pounds; bis(hydrogenated tallow alkyl)dimethylammonium chloride, 19 million pounds; glycerol monostearate, 18 million pounds; lauric acid - diethanolamine condensate, 17 million pounds; and coconut oil acids - diethanolamine condensate (amine/acid ratio = 1/1), 15 million pounds.

## Pesticides and Other Organic Agricultural Chemicals

This section of the report covers pesticides (fungicides, herbicides, insecticides, and rodenticides) and other organic agricultural chemicals, such as plant hormones, seed disinfectants, soil conditioners, and soil fumigants. The data are given in terms of 100-percent active material; they thus exclude such materials as diluents, emulsifiers, synergists, and wetting agents. Statistics on production and sales of pesticides and other organic agricultural chemicals in 1963 are given in table 20A.<sup>12</sup>

TABLE 20A.--Pesticides and other organic agricultural chemicals: U.S. production and sales, 1963

[Listed below are all pesticides and other organic agricultural 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 20B in pt. III lists all pesticides and other organic agricultural chemicals for which data on production or sales were reported and identifies the manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
Grand total-----	1,000 pounds 763,477	1,000 pounds 651,471	1,000 dollars 369,140	Per pound \$0.57
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC				
Total-----	597,072	498,082	286,045	.57
Fungicides, total-----	75,825	57,814	19,406	.34
Mercury fungicides-----	1,376	1,248	3,038	2.43
Naphthenic acid, copper salt-----	1,834	1,844	548	.30
Pentachlorophenol (PCP)-----	33,912	26,255	4,509	.17
8-Quinolinol (8-Hydroxyquinoline), copper salt-----	56	58	212	3.66
2,4,5-Trichlorophenol and salts-----	12,423	...	...	...
All other-----	26,224	28,409	11,099	.39
Herbicides and plant hormones, total-----	150,119	100,480	98,228	.98
Phenoxyacetic acid derivatives:				
(2,4-Dichlorophenoxy)acetic acid (2,4-D)-----	46,312	20,825	6,209	.30
(2,4-Dichlorophenoxy)acetic acid esters and salts, total	44,484	36,007	12,838	.36
(2,4-Dichlorophenoxy)acetic acid, n-butyl ester-----	5,795	5,547	1,609	.29
(2,4-Dichlorophenoxy)acetic acid, dimethylamine salt-----	10,398	8,552	3,764	.44
(2,4-Dichlorophenoxy)acetic acid, ethyl ester-----	1,322	1,019	291	.29
(2,4-Dichlorophenoxy)acetic acid, iso-octyl ester-----	5,811	5,389	2,190	.41
(2,4-Dichlorophenoxy)acetic acid, isopropyl ester-----	4,815	2,930	1,055	.36
All other-----	16,343	12,570	3,929	.31
(2,4,5-Trichlorophenoxy)acetic acid (2,4,5-T)-----	9,090	4,251	3,312	.78
(2,4,5-Trichlorophenoxy)acetic acid esters and salts, total-----	10,015	5,699	4,833	.85
(2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester-----	1,336	800	571	.71
(2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester-----	1,592	1,810	1,690	.93
All other-----	7,087	3,089	2,572	.83
Phenylmercury acetate (PMA)-----	749	517	2,638	5.10
All other-----	39,469	33,181	68,398	2.06
Insecticides and rodenticides, total-----	371,128	339,788	168,411	.50
Aldrin-toxaphene group-----	105,986	101,097	58,845	.58
Hexachlorocyclohexane (Benzene hexachloride) and lindane <sup>2</sup> -----	6,778	9,819	1,599	.16
Organophosphorus insecticides, total-----	35,711	38,317	44,703	1.17
O,O-Diethyl O-(p-nitrophenyl) phosphorothioate (Parathion)-----	...	8,618	6,053	.70
O,O-Dimethyl O-(p-nitrophenyl) phosphorothioate (Methyl parathion)-----	15,999	19,174	15,465	.81
All other-----	19,712	10,525	23,185	2.20
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)-----	178,913	155,402	25,880	.17
All other-----	43,740	35,153	37,384	1.06

See footnotes at end of table.

<sup>12</sup>See also table 20B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 20A.--Pesticides and other organic agricultural chemicals: U.S. production and sales, 1963--Continued

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	166,405	153,389	83,095	\$0.54
Fungicides, total-----	35,239	35,451	26,876	.76
Dimethyldithiocarbamic acid, ferric salt (Ferbam)-----	2,500	2,693	1,023	.38
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)-----	2,420	2,461	1,090	.44
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)-----	3,575	4,078	2,143	.53
All other-----	26,744	26,219	22,620	.86
Herbicides and plant hormones, total-----	24,408	22,392	17,665	.79
Methanearsonic acid, disodium salt-----	2,497	2,225	995	.45
All other-----	21,911	20,167	16,670	.83
Insecticides, rodenticides, fumigants, and soil conditioners, total-----	106,758	95,546	38,554	.40
Bromomethane (Methyl bromide)-----	17,394	16,373	6,260	.38
1,2-Dibromo-3-chloropropane-----	4,268	3,641	1,740	.48
Organophosphorus insecticides, total-----	38,351	22,030	23,247	1.06
Ethyl pyrophosphate (Tetraethyl pyrophosphate) (TEPP)-----	477	372	237	.64
All other-----	37,874	21,658	23,010	1.06
All other insecticides, rodenticides, fumigants, and soil conditioners-----	46,745	53,502	7,307	.14

<sup>1</sup> Calculated from rounded figures.

<sup>2</sup> Production of gamma isomer content in benzene hexachloride and lindane totaled 1.8 million pounds; sales amounted to 2.2 million pounds.

Production of pesticides and other organic agricultural chemicals in 1963 amounted to 763 million pounds--about 4 percent more than the 730 million pounds reported for 1962. Sales in 1963 were 651 million pounds, valued at \$369 million, compared with 634 million pounds, valued at \$346 million, in 1962.

The output of cyclic pesticides and other chemicals included in the cyclic group amounted to 597 million pounds in 1963--about 2 percent more than the 585 million pounds produced in 1962. Sales in 1963 were 498 million pounds, valued at \$286 million, compared with 497 million pounds, valued at \$271 million, in 1962. The chemical in this group which was produced in the greatest quantity in 1963--as in each year since it was first separately reported in 1944--was the insecticide DDT. The output of this product in 1963 amounted to 179 million pounds.

Production of acyclic pesticides and other acyclic organic agricultural chemicals in 1963 amounted to 166 million pounds--about 15 percent more than the 145 million pounds reported for 1962. Sales in 1963 were 153 million pounds, valued at \$83 million, compared with 137 million pounds, valued at \$75 million, in 1962.

### Miscellaneous Synthetic Organic Chemicals

As used in this report, the term "miscellaneous synthetic organic chemicals" refers to those products that are not included in the use groups covered in the preceding sections of the report. These miscellaneous chemicals, which account for about three-fifths of the output of all synthetic organic chemicals, 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.

Production of miscellaneous chemicals in 1963 amounted to 41.2 billion pounds, or 9.5 percent more than the output of 37.6 billion pounds reported for 1962. Sales of miscellaneous chemicals in 1963 amounted to 17.5 billion pounds, valued at \$2.4 billion, compared with 16.6 billion pounds, valued at \$2.3 billion, in 1962. Statistics on production and sales of miscellaneous chemicals in 1963 are given in table 21A.<sup>13</sup>

<sup>13</sup>See also table 21B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1963

[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 21B in pt. III lists alphabetically 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 <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	41,153,047	17,495,693	2,363,717	\$0.14
MISCELLANEOUS CHEMICALS, CYCLIC				
Total-----	952,565	476,856	190,935	.40
Benzoic acid salts: Sodium benzoate, tech. and U.S.P.-----	6,824	6,011	1,722	.29
Benzoyl peroxide-----	4,209	4,105	3,405	.83
Cyclohexanone peroxide-----	65	...	...	...
Cyclopropane-----	180	166	2,434	14.66
2,6-Di-tert-butyl-p-cresol:				
Food grade-----	6,847	6,289	3,602	.57
Tech-----	13,027	10,613	5,846	.55
Ethylmorpholine-----	699	705	864	1.23
Flotation reagents, total-----	5,133	...	...	...
Thiocarbanilide (Diphenylthiourea)-----	104	...	...	...
All other-----	5,029	...	...	...
Gasoline additives, total <sup>2</sup> -----	10,616	7,199	6,452	.90
N,N-Di-sec-butyl-p-phenylenediamine-----	2,611	2,862	2,550	.89
N,N'-Disalicylidene-1,2-propanediamine-----	1,246	821	1,333	1.62
All other-----	6,759	3,516	2,569	.73
Hexamethylenetetramine, tech-----	41,312	24,577	4,576	.19
Lubricating oil and grease additives, total-----	374,141	203,802	47,924	.24
Oil soluble petroleum sulfonate, barium salt-----	45,779	...	...	...
Oil soluble petroleum sulfonate, calcium salt-----	121,422	...	...	...
Oil soluble petroleum sulfonate, sodium salt-----	87,003	37,375	6,098	.16
All other-----	119,937	166,427	41,826	.25
Morpholine-----	13,216	11,874	5,590	.47
Naphthenic acid salts, total <sup>3 4</sup> -----	15,893	14,232	5,082	.36
Calcium naphthenate-----	1,364	1,185	554	.47
Cobalt naphthenate-----	2,670	2,326	1,589	.68
Iron naphthenate-----	244	171	54	.32
Lead naphthenate-----	9,308	8,506	2,059	.24
Manganese naphthenate-----	1,247	1,091	414	.38
Zinc naphthenate-----	777	690	259	.38
All other-----	283	263	153	.58
Photographic chemicals:				
Benzotriazole-----	35	39	188	4.82
p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline) - zinc chloride-----	100	100	253	2.53
Pinene-----	2,386	2,361	303	.13
Tall oil salts, total <sup>3</sup> -----	7,583	7,291	2,406	.33
Calcium tallate-----	401	419	142	.34
Cobalt tallate-----	2,154	2,000	1,019	.51
Lead tallate-----	3,554	3,482	859	.25
Manganese tallate-----	886	835	244	.29
All other-----	588	555	142	.26
Tanning materials, synthetic, total-----	31,710	31,510	6,712	.21
2-Naphthalenesulfonic acid, formaldehyde condensate and salts-----	27,330	27,391	5,205	.19
All other-----	4,380	4,119	1,507	.37

See footnotes at end of table.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Textile chemicals, other than surface-active agents-----	1,909	...	...	...
All other miscellaneous cyclic chemicals-----	416,680	145,982	93,576	\$0.64
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total-----	40,200,482	17,018,837	2,172,782	.13
Acetaldehyde-----	...	110,549	8,480	.08
Acetic acid, synthetic, 100% <sup>2</sup> -----	1,027,875	204,378	15,096	.07
Acetic acid salts, total-----	18,136	14,715	3,352	.23
Ammonium acetate-----	...	520	192	.37
Copper acetate-----	128	122	85	.70
Potassium acetate-----	1,481	1,396	309	.22
Sodium acetate-----	11,510	...	...	...
Zinc acetate-----	666	478	158	.33
All other-----	4,351	12,199	2,608	.33
Acetic anhydride, 100%, from all sources-----	1,271,527	...	...	...
Acetone, total-----	943,399	536,678	26,512	.05
From isopropyl alcohol-----	717,623	385,729	19,589	.05
All other-----	225,776	150,949	6,923	.05
Acrylic acid-----	24,735	4,900	1,938	.40
Acrylonitrile-----	455,314	212,357	29,476	.14
Adipic acid-----	670,433	57,864	14,635	.25
Alcohols, monohydric, unsubstituted, total-----	7,161,687	3,403,095	224,504	.07
Alcohols C <sub>9</sub> or lower, total-----	6,837,757	3,291,543	205,544	.06
Allyl alcohol-----	16,118	...	...	...
Butyl alcohols, total-----	640,754	300,980	31,969	.11
Normal (n-Propylcarbinol)-----	294,608	219,511	24,012	.11
All other-----	346,146	81,469	7,957	.10
Ethyl alcohol, synthetic <sup>6</sup> -----	1,950,631	1,103,213	67,996	.06
Hexyl alcohol-----	5,077	...	...	...
Iso-octyl alcohols-----	64,065	52,098	5,835	.11
Isopropyl alcohol-----	1,465,520	541,710	32,046	.06
Methanol, synthetic-----	2,333,472	1,059,113	36,323	.03
All other-----	362,120	234,429	31,375	.13
Alcohols C <sub>10</sub> or higher, total-----	323,930	111,552	18,960	.17
Decyl alcohol-----	59,278	...	...	...
Dodecyl alcohol (Lauryl alcohol) (95%)-----	17,854	...	...	...
1-Hexadecanol (Cetyl alcohol) (95%)-----	1,452	1,305	409	.31
1-Octadecanol (Stearyl alcohol) (95%)-----	...	5,254	924	.18
All other-----	245,346	104,993	17,627	.17
Amines, total-----	554,779	150,236	49,605	.33
Coconut oil amine-----	859	651	353	.54
Diethylamine-----	6,023	2,858	1,279	.45
Dimethylamine-----	59,665	36,824	7,953	.22
Dodecylamine-----	...	1,034	657	.64
Methylamine, mono-----	13,213	13,153	2,315	.18
Octadecylamine-----	1,048	828	383	.46
Oleylamine-----	998	674	244	.36
Tallow amine-----	3,191	2,294	829	.36
Tallow amine, dihydrogenated and hydrogenated-----	4,203	3,914	1,265	.32
Trimethylamine-----	11,488	...	...	...
All other-----	454,091	88,006	34,327	.39
Amyl acetates, 90%-----	6,361	6,012	998	.17
Bis(2-chloroethyl) ether (Dichlorodiethyl ether), all grades	...	11,836	226	.02
2-Butanone oxime-----	2,473	2,444	1,868	.76
2-Butanone peroxide-----	1,168	1,137	2,127	1.87

See footnotes at end of table.

TABLE 21A.-- *Miscellaneous chemicals: U.S. production and sales, 1963--Continued*

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Butyl acetates, total-----	111,558	105,901	12,024	\$0.11
Normal-----	76,794	73,584	8,683	.12
All other-----	34,764	32,317	3,341	.10
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	735	708	1,234	1.74
Caprolactam (Hexahydro-2H-azepin-2-one)-----	187,612	90,415	33,759	.37
Carbon disulfide-----	652,021	494,399	20,190	.04
Cellulose esters and ethers, total-----	841,682	240,263	101,558	.42
Cellulose esters, total-----	762,155	167,925	61,938	.37
Cellulose acetate-----	603,736	...	...	...
All other-----	158,419	167,925	61,938	.37
Cellulose ethers, total-----	79,527	72,338	39,620	.55
Sodium carboxymethylcellulose, 100%-----	42,741	41,495	18,532	.45
All other-----	36,786	30,843	21,088	.68
Chloral (Trichloroacetaldehyde)-----	79,766	...	...	...
Chloroacetic acid, mono-----	53,550	...	...	...
Chloroacetic acid, ethyl ester-----	1,448	...	...	...
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride-----	261	171	237	1.39
1-Chloro-2-propanone (Chloracetone)-----	...	46	38	.83
Dibutyl fumarate-----	4,580	3,973	889	.22
Dibutyl maleate-----	8,494	3,391	786	.23
Diethylene glycol-----	122,433	104,543	11,823	.11
Dilauryl 3,3'-thiodipropionate-----	728	645	638	.99
2-Dimethylaminoethanol-----	1,165	884	612	.69
Dipropylene glycol-----	26,252	22,480	2,809	.12
Dodecenylsuccinic anhydride-----	...	740	354	.48
Ethanolamines, total-----	145,788	109,450	21,626	.20
2-Aminoethanol (Monoethanolamine)-----	43,487	35,013	7,361	.21
2,2'-Iminodiethanol (Diethanolamine)-----	61,073	40,598	7,766	.19
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	41,228	33,839	6,499	.19
2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	...	33,601	5,918	.18
Ethyl acetate, 85%-----	117,507	107,692	11,830	.11
Ethyl acetoacetate-----	1,436	789	338	.43
Ethyl acrylate-----	79,820	30,016	9,259	.31
Ethylene glycol-----	1,659,614	1,068,426	96,546	.09
Ethylene oxide-----	1,888,760	170,386	18,698	.11
Ethyl ether, all grades-----	83,020	82,654	5,736	.07
Ethyl formate-----	47	58	23	.40
2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid) salts, total----	3,384	2,673	2,771	1.04
Calcium 2-ethylhexanoate-----	687	164	100	.61
Cobalt 2-ethylhexanoate-----	453	388	364	.94
Lead 2-ethylhexanoate-----	223	196	80	.41
Manganese 2-ethylhexanoate-----	38	36	17	.47
Zinc 2-ethylhexanoate-----	179	150	82	.55
All other-----	1,804	1,739	2,128	1.22
2-Ethyl-1-hexyl acrylate-----	15,415	13,848	5,056	.37
Ethyl silicate (Tetraethoxysilane)-----	4,535	3,538	1,519	.43
Formaldehyde (37% by weight)-----	2,537,236	919,763	27,799	.03
Formic acid, 90%-----	18,272	17,559	2,477	.14
Formic acid salts, total-----	28,992	21,623	1,109	.05
Aluminum formate-----	...	466	81	.17
All other-----	28,992	21,157	1,028	.05
Fumaric acid-----	23,775	23,099	3,722	.16
Gluconic acid, tech-----	2,947	3,274	1,061	.32
Gluconic acid, sodium salt, tech-----	6,397	5,836	1,661	.28
Glycerol, synthetic-----	161,648	161,911	26,974	.17

See footnotes at end of table.



TABLE 21A. --Miscellaneous chemicals: U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Halogenated hydrocarbons, total-----	7,185,827	...	...	...
1-Bromobutane (n-Butyl bromide)-----	53	37	30	\$0.81
1-Bromopentane (n-Amyl bromide)-----	...	10	19	1.90
1-Bromopropane (n-Propyl bromide)-----	4	...	...	...
Carbon tetrachloride-----	519,168	421,125	32,281	.08
Chlorinated paraffins, total-----	37,939	37,764	4,836	.13
35%-64% Chlorine-----	28,868	28,646	3,363	.12
All other-----	9,071	9,118	1,473	.16
Chlorodifluoromethane-----	...	36,006	23,928	.66
Chloroethane (Ethyl chloride)-----	591,847	233,731	17,550	.08
Chloroform, total-----	105,149	77,312	6,968	.09
Tech-----	104,073	76,241	6,757	.09
U.S.P-----	1,076	1,071	211	.20
Chloromethane (Methyl chloride)-----	114,042	54,718	4,741	.09
Dichlorodifluoromethane-----	217,433	207,263	61,062	.29
1,2-Dichloroethane (Ethylene dichloride)-----	1,793,335	325,600	14,788	.05
Dichloromethane (Methylene chloride)-----	147,950	133,249	12,307	.09
1,2-Dichloropropane (Propylene dichloride)-----	35,539	27,475	666	.02
Dichlorotetrafluoroethane-----	11,612	9,232	5,483	.59
Iodomethane (Methyl iodide)-----	24	...	...	...
Tetrachloroethylene (Perchloroethylene)-----	325,054	278,124	26,511	.10
1,1,2-Trichloroethane (Vinyl trichloride)-----	6,169	2,223	253	.11
Trichloroethylene-----	368,179	362,571	32,610	.09
Trichlorofluoromethane-----	140,130	131,569	26,944	.20
Vinyl chloride, monomer (Chloroethylene)-----	1,435,209	500,812	34,966	.07
All other-----	1,336,991	...	...	...
Isopropyl acetate-----	35,742	34,876	3,816	.11
Isopropyl ether-----	5,253	2,876	239	.08
Lactic acid-----	5,298	5,518	2,286	.41
Lauroyl chloride-----	13,384	...	...	...
Linoleic acid salts, total <sup>3</sup> -----	409	381	129	.34
Calcium linoleate-----	105	...	...	...
Cobalt linoleate-----	158	...	...	...
All other-----	146	...	...	...
Lubricating oil additives, total-----	328,303	133,902	27,961	.21
Phosphorodithioates (Dithiophosphates)-----	97,632	50,770	12,800	.25
Sulfurized lard oil-----	2,068	...	...	...
Sulfurized sperm oil-----	22,255	...	...	...
All other-----	206,348	83,132	15,161	.18
Maleic anhydride-----	86,568	57,072	7,597	.13
Mercaptoacetic (Thioglycolic) acid derivatives, total-----	3,437	3,247	4,317	1.33
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate)-----	217	...	...	...
All other-----	3,220	3,247	4,317	1.33
2-Methoxyethanol (Ethylene glycol monoethyl ether)-----	67,337	58,442	10,551	.18
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether)-----	...	161	22	.14
Methyl acetate-----	10,741	...	...	...
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	157,884	148,736	19,228	.13
Oleic acid salts <sup>7</sup> -----	329	313	251	.80
Oxalic acid-----	21,440	19,901	3,528	.18
Oxalic acid salts-----	6,113	5,560	1,321	.24
Palmitic acid salts-----	274	...	...	...
Palmitoyl chloride-----	163	...	...	...
Pentaerythritol-----	69,190	61,109	14,581	.24
Pentaerythritol tetranitrate-----	4,240	2,426	1,895	.78
Phosgene (Carbonyl chloride)-----	212,072	...	...	...
Phosphorus acid esters, not elsewhere specified, total-----	9,487	8,875	3,900	.44
Tributyl phosphate-----	2,677	2,211	1,027	.46
All other-----	6,810	6,664	2,873	.43

See footnotes at end of table.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1963--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Polyacrylic acid salts-----	2,577	2,501	2,818	\$1.13
Polyethylene glycol-----	32,809	27,251	6,820	.25
Polypropoxy ethers, total-----	134,711	112,500	24,665	.22
Glycerol tri(polyoxypropylene) ether-----	86,951	72,512	15,397	.21
All other-----	47,760	39,988	9,268	.23
Polypropylene glycol-----	79,488	61,486	8,358	.14
Propionic acid-----	30,451	8,270	1,068	.13
Propionic acid salts:				
Calcium propionate-----	15,401	...	...	...
Sodium propionate-----	4,956	...	...	...
Propylene glycol (1,2-Propanediol)-----	199,759	171,172	18,883	.11
Propylene oxide-----	496,921	51,625	6,072	.12
Sarcosine and salt-----	1,125	...	...	...
Sequestering agents, total-----	28,144	19,385	8,048	.42
(Diethylenetrinitrilo)pentaacetic acid, sodium salt-----	1,155	...	...	...
(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine-tetraacetic acid)-----	4,042	2,072	859	.41
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt-----	271	...	...	...
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt-----	15,499	10,681	3,990	.37
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt-----	3,013	2,127	1,211	.57
All other-----	4,164	4,505	1,988	.44
Sodium formaldehydesulfoxylate-----	6,050	5,182	1,114	.21
Sodium methoxide (Sodium methylate)-----	6,486	5,169	1,327	.26
Stearic acid salts, total <sup>8</sup> -----	30,885	28,457	9,963	.35
Aluminum stearates, total-----	4,971	4,992	1,908	.38
Aluminum distearate-----	3,693	3,727	1,385	.37
Aluminum stearate, other-----	1,278	1,265	523	.41
Calcium stearate-----	10,836	10,689	2,984	.28
Lead stearate-----	646	420	152	.36
Lithium stearate-----	279	266	137	.52
Magnesium stearate-----	1,235	1,237	492	.40
Zinc stearate-----	8,567	8,240	3,119	.38
All other-----	4,351	2,613	1,171	.45
Triethylene glycol-----	37,701	30,368	4,957	.16
Urea in compounds or mixtures (100% basis), total <sup>9</sup> -----	2,182,645	2,029,688	<sup>10</sup> 87,412	.04
In feed compounds-----	252,702	259,140	11,258	.04
In liquid fertilizer-----	751,274	667,308	29,505	.04
In solid fertilizer-----	957,039	958,608	40,461	.04
All other-----	221,630	144,632	6,188	.04
Vinyl acetate, monomer-----	405,252	171,806	22,703	.13
All other miscellaneous acyclic chemicals-----	7,272,865	2,350,805	751,118	.32

<sup>1</sup> Calculated from rounded figures.<sup>2</sup> Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given in the section "Plasticizers."<sup>3</sup> Quantities are given on the basis of solid naphthenate, tallate, or linoleate content.<sup>4</sup> Statistics exclude production and sales of copper naphthenate. Statistics on copper naphthenate are given in the section "Pesticides and Other Organic Agricultural Chemicals."<sup>5</sup> In addition, sales of recovered acetic acid totaled 57,931,000 pounds, valued at \$2,942,000.<sup>6</sup> Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Alcohol Tax Unit, U.S. Internal Revenue Service.<sup>7</sup> Statistics exclude production and sales of potassium and sodium oleate. Statistics on these oleates are included in the section "Surface-Active Agents."<sup>8</sup> Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."<sup>9</sup> Production of urea in primary solution totaled 2,211,558 thousand pounds.<sup>10</sup> Includes estimated values for sales of urea in nitrogen compounds.

The total output of miscellaneous cyclic chemicals in 1963 was 953 million pounds, or 11.1 percent more than the output of 858 million pounds reported for 1962. Sales in 1963 totaled 477 million pounds, valued at \$191 million, compared with 426 million pounds, valued at \$159 million, in 1962. The most important subgroup of cyclic compounds was the lubricating oil additives, the output of which was 374 million pounds in 1963.

Total production of miscellaneous acyclic chemicals in 1963 was 40.2 billion pounds--9.5 percent more than the output of 36.7 billion pounds reported for 1962. Sales in 1963 totaled 17.0 billion pounds, valued at \$2.2 billion, compared with 16.2 billion pounds, valued at \$2.1 billion, in 1962.

Production of alcohols and halogenated hydrocarbons in 1963 each exceeded that of any of the use groups of synthetic organic chemicals except cyclic intermediates and plastics and resin materials. Production of monohydric, unsubstituted alcohols totaled 7.2 billion pounds in 1963, about 8.9 percent more than in 1962. Alcohols are used as solvents, intermediates, and anti-freeze materials, and for other purposes. Production of halogenated hydrocarbons totaled 7.2 billion pounds in 1963, or 5.5 percent more than the 6.8 billion pounds reported for 1962. Halogenated hydrocarbons are used as solvents, intermediates, refrigerants, and aerosol propellants, and for other purposes.

Individual miscellaneous chemicals the output of which exceeded 1 billion pounds in 1963 were formaldehyde (2.5 billion pounds, compared with 2.4 billion pounds in 1962); synthetic methanol (2.3 billion pounds, compared with 2.2 billion pounds); urea (2.2 billion pounds, compared with 2.0 billion pounds); ethyl alcohol (2.0 billion pounds, compared with 1.7 billion pounds); ethylene oxide (1.9 billion pounds, compared with 1.5 billion pounds); dichloroethane (1.8 billion pounds in each year); ethylene glycol (1.7 billion pounds, compared with 1.4 billion pounds); isopropyl alcohol (1.5 billion pounds, compared with 1.3 billion pounds); vinyl chloride (1.4 billion pounds, compared with 1.3 billion pounds); and acetic anhydride (1.3 billion pounds, compared with 1.2 billion pounds).



### PART III. ALPHABETICAL LIST OF INDIVIDUAL PRODUCTS, BY GROUPS, AND NAMES OF MANUFACTURERS

This section of the report consists of (1) a series of tables that supplement the statistical information given in parts I and II, and (2) a Directory of Manufacturers. The tables with numbers that include the letter "B" supplement the tables in part I or part II with numbers that include the letter "A"; for example, table 8B in part III supplements table 8A in part II.

Each table in part III lists alphabetically the individual items in each group for which data on production or sales were reported for 1963. The tables include data on only those chemicals for which the volume of production or sales in 1963 exceeded 1,000 pounds or for which the value of sales exceeded \$1,000. Where separate statistics for an item are given in the tables in part I or part II, an asterisk (\*) precedes the name of the item in the tables in part III. The manufacturers of each product are indicated by identification codes which are listed in the Directory of Manufacturers (table 22). A few companies, however, have specifically requested that they not be identified as having produced or sold certain items. These manufacturers are indicated by a small letter "x" in the tables.

#### Tar Crudes

**TABLE 4B.--Tar crudes for which U.S. production or sales were reported, identified by manufacturer, 1963**

[Tar crudes for which separate statistics are given in table 4A are marked below with an asterisk (\*); products not so marked do not appear in table 4A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. Table 22 identifies all U.S. producers of tar crudes (except producers that report to the Division of Bituminous Coal, U.S. Bureau of Mines)]

Product	Manufacturers' identification codes (according to list in table 22) <sup>1</sup>
*Crude light oil-----	CBT, RUR. <sup>2</sup>
Light-oil distillates:	
*Benzene, specification and industrial grades-----	ACP, ACY, COS, KPP.
*Toluene, specification and other grades-----	ACY, COS, KPP.
*Xylene, all grades-----	ACP, ACY, COS, KPP.
*Solvent naphtha-----	ACY, KPT, NEV, PAI.
All other light-oil distillates-----	ACP, NEV, PAI.
Pyridine crude bases-----	ACP, KPT.
*Naphthalene, crude, solidifying at--	
*Less than 74° C-----	COP, NEV, PAI.
*74° C. to less than 76° C-----	KPT.
*76° C. to less than 79° C-----	ACP, KPT, PRD, RIL, RUR, WTC.
Crude tar-acid oils having a tar-acid content of--	
5% to less than 24%-----	ACP, COP, RIL.
24% to 51%-----	ACP, KPT, NEV, RIL, WTC.
Cresylic acid, crude-----	ACP, KPT, PRD.
*Creosote oil (Dead oil):	
*Distillate as such-----	ACP, ACY, CBT, COP, KPT, RIL, RUR, WTC.
*Creosote in coal-tar solution-----	ACP, HUS, JEN, KPT, RIL, RUR, WTC.
All other distillate products-----	ACP, KPT, PAI.
*Tar, road-----	ACP, KPT, RIL, WTC.
*Tar for other uses:	
Crude-----	KPT, RIL, WTC.
Refined-----	ACP, KPT, RIL, RUR, WTC.
Pitch of tar:	
*Soft and medium (water softening points less than 110° F., and 110° F. to 160° F.)-----	ACP, CBT, COP, JEN, KPT, RIL, RUR, WTC.
*Hard (water softening point above 160° F.)-----	ACP, COP, KPT, RIL, WTC.
*Pitch-of-tar coke and pitch emulsion-----	JEN, RIL, WTC.

<sup>1</sup> Does not include manufacturers' identification codes for producers that report to the Division of Bituminous Coal, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Mineral Industry Survey, June 8, 1964, entitled "Coke Producers in the U.S. in 1963."

<sup>2</sup> Crude light oil production and sales of these 2 companies are not included with the U.S. Bureau of Mines figures given in table 4A.

## Crude Products From Petroleum and Natural Gas for Chemical Conversion

TABLE 5B. --Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1963

[Crude products from petroleum and natural gas for chemical conversion for which separate statistics are given in table 5A are marked below with an asterisk (\*); products not so marked do not appear in table 5A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
AROMATICS AND NAPHTHENES	
*Alkyl aromatics, distillates, and solvents-----	ACC, CSD, DUP, DXS, ENJ, FG, GOC, GRS, JCC, MOC, MON, OMC, PAS, PLC, SIO, SM, SOG, USI, VPT, WYN.
*Benzene (except motor grade):	
*Benzene, 1°-----	APR, ASH, ATR, CCP, CSD, DLH, DXS, ELP, ENJ, GOC, GRS, MOC, MON, PLC, PLP, PRO, RIC, SHO, SM, SNT, SOG, STH, SUN, VPT, TOC, TX.
*Benzene, 2°-----	ACC, AMO, CO, DOW, SHO, SOC, UCC.
*Cresylic acid, crude-----	ATR, PRD, RIC, SHO, SOI.
*Naphthalene, all grades-----	ASH, COL, CSO, MON, SUN, TID.
*Naphthenic acids:	
Acid number lower than 150-----	RIC, SUN, TX.
*Acid number 150-199-----	RIC, SM, SOC, SUN.
Acid number 200-224-----	RIC, SM, SOC.
Acid number 225-249-----	NOP, RIC, SM, SOC.
Sodium carboxylate and phenate, crude-----	ATR, GOC, SIN.
*Toluene:	
*Nitration grade, 1°-----	ASH, ATR, CCP, CSD, DLH, ENJ, GOC, GRS, LEN, MOC, MON, PRO, RIC, SHC, SHO, SIN, SNT, SOG, SUN, TOC, TX, VPT.
*Pure commercial grade, 2°-----	DOW, MON, RIC.
Solvent grade-----	ASH, CO, FG, PLP, UCC.
All other-----	CSD, DXS, ENJ, GRS, RIC, SHO, SM, SOC, SUN, TOC, TX, VEL.
*Xylenes, mixed:	
Aviation grade-----	CSD, CSO, SOG.
*3°-----	ASH, ATR, DLH, ENJ, GRS, MON, PRO, SNT.
*5°-----	CCP, MOC, SIN.
All other-----	AMO, CSD, DXS, ENJ, GRS, LEN, MON, SHO, SM, SOC, SOG, SUN, TOC, VPT.
All other aromatics and naphthenes-----	ELP, ENJ, LEN, MON, PLC, SM.
ALIPHATIC HYDROCARBONS	
C <sub>1</sub> hydrocarbon: Methane-----	CCP, MOC, PAN.
*C <sub>2</sub> hydrocarbons:	
*Acetylene-----	ACY, DOW, DUP, MNO, MON, UCC, x.
*Ethane-----	CCP, COR, ENJ, MOC, MON, PAN, SHC, SHO, SM, SOI, TX, UCC, USI.
*Ethylene-----	CCP, COR, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, KPP, MOC, MON, OMC, PET, PLC, RIC, SHC, SM, SNO, TX, UCC, USI.
C <sub>2</sub> and C <sub>3</sub> hydrocarbons, mixed-----	COR, GYR, SM.
*C <sub>3</sub> hydrocarbons:	
*Propane-----	AMO, ASH, CCP, COR, CSD, DXS, ENJ, MOC, OMC, PAN, PLC, PLP, RIC, SHO, SIN, SM, SNT, SOG, SOI, SPI, UCC, USI.
*Propane-propylene mixture-----	ELP, GOC, PLC, TX.
*Propylene-----	ASH, CCP, COR, DOW, EKX, ELP, ENJ, GOC, JCC, MOC, MON, PET, PLC, RIC, SHC, SHO, SIN, SM, SOG, SOI, SPI, SUN, UCC, UOC.
*C <sub>4</sub> hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)-----	CPY, DOW, ELP, ENJ, FRS, GGC, ILC, MON, PET, PLC, PTT, SHC, SM, SOC, SPI, TID, TUS, UCC.
*Butadiene and butylene fractions-----	DOW, GYR, PLC, SHC, SHO, SIN, SOC, SPI.
*n-Butane-----	CCP, CSD, DXS, ELP, MOC, OMC, PAN, PLC, PLP, SHM, SHO, SM, SNT, SOC, SOG, SOI, UCC, USI.

TABLE 5B.--Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Product	Manufacturers' identification codes (according to list in table 22)
ALIPHATIC HYDROCARBONS--Continued	
*C <sub>4</sub> hydrocarbons--Continued	
*1-Butene-----	PLC, PTT, SPI.
2-Butene-----	MON, PLC, PTT, SPI.
*1-Butene and 2-butene mixture-----	AMO, CCP, ENJ, GOC, MOC, PLC, PRO, SHO, SOC, SOI, TX.
*Isobutane-----	CCP, DXS, ELP, MOC, OMC, PAN, PLC, SHO, SOI, UCC, USI.
*Isobutylene-----	CCP, ENJ, PRO, PTT, SIN.
All other-----	APR, JCC, MON, SM, SOI, UCC, USI, x.
*C <sub>5</sub> hydrocarbons:	
Isopentane (2-Methylbutane)-----	APR, CCP, CSD, ENJ, PLC, SHO, SM, SOI, UCC.
*Isoprene (2-Methyl-1,3-butadiene)-----	ENJ, GYR, PLC, SHC.
n-Pentane-----	APR, PLC.
All other-----	ENJ, GYR, MOC, MON, PAS, PET, PLC, SOI, USI.
C <sub>6</sub> hydrocarbons:	
Diisopropyl (2,3-Dimethylbutane)-----	PLC.
*Hexane-----	ENJ, PLC, PRO, SOG.
Neohexane (2,2-Dimethylbutane)-----	PLC.
All other-----	APR, PLC.
C <sub>7</sub> hydrocarbons:	
*n-Heptane-----	CSD, EKX, ENJ, PLC, PRO.
*Heptenes, mixed-----	ACC, ENJ, GOC, HOU, SIN, SOG, TID.
All other-----	PLC.
C <sub>8</sub> hydrocarbons:	
*Diisobutylene (Diisobutene)-----	ATR, PTT, SHC, TX.
n-Octane-----	ENJ, PLC.
2,2,4-Trimethylpentane (Iso-octane)-----	ENJ.
All other-----	PLC.
Hydrocarbons, C <sub>9</sub> and above:	
1-Dodecene-----	CO.
Eicosane-----	ATR.
*Nonene (Tripropylene)-----	ACC, AMO, ENJ, GOC, PRO, RIC, SUN.
Pentadecene-----	CO.
*Polybutene-----	ACC, CSD, SOC, SOI, TX.
*Tetrapropylene-----	ACC, DXS, ENJ, GOC, MOC, PRO, RIC, SNT, SOC, SUN, TX.
Tridecene concentrate-----	ENJ.
Triisobutylene-----	ATR.
All other-----	CO, EKX, ENJ, GOC, HOU, KEN, PLC, RIC, SOC, SOI, TID.
*Hydrocarbon derivatives:	
1-Butanethiol-----	PAS.
tert-Butyl mercaptan (2-Methyl-2-propanethiol)-----	PAS, PLC.
Di-tert-butyl disulfide-----	PLC.
Di-tert-nonyl polysulfide-----	PAS.
tert-Dodecyl mercaptan-----	PAS, x.
Ethyl mercaptan (Ethanethiol)-----	CSD, PAS, SOC.
Isopropyl mercaptan-----	PAS, SOC.
Methyl mercaptan (Methanethiol)-----	ACC, PAS.
tert-Octyl mercaptan-----	PLC.
n-Propyl mercaptan (1-Propanethiol)-----	PAS.
All other-----	EKX, PAS, PLC, SOC.
All other aliphatic hydrocarbons-----	ATR, GOC, SOC.

## Cyclic Intermediates

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963

[Cyclic intermediates for which separate statistics are given in table 7A are marked below with an asterisk (\*); cyclic intermediates not so marked do not appear in table 7A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product. Appendix B lists alphabetically all the important common names of cyclic intermediates usually encountered in the trade and gives the corresponding standard (*Chemical Abstracts*) name under which the manufacturers' identification codes are given in this table]

Chemical	Manufacturers' identification codes (according to list in table 22)
Aceanthryleno[2,1-a]aceanthrylene-5,13-dione-----	ICI.
3-(2-Acetamido-4-aminophenylazo)-1,5-naphthalenedi- sulfonic acid.	TRC.
p-Acetamidobenzoic acid-----	DUP.
2-Acetamido-3-chloroanthraquinone-----	ICI, G.
8-Acetamido-1-(2-hydroxy-5-[N-methylsulfamido]- phenylazo)-2-naphthol.	TRC.
8-Acetamido-2-naphthalenesulfonic acid-----	DUP.
*Acetanilide, tech-----	EKT, MRK, SAL, SW.
Acetoacetanilide-----	FMP, UCC.
o-Acetoacetanilide-----	FMP, UCC.
o-Acetoacetotoluidide-----	FMP, UCC.
1'-Acetonaphthone-----	GIV.
Acetone phenylhydrazine-----	DUP.
Acetophenone, tech-----	ACP, UCC.
p-Acetotoluidide-----	ACY.
N-Acetyl anthranilic acid-----	DUP.
p-Acetylbenzenesulfonamide-----	LIL.
p-Acetylbenzenesulfonic acid, sodium salt-----	LIL.
p-Acetylbenzenesulfonylurethane-----	LIL.
N-Acetylsulfanilyl chloride-----	ACY, MRK, SAL.
Adenine-----	ARA.
Alkylbenzene-----	ATR.
Alkylphenol, mixed-----	G.
α-dl-5-Allyl-6-imino-1-methyl-5-(1-methyl-2-pentynyl)- barbituric acid.	LIL.
Aminoaceanthryleno[2,1-a]aceanthrylene-5,13-dione-----	ICI.
*4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	DUP, G, NAC, TRC.
3'-Aminoacetophenone-----	SDH.
*5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	CMG, DUP, TRC, YAW.
1-Amino-4-(3-amino-4-sulfoanilino)-2-anthraquinonesul- fonic acid.	TRC.
1-Amino-4-(4-amino-3-sulfoanilino)-2-anthraquinonesul- fonic acid.	TRC.
5-Amino-2-anilinobenzenesulfonic acid-----	NAC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	CMG, DUP, NAC, TRC.
3-Amino-p-anisamide-----	G.
3-Amino-p-anisilide-----	PCW.
*1-Aminoanthraquinone and salt-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
*2-Aminoanthraquinone and salt-----	ACY, DUP, G, NAC, TRC.
1-Amino-2-anthraquinonecarboxylic acid-----	DUP.
1-Amino-2-anthraquinonesulfonic acid-----	G.
5(and 8)-Amino-1-anthraquinonesulfonic acid-----	ICI, TRC.
N-(4-Amino-1-anthraquinonyl)anthranilic acid-----	G.
N-(5-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
N-[5(and 8)-Amino-1-anthraquinonyl]anthranilic acid----	DUP.
4-Aminoantipyrine-----	NAC, SDW.
*6-Amino-3,4'-azodi(benzenesulfonic acid)-----	AAP, CMG, NAC.
8-Aminobenz[a]acridin-7(12H)-one-----	NAC.
*1-Amino-4-benzamidoanthraquinone-----	ACY, MAY, NAC, TRC.
1-Amino-5-benzamidoanthraquinone-----	G, ICI, NAC, TRC.



TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
6-[p-(p-Aminobenzamido)benzamido]-1-naphthol-3-sulfonic acid.	DUP.
*6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid-----	CMG, DUP, G, NAC.
4'-Aminobenzanilide-----	TRC.
*2-Amino-p-benzenedisulfonic acid [SO <sub>3</sub> H=1]-----	DUP, G, NAC, VPC.
o-Aminobenzenesulfonic acid-----	DUP.
2-Aminobenzimidazole-----	EK.
5-Amino-2-benzimidazolinone-----	DUP.
p-Aminobenzoic acid, tech-----	DUP, G, NAC.
p-Aminobenzoic acid, diethylaminoethyl ester (Procaine)----	LEM, SDW.
2-Amino-6-benzothiazolecarboxylic acid-----	DUP.
5 (and 8)-Amino-8 (and 5)-bromo-1,6 (and 1,7)-anthraquinone-disulfonic acid.	TRC.
*1-Amino-4-bromo-2-anthraquinonesulfonic acid and sodium salt.	AAP, DUP, G, ICI, NAC, TRC.
*2-Amino-1-bromo-3-chloroanthraquinone-----	AAP, ICI, MAY.
1-Amino-2-bromo-4-hydroxyanthraquinone-----	DUP, G, ICC, TRC.
1-Amino-4-bromo-2-methylantraquinone-----	ICI.
*1-Amino-2-bromo-4-(p-toluidino)anthraquinone-----	G, ICI, TRC.
1-Amino-2-chloroanthraquinone-----	AAP.
*1-Amino-5-chloroanthraquinone-----	ACY, DUP, ICI, MAY, NAC, TRC.
*1-Amino-5 (and 8)-chloroanthraquinone-----	ACY, DUP, NAC.
1-Amino-8-chloroanthraquinone-----	DUP, NAC.
2-Amino-1-chloroanthraquinone-----	DUP, G.
2-Amino-3-chloroanthraquinone-----	G, ICI, MAY.
1-Amino-N-(3-chloro-2-anthraquinonyl)-2-anthraquinone carboxamide.	TRC.
4-Amino-6-chloro-m-benzenedisulfonamide-----	ABB.
5-Aminochlorobenzoic acid-----	TRC.
2-Amino-6-chlorobenzothiazole hydrochloride-----	DUP.
*o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	AAP, G, ICI, MAY.
4-Amino-6-chloro-N,N'-dimethyl-m-benzenedisulfonamide-----	ABB.
2-Amino-5-chloro-4-ethylbenzenesulfonic acid-----	ACY.
1-Amino-2-chloro-4-hydroxyanthraquinone-----	AAP.
2-Amino-4-chlorophenol-----	G, MEE, NAC.
*6-Amino-4-chloro-1-phenol-2-sulfonic acid-----	CMG, NAC, TRC.
3-Amino-6-chloropyridazine-----	ACY.
*2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACY, HCC, SUC, SW.
*6-Amino-4-chloro-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACY, DUP, HCC, SW.
2-Amino-p-cresol-----	TRC.
*1-Amino-2,4-dibromoanthraquinone-----	DUP, G, ICC, ICI, NAC, TRC.
1-Amino-5,8-dichloroanthraquinone-----	TRC.
4'-Amino-2',5'-diethoxybenzanilide-----	G.
3-Amino-7-diethylamino-5-phenylphenazium chloride-----	DUP.
1-Amino-2,4-dihydroxyanthraquinone-----	TRC.
3-Amino-N,N-dimethyl-p-toluenesulfonamide-----	G.
5-Amino-2-(2-ethoxyanilino)benzenesulfonic acid, sodium salt.	NAC.
3-Amino-9-ethylcarbazole-----	DUP.
3-Amino-6-ethoxypyridazine-----	ACY.
p-Amino-N-ethyl-N-1-naphthylbenzamide-----	G.
2-Amino-N-ethyl-5-nitrobenzenesulfonamide-----	G.
2-Amino-5-ethyl-1,3,4-thiadiazole-----	ACY.
*1-Amino-4-hydroxyanthraquinone-----	AAP, DUP, G.
3-Amino-2-hydroxyanthraquinone-----	G, NAC.
1-Amino-4-hydroxy-2-anthraquinonesulfonic acid-----	TRC.
2-Amino-4-hydroxybenzenearsonic acid-----	SDW.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963-- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
8-[4-(8-Amino-1-hydroxy-3,6-disulfo-2-naphthylazo)-5-methoxy-o-tolylazo]-1-naphthol-3,6-disulfonic acid, benzenesulfonate.	TRC.
1-Amino-4-[m-(2-hydroxyethylsulfonyl)anilino]-2-anthraquinonesulfonic acid.	DUP.
3-Amino-6-hydroxy-2-methylphenazine (Tolazine base)-----	NAC.
1-(6-Amino-1-hydroxy-3-sulfo-2-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
5-Aminoisophthalic acid-----	G.
2-Amino-N-isopropyl-1-phenol-4-sulfonamide-----	TRC.
1-Amino-4-methoxyanthraquinone-----	DUP.
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide.	DUP.
5-Amino-6-methoxy-2-naphthalenesulfonic acid-----	NAC, TRC.
m-(4-Amino-3-methoxyphenylazo)benzenesulfonic acid-----	DUP, TRC.
3-Amino-6-methoxypyridazine-----	ACY.
*1-Amino-2-methoxy-4-(p-toluenesulfonamido)anthraquinone----	AAP, G, TRC.
3-(4-Amino-5-methoxy-o-tolylazo)-1,5-naphthalenedisulfonic acid.	TRC.
7-(4-Amino-5-methoxy-o-tolylazo)-1,3-naphthalenedisulfonic acid.	TRC.
8-(4-Amino-5-methoxy-o-tolylazo)-1-naphthol-3,6-disulfonic acid, benzenesulfonate.	TRC.
*4'-Amino-N-methylacetanilide-----	CMG, G, NAC.
1-Amino-2-methylanthraquinone-----	DUP, ICI.
4'-Amino-6'-methyl-m-benzanisidide-----	G.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
8-Amino-7-methyl-2-phenazinol-----	DUP.
2-Amino-N-methyl-1-phenol-4-sulfonamide-----	TRC.
2-Amino-4-methylpyrimidine (2-Amino-4-methyldiazine)-----	ACY.
2-Amino-4-(methylsulfonyl)phenol-----	NAC, TRC.
2-Amino-5-methyl-1,3,4-thiadiazole-----	ACY.
1-Amino-2-methyl-4-(p-toluidino)anthraquinone-----	ICI.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione-----	DUP.
6-Aminonaphth[2,3-c]acridan-5,8,14(13H)trione-----	G.
1(and 4)-Aminonaphth[2,3-c]acridine-5,8,14(13H)trione-----	DUP, NAC.
*2-Amino-1,5-naphthalenedisulfonic acid-----	ACY, SDH, SW.
*3-Amino-1,5-naphthalenedisulfonic acid (Cassella acid)-----	G, NAC, TRC.
3-Amino-2,7-naphthalenedisulfonic acid-----	NAC, TRC.
4-Amino-1,5-naphthalenedisulfonic acid-----	NAC.
4-Amino-1,6-naphthalenedisulfonic acid-----	DUP, NAC.
*6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	ACY, CMG, DUP, G, NAC, TRC.
*7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	ACY, DUP, G, NAC, TRC.
2-Amino-1-naphthalenemethanesulfonic acid-----	ACY.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)----	DUP.
*2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	ACY, IMP, SUC, SW.
4(and 5)-Amino-1-naphthalenesulfonic acid-----	ACY.
5-Amino-1-naphthalenesulfonic acid (Laurent's acid)-----	DUP, NAC.
*5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	ALL, DUP, G, NAC, TRC.
*5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed).	ALL, DUP, G, NAC.
6-Amino-1-naphthalenesulfonic acid-----	VPC.
*6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	KLS, NAC, SNA, TRC.
*8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	DUP, NAC, SDC, TRC.
*8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	ALL, DUP, G, NAC, TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid-----	DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)----	DUP, NAC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
4-Amino-1,3,5-naphthalenetrisulfonic acid, 4,5-sultam, trisodium salt.	DUP.
8-Amino-1-naphthoic acid-----	G.
5-Amino-1-naphthol-----	NAC.
5-(and 8)-Amino-2-naphthol-----	G.
*8-Amino-2-naphthol-----	ALL, CMG, DUP, G, TRC, VPC.
8-Amino-1-naphthol-3,6-disulfonic acid, benzenesulfonate---	TRC.
7-Amino-1-naphthol-3,6-disulfonic acid (2R acid), mono- sodium salt.	DUP, NAC.
*8-Amino-1-naphthol-3,6-disulfonic acid (H acid), mono- sodium salt.	DUP, MON, NAC.
8-Amino-1-naphthol-5,7-disulfonic acid (Chicago acid) (2S acid), monosodium salt.	DUP, NAC.
*1-Amino-2-naphthol-4-sulfonic acid (1,2,4-acid)-----	ACY, DUP, G, NAC, TRC, VPC.
*6-Amino-1-naphthol-3-sulfonic acid (J acid), sodium salt---	ACY, CMG, DUP, G, NAC, TRC.
*7-Amino-1-naphthol-3-sulfonic acid (Gamma acid), sodium salt.	DUP, G, NAC, TRC.
8-Amino-1-naphthol-5-sulfonic acid (S acid), sodium salt---	NAC.
*2-Amino-5-nitrobenzenesulfonic acid [ $\text{SO}_3\text{H}=1$ ]-----	ACY, DUP, NAC, TRC.
4-Amino-3-nitrobenzoic acid-----	DUP.
*2-Amino-4-nitrophenol-----	DUP, G, NAC, TRC.
2-Amino-5-nitrophenol-----	NAC.
6-Amino-4-nitro-1-phenol-2-sulfonic acid-----	TRC.
1-2-Amino-1-(p-nitrophenyl)-1,3-propanediol-----	PD.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	NAC, TRC.
2-Amino-5-nitrothiazole-----	EKT.
3'-Aminooxanilic acid-----	CMG.
4'-Aminooxanilic acid-----	DUP.
p-Aminophenethyl alcohol-----	EKT.
p-Aminophenol-----	ABB, DUP, SDC.
6-Amino-1-phenol-2,4-disulfonic acid-----	TRC.
*2-Amino-1-phenol-4-sulfonamide-----	CMG, DUP, NAC, TRC, VPC.
2-Amino-1-phenol-4-sulfonanilide-----	TRC.
*2-Amino-1-phenol-4-sulfonic acid-----	AAP, CWN, DUP, NAC, TRC.
m-(p-Aminophenylazo)benzenesulfonic acid-----	AAP, TRC.
*p-(p-Aminophenylazo)benzenesulfonic acid-----	ACY, CMG, DUP, G, NAC, TRC.
5-(p-Aminophenylazo)salicylic acid-----	TRC, VPC.
2-(p-Aminophenyl)-6-methylbenzothiazole-----	DUP, NAC.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt.	DUP.
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid----	VPC.
2-(p-Aminophenylsulfonyl)ethyl sulfate-----	HST.
2-Aminopyridine-----	NEP, RIL.
4-Aminopyridine-----	RIL.
2-Aminopyrimidine-----	ACY.
5-Aminosalicylic acid-----	AAP.
N-(4-Amino-3-sulfoanthraquinonyl)anthranilic acid-----	G.
2-Amino-5-(p-sulfophenylazo)benzenesulfonic acid-----	DUP.
4-[4-(Amino-2-sulfophenylazo)-3-methyl-5-oxo-2-pyrazolin-1- yl]-2,5-dichlorobenzenesulfonic acid.	DUP.
3'-(3-Amino-4-sulfophenylsulfamoyl)-3"-sulfamoyl-3- phthalocyaninesulfonic acid, copper derivative.	DUP.
2-Aminothiazole-----	ACY, MRK.
1-Amino-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic acid.	AAP.
1-Amino-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic acid, sodium salt.	DUP, G.
5-Amino-o-toluenesulfonanilide-----	G.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*4-Amino-m-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ]-----	ACY, DUP, G, SNA.
*6-Amino-m-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ]-----	DUP, NAC, SDH, SW.
5-Amino-2-(p-toluidino)benzenesulfonic acid-----	DUP, NAC, TRC.
m-(4-Amino-3-tolylazo)benzenesulfonic acid-----	TRC.
7-(4-Amino-o-tolylazo)-1,5-naphthalenedisulfonic acid----	TRC.
6-Amino-s-triazine-2,4-dithiol-----	RBC.
2-Amino-3,4,6-trichlorophenol-----	TRC.
*16-Aminoviolanthrone-----	ACY, G, TRC.
*2-Amino-3,5-xylenesulfonic acid [ $\text{SO}_3\text{H}=1$ ]-----	NAC, SDH, STG, WJ.
5-Amino-2,4-xyldinesulfonic acid-----	DUP.
*Aniline (Aniline oil)-----	ACY, DOW, DUP, NAC.
Aniline hydrochloride-----	ACY.
1-Anilino-2-anthraquinonecarboxylic acid-----	NAC.
*Anilinomethanesulfonic acid and salt-----	AAP, ACY, DUP, NAC, TRC, VPC.
*8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)---	CMG, DUP, G, NAC, SDC.
*6-Anilino-1-naphthol-3-sulfonic acid (Phenyl J acid)-----	ALT, CMG, DUP, G, NAC, TRC.
7-Anilino-1-naphthol-3-sulfonic acid (Phenyl gamma acid)---	DUP, G, NAC.
m-Anilinophenol-----	G.
Anisic acid-----	HN, ICI.
o-Anisic acid-----	ACY.
*o-Anisidine-----	AAP, ALL, DUP, MON.
p-Anisidine-----	DUP, MON.
p-Anisidine hydrochloride-----	EK.
1-p-Anisidino-4-hydroxyanthraquinone-----	AAP.
*o-Anisidinomethanesulfonic acid-----	DUP, G, NAC, TRC, VPC.
Anisole, tech-----	DUP, LIL.
4-(o-Anisylazo)-o-anisidine-----	AAP.
Anthracene, refined-----	ACP.
Anthraflavic acid (2,6-Dihydroxyanthraquinone)-----	G, NAC.
Anthranilic acid (o-Aminobenzoic acid)-----	DUP, LEM, MEE, NAC.
*Anthra[1,9]pyrazol-6(2H)-one (Pyrazoleanthrone)-----	DUP, NAC, TRC.
*Anthraquinone, 100%-----	ACY, DUP, G, NAC, TRC.
2-Anthraquinonecarboxylic acid-----	ACY, NAC.
*1,5-Anthraquinonedisulfonic acid-----	ACY, DUP, ICI, TRC.
1,5-Anthraquinonedisulfonic acid, disodium salt-----	DUP, G, TRC.
1,5(and 1,8)-Anthraquinonedisulfonic acid and salt-----	AAP, DUP, TRC.
1,8-Anthraquinonedisulfonic acid-----	DUP.
*1,8-Anthraquinonedisulfonic acid, potassium salt-----	G, ICI, NAC, TRC.
*2,6-Anthraquinonedisulfonic acid and salt-----	AAP, DUP, G, ICI, NAC, TRC, VPC.
*1-Anthraquinonesulfonic acid and salt-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
2-Anthraquinonesulfonic acid and salt (Silver salt)-----	ACY, DUP, NAC.
1,1'-[1,5(and 1,8)-Anthraquinonylenediamino]bisnaphth- [2,3-c]acridan-5,8,14-trione.	DUP.
*N,N'-(1,5-Anthraquinonylene)dianthranilic acid-----	DUP, ICI, TRC.
N,N'-(1,5-Anthraquinonylene)dioxamic acid-----	G, MEE.
1-(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt.	DUP.
*Anthrarufin (1,5-Dihydroxyanthraquinone)-----	ACY, CMG, DUP, G, NAC, TRC.
Arbutin (Mono- $\beta$ -hydroquinone glucoside)-----	UPJ.
Arsanilic acid and salt, tech-----	ABB.
4',4'''-Azobis[4-biphenylcarboxylic acid]-----	DUP, TRC.
4,4-Azobis[p-phenylbenzoic acid]-----	G.
Barbituric acid-----	ABB, KF, LIL.
Barbituric acid, sodium derivative-----	ABB.
*Benzaldehyde, tech-----	BPC, HN, TNP.
5-Benzamido-1,4-bis(1-anthraquinonylamino)anthraquinone---	TRC.
1-Benzamido-4-bromoanthraquinone-----	AAP.
1-Benzamido-4-chloroanthraquinone-----	DUP, G, TRC.
*1-Benzamido-5-chloroanthraquinone-----	ACY, DUP, G, ICI, MAY, NAC, TRC.

TABLE 7B.-- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963-- Continued*

Chemical	Manufacturers' identification codes (according to list in table 22)
1-Benzamido-5,8-dichloroanthraquinone-----	TRC.
1-(4-Benzamido-2,5-diethoxyphenyl)-3-methyl-3-(2-sulfo-ethyl) triazene.	G.
[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazene-3-yl]-acetic acid.	G.
8-Benzamido-1-naphthol-3,5-disulfonic acid-----	G.
Benzanilide-----	DUP.
*7H-Benz[de]anthracen-7-one (Benzanthrone)-----	AAP, ACY, ATL, CMG, DUP, G, ICI, MAY, NAC, SDC, TRC.
m-Benzenedisulfonic acid-----	KPT.
Benzenesulfonamide-----	NES.
Benzenesulfonic acid-----	EK, NES, UPF.
Benzenesulfonic acid, 2-propyn-1-ol ester-----	ABB.
Benzenesulfonyl chloride-----	NES.
Benzhydrol (Diphenylmethanol)-----	HEX, TBK.
Benzidine base-----	NAC.
*Benzidine hydrochloride and sulfate-----	CWN, FIN, LAK, NAC, x.
Benzil (Bibenzoyl)-----	LEM.
Benzoic acid-----	BPC, LEM.
1-Benzamido-5-(p-toluenesulfonamido)anthraquinone-----	ICI.
2-Benzofuranacetone nitrile-----	EK.
*Benzoic acid, tech-----	ACC, HK, HN, KLK, MON, TNP.
Benzoin-----	BPC.
α-Benzoin oxime-----	FMT.
Benzonitrile-----	TNP, x.
1H-Benzotriazole-----	MEE.
Benzoylacetic acid, ethyl ester-----	FMP.
*o-Benzoylbenzoic acid-----	ACY, DUP, G, NAC.
Benzoyl chloride-----	HK, HN, TNP.
2-Benzoyl-4-sulfobenzoic acid-----	DUP.
2-Benzoyl-4'-(p-toluenesulfonamido)acetanilide-----	EK.
Benzylamine-----	ICO, MLS.
Benzyl chloroformate-----	RSA.
4-Benzyl-6-chloro-2-methyl-3-oxo-7-sulfamoyl-1,2,4-benzothiadiazine-1,1-dioxide.	ABB.
4-Benzyl-6-chloro-3-oxo-7-sulfamoyl-1,2,4-benzothiadiazine-1,1-dioxide.	ABB.
Benzyl disulfide-----	CCW.
Benzylethanolamine-----	MLS.
Benzyl ether (Dibenzyl ether)-----	BPC, TBK.
4-(N-Benzyl-N-ethylamino)-o-toluenesulfonic acid-----	NAC.
N-Benzyl-N-ethyl-m-toluidine-----	DUP, NAC.
Benzylidene phthalide-----	LIL.
4-Benzylideneiminoantipyrine-----	SDW.
N-Benzylmethylamine-----	MLS.
p-(Benzoyloxy)phenol-----	EK.
Benzyl polysulfide-----	HK.
Benzyltrimethylammonium hydroxide-----	MLS.
Benzyltrimethylammonium methoxide-----	MLS.
*3,3'-Bianthra[1,9]pyrazole-6,6'-(2H,2'H)-dione (Pyrazole-anthrone yellow).	DUP, G, TRC.
[3,3'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	DUP.
*[4,4'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	ACY, DUP, G, ICI, MAY, NAC.
endo-cis-Bicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic anhydride.	NAC.
*[1,1'-Binaphthalene]-8,8'-dicarboxylic acid-----	DUP, G, NAC.
Biphenyl-----	DOW, MON.
3,3',4,4'-Biphenyltetramine-----	AAP.
2,2',4,4'-Biphenyltetrol-----	IDC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2,2'-Biquinoline-----	EK.
*1,4-Bis[1-anthraquinonylamino]anthraquinone-----	ACY, DUP, G, MAY, NAP, 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.
Bis[1-anthraquinonylamino]violanthrene-----	G.
$\alpha^2, \alpha^6$ -Bis[5-tert-butyl-6-hydroxy-m-tolyl]mesitol-----	ACY.
N,N'-Bis[1-chloro-2-anthraquinonyl]-4',4'''-azobis-[4-bi- phenylcarboxamide].	G.
Bis(chloro sulfonyl)phthalocyaninedisulfonic acid, copper derivative.	TRC.
4,4'-Bis[diethylamino] benzhydrol-----	G.
4,4'-Bis[diethylamino] benzhydrol salt, 2,7-naphthalene- disulfonic acid mixture.	DUP.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)----	DSC, SDH.
4,4'-Bis[dimethylamino] benzhydrol (Michler's hydrol)-----	DSC, SDH.
*4,4'-Bis[dimethylamino] benzophenone (Michler's ketone)----	DSC, DUP, G, NAC, SDH.
Bis[p-dimethylamino]methanesulfonic acid and salt-----	NAC.
1,5(and 1,8)-Bis[2,4-dinitrophenoxy]-4,8(and 4,5)-di- nitroanthraquinone.	DUP.
$\alpha, \alpha$ -Bis[4-(N-ethyl-4'-sulfobenzylamino)-2-tolyl]- $\alpha$ - hydroxy-p-toluenesulfonic acid.	TRC.
$\alpha, \alpha$ -Bis[4-(N-ethyl-4'-sulfobenzylamino)-2-tolyl]-p- toluenesulfonic acid.	TRC.
4,4'-Bis[p-hydroxyphenylazo]-2,2'-stilbenedisulfonic acid-	TRC.
4,4'-Bis[p-hydroxyphenyl] valeric acid-----	JNS.
N,N'-Bis(2-hydroxypropyl)-2-methylpiperazine-----	WYN.
Bis(o-nitrophenyl)sulfide-----	x.
2-Bromoacetophenone-----	EK.
o-Bromoaniline-----	EK.
p-Bromoaniline-----	EK.
4-Bromoanisole-----	EK, OPC.
*3-Bromo-7H-benz[de]anthracen-7-one (Bromobenzanthrone)---	DUP, G, ICI, MAY, NAC.
Bromobenzene, mono-----	DOW.
p-Bromobenzenesulfonyl chloride-----	EK.
4-Bromobenzophenone-----	ICO.
p-Bromo-N,N-bis(2-hydroxyethyl)benzenesulfonamide-----	G.
Bromochlorobenzene-----	DOW.
6-Bromo-5-chlorobenzoxazolone-----	MEE.
2-Bromo-6-chloro-4-nitroaniline-----	AAP.
2-Bromodibenzofuran-----	G.
6-Bromo-2,4-dinitroaniline-----	TRC.
Bromoethylbenzene-----	DOW.
2-Bromo-3'-hydroxyacetophenone, benzoate-----	SDH.
1-Bromo-4-(N-methylacetamido)anthraquinone-----	G.
*1-Bromo-4-methylaminoanthraquinone-----	DUP, G, ICI.
2-Bromo-3-methylanthraquinone-----	DUP.
3'-Bromo-4'-methyl-2-biphenylcarboxylic acid-----	DUP.
6-Bromo-3-methyl-7H-dibenz[f,i,j]isoquinoline-2,7(3H)- dione.	G, ICI.
1-Bromonaphthalene-----	EK.
4-Bromonaphthalic anhydride-----	G.
1-(9-Bromo-7-oxo-7H-benz[de]anthracen-3-ylamino)anthra- quinone.	NAC.
p-Bromophenyl phenyl ether-----	EK.
Bromopicrin-----	EK.
2-Bromopyridine-----	RIL.
3-Bromopyridine-----	RIL.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
$\alpha$ -Bromotoluene-----	BPC, EK.
p-Bromotoluene-----	EK.
1-Bromo-2,4,6-triethylbenzene-----	DUP.
Butoxyphenol-----	ABB.
4-[3-(p-Butoxyphenoxy)propyl] morpholine-----	ABB.
p-n-Butoxy- $\alpha$ -piperidine propiophenone hydrochloride-----	ICO.
N-Butylacetanilide-----	UCC.
p-n-Butylaminobenzoic acid, ethyl ester-----	ICO.
p-Butylaniline-----	DUP.
2-tert-Butylantraquinone-----	DUP.
p-tert-Butylbenzaldehyde-----	GIV.
n-Butylbenzene-----	PLC.
sec-Butylbenzene-----	PLC.
tert-Butylbenzene-----	PLC.
p-tert-Butylbenzoic acid-----	SHC.
o-(p-tert-Butylbenzoyl)benzoic acid-----	DUP.
6-Butyl-m-cresol [OH <sup>1</sup> ]-----	KPT.
6-tert-Butyl-m-cresol-----	PIT.
2-tert-Butyl-p-cresol-----	ACY.
2'-tert-Butyl-4',6'-dimethylacetophenone-----	GIV.
2-tert-Butyl-4-ethylphenol-----	ACY.
1,1,1-tris-(5-tert-Butyl-4-hydroxy-2-methylphenyl)butane--	ICI.
N'-Butyl-4-methoxymetanilamide-----	G, KLS.
2-tert-Butyl-5-methylanisole-----	GIV.
o-sec-Butylphenol-----	DOW, PRD.
p-sec-Butylphenol-----	DOW.
o-tert-Butylphenol-----	TNA.
p-tert-Butylphenol-----	DOW, PRD, UCP.
Butylphenols, mixed-----	DOW.
p-tert-Butyltoluene-----	GIV, SHC.
5-tert-Butyl-1,2,3-trimethylbenzene-----	GIV.
5-tert-Butyl-m-xylene-----	GIV, x.
6-tert-Butyl-2,4-xylene-----	PIT.
Carbazole, refined-----	SDC.
2,4'-Carbonyldibenzoic acid-----	ACY.
6-(and 2)-Carboxybenzene-2-(and 4)-diazo-1-oxide-----	DUP.
5'-(o-Carboxybenzoyl)-2-chlorooxanilic acid-----	G.
3-Carboxy-2-(and 4)-hydroxybenzenediazonium sulfate-----	NAC.
3-Carboxymethyl-1-(4-chloro-o-tolyl)-3-ethyltriazene-----	G.
3-Carboxymethyl-1-(5-chloro-o-tolyl)-3-methyltriazene-----	G.
3-(Carboxymethyl)-3-methyl-1-p-tolyltriazene-----	G.
5-(o-Carboxyphenylsulfamoyl)anthranilic acid-----	TRC.
3-(2-Carboxy-4-sulfophenyl)-1-(2,5-dichlorophenyl)-3-ethyltriazene.	G.
3-(2-Carboxy-4-sulfophenyl)-1-(5-dimethylsulfamoyl-o-tolyl)-3-methyltriazene.	G.
3-(2-Carboxy-4-sulfophenyl)-3-ethyl-1-(5-nitro-o-anisyl)-triazene.	G.
Cedrene-----	GIV.
Chelidamic acid-----	SDW.
Chlorendic acid-----	HK.
2'-Chloroacetoacetanilide-----	FMP.
2-Chloroacetophenone-----	RBC.
2'-Chloroacetophenone-----	EK.
4'-Chloroacetophenone-----	LIL, NES.
4'-(Chloroacetyl)acetanilide-----	DUP.
N-(4-Chloro-2-aminotoluene)sarcosine-----	BUC.
m-Chloroaniline-----	DUP, G.
o-Chloroaniline-----	DUP, MON, NAC.
p-Chloroaniline-----	DUP, MON.

TABLE 7B.-- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-(Chloroanilino)ethanol-----	EKT.
3-(o-Chloroanilino)propionitrile-----	DUP.
5-Chloro-o-anisidine [NH <sub>2</sub> =1] (4-Chloro-o-anisidine [OCH <sub>3</sub> =1]).	KLS.
5-Chloro-o-anisidine hydrochloride-----	G.
N-(5-Chloro-o-anisidine)methyltaurine-----	BUC.
4-Chloroanthranilic acid-----	DUP.
*1-Chloroanthraquinone-----	ACY, DUP, G, ICI, MAY, NAC, TRC.
*2-Chloroanthraquinone-----	ACY, G, NAC, TRC.
*o-Chlorobenzaldehyde-----	HN, NAC, SDH.
p-Chlorobenzaldehyde-----	HN.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)----	ACY, TRC.
*Chlorobenzene, mono-----	ACS, DOW, DUP, DVC, GGY, HK, HKD, MON, MTO, OMC, PPG.
1-Chlorobenzene-4-methylsulfone-----	TRC.
4-Chlorobenzenesulfonic acid-----	TRC.
p-Chlorobenzenesulfonamide-----	ACY.
p-Chlorobenzenesulfonic acid-----	G.
4-Chlorobenzenesulfonyl chloride-----	NES.
1-(4-Chlorobenzhydrol)-4-methylpiperazine-----	ABB.
o-Chlorobenzoic acid-----	HN, SDH.
p-Chlorobenzoic acid-----	HN.
p-Chlorobenzonitrile-----	EK.
5-Chloro-2-benzoxazolinone-----	X.
*o-(p-Chlorobenzoyl)benzoic acid-----	ACY, DUP, G, ICI, NAC.
p-Chlorobenzoyl chloride-----	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylylidine-----	G.
2-Chloro-5-(o-carboxyphenylsulfamoyl)benzoic acid-----	OPC, TRC.
2-Chloro-1,4-dibutoxy-5-nitrobenzene-----	G.
Chloro-(p-chlorophenyl)phenylmethane-----	TBK.
2-Chloro-1,4-diethoxy-5-nitrobenzene-----	G.
2-Chloro-N,N-diethyl-4-nitroaniline-----	DUP.
N-(3-Chloro-9,10-dihydroxy-2-anthryl)acetamide-bis[acid sulfate].	G.
4'-Chloro-2',5'-dimethoxyacetoacetanilide-----	PCW.
4-Chloro-2,5-dimethoxyaniline-----	PCW.
5-Chloro-2,4-dimethoxyaniline-----	ALL, G, PCW.
4-Chloro-N,N-dimethyl-3-nitrobenzenesulfonamide-----	G.
5-Chloro-4,7-dimethyl-3(2H)-thianaphthenone-----	NAC.
*1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	AAP, DUP, NAC, SDC.
1-Chloro-2,4-dinitrobenzene and 2-chloro-1,3-dinitro- benzene mixture.	DUP.
5-Chloro-2,4-dinitrobenzenesulfonic acid-----	TRC.
3-Chlorodiphenylamine-----	SK.
Chlorodiphenylmethane-----	OPC, TBK.
α-Chloro-o(and/or p)-dodecyltoluene [CH <sub>3</sub> =1]-----	ORO.
p-[(2-Chloroethyl)methylamino]benzaldehyde-----	G.
2-Chloro-N-ethyl-5-nitrobenzenesulfonanilide-----	G.
Chloroformic acid, phenyl ester-----	EK.
4-Chloro-3-hydrazinobenzenesulfonic acid-----	G.
1-Chloro-4-hydroxyanthraquinone-----	ICI.
5'-Chloro-3-hydroxy-2-naphthol-o-anisidide-----	PCW.
3-Chloro-4-hydroxyquinoline-3,4-carbonic acid-----	SDH.
6-Chloroisatoic anhydride-----	MEE.
5-Chloro-4-isopropylmetanilic acid-----	SW.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chlorometanilic acid-----	DUP, G.
5-Chlorometanilic acid-----	NAC.
6-Chlorometanilic acid-----	DUP.
5-Chloro-2-methoxybenzenediazonium chloride-----	G.



TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
N-(5-Chloro-2-methoxyphenylazo)sarcosine-----	ATL, SDH.
*1-Chloro-2-methylanthraquinone-----	AAP, ACY, CMG, G, ICI, NAC, TRC.
6-Chloro-4-methylbenzo-1,3-thiaza-2-thionium chloride-----	DUP.
6-Chloro-2-methyl-7-chlorosulfamoyl-2H-1,2,4-benzo- thiadiazin-3(4H)-one, 1,1-dioxide.	ABB.
6-Chloro-2-methyl-7-(N-methylsulfamoyl)-2H-1,2,4-benzo- thiadiazin-3(4H)-one, 1,1-dioxide.	ABB.
$\alpha$ -Chloromethylnaphthalene, crude-----	BPC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene- sulfonic acid.	G.
2-Chloro-5-(N-methylsulfamoyl)sulfanilamide-----	ABB.
5-Chloro-2-(n-methyl)-sulfamyl-4-sulfamyl-n-benzylaniline- Chloronaphthalenes-----	ABB.
8-Chloro-1-naphthalenesulfonyl chloride-----	KPT.
9-Chloronaphtho[1,2-b]thiophen-3(2H)one-----	G.
(8-Chloro-1-naphthylmercapto)-acetic acid-----	G.
*2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	ACY, DOW, DUP, SUC.
*4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	DOW, DUP, VPC.
*1-Chloro-5-nitroanthraquinone-----	ACY, DUP, MAY, NAC, TRC.
1-Chloro-5 (and 8)-nitroanthraquinone-----	DUP.
1-Chloro-8-nitroanthraquinone-----	DUP, NAC.
*1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	AAP, DUP, MON, UPM.
*1-Chloro-2 (and 4)-nitrobenzene (Chloronitrobenzenes, o- and p-).	AAP, DUP, SDC.
*1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)-----	DUP, G, MON, UPM.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)-----	AAP, DUP, MON, UPM.
*4-Chloro-3-nitrobenzenesulfonamide-----	AAP, DUP, EKT, ICC, TRC.
4-Chloro-3-nitrobenzenesulfonamide-----	TRC.
2-Chloro-5-nitrobenzenesulfonic acid-----	CMG, NAC.
2-Chloro-5-nitrobenzenesulfonic acid, sodium salt-----	DUP, G, TRC.
*4-Chloro-3-nitrobenzenesulfonic acid-----	G, NAC, TRC.
4-Chloro-3-nitrobenzenesulfonmorpholide-----	G.
*4-Chloro-3-nitrobenzenesulfonyl chloride-----	AAP, DUP, EKT.
2-Chloro-4-nitrobenzoic acid-----	SAL.
2-Chloro-5-nitrobenzoic acid-----	TRC.
*o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	AAP, G, ICI, NAC.
4-Chloro-2-nitrophenol-----	DUP, MEE.
4-Chloro-6-nitro-1-phenol-2-sulfonic acid-----	TRC.
4-Chloro-3-nitrophenyl methyl sulfone-----	TRC.
2-Chloro-4-nitrotoluene-----	DUP.
2-Chloro-6-nitrotoluene-----	DUP.
*4-Chloro-2-nitrotoluene-----	AAP, BUC, DUP.
4-Chloro-3-nitrotoluene-----	AAP, BUC.
m-Chlorophenol-----	EK.
o-Chlorophenol-----	DOW, MON.
p-Chlorophenol-----	DOW, MON.
2-Chlorophenothiazine-----	SK.
p-Chlorophenylacetoneitrile-----	ICO, TBK.
4-Chloro- $\alpha$ -phenyl-o-cresol-----	MON.
4-Chloro-o-phenylenediamine-----	FMT.
3-(o-Chlorophenyl)-5-methyl-4-isoxazole carbonyl chloride- 1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	ICO.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
2-Chloro-4-phenylphenol-----	TRC.
4-Chlorophthalic acid-----	DOW.
Chlorophthalic anhydride-----	DUP, SW, TRC.
1-(3-Chloropropyl)-4-methylpiperazine-----	HK.
N <sup>+</sup> -(6-Chloro-3-pyridazinyl)sulfanilamide-----	SK.
	ACY.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Chloropyridine-----	FMT, NEP.
6-Chloroquinoline-----	DUP.
2-Chloroquinizarin-----	HSH, NAC, TRC.
7-Chloro-4-quinolinol-----	SDW.
4-(7-Chloro-4-quinolylamino)- $\alpha$ -diethylamino-o-cresol-----	PD.
4-(7-Chloro-4-quinolylamino)- $\alpha$ -diethylamino-o-cresol hydrochloride.	PD.
6-Chloroquinophthalone-----	DUP.
4-Chlororesorcinol-----	AAP, G.
5-Chlorosalicylic acid-----	PCW.
8-Chlorotheophylline-----	MAL, TRC.
2-Chlorothiaxanthenone-----	KF.
m-Chlorotoluene-----	HK.
m-Chlorotoluene mixed-----	BPC.
o-Chlorotoluene-----	HN.
p-Chlorotoluene-----	HN.
* $\alpha$ -Chlorotoluene (Benzyl chloride)-----	BPC, HK, HN, MON, TNP.
1-Chloro-5-p-toluenesulfonamidoanthraquinone-----	ICI.
3-Chloro-o-toluidine [NH <sub>2</sub> =1]-----	DUP, NAC.
3-Chloro-p-toluidine [NH <sub>2</sub> =1]-----	DUP.
4-Chloro-o-toluidine [NH <sub>2</sub> =1] and hydrochloride-----	AAP, ACY, PCW.
*5-Chloro-o-toluidine [NH <sub>2</sub> =1]-----	BUC, DUP, NAC, SDH.
*5-Chloro-o-toluidine hydrochloride [NH <sub>2</sub> =1]-----	ALL, ATL, AUG, BUC, DUP, KLS, SDH.
N-(5-Chloro-o-tolylazo)sarcosine-----	ATL, BUC.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
1-(5-Chloro-o-tolyl)-1-tetrazene-----	G.
(4-Chloro-o-tolylthio)acetic acid-----	ACY, NAC.
3-Chloro- $\alpha,\alpha,\alpha$ -trifluoro-6-nitrotoluene-----	MEE.
*4-Chloro- $\alpha,\alpha,\alpha$ -trifluoro-3-nitrotoluene-----	AAP, G, MEE.
p-Chloro- $\alpha,\alpha,\alpha$ -trifluorotoluene-----	HK.
4-Chloro- $\alpha,\alpha,\alpha$ -trifluoro-m-toluidine-----	AAP.
6-Chloro- $\alpha,\alpha,\alpha$ -trifluoro-m-toluidine-----	MEE.
1-(6-Chloro- $\alpha,\alpha,\alpha$ -trifluorotolyl)-3-methyl-3-(2-sulfo- ethyl)triazene.	G.
2-Chloro-1,3,5-trinitrobenzene-----	EK.
Chlorotriphenylmethane-----	EK.
$\alpha$ -Chloro-p-xylene-----	BPC.
2-Chloro-p-xylene-----	DUP.
4-Chloro-2,5-xylenesulfonyl chloride-----	G, NAC.
4-Chloro-3,5-xenol-----	OTA.
4-Chloro-2,5-xylylthioacetic acid-----	G, NAC.
Chrysazin (1,8-Dihydroxyanthraquinone)-----	DUP, G.
Cinnamoyl chloride-----	EK, TBK.
s-Collidine (2,4,6-Trimethylpyridine)-----	KPT, NAC, RIL.
*Cresols: <sup>1</sup>	
m-Cresol-----	KPT.
*o-Cresols:	
From coal tar-----	KPT, PRD, RIL.
From petroleum-----	MER, PRD, SW.
*p-Cresol-----	ACY, HPC, SW.
Cresols, mixed: <sup>1</sup>	
*(m,p)-Cresol:	
*From coal tar-----	ACP, KPT, PRD.
*From petroleum-----	MER, PIT, PRD.
*(o,m,p)-Cresol:	
From coal tar-----	ACP, KPT.
From petroleum-----	PIT, PRD.
2,3-Cresotic acid-----	DOW.
*Cresylic acid, refined: <sup>1</sup>	
*From coal tar-----	ACP, ACY, KPT, PRD, RIL.
*From petroleum-----	MER, PIT, PRD, SHO, SM, SOC.

See footnote at end of table.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*Cumene-----	ACC, ACP, DOW, GOC, HPC, PLC, SHC, SOC, x. DUP.
2-[p-(2-Cyanoacetimido)phenyl]-6-methyl-7-benzothiazole- sulfonic acid-----	G.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde-----	DUP.
p-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde-----	DUP, G.
p-[(2-Cyanoethyl)methylamino]benzaldehyde-----	DUP, G.
8-Cyano-1-naphthalenesulfonic acid-----	ACY, GGY, NIL.
Cyanuric chloride-----	CO, DUP, GOC, PLP, PRO, SOG.
*Cyclohexane-----	x.
1,4-Cyclohexanedicarboxylic acid, dimethyl ester-----	NAC.
1,2-Cyclohexanedicarboxylic anhydride-----	CS, DOW, DUP, MON, NAC.
*Cyclohexanol-----	CS, DEC, DUP, NAC.
*Cyclohexanone-----	NAC, x.
Cyclohexanone oxime-----	KF, PLC.
Cyclohexene-----	CHO.
4-Cyclohexene-1,2-dicarboximide-----	NAC.
4-Cyclohexene-1,2-dicarboxylic anhydride-----	TRC.
3-Cyclohexene-1,1-dimethanol-----	GIV.
Cyclohexyl acetone-----	ABB, x.
Cyclohexylamine-----	G.
N-Cyclohexyltaurine, sodium salt-----	PLC.
1,5-Cyclooctadiene-----	ARA.
Cyclopentanepropionic acid-----	PLC.
Cyclopentene-----	LIL.
(2-Cyclopenten-1-yl)acetone-----	SHC.
Cycloso(propylbutylbenzene)-----	HNW, HPC, NAC.
p-Cymene-----	NAC.
Decylbenzene-----	ARA.
n-Decylgallaphenone-----	G.
Decylphenol-----	AAP.
1,5(and 1,8)-Diacetamidoanthraquinone-----	AAP.
4,4'-Diacetylamino-3,3'-dinitrobiphenyl-----	AAP.
N,N-Diacetyl-4,4'-diaminobiphenyl-----	WYT.
N,N-Diallylcamporamic acid-----	FMP.
Diallyl isophthalate-----	ACY.
N <sup>2</sup> ,N <sup>2</sup> -Diallylmelamine-----	FMP.
Diallyl phthalate-----	DUP, G, NAC, TRC.
*1,4-Diaminoanthraquinone-----	ACY, DUP, G, TRC.
1,5-Diaminoanthraquinone-----	AAP, ACY, ICI, TRC.
1,5(and 1,8)-Diaminoanthraquinone-----	AAP, ACY, DUP, G, NAC, TRC, VPC.
*2,6-Diaminoanthraquinone-----	DUP.
1,4-Diamino-2,3-anthraquinonedicarbonitrile-----	DUP.
1,4-Diamino-2,3-anthraquinonedicarboximide-----	AAP.
4,8-Diaminoanthrarufin-----	DUP, G, NAC, TRC.
2,4-Diaminobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	TRC.
2,5-Diaminobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	TRC.
4,4'-Diamino-1,1'-bianthraquinone-3,3'-disulfonic acid, disodium salt-----	
*4,4'-Diamino-2,2'-biphenyldisulfonic acid-----	AAP, ACY, NAC.
3,7-Diaminodibenzothiophenedisulfonic acid, 5,5-dioxide, disodium salt-----	ACY.
Diaminodibromodi-p-toluidinoanthraquinone-----	ICI.
1,4-Diamino-2,3-dichloroanthraquinone-----	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone-----	VPC.
1,5(and 1,8)-Diamino-4,8(and 4,5)-dihydroxyanthraquinone--	DUP.
4,5-Diamino-1,8-dihydroxyanthraquinone-----	ICI.
4,8-Diamino-1,5-dihydroxy-2,6-anthraquinonedisulfonic acid	TRC.
3,6-Diamino-2,7-dimethylacridine-----	DUP.
3,6-Diamino-2,7-dimethylacridine sulfate-----	DUP.
4,4'-Diamino-3,3'-dimethyltriphenylmethane-----	ACY.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2,4-Diaminodiphenylamine-----	RBC.
1,4-Diamino-5-nitroanthraquinone-----	G.
4,6-Diamino-5-nitroso-2-phenylpyrimidine-----	ARA.
2,4-Diamino-6-phenyl-s-triazene-----	RH, TNP.
2,6-Diaminopyridine-----	NEP, RIL.
*4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	ACY, DUP, G, NAC, SDH, TRC, VPC.
Diaminotetrabromoanthraquinone-----	ICI.
4,6-Diamino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	NAC.
Di-tert-amyphenoxycetyl chloride-----	EK.
1,5-Dianilino-2,6-anthraquinonedicarboxylic acid-----	G, NAC.
2,4-Dianilino-1-hydroxyanthraquinone-----	G, TRC.
N-(o-Dianisidine)methyltaurine-----	BUC.
Diarylguanidine-----	DUP.
p-Diazo-N,N-dimethylaniline-1-amino-8-naphthol-3-sulfonate-6-sulfonic acid, sodium salt.	IDC.
1,5-Dibenzamidoanthraquinone-----	G, TRC.
4,9-Dibenzamido-3',4',6',7'-dipthaloylcarbazole-----	ICI.
*4,5'-Dibenzamido-1,1'-iminodanthraquinone-----	ACY, DUP, G, ICI, MAY, NAC, TRC.
5,5'-Dibenzamido-1,1'-iminodanthraquinone-----	ACY.
Dibenzothiophene-----	EVN.
*1,5-Dibenzoylnaphthalene-----	ACY, DUP, G, HST, ICI, TRC, VPC.
1',2',6',7'-Dibenzpyrene-7,14-quinone-----	ATL, ICI.
N,N'-Dibenzylethylenediamine-----	WYT.
N,N'-Dibenzylethylenediamine diacetate-----	WYT.
2,4'-Dibromoacetophenone-----	EK.
*3,9-Dibromo-7H-benz[de]anthracen-7-one-----	DUP, G, MAY, NAC, TRC.
m-Dibromobenzene-----	EK.
o-Dibromobenzene-----	EK.
p-Dibromobenzene-----	DOW.
Dibromoethylbenzene-----	DOW.
2,6-Dibromo-1,5-naphthalenediol-----	EK.
Dibromoviolaanthrone-----	G.
2,4-Di-tert-butylphenol-----	DOW.
2,5-Dichanil-----	G.
2,4-Dichloroaniline-----	EK.
3,4-Dichloroaniline-----	DUP, MON.
*2,5-Dichloroaniline and hydrochloride [NH <sub>2</sub> =1]-----	DUP, KLS, NAC, SDH.
*1,5-Dichloroanthraquinone-----	DUP, G, ICI, NAC, TRC.
1,5(and 1,8)-Dichloroanthraquinone-----	DUP, NAC.
*1,8-Dichloroanthraquinone-----	G, ICI, NAC, TRC.
2,3-Dichloroanthraquinone-----	TRC.
4,5-Dichloro-1,8-anthraquinonedisulfonic acid-----	G.
3-(3,4-Dichlorobenzamido)-1-phenyl-2-pyrazolin-5-one-----	EK.
m-Dichlorobenzene-----	EK, G, x.
*o-Dichlorobenzene-----	ACS, CPD, DOW, DUP, DVC, MON, OMC, PPG, SCC, SVT, WOI.
*o(and p)-Dichlorobenzene-----	GGY, HKD, MTO.
*p-Dichlorobenzene-----	ACS, CPD, DOW, DUP, DVC, HK, MON, PPG, SCC, SVT, WOI.
4,6-Dichloro-m-benzenedisulfonamide-----	ABB.
4,6-Dichloro-m-benzenedisulfonyl chloride-----	ABB.
*3,3'-Dichlorobenzidine base and salts-----	ALL, CWN, IMP, LAK, NAC.
2,4-Dichlorobenzoic acid-----	HN.
2,4-Dichlorobenzoyl chloride-----	HN.
2,5-Dichloro-3,6-bis(9-ethylcarbazol-3-ylamino)-p-benzoquinone.	TRC.
2,3-Dichloro-5,6-dicyanobenzoquinone-----	LIL.
8,18-Dichloro-5,15-diethyl-5,15-dihydrodiindolo-(3,2-b:3',2'-m)triphenodioxazine.	AAP.
2,5-Dichloro-3,6-dihydroxy-p-benzoquinone-----	EK.
4,5-Dichloro-3,6-dioxocyclohexene-1,2-dicarbonitrile-----	ARA.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Dichlorodiphenylsilane-----	DCC.
2',7'-Dichlorofluorescein-----	EK.
2,5-Dichloro-4-hydrazinobenzenesulfonic acid-----	G.
7,16-Dichloroindanthrene-----	ICI.
*2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.	ACY, CMG, DUP, G, KLS, TRC, VPC.
*2,6-Dichloro-4-nitroaniline-----	AAP, DUP, EKT, G, MEE, PCW, TRC.
1,2-Dichloro-4-nitrobenzene-----	DUP, MON.
*1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	AAP, DUP, NAC, VPC.
2,4-Dichlorophenol-----	DOW, MON.
3,6-Dichloropyridazine-----	ACY.
4,7-Dichloroquinoline-----	SDW.
3,5-Dichlorosalicylic acid-----	ICO.
*2,5-Dichlorosulfanilic acid [SO <sub>2</sub> H=1]-----	CMG, DUP, G, VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate-----	TRC.
o,o-Dichlorotoluene (Benzal chloride)-----	NAC.
p,o-Dichlorotoluene-----	HN.
*2,6-Dichlorotoluene-----	DUP, G, NAC.
2,4-Dichloro-5-(p-toluenesulfonamido)-1-naphthol-----	EK.
2,4-Dichloro-3,5-xylene-----	OTA.
Dicyclohexylamine-----	ABB, MON.
Dicyclohexylcarbodiimide-----	G.
Dicyclopentadiene and cyclopentadiene-----	ENJ, UCC.
2,4-Di(1,1-dimethylpropyl)phenol (Di-tert-amylphenol)-----	PAS.
2,5-Diethoxyaniline-----	ALL.
2',5'-Diethoxybenzanilide-----	G.
p-Diethoxybenzene-----	EXT, G.
2,5'-Diethoxy-4'-nitrobenzanilide-----	G.
1,4-Diethoxy-2-nitrobenzene-----	G.
*p-Diethylaminobenzaldehyde-----	DUP, G, NAC.
α-(2-Diethylaminoethyl)-α-phenylcyclohexanemethanol, hydrochloride.	ACY.
m-Diethylaminophenol (N,N-Diethyl-3-aminophenol)-----	ACY, DUP, MON.
3-Diethylaminopropiophenone-----	ACY.
*N,N-Diethylaniline-----	ACY, DSC, DUP, NAC, SDH.
N,N-Diethyl-m-anisidine-----	DUP.
Diethylbenzene-----	DOW, KPP.
N,N-Diethylcyclohexylamine-----	DUP.
N,N-Diethylmetanilic acid-----	DUP.
N <sup>1</sup> ,N <sup>1</sup> -Diethyl-4-methoxymetanilamide-----	G, PCW.
N,N-Diethyl-p-nitrosoaniline-----	G.
N,N-Diethyl-4-nitroso-m-anisidine hydrochloride-----	DUP.
N,N-Diethyl-m-phenetidine-----	G.
Diethyl terephthaloyldiacetate-----	G.
N,N-Diethyl-m-toluidine-----	DUP.
6,15-Dihydro-5,9,14,18-anthrazinetetrone-----	TRC.
10,11-Dihydro-5H-dibenzo[a,d]cyclohepten-5-one-----	LIL.
3,4-Dihydro-3,4-dioxo-1-naphthalenesulfonic acid, sodium salt.	EK.
10,11-Dihydro-5-[3-(methylamino)propyl]-5H-dibenzo[a,d]-cyclohepten-5-ol.	LIL.
2,3-Dihydro-4H-pyran-----	KKO.
1,5(and 1,8)-Dihydroxyanthraquinone-----	DUP, NAC.
3,4-Dihydroxybenzoic acid (Protocatechuic acid)-----	AMB.
Dihydroxydinitroanthraquinone-----	DUP.
*1,5-Dihydroxy-4,8-dinitroanthraquinone-----	AAP, G, ICI, VPC.
1,5(and 1,8)-Dihydroxy-4,8(and 4,5)-dinitroanthraquinone--	TRC.
1,5-Dihydroxy-4,8-dinitro-2,6-anthraquinonedisulfonic acid	TRC.
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid).	NAC.
6,7-Dihydroxy-2-naphthalenesulfonic acid-----	FMT, G, IDC, NAC.

TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963 -- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
3,5-Dihydroxy-2-naphthoic acid-----	G.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	ACY, DUP, G, ICI, MAY, NAC.
m-Diiodobenzene-----	EK.
N,N'-Diisopropyl-p-phenylenediamine-----	DUP.
2',4'-Dimethoxyacetophenone-----	DUP.
2,5-Dimethoxyacetophenone-----	BPC.
*2,5-Dimethoxyaniline-----	DUP, EKT, G, KLS.
1,5(and 1,8)-Dimethoxyanthraquinone-----	TRC.
2,5-Dimethoxybenzaldehyde-----	CWN.
3,4-Dimethoxybenzaldehyde-----	OPC.
m-Dimethoxybenzene-----	ACY, DUP, ICO.
p-Dimethoxybenzene-----	G, ICO.
*3,3'-Dimethoxybenzidine-----	ALL, CWN, DUP, SDH.
3,3'-Dimethoxybenzidine hydrochloride-----	CWN.
2,4-Dimethoxybenzoic acid-----	ACY, DUP.
2,6-Dimethoxybenzoyl chloride-----	ICO.
1,1-(3,3'-Dimethoxy-4,4'-biphenylene)bis[3-methyl-3-(2-sulfoethyl)triazene].	G.
1,4-Dimethoxy-2-nitrobenzene-----	EKT.
3,4-Dimethoxyphenethylamine (Homoveratrylamine)-----	LIL.
4-(2',5'-Dimethoxyphenethyl)aniline hydrochloride-----	UPJ.
(3,4-Dimethoxyphenyl)acetic acid-----	LIL.
(3,4-Dimethoxyphenyl)acetonitrile-----	LIL.
16,17-Dimethoxyviolanthrone-----	ICI, MAY.
m-Dimethylaminobenzoic acid-----	SDH.
$\alpha$ -Dimethylamino-o-cresol-----	TKL.
6-Dimethylamino-2-(2-(2,5-dimethyl-1-phenyl-3-pyrryl)-vinyl)-1-methyl-1-quinolinium methyl sulfate.	x.
o-(2-Dimethylaminoethyl)phenol-----	RH.
2-[(2-Dimethylaminoethyl)thenylamino]pyridine (non-medicinal grade).	ABB.
o-(Dimethylaminomethyl)-p-butylphenol-----	RH.
6-(Dimethylaminomethyl)-2-methoxy-4-nitrophenol-----	MEE.
m-Dimethylaminophenol-----	ACY.
N-(p-Dimethylaminophenyl)-1,4-naphthoquinoneimine-----	NAC.
6-Dimethylaminoquinaldine-----	EK.
*N,N-Dimethylaniline-----	ACY, DSC, DUP, NAC, SDH.
7,12-Dimethylbenz[a]anthracene-----	EK.
*N,N-Dimethylbenzylamine-----	ICO, MLS, x.
$\alpha,\alpha'$ -Dimethylbenzyl hydroperoxide-----	ACP.
*2,2'-Dimethyl-1,1'-bianthraquinone-----	AAP, ACY, CMG, DUP, G, ICI, NAC, TRC.
2,4-Di(1-methylbutyl)phenol-----	PAS.
cis-1,2-Dimethylcyclohexane-----	PLC.
trans-1,2-Dimethylcyclohexane-----	PLC.
N,N-Dimethylcyclohexylamine-----	DUP, MON.
N,N-Dimethyl-2,2-diphenylacetamide-----	UPJ.
2',7'-Dimethylfluoran-----	WLM.
Dimethylhydantoin-----	GLY.
2,8-Dimethyl-13 $\beta$ -hydroxy-9(13 $\beta$ )-ceroxenone-----	WIM.
2,3-Dimethylindole-----	DUP.
2,5-Dimethyl-4(2)-morpholinylmethylphenol, hydrochloride--	IDC.
*N,N-Dimethyl-p-nitrosoaniline-----	ACY, DUP, G, NAC.
N,N-Dimethyl-3-nitro-p-toluenesulfonamide-----	G.
N,N-Dimethyl-p-phenylazoaniline-----	EK.
N,N-Dimethyl-p-phenylenediamine-----	EKT, NAC.
N,N-Dimethyl-p-phenylenediamine hydrochloride-----	EK.
2,5-Dimethylphenylpyrrole-----	x.
2,5-Dimethyl-1-phenyl-3-pyrrolecarboxaldehyde-----	x.
1,4-Dimethylpiperazine-----	JCC.

TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
p-(1,1-Dimethylpropyl)phenol-----	KPT, NAC, PAS, UCP.
N,N-Dimethylsulfanilic acid-----	G.
2,4-Dinitroaniline-----	AAP, ACY.
p-(2,4-Dinitroanilino)phenol-----	G, NAC.
1,5(and 1,8)-Dinitroanthraquinone-----	AAP, ACY, ICI, TRC.
2,4-Dinitro-N,N'-(1,5-anthraquinonylene)dioxamic acid-----	TRC.
m-Dinitrobenzene-----	DUP, NAC.
2,4-Dinitrobenzenesulfonic acid-----	G, TRC.
3,5-Dinitrobenzoic acid-----	DUP, GAM, SAL, SDH.
3,5-Dinitrobenzoyl chloride-----	EK.
Dinitro(3,3'-bi-7H-benz[de]anthracen)-7,7'-dione-----	DUP, MAY.
*4,5-Dinitrochrysazin-----	DUP, EKT, G, ICI.
2,4-Dinitrocumene-----	DUP.
*2,4-Dinitrophenol, tech-----	AAP, DUP, NAC, SDC.
2,4-Dinitrophenylhydrazine-----	EK.
p-Dinitrosobenzene-----	FIN.
*4,4'-Dinitro-2,2'-stilbenedisulfonic acid-----	ACY, DUP, G, SDH, TRC.
2,4-Dinitrotoluene-----	DUP, NAC.
2,4(and 2,6)-Dinitrotoluene-----	DUP, MOB.
3,5-Dinitro-p-toluenesulfonic acid-----	G, NAC.
*1,5-Diphenoxyanthraquinone-----	G, ICI, VPC.
1,5(and 1,8)-Diphenoxyanthraquinone-----	AAP, DUP.
1,8-Diphenoxyanthraquinone-----	EKT, G, ICI.
Diphenylacetic acid-----	BPC, KF, LIL.
Diphenylacetone, tech-----	KF.
2-Diphenylacetyl-1,3-indandione-----	NES.
Diphenylamine-----	ACY, DOW, DUP.
6,8-Diphenylamino-1-naphthalenesulfonic acid-----	NAC.
2,8-Diphenylanthra[1,2-d:5,6-d']bisthiazole-6,12-dione-----	ICI.
$\alpha$ -d-1,2-Diphenyl-4-dimethylamino-2-hydroxy-3-methylbutane, camphor sulfonate.	LIL.
1,1-Diphenylethylene-----	EK.
N,N'-Diphenylethylenediamine-----	DOW, RPC.
1,3-Diphenyl-1,3-propanedione-----	EK.
1,3-Diphenyl-2-propanone-----	TBK.
1,3-Diphenyltriazene-----	NAC.
2,4-Disulfonyl-5-chloro-(N-benzyl)-aniline-----	ABB.
Dithiodibenzoic acid-----	KF, MEE.
*1,4-Di(p-toluidino)anthraquinone-----	ATL, CMG, G, NAC, TRC.
1,5-Di(p-toluidino)anthraquinone-----	ICI.
1,8-Di(p-toluidino)anthraquinone-----	ICI.
1,4-Di(p-toluidino)-5,8-dihydroxyanthraquinone-----	ICI.
Divinylbenzene-----	DOW, FG, KPP.
1,3-Di-2,6-xylylguanidine-----	ACY.
Dodecylaniline-----	MON.
*Dodecylbenzene (including tridecylbenzene)-----	ATR, CO, MON, NAC, SOC.
Dodecylmethylbenzene-----	x.
Dodecylmethylbenzyl chloride-----	x.
Dodecylnitrobenzene-----	MON.
*Dodecylphenol-----	G, MON, x.
o-Ethoxybenzoic acid-----	ACY.
(o-Ethoxybenzoyl)acetonitrile-----	ACY.
6-Ethoxy-2-mercaptobenzothiazole-----	ARA, DUP.
2-Ethoxynaphthalene-----	NAC.
$\beta$ -Ethoxynaphthoic acid-----	OPC.
2-Ethoxy-1-naphthoyl chloride-----	ICO.
N <sup>4</sup> -(6-Ethoxy-3-pyridazinyl)sulfanilamide-----	ACY.
3-Ethylamino-p-cresol-----	DUP.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963-- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
3-Ethylamino-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP.
*N-Ethylaniline, refined-----	ACY, DUP, NAC, SDH.
*2-(N-Ethylanilino)ethanol-----	DUP, EKT, G, TRC.
[2-(N-Ethylanilino)ethyl] trimethylammonium chloride-----	DUP.
(N-Ethylanilino)propionitrile-----	EKT.
α-(N-Ethylanilino)-m-toluenesulfonic acid-----	DUP, G.
*α-(N-Ethylanilino)-p-toluenesulfonic acid-----	ICC, NAC, SDH, TRC, WJ.
N-Ethyl-p-anisidine-----	EKT.
N-Ethylanthranilic acid-----	SDH.
2-Ethylanthraquinone-----	G, NAC.
*Ethylbenzene-----	ACP, DOW, ENJ, FG, KPP, KPT, MON, SHC, SIN, SKC, SNT, TOC, UCC.
o-(p-Ethylbenzoyl)benzoic acid-----	G, NAC.
Ethylbenzyl chloride-----	BPC.
Ethyl bis(2,4-dinitrophenyl)acetate-----	EK.
N-Ethyl-N-(2-chloroethyl)aniline-----	DUP.
1-Ethyl-7-methyl-1,8-naphthyridin-4-one-3-carboxylic acid-----	SDH.
N-Ethyl-1-naphthylamine-----	DSC, DUP, NAC.
9-Ethyl-3-nitrocarbazole-----	DUP, TRC.
p-Ethylphenol-----	ACY.
*N-Ethyl-N-phenylbenzylamine-----	DUP, NAC, SDH.
*2-Ethyl-2-phenylmalonic acid, diethyl ester-----	BPC, MAL, VPC.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)-----	UCC.
2-Ethylpyridine-----	RIL.
N-Ethyl-5-sulfoanthranilic acid-----	SDH.
6-Ethyl-1,1,4,4-tetramethyl-1,2,3,4-tetrahydronaphthalene-----	GIV.
N-Ethyl-m-toluidine-----	DUP, NAC.
N-Ethyl-o-toluidine-----	DUP.
3-(N-Ethyl-m-toluidino)-1,2-propanediol-----	EKT.
*3-(N-Ethyl-m-toluidino)propionitrile-----	DUP, EKT, G.
1-Ethynylcyclohexanol-----	AIR, NAC.
Fluoren-9-one-----	EK.
o-Fluoroaniline-----	NEP.
1-Fluoro-2,4-dinitrobenzene-----	EK.
o-Fluorotoluene-----	EK.
4-Formyl-m-benzenedisulfonic acid-----	G, SDH.
*o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)-----	G, ICC, NAC, SDH, VPC.
m-Formylbenzenesulfonic acid, sodium salt-----	G.
N-(p-Formylphenyl)-N-methyltaurine-----	DUP.
Furan-----	DUP.
Furfuryl alcohol-----	QKO.
Hexachlorobenzene-----	KPT, SCC.
Hexachlorocyclopentadiene-----	HK, VEL.
Hexachlorophenyl ether-----	DOW.
N-Hexadecylmorpholine-----	APD.
2,2',4,4',6,6'-Hexanitrodiphenylamine-----	EK.
Hippuric acid-----	BPC.
*p-Hydrazinobenzenesulfonic acid-----	G, STG, WJ.
Hydroabietyl alcohol-----	HPC.
Hydroquinone, tech-----	CRS, EKT.
2'-Hydroxyacetophenone-----	KF, PRR.
3'-Hydroxyacetophenone-----	SDH.
3'-Hydroxyacetophenone benzoate-----	SDH.
6'-Hydroxy-m-acetotoluidide-----	TRC.
p-Hydroxybenzaldehyde-----	DOW.
2-Hydroxy-11H-benzo[a]carbazole-3-carboxylic acid-----	G.
p-Hydroxybenzoic acid-----	HN.
p-Hydroxybenzoic acid, butyl ester-----	HN, ICO.
p-Hydroxybenzoic acid, ethyl ester-----	HN, ICO.
*p-Hydroxybenzoic acid, methyl ester-----	HN, ICO, LEM, WSN.
p-Hydroxybenzoic acid, methyl ester, sodium derivative-----	WSN.
*p-Hydroxybenzoic acid, propyl ester-----	HN, ICO, LEM, WSN.



TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963* -- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
p-Hydroxybenzoic acid, propyl ester, sodium derivative----	WSN.
4-Hydroxycoumarin-----	ABB.
1-Hydroxy-2,4-dianisidinoanthraquinone-----	G.
3-(N-2-Hydroxyethyl-anilino)propionitrile-----	ICC.
3-(N-2-Hydroxyethyl-anilino)propionitrile acetate-----	EKT.
N- $\beta$ -Hydroxyethyl-2,4-dihydroxybenzamide-----	IDC.
N- $\beta$ -Hydroxyethyl-3-hydroxynaphthamide-----	IDC.
N- $\beta$ -Hydroxyethyl-o-toluidine-----	EKT.
6'-Hydroxy-5'-(2-hydroxy-5-nitrophenylazo)-m-acetotoluidide	TRC.
Hydroxyisophthalic acid-----	SDH.
2-Hydroxy- $\alpha^1, \alpha^3$ -mesitylenediol-----	ACY.
2-Hydroxy-3-methylcinchoninic acid-----	G.
3-Hydroxy-2-methylcinchoninic acid-----	DUP, TRC.
N-Hydroxymethylphthalamide-----	ACY.
7-Hydroxy-1-naphthalenecarbamic acid, methyl ester-----	TRC.
3-Hydroxy-2-naphthanilide (Naphthol AS)-----	ATL, PCW.
1-Hydroxy-2-naphthoic acid-----	NAC.
2-Hydroxy-1-naphthoic acid-----	BL.
3-Hydroxy-2-naphthoic acid (B.O.N.)-----	AUG, DUP, HN, NAC, PCW.
3-Hydroxy-2-naphthoic acid, methyl ester-----	PCW.
1-Hydroxy-2-naphthoic acid, phenyl ester-----	EK.
3-Hydroxy-2-naphtho-o-toluidide-----	ATL.
3-Hydroxy-3-naphtho-o-toluidide-----	PCW.
N-(7-Hydroxy-1-naphthyl)acetamide-----	CMG, TRC.
2-(m-Hydroxyphenoxy)ethanol-----	G.
1-[4'-(p-Hydroxyphenylazo)-1,1-biphenyl-4-azo]-2-naphthol-6,8-disulfonic acid.	TRC.
1-[4'-(p-Hydroxyphenylazo)-3,3'-dimethyl-1,1-biphenyl-4-azo]-2-naphthol-6,8-disulfonic acid.	TRC.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide, inner salt.	ACY.
1-Hydroxy-4-(p-toluidino)anthraquinone-----	ICI.
2-Imidazolidinone-----	SEY.
2-Imidazolidinone modifications-----	RH.
*1,1'-Iminobis[4-aminoanthraquinone]-----	ACY, CMG, DUP, G, ICI, MAY, NAC, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]-----	ACY, MAY.
*1,1'-Iminobis[5-benzamidoanthraquinone]-----	G, ICI, TRC.
*6,6'-Iminobis[1-naphthol-3-sulfonic acid]-----	DUP, G, NAC.
*1,1'-Iminobis[4-nitroanthraquinone]-----	ACY, DUP, ICI, MAY, TRC.
*1,1'-Iminodianthraquinone (Dianthrimide)-----	ACY, DUP, G, ICI, MAY, NAC, TRC.
2,2'-Iminodipyridine-----	RIL.
1,3-Indandione-----	PIC.
1-Iodonaphthalene-----	EK.
Isatin-----	NAC.
Isatoic anhydride-----	MEE.
Isobutylbenzene-----	PLC.
*Isocyanic acid derivatives:	
Bitolyene diisocyanate (TODI)-----	CWN, NAC.
Dianisidine diisocyanate (DADI)-----	CWN.
3,4-Dichlorophenylisocyanate-----	DUP.
*Diphenylmethane 4,4'-diisocyanate (MDI)-----	CWN, DUP, MOB, NAC.
4,4'-Methylenebis[o-tolylisocyanate]-----	CWN.
Polyisocyanates (complex)-----	MOB.
Polymethylene polyphenylisocyanate-----	CWN.
Toluene 2,4-diisocyanate-----	DUP.
Toluene 2,4- and 2,6-diisocyanate (65/35 mixture)-----	DUP, NAC.
*Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)-----	DUP, MOB, NAC.
Other isocyanic acid derivatives-----	CWN, MOB.
Isonicotinic acid-----	RIL.
Isonitrosopropiophenone-----	ICO, NEP.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Isooctylphenone-----	G.
Isophorone-----	UCC.
Isophthalic acid (1,3-Benzenedicarboxylic acid)-----	ACC, SOC.
Isophthalic acid, diphenyl ester-----	BJL.
Isophthalonitrile-----	x.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- $\alpha,\alpha'$ -diol)-----	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)-----	DOW, MON, SHC, UCP.
4,4'-Isopropylidenediphenol, ethoxylated-----	APD.
4,4'-Isopropylidenediphenol, propoxylated-----	APD.
o-Isopropylphenol-----	TNA.
4-Isopropyl-m-phenylenediamine-----	DUP.
Isothiocyanic acid, phenyl ester-----	EK.
*Isoviolanthrone (Isodibenzanthrone)-----	ACY, DUP, G, MAY.
*Leuco-1,4-diaminoanthraquinone-----	ACY, DUP, G, ICC, ICI, MAY, TRC.
Leuco quinizarin (1,4,9,10-Anthratetrol)-----	AAP, ACY, DUP, EKT, ICC, NAC, TRC.
*Leuco tetrahydroxyanthraquinone-----	G, ICC, TRC.
2,4-Lutidine-----	ACP, KPT.
Mandelonitrile-----	KF.
Melamine-----	ACN, ACY, RCI.
dl-p-Mentha-1,8-diene (Limonene)-----	GIV, HNW.
p-Mentha-1,4(8)-diene-----	GIV.
o-Mercaptobenzoic acid-----	LIL, MED.
Metanilanilide-----	G, VPC.
*Metanilic acid (m-Aminobenzenesulfonic acid)-----	ACY, DUP, NAC, TRC.
1-Methoxyanthraquinone-----	DUP, G.
N-(2-Methoxy-1-naphthyl)acetamide-----	TRC.
6-Methoxymetanilic acid-----	G.
1-Methoxy-4-nitroanthraquinone-----	DUP.
2-Methoxy-4-nitrophenol-----	MEE.
p-Methoxyphenylacetic acid-----	TBK.
4'-Methoxypropionophenone-----	LIL.
N <sup>1</sup> -(6-Methoxy-3-pyridazinyl)sulfanilamide-----	ACY.
*1-Methylaminoanthraquinone-----	AAP, ACY, DUP, G, ICI, NAC.
1-Methylamino-4-(p-toluidino)anthraquinone-----	G, ICI.
N-Methylaniline-----	ACY, DUP.
2-(N-Methylanilino)ethanol-----	G.
3-(N-Methylanilino)propionitrile-----	DUP.
5-Methyl-o-anisidine [NH <sub>2</sub> =1]-----	BUC, DUP, TRC.
N-Methylanthranilic acid-----	ICC.
2-Methylanthraquinone-----	ACY, NAC.
1-(3-Methyl-2-anthraquinonylamino)-5-(7-oxo-7H-benz[de]-anthracen-3-ylamino)anthraquinone.	DUP.
3-Methylbenzo[f]quinoline-----	ACY.
$\alpha$ -Methylbenzyl alcohol-----	UCC.
N-Methylbenzylamine-----	ABB.
Methyl benzyl ether-----	UCC.
3-Methylcholanthrene-----	EK.
Methylcyclohexane-----	DOW, PLC.
N-Methylcyclohexylamine-----	DUP.
N-Methylenaniline-----	DUP.
4,4'-Methylenebis[2-chloroaniline]-----	DUP.
4,4'-Methylenebis[N,N-diethylaniline]-----	DUP.
*4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	ACY, DUP, G, NAC, SDH, x.
4,4'-Methylenebis[N,N-dimethyl-3-nitroaniline]-----	G.
5,5'-Methylenebis[toluene-2,4-diamine]-----	DUP, NAC.
Methylenedianiline-----	DOW, NAC.
Methylenedisalicylic acid-----	HN.
5-Methylene-2-norbornene-----	DOW.
Methylfuran-----	QKO.
1-Methyl-2-heptadecylbenzimidazoliummethylol sulfate-----	TRC.
1-Methyl-3-indolecarboxaldehyde-----	G.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963-- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
4-Methylmercapto-m-cresol-----	MEE.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazolesulfonic acid.	DUP.
Methylnaphthalene, crude-----	KPT, VEL.
N-Methyl-4'-nitroacetanilide-----	G, NAC.
N-Methyl-p-nitroaniline-----	ACY, G.
4-Methyl-2-nitroanisole-----	DUP.
*2-Methyl-1-nitroanthraquinone-----	DUP, G, ICI, NAC.
3-Methyl-1-(m-nitrophenyl)-2-pyrazolin-5-one-----	DUP.
N-Methyl-N-nitroso-p-toluenesulfonamide-----	EK.
Methylnorbornene-2,3-dicarboxylic anhydride, isomers-----	NAC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide-----	TRC, VPC, x.
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide-----	CMG.
p-(3-Methyl-5-oxopyrazolin-1-yl)benzenesulfonic acid-----	KLS.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid---	TRC, VPC.
*p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid---	AAP, ACY, DUP, G, TRC, VPC.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,5-naphthalenedisulfonic acid.	TRC.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO <sub>3</sub> H=1].	CMG.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid-----	ICO, x.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid hydrochloride.	ICO.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	DOW, DUP, NAC, SDH, SDW, VPC.
2-Methylpiperazine-----	WYN.
16 $\alpha$ -Methyl-1,4,9(11)pregnatriene-17 $\alpha$ -21-diol-3,20-dione, 21-ethyl carbonate.	SCH.
Methylpropylcarbonylbarbituric acid-----	LIL.
2-Methylpyrazine-----	WYN.
3-Methyl-2-pyrazolin-5-one-----	DUP.
* $\alpha$ -Methylstyrene-----	ACP, DOW, HPC.
2-Methylsulfonyl-4-nitroaniline-----	EKT.
Methyltetrahydrobenzaldehyde-----	UCC.
p-Methylthioaniline-----	EVN.
3-Methyl-6-(p-toluidino)-7H-dibenz[f,i,j]isoquinoline-2,7(3H)-dione.	G, ICI.
3-Methyl-1-(p-tolyl)-2-pyrazolin-5-one-----	VPC.
6'-Methyl-4'-p-tolylsulfonamido-m-benzanisdide-----	G, NAC.
Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	KPT, RIL, STN.
Naphthaleneacetonitrile-----	COK.
1,5-Naphthalenedisulfonic acid-----	DUP, G, NAC.
2,7-Naphthalenedisulfonic acid-----	DUP.
1-Naphthalenesulfonic acid-----	TRC.
1-Naphthalenesulfonic acid, sodium salt-----	TRC.
2-Naphthalenesulfonic acid-----	ACY, NAC.
2-Naphthalenesulfonic acid, sodium salt-----	ACY.
2-Naphthalenesulfonyl chloride-----	DUP.
*1,4,5,8-Naphthalenetetracarboxylic acid-----	AAP, G, HST, TRC.
1,3,6-Naphthalenetrisulfonic acid-----	G, TRC.
*Naphthalic anhydride-----	DUP, G, NAC.
*Naphthalimide-----	DUP, G, NAC.
*Naphthionic acid (4-Amino-1-naphthalenesulfonic acid)---	ACY, DUP, NAC.
Naphthionic acid, sodium salt-----	DUP, NAC.
1-Naphthol ( $\alpha$ -Naphthol)-----	DUP, NAC.
2-Naphthol, tech. ( $\beta$ -Naphthol)-----	ACY, NAC, SW.
p-Naphtholbenzein-----	EK.
1-Naphthol-3,6-disulfonic acid, monosodium salt-----	TRC.
2-Naphthol-3,6-disulfonic acid (R acid)-----	ATL.
*2-Naphthol-3,6-disulfonic acid, disodium salt-----	ACY, DUP, G, NAC, TRC, WJ.
2-Naphthol-6,8-disulfonic acid (G acid)-----	DUP, TRC.

TABLE 7B.-- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Naphthol-6,8-disulfonic acid, dipotassium salt-----	G.
2-Naphthol-6,8-disulfonic acid, disodium salt-----	ACY, NAC.
1-Naphthol-3-sulfonamide-----	G.
2-Naphthol-6-sulfonamide, p-toluenesulfonate-----	DUP.
1-Naphthol-4-sulfonic acid (Neville & Winther's acid)-----	ATL, DUP, NAC.
1-Naphthol-5-sulfonic acid-----	NAC.
1-Naphthol-8-sulfonic acid-----	G, VPC.
*2-Naphthol-6-sulfonic acid (Schaeffer's acid)-----	NAC, SNA, TMS.
*2-Naphthol-6-sulfonic acid, sodium salt-----	ACY, TRC, WJ.
2-Naphthol-6-sulfonic acid, sodium salt, p-toluenesulfonate.	DUP.
2-Naphthol-7-sulfonic acid-----	DUP.
1-Naphthol-3-sulfonic acid, benzenesulfonate, sodium salt-	G.
1-Naphthol-8-sulfonic acid sultone (1,8-Naphthosultone)---	ACY, TRC.
1,2-Naphthoquinone-----	EK.
1,4-Naphthoquinone-----	EKT.
Naphthostyryl-----	NAC.
*Naphth[1,2]oxadiazole-5-sulfonic acid-----	CMG, DUP, G, NAC, TRC, VPC.
1-Naphthylamine ( $\alpha$ -Naphthylamine)-----	DUP, NAC.
p-2-Naphthylaminophenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	G, NAC.
2-(Naphthylthio)acetic acid-----	AAP, ACY, DUP.
Nicotinonitrile (3-Cyanopyridine)-----	NEP, RIL.
Nitro-aceanthra[2,1-a]aceanthrylene-5,13-dione-----	ICI.
4'-Nitroacetanilide-----	G, TRC.
4'-Nitro-o-acetanisidide-----	DUP.
2-Nitro-p-acetanisidide-----	DUP, SDH.
3'-Nitroacetophenone-----	SDH.
4'-Nitroacetophenone-----	NES.
5'-Nitro-o-acetotoluidide-----	DUP.
m-Nitroaniline-----	ACY, DUP.
o-Nitroaniline-----	AAP, MON.
*p-Nitroaniline-----	AAP, MON, SDC, UPM.
*4-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	AAP, DUP, SDH.
*5-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	ACY, AUG, BUC, DUP, KLS.
2-Nitro-p-anisidine [NH <sub>2</sub> =1]-----	DUP, SDH.
o-Nitroanisol-----	DUP, MON.
p-Nitroanisol-----	DUP.
4-Nitroanthranilic acid-----	DUP.
1-Nitroanthraquinone-----	NAC.
1'-Nitroanthraquinone-2'-carboxyaminoaceanthra[2,1-a]-aceanthrylene-5,13-dione.	ICI.
*1-Nitro-2-anthraquinonecarboxylic acid-----	DUP, G, NAC, TRC.
*5-Nitro-1-anthraquinonesulfonic acid-----	DUP, MAY, NAC, TRC.
5 (and 8) -Nitro-1-anthraquinonesulfonic acid-----	ICI, NAC, TRC.
8-Nitro-1-anthraquinonesulfonic acid-----	NAC.
8-Nitro-1-anthraquinonesulfonic acid, sodium salt-----	DUP.
2-(1-Nitro-2-anthraquinonyl) anthra[2,3]oxazole-5,10-dione-	G, NAC.
m-Nitrobenzaldehyde-----	NAC, SDH.
6-[p-(p-Nitrobenzamido)benzamido]-1-naphthol-3-sulfonic acid.	DUP.
6-(p-Nitrobenzamido)-1-naphthol-3-sulfonic acid-----	DUP, G.
4'-Nitrobenzanilide-----	G, TRC.
*Nitrobenzene-----	ACY, DUP, G, MON, NAC.
3-Nitrobenzenesulfonanilide-----	G.
*m-Nitrobenzenesulfonic acid-----	ACY, DUP, NAC.
*m-Nitrobenzenesulfonic acid, sodium salt-----	AAP, G, MAY, MON, MRA.
o-Nitrobenzenesulfonic acid, sodium salt-----	DUP.
o-Nitrobenzenesulfonic chloride-----	EK.
*m-Nitrobenzenesulfonyl chloride-----	ACY, DUP, G.
p-Nitrobenzenesulfonyl chloride-----	EK.
5-Nitro-2(3H)-benzimidazolone-----	DUP.

TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*m-Nitrobenzoic acid-----	HK, SDH, WAY.
*m-Nitrobenzoic acid, sodium salt-----	WAY.
p-Nitrobenzoic acid-----	DUP.
p-Nitrobenzoic acid, isobutyl ester-----	ICO.
m-Nitrobenzoyl chloride-----	HK.
p-Nitrobenzoyl chloride-----	DUP, HK.
p-Nitrobenzyl chloroformate-----	EK.
4-Nitrobenzyl cyanide-----	ICC.
4'-Nitro-4-biphenylcarboxylic acid-----	DUP.
3-Nitro-4-chloro-N,N-dimethylbenzenesulfonamide-----	EKT.
2-Nitro-p-cresol-----	DUP, SW.
Nitrocyclohexane-----	x.
Nitrodiphenylamine-----	ACY.
4-Nitro-6-(5-hydroxy-3-methyl-1-phenyl-4-pyrazolylazo)- 1-phenol-2-sulfonic acid.	TRC.
5-Nitroisophthalic acid-----	GAM.
1-Nitronaphthalene-----	DUP, NAC.
*3-Nitro-1,5-naphthalenedisulfonic acid-----	G, NAC, TRC.
8(and 5)-Nitro-1(and 2)-naphthalenesulfonic acid-----	G.
4-Nitronaphthalic anhydride-----	G.
*7(and 8)-Nitronaphth[1,2]oxadiazole-5-sulfonic acid-----	G, NAC, TRC, VPC.
4'-Nitrooxanilic acid-----	DUP, NAC.
p-Nitrophenethyl acetate-----	EKT.
Nitrophenethyl alcohol-----	EKT.
o-Nitrophenol-----	DUP, NAC.
*p-Nitrophenol-----	DUP, MON, SDC, UPM.
p-Nitrophenol, sodium salt-----	MON, UPM.
p-Nitrophenylacetic acid-----	BPC, ICO.
(p-Nitrophenyl)acetone-----	BPC.
4'-(p-Nitrophenyl)acetophenone-----	DUP, G.
4-Nitro-o-phenylenediamine-----	DUP, FMT.
(p-Nitrophenyl)hydrazine-----	EK.
2-(4-Nitrophenyl)-(2H)-naphtho[1,2]triazole-6,8-disulfonic acid.	TRC.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	VPC.
Nitrophthalic anhydride-----	EK.
4-Nitrophthalimide-----	DUP.
5-Nitrosalicylaldehyde-----	EK.
3(and 5)-Nitrosalicylic acid-----	G.
2-Nitroso-1-naphthol-----	EK.
p-Nitrosophenol-----	ACY, DUP, NAC.
β-Nitrostyrene-----	CWN.
2-[4-(4-Nitro-2-sulfoxy-1-phenyl)-3-sulfoxyphenyl]-2H-naphtho- [1,2]triazole-5-sulfonic acid.	TRC.
m-Nitrotoluene-----	DUP, NAC.
o-Nitrotoluene-----	DUP, NAC.
p-Nitrotoluene-----	DUP, NAC.
Nitrotoluene mixtures-----	ACY, DUP, NAC.
5-Nitro-o-toluenesulfonanilide-----	G.
*5-Nitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACY, DUP, G, NAC, SDH, TRC.
*3-Nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	AAP, CMG, G, TRC.
4'-Nitro-p-toluenesulfono-o-toluidide-----	G.
5-Nitro-o-toluenesulfonyl chloride-----	G.
*4-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	ABB, DUP, G.
*5-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	DUP, KLS, SDH.
*2-Nitro-p-toluidine [NH <sub>2</sub> =1]-----	AAP, ACY, DUP, NAC, SDH, SW.
2-Nitro-3,4,6-trichlorophenol-----	TRC.
*16-Nitroviolanthrone-----	ACY, ATL, G, MAY, TRC.
4-Nitro-m-xylene-----	DUP.
Nitroxyls, mixed-----	DUP, NAC.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-tert-Nonyl-p-cresol-----	USR.
Nonyl-dinonylphenol, mixture-----	G, JCC.
*Nonylphenol-----	G, JCC, MON, RH, UCP, USR.
2,5-Norbornadiene-----	SHC.
Octylphenol-----	PRD, RH.
7-Oxabicyclo[4.1.0]heptane-----	ARA.
Oxanotide-----	FIN.
*1-(7-Oxo-7H-benz [de]anthracen-3-ylamino)anthraquinone-----	ACY, DUP, G, ICI, TRC.
*1,1'-(7-Oxo-7H-benz [de]anthracen-3,9-ylenediimino)- dianthraquinone.	ACY, DUP, G, ICI, MAY, NAC, TRC.
2-Oxocyclopentanecarboxylic acid, ethyl ester-----	ARA.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid-----	NAC, SDW.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester-----	G, VPC.
*5-Oxo-1-(p-sulphophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T).	AAP, CMG, G, ICI, VPC.
4,4'-Oxydianiline-----	x.
Pentadecyltoluene-----	CO.
1,1,3,3,5-Pentamethylindan-----	GIV.
Pentylnaphthalenes (Amylnaphthalenes)-----	PAS.
o-Pentylphenol (o-Amylphenol)-----	PAS.
3,4,9,10-Perylenetetracarboxylic acid-----	DUP, G.
*3,4,9,10-Perylenetetracarboxylic diimide-----	DUP, G, NAC.
β-Phenethylamine-----	MLS.
β-Phenethylamine sulfate-----	MLS.
o-Phenethylbenzoic acid-----	LIL.
o-Phenetidine-----	MON.
p-Phenetidine-----	DOW, DUP, MON.
*Phenol:	
*Natural:	
*From coal tar: <sup>1</sup>	
39° C., m.p.-----	KPT, PRD.
82%-84%-----	ACP, KPT.
All other-----	ACP, KPT, PRD.
*From petroleum-----	MER, PIT, PRD, SW.
*Synthetic:	
By caustic fusion:	
U.S.P.-----	MAL, MON, RCI.
All other-----	HKD.
From chlorobenzene by liquid-phase hydrolysis: U.S.P.---	DOW.
From chlorobenzene by vapor-phase hydrolysis: U.S.P.---	UCP.
*From cumene-----	ACP, HPC, MON, SHC, SOC.
Other-----	SKO.
Phenolsulfonaphthalein, sodium salt-----	EK.
*1-Phenol-4-sulfonic acid-----	DOW, MON, UPF.
1-(Phenothiazin-2-yl)-1-propanone-----	WYT.
α-Phenoxybutyryl chloride-----	ICO.
2-Phenoxypropionic acid-----	ICO.
α-Phenoxypropionyl chloride-----	ICO, OPC.
Phenylacetic acid (α-Toluic acid)-----	BPC, GIV, TBK.
Phenylacetic acid, ethyl ester, tech-----	BPC, MAL, TBK.
*Phenylacetic acid, potassium salt-----	BPC, OPC, TBK.
Phenylacetic acid, sodium salt-----	BPC.
*Phenylacetoneitrile (α-Tolunitrile)-----	BPC, OPC, SDW, TBK.
2-Phenylacetophenone-----	EK.
4'-Phenylacetophenone-----	DUP, G.
2-Phenylanthr[2,3]oxazole-5,10-dione-----	G.
*p-Phenylazoaniline (p-Aminoazobenzene) and hydrochloride---	AAP, ACY, DUP, G, NAC.
4-Phenylazodiphenylamine-----	EK.
1-Phenyl-1,3-butanedione-----	EK.
2-Phenylbutyric acid-----	BPC.

See footnote at end of table.

TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
$\alpha$ -Phenyl-o-cresol-----	RBC.
1-Phenylcyclopentanecarbonitrile-----	SK.
1-Phenylcyclopentanecarboxylic acid-----	SK.
N,N'-p-Phenylenbis [acetamide]-----	ACY.
m-Phenylenediamine-----	ACY, DUP, G, NAC.
o-Phenylenediamine-----	FMT, MEE, MRT, TRC.
p-Phenylenediamine-----	ACY, BFG, SW.
1-Phenylephrine base, crude-----	GAN.
Phenyl ether (Diphenyl oxide)-----	DOW.
d(-) Phenylglycine-----	PRR.
Phenylglycine, sodium salt-----	DUP, NAC.
5-Phenylhydantoin-----	ABB, KF.
Phenylhydrazine-----	DOW.
Phenylhydrazine hydrochloride-----	FIN.
2,2'-(Phenylimino)diethanol (Phenyldiethanolamine)-----	AAP, EKT, G.
3,3'-(Phenylimino)dipropionitrile-----	DUP.
Phenylmagnesium bromide-----	ARA.
Phenylmalonic acid, diethyl ester-----	BPC.
Phenylmercaptoacetic acid-----	EVN.
o-Phenylphenol-----	DOW, RCI.
o-Phenylphenol, chlorinated-----	DOW.
o-Phenylphenol, sodium salt-----	DOW, RIC.
p-Phenylphenol-----	DOW.
N-Phenyl-p-phenylenediamine-----	DUP, USR.
Phenylphosphonous acid-----	VIC.
Phenylphosphonous acid, sodium salt-----	VIC.
Phenyl-2-propanone-----	ORT, SK.
N-3-Phenylpropyl-p-toluidine-----	EK.
Phenyl 2-pyridyl ketone-----	RIL.
Phenyl 4-pyridyl ketone-----	RIL.
Phloroglucinol-----	MRT.
Phthalazinone-----	AAP.
1(2H)-Phthalazinone-----	KPT.
Phthalic acid-----	HN, KF.
*Phthalic anhydride-----	ACP, ACY, GRH, KPS, MON, PCC, RCI, SOC, SW, THC, UCC, WTC.
Phthalide-----	FMT, NAC.
Phthalimide-----	MEE, NAC, SFA.
Phthalimide, potassium salt-----	EK.
Phthalocyanine, copper derivative-----	ICI.
Phthalocyanine, iron derivative-----	DUP.
Phthalocyaninedisulfonic acid, copper derivative-----	ICI.
Phthaloyl chloride (Phthalyl chloride)-----	MON.
Picolines: <sup>1</sup>	
*2-Picoline ( $\alpha$ -Picoline)-----	ACP, KPT, RIL, UCC.
3-Picoline ( $\beta$ -Picoline)-----	RIL.
4-Picoline ( $\gamma$ -Picoline)-----	RIL, UCC.
Picoline (3,4-mixture)-----	ACP, KPT.
Picramic acid and salt-----	DUP, NAC.
Picric acid (Trinitrophenol)-----	DUP, NAC, SDC.
2-Pipecoline-----	LIL.
Piperazine mixture, crude-----	JCC.
*Piperidine-----	ABB, DUP, MRK, RIL.
3-Piperidinopropiophenone hydrochloride-----	ACY.
Polychlorobiphenyl-----	MON.
Polydodecylbenzene-----	CO.
Polyethylbenzene (80% Diethylbenzene)-----	UCC.
Potassium phenoxide-----	DUP.
Primuline base-----	DUP, NAC.
Primulinesulfonic acid-----	ATL.

See footnote at end of table.

TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963 -- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
10-Propionylphenothiazine-----	ABB.
*Propiophenone-----	LIL, OPC, TBK.
*Pyranthrone-----	CMG, ICI, TRC.
Pyrazole-----	LIL.
Pyridine, refined: <sup>1</sup>	
*2° Pyridine-----	ACP, KPT, RIL.
Other grades-----	KPT.
Pyridine hydrochloride-----	EK.
3-Pyridinemethanol-----	RIL.
Pyridine-N-oxide-----	RIL.
3-Pyridinol-----	NEP.
2(1H)-Pyridone-----	FMT.
Pyrimidine bromide perbromide-----	ARA.
2-Pyrimidinol-----	GGY.
Pyromellitic acid-----	DUP.
Pyromellitic dianhydride-----	DUP.
Pyrrolidine-----	ASL.
2-Pyrrolidinone-----	G.
*Quinaldine-----	ACY, DUP, NAC.
*Quinizarin-----	AAF, ACY, CMG, DUP, EKT, G, HSH, ICC, ICI, JTC, MAY, NAC, TRC.
	HSH, NAC, PAT.
*2-Quinizarinsulfonic acid-----	
Quinoline:	
1° and 2° Quinoline-----	ACP, KPT.
Other grades-----	EK.
2,4-Quinolinediol-----	DUP, MEE.
Quinoline yellow, base-----	NAC.
8-Quinolinel (8-Hydroxyquinoline, tech.)-----	GAM.
Resorcinol, monoacetate (nonmedicinal grade)-----	AAP.
Resorcinol, tech-----	KPT.
β-Resorcylaldehyde-----	EK.
β-Resorcyclic acid-----	ACY, KPT.
β-Resorcyclic acid, lead salt-----	ACY.
Salicylaldehyde-----	DOW, HN.
Salicylanilide-----	PCW.
*Salicylic acid, tech-----	CFC, DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex-----	TRC.
Salicylic acid, sodium salt (crude)-----	DOW.
Salicylideneaminoguanidine oleate-----	DUP.
Sodium phenoxide-----	DUP, FIN.
Styphnic acid-----	EK.
Styphnic acid, lead salt-----	REM.
*Styrene, all grades-----	ACC, CSD, DOW, ELP, FG, KPP, MCB, MON, SHC, SKC, SNT, UCC.
4'-Sulfamoylacetanilide-----	ACY.
5-Sulfamoylanthranilic acid-----	TRC.
*Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt-----	ACY, DUP, NAC.
*4-Sulfoanthranilic acid-----	CMG, G, TRC.
5-Sulfoisophthalic acid, dimethyl ester-----	x.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)-----	G, MON, UPF.
4-Sulfophthalic acid-----	CWN, NAC.
*Terephthalic acid-----	ACC, DUP, SOC.
Terephthalic acid dihydrazide-----	DUP.
*Terephthalic acid, dimethyl ester-----	ACC, DUP, EKT, HPC.
Terphenyl (Phenylbiphenyl)-----	ARA, MON.
Tetraaminophthalocyanine, copper derivative-----	DUP.
Tetrabromobisphenol A-----	DOW.
3',3'',5',5''-Tetrabromophenolphthalein-----	EK.
Tetrabromophenolphthalein, ethyl ester-----	EK.
Tetrabromophthalic anhydride-----	MCH.
Tetrabromo-8,16-pyranthrene-dione-----	G, NAC, TRC.

See footnote at end of table.



TABLE 7B. -- Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
1,3,6,8-Tetrabromopyrene-----	AAP, G.
*1,4,5,8-Tetrachloroanthraquinone-----	DUP, G, ICI, NAC.
1,2,4,5-Tetrachlorobenzene-----	DOW, HK.
Tetrachlorodiphenol-----	MON.
Tetrachloronitrobenzene-----	SDH.
$\alpha,\alpha,2,6$ -Tetrachlorotoluene-----	DUP.
Tetrahydrofuran-----	DUP.
Tetrahydro-2-methylfuran-----	QKO.
Tetrahydrophthalic anhydride-----	PTT.
1,2,3,4-Tetrahydroquinoline-----	EK.
1,4,5,8-Tetrahydroxyanthraquinone-----	NAC.
1,4,5,8-Tetrakis [1',1'',1''',1''''-anthraquinonylamino]- anthraquinone (Pentanthrimide).-----	ICI, NAC.
p-(1,1,3,3-Tetramethylbutyl)phenol-----	G.
Tetranitrophthalocyanine, copper derivative-----	DUP.
Tetraoxypthalophenone-----	G.
2-(2-Thenylamino)pyridine-----	ABB.
Thianthrene-X,Y-dicarboxylic acid-----	TRC.
Thianthrene-X,Y-dinitrile-----	TRC.
Thioanisole-----	PIT.
3,3'-Thiobis[7H-benz[de]anthracen-7-one]-----	DUP, G, ICI.
4,4'-Thiodianiline-----	ACY, NAC.
6,6'-Thiodimetanilic acid-----	NAC.
2-Thiophenecarboxaldehyde-----	ABB.
Thiosalicylic acid-----	EVN.
sym-Thymol-----	GIV.
m-Tolidine dihydrochloride-----	CWN.
o-Tolidine-----	CWN, DUP, NAC.
2,2'-o-Tolidinedisulfonic acid-----	AAP.
o-Tolidine hydrochloride-----	AAP, DUP, EK.
Toluene-2,4-diamine (4-m-Tolylenediamine)-----	ACY, BL, DUP, G, NAC, SDC, TRC.
Toluene-2,4-disulfonic acid-----	G.
o-Toluenesulfonamide-----	MON.
o(and p)-Toluenesulfonamide-----	ACY.
p-Toluenesulfonamide-----	MON.
o(and p)-Toluenesulfonic acid-----	MON, NAC, NES, SW, UPF.
p-Toluenesulfonic acid-----	ACY, TN.
p-Toluenesulfonic acid, 2-chloroethyl ester-----	G.
p-Toluenesulfonic acid, ethyl ester-----	ACY, ICI, NAC.
p-Toluenesulfonic acid monohydrate-----	UPF.
p-Toluenesulfono-o-toluidide-----	G.
p-Toluenesulfonyl chloride-----	MON.
p-Toluhydroquinone (Methylhydroquinone)-----	EKT.
m-Toluic acid-----	CWL.
o-Toluic acid-----	CWL.
p-Toluic acid-----	CWL, EK.
m-Toluidine-----	DUP, NAC.
o-Toluidine-----	DUP, NAC.
o-Toluidine hydrochloride-----	ACY.
p-Toluidine-----	DUP, NAC.
N-(p-Toluidine)methyltaurine-----	BUC.
Toluidines, mixed-----	DUP.
m-Toluidinomethanesulfonic acid-----	TRC, VPC.
o-Toluidinomethanesulfonic acid-----	TRC.
8-(p-Toluidino)-1-naphthalenesulfonic acid-----	NAC.
2-(p-Toluidino)-5-nitrobenzenesulfonic acid-----	TRC.
*o-(p-Toluoyl)benzoic acid-----	ACY, DUP, NAC, TRC.
*4-(o-Tolylazo)-o-toluidine-----	ACY, DUP, G, KLS, NAC, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride-----	G.
2,2'-(m-Tolylimino)diethanol-----	EKT, G, NAC.
4,5,6-Triaminopyrimidine sulfate hydrate-----	ARA.
3,4',5-Tribromosalicylanilide-----	MEE.
1,2,3(and 1,2,4)-Trichlorobenzene-----	PPG.
1,2,4-Trichlorobenzene-----	DOW, HK, SVT.

TABLE 7B. --Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
N,2,6-Trichloro-p-benzoquinoneimine-----	EK.
1,2,4-Trichloro-5-nitrobenzene-----	ALL, PCW.
Trichlorophenylsilane-----	DCC, UCS.
$\alpha,\alpha,\alpha$ -Trichlorotoluene (Benzotrichloride)-----	HK, HN.
$\alpha,2,4$ -Trichlorotoluene-----	HN.
$\alpha,2,4$ (and $\alpha,2,6$ )-Trichlorotoluene-----	BPC.
$\alpha,3,4$ -Trichlorotoluene-----	HN.
1,3,5-Triethylbenzene-----	DUP.
3-Trifluoromethyldiphenylamine-----	SK.
2-Trifluoromethylphenothiazine-----	SK.
$\alpha,\alpha,\alpha$ -Trifluoro-4-nitro-m-cresol-----	MEE.
$\alpha,\alpha,\alpha$ -Trifluoro-m-nitrotoluene-----	MEE.
$\alpha,\alpha,\alpha$ -Trifluorotoluene-----	ACC, HK.
$\alpha,\alpha,\alpha$ -Trifluoro-m-toluidine-----	MEE.
1,2,4-Trihydroxyanthraquinone-----	G.
3,4,5-Trimethoxybenzoic acid-----	ICO.
2,4,5-Trimethylaniline (Pseudocumidine)-----	NAC.
1,2,4-Trimethylbenzene (Pseudocumene)-----	ENJ, PLC.
2,3,3-Trimethyl-3H-indole-----	G.
1,3,3-Trimethyl- $\Delta^2,\alpha$ -indolineacetaldehyde-----	DUP, G.
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)-----	DUP, G.
Trimethylphenylammonium iodide-----	EK.
1,2,4-Trimethylpyrazine-----	WYN.
1,3,5-Trinitrobenzene-----	EK.
2,4,6-Trinitrobenzenesulfonic acid-----	EK.
Triphenylmethanol-----	EK.
$\alpha,\alpha',\alpha''$ -Tris(dimethylamino)mesitol-----	TKL.
2,4,6-Tris(dimethylaminomethyl)phenol-----	RH.
*6,6'-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea).	ACY, ATL, CMG, G, NAC, TRC, VPC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	LIL, SLV.
p-Vinylbenzenesulfonic acid, sodium salt-----	DUP.
2-Vinylcyclohexene-----	UCC.
4-Vinylcyclohexene-----	PLC.
2,2'-Vinylenebis[benzimidazole]-----	TRC.
5-Vinyl-2-picoline (MVP)-----	PLC.
2-Vinylpyridine-----	RIL.
4-Vinylpyridine-----	RIL.
*Violanthrone (Dibenzanthrone)-----	ACY, ATL, DUP, G, ICI, MAY, TRC.
9-Xanthenecarboxylic acid-----	MAL.
m-Xylene-----	PLC, SNT, SOC.
*o-Xylene-----	ASH, CCP, CSD, CSO, DLH, ENJ, GRS, MON, PLC, SIN, SNT, SOC, TOC.
*p-Xylene-----	CSD, ENJ, SIN, SNT, SOC.
m-Xylene- $\alpha,\alpha'$ -diamine-----	x.
Xylenesulfonic acid-----	NES.
2,5-Xylenesulfonic acid-----	EK.
2,4-Xylenol-----	EK.
Xylenol crystals-----	ACP, KPT.
Xylenols:	
Low b.p.-----	PIT, PRD.
Medium b.p.-----	KPT, PIT, PRD.
Not classified as to b.p.-----	KPT, PRD.
Xylidines:	
2,4-Xylidine (m-4-Xylidine)-----	DUP, NAC.
2,5-Xylidine (p-Xylidine)-----	DUP, NAC.
Original mixture-----	DUP, NAC.
4-(2,4-Xylylazo)-o-toluidine-----	NAC.
4-(2,5-Xylylazo)-o-toluidine-----	ACY.
4-(Xylylazo)xylidine-----	G.
4-(2,4-Xylylazo)-2,5-xylidine-----	NAC.
All other cyclic intermediates-----	ACY, APD, CCW, G, ICC, KF, SWR, WLM, UPJ, x, x.

<sup>1</sup> Does not include manufacturers' identification codes for producers that report to the Division of Bituminous Coal, 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 1963, June 8, 1964.

## Dyes

TABLE 8B. --Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963

[Dyes for which separate statistics are given in table 8A are marked below with an asterisk (\*); dyes not so marked do not appear in table 8A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
ACID DYES	
*Acid yellow dyes:	
Acid Yellow 1-----	ACY.
Acid Yellow 2-----	DUP.
*Acid Yellow 3-----	ACY, DUP, G, NAC.
Acid Yellow 4-----	SDH.
Acid Yellow 7-----	NAC.
Acid Yellow 9-----	ACY.
*Acid Yellow 11-----	CMG, DUP, VPC.
Acid Yellow 14-----	TRC.
*Acid Yellow 17-----	ACY, ATL, BKS, CMG, DUP, G, NAC, PDC, SDH, TRC, VPC.
*Acid Yellow 23-----	AAP, ACY, G, MRX, NAC, SDH, TRC, VPC.
Acid Yellow 25-----	G.
Acid Yellow 29-----	G, TRC.
Acid Yellow 34-----	NAC.
Acid Yellow 35-----	VPC.
*Acid Yellow 36-----	DUP, G, NAC, TRC.
Acid Yellow 38-----	NAC.
*Acid Yellow 40-----	ACY, DUP, G, NAC, TRC, VPC.
*Acid Yellow 42-----	AAP, ACY, G, TRC, VPC.
Acid Yellow 43-----	NAC.
*Acid Yellow 44-----	AAP, G, NAC, VPC.
*Acid Yellow 54-----	ACY, BKS, CMG, G, NAC, TRC, VPC.
Acid Yellow 59-----	VPC.
Acid Yellow 60-----	NAC.
Acid Yellow 63-----	AAP, NAC.
Acid Yellow 65-----	TRC.
*Acid Yellow 73-----	NAC, NYC, SDH.
Acid Yellow 76-----	TRC.
Acid Yellow 90-----	NAC.
Acid Yellow 95-----	CMG.
*Acid Yellow 99-----	G, NAC, TRC, VPC.
Acid Yellow 114-----	CMG, TRC.
Acid Yellow 121-----	G.
Acid Yellow 124-----	DUP, NAC.
Acid Yellow 127-----	TRC.
Acid Yellow 128-----	TRC.
Acid Yellow 129-----	TRC.
Acid Yellow 151-----	ACY.
Acid Yellow 152-----	ACY.
Other acid yellow dyes-----	ACY, ALT, CMG, DUP, TRC, VPC.
*Acid orange dyes:	
*Acid Orange 1-----	ALT, BKS, G, NAC.
Acid Orange 2-----	NAC, TRC.
Acid Orange 5-----	ACY.
Acid Orange 6-----	NAC.
*Acid Orange 7-----	AAP, ACY, ATL, CPC, G, NAC, PDC, TRC, YAW.
*Acid Orange 8-----	ACY, DUP, G, NAC, TRC.
*Acid Orange 10-----	ACY, ATL, DUP, G, NAC, TRC, VPC, YAW.
Acid Orange 12-----	NAC.
Acid Orange 19-----	G.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid orange dyes--Continued	
*Acid Orange 24-----	ACY, DUP, G, NAC, TRC, YAW.
Acid Orange 28-----	NAC.
Acid Orange 31-----	AAP.
Acid Orange 34-----	ACY.
Acid Orange 45-----	NAC, TRC.
Acid Orange 49-----	TRC.
Acid Orange 51-----	CMG, NAC, TRC.
Acid Orange 52-----	NAC.
Acid Orange 56-----	G.
*Acid Orange 60-----	CMG, DUP, G.
Acid Orange 62-----	TRC.
Acid Orange 63-----	G, TRC.
Acid Orange 64-----	ACY, DUP, NAC.
Acid Orange 69-----	ACY.
Acid Orange 72-----	G.
Acid Orange 74-----	CMG, G, NAC, TRC.
Acid Orange 76-----	NAC, TRC.
Acid Orange 85-----	NAC.
Acid Orange 86-----	NAC, TRC.
Other acid orange dyes-----	ALT, TRC, VPC.
*Acid red dyes:	
*Acid Red 1-----	AAP, ACY, BKS, DUP, G, NAC, SDH, TRC, VPC, YAW.
*Acid Red 4-----	ATL, CMG, DUP, G, TRC, VPC, YAW.
Acid Red 12-----	G, TRC.
*Acid Red 14-----	ATL, CMG, DUP, G, NAC, PDC.
Acid Red 17-----	NAC, TRC.
*Acid Red 18-----	ACY, ATL, DUP, G, NAC, TRC.
Acid Red 25-----	TRC.
*Acid Red 26-----	ACY, ATL, G, NAC, TRC, x.
Acid Red 27-----	NAC.
Acid Red 29-----	NAC.
Acid Red 32-----	G, NAC.
Acid Red 33-----	NAC, YAW.
Acid Red 34-----	DUP, NAC.
Acid Red 35-----	AAP, G.
*Acid Red 37-----	CMG, DUP, G, NAC, TRC.
Acid Red 42-----	G.
Acid Red 51-----	NYC.
Acid Red 52-----	G.
Acid Red 57-----	TRC.
Acid Red 60-----	TRC.
Acid Red 66-----	AAP, NAC.
*Acid Red 73-----	ACY, DUP, G, NAC, TRC.
Acid Red 76-----	NAC.
Acid Red 80-----	G, ICI.
*Acid Red 85-----	ACY, ALT, ATL, BKS, CMG, DUP, G, NAC, PDC, TRC, VPC, YAW.
*Acid Red 87-----	AMS, NYC, SDH.
*Acid Red 88-----	ACY, ATL, DUP, G, NAC, SDH, TRC, YAW.
*Acid Red 89-----	AAP, G, TRC, VPC.
Acid Red 92-----	NYC, SDH.
Acid Red 94-----	NYC.
Acid Red 97-----	G.
Acid Red 99-----	CMG, NAC, TRC.
Acid Red 100-----	VPC.
Acid Red 106-----	YAW.
Acid Red 113-----	DUP.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid red dyes--Continued	
*Acid Red 114-----	ATL, DUP, G.
*Acid Red 115-----	G, NAC, TRC.
Acid Red 119-----	NAC.
Acid Red 133-----	G.
Acid Red 134-----	TRC.
*Acid Red 137-----	ACY, DUP, G, NAC, TRC.
*Acid Red 151-----	AAP, ACY, TRC, YAW.
Acid Red 167-----	BKS, NAC, TRC.
Acid Red 172-----	VPC.
Acid Red 175-----	DUP.
Acid Red 178-----	DUP.
Acid Red 179-----	CMG, TRC.
*Acid Red 182-----	ACY, BKS, CMG, DUP, G, NAC.
Acid Red 183-----	CMG, TRC.
Acid Red 184-----	TRC.
*Acid Red 186-----	CMG, G, TRC, VPC.
Acid Red 190-----	ACY.
Acid Red 191-----	TRC.
Acid Red 194-----	TRC.
Acid Red 197-----	DUP.
Acid Red 207-----	NAC.
Acid Red 212-----	TRC.
Acid Red 213-----	TRC.
Acid Red 292-----	ACY.
Acid Red 299-----	TRC.
Other acid red dyes-----	ACY, ALT, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1-----	CMG, G, NAC.
*Acid Violet 3-----	ACY, DUP, NAC, TRC, YAW.
Acid Violet 6-----	NAC.
*Acid Violet 7-----	AAP, CMG, DUP, G, NAC, TRC, VPC.
*Acid Violet 12-----	CMG, DUP, G, TRC.
Acid Violet 13-----	DUP.
Acid Violet 14-----	TRC.
*Acid Violet 17-----	DUP, G, SDH, TRC.
Acid Violet 21-----	DUP.
Acid Violet 29-----	HSH.
Acid Violet 34-----	ICI, NAC.
*Acid Violet 43-----	DUP, HSH, ICI.
Acid Violet 49-----	ACY, NAC, SDH.
Acid Violet 56-----	CMG, G.
Acid Violet 76-----	NAC.
Acid Violet 78-----	NAC.
Other acid violet dyes-----	ALT.
*Acid blue dyes:	
Acid Blue 1-----	G, NAC, SDH.
*Acid Blue 7-----	ACY, G, NAC, SDH.
*Acid Blue 9-----	G, NAC, SDH, VPC.
Acid Blue 10-----	AAP, NAC.
Acid Blue 13-----	DUP, SDH.
Acid Blue 15-----	DUP, G.
Acid Blue 20-----	ACY, NAC.
*Acid Blue 22-----	ACY, G, NYC.
Acid Blue 23-----	NAC, TRC.
*Acid Blue 25-----	CMG, DUP, G, NAC, TRC.
Acid Blue 26-----	NAC.
Acid Blue 27-----	CMG, G.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid blue dyes--Continued	
Acid Blue 29-----	PDC, YAW.
Acid Blue 34-----	NAC.
Acid Blue 35-----	NAC.
*Acid Blue 40-----	G, ICI, NAC, TRC.
*Acid Blue 41-----	CMG, G, NAC.
*Acid Blue 43-----	ACY, G, NAC, TRC.
*Acid Blue 45-----	ACY, CMG, DUP, G, NAC, TRC.
Acid Blue 47-----	DUP, ICI.
Acid Blue 48-----	SUC.
Acid Blue 58-----	DUP.
Acid Blue 59-----	NAC.
Acid Blue 62-----	G, VPC.
Acid Blue 63-----	CMG, NAC.
Acid Blue 67-----	CMG, NAC.
Acid Blue 69-----	DUP, G.
Acid Blue 74-----	DUP, NAC.
*Acid Blue 78-----	DUP, G, ICI, NAC.
Acid Blue 79-----	DUP.
Acid Blue 80-----	NAC, TRC.
Acid Blue 81-----	ICI.
Acid Blue 83-----	G.
Acid Blue 89-----	NAC.
*Acid Blue 90-----	G, NAC, TRC.
Acid Blue 92-----	NAC.
Acid Blue 93-----	SUC.
Acid Blue 102-----	NAC, TRC.
Acid Blue 104-----	DUP, G, NAC.
*Acid Blue 113-----	CMG, DUP, G.
Acid Blue 118-----	G, NAC.
Acid Blue 120-----	G, NAC.
Acid Blue 122-----	DUP.
Acid Blue 137-----	NAC.
Acid Blue 145-----	DUP.
*Acid Blue 158 and 158A-----	ACY, BKS, DUP, G, NAC, TRC, VPC.
Acid Blue 165-----	DUP.
Acid Blue 179-----	G.
Other acid blue dyes-----	ACY, ALT, CMG, PAT, TRC, VPC.
*Acid green dyes:	
Acid Green 1-----	ACY, NAC.
*Acid Green 3-----	ACY, DUP, G, NAC, SDH, TRC, VPC.
Acid Green 5-----	G.
*Acid Green 9-----	ACY, DUP, G, NAC, VPC.
Acid Green 10-----	NAC.
*Acid Green 12-----	G, NAC, TRC.
*Acid Green 16-----	DUP, G, NAC, SDH, TRC.
*Acid Green 20-----	ATL, CMG, DUP, G, NAC, TRC.
Acid Green 22-----	G, HSH, NAC.
*Acid Green 25-----	AAP, ATL, CMG, G, ICI, NAC, TRC, VPC.
Acid Green 35-----	TRC.
Acid Green 41-----	ICI, VPC.
Acid Green 44-----	VPC.
*Acid Green 50-----	ACY, G, NAC, VPC.
Other acid green dyes-----	ALT, DUP, TRC, VPC.
*Acid brown dyes:	
Acid Brown 1-----	G.
Acid Brown 2-----	AAP.
Acid Brown 6-----	G.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid brown dyes--Continued	
*Acid Brown 14-----	AAP, ACY, DUP, G, NAC, TRC, YAW.
Acid Brown 19-----	TRC.
Acid Brown 22-----	DUP.
Acid Brown 28-----	TRC.
Acid Brown 29-----	DUP, NAC.
Acid Brown 31-----	G.
Acid Brown 45-----	TRC.
Acid Brown 96-----	ACY.
Acid Brown 97-----	ACY.
Acid Brown 98-----	ACY, TRC.
Acid Brown 152-----	G.
Acid Brown 158-----	G.
Acid Brown 223-----	G.
Acid Brown 243-----	G.
Other acid brown dyes-----	ALT, DUP, G, VPC.
*Acid black dyes:	
*Acid Black 1-----	AAP, ACY, ATL, BKS, CMG, DUP, G, NAC, PDC, TRC, YAW.
Acid Black 2-----	ACY, NAC.
Acid Black 12-----	NAC.
Acid Black 16-----	NAC.
Acid Black 18-----	NAC.
*Acid Black 24-----	CMG, DUP, G, NAC.
Acid Black 26, 26A, and 26B-----	DUP, NAC, TRC.
Acid Black 29-----	NAC.
Acid Black 41-----	G, NAC.
*Acid Black 48-----	ACY, CMG, DUP, G, ICI, NAC, TRC.
Acid Black 52-----	G, NAC, TRC.
Acid Black 53-----	NAC.
Acid Black 58-----	CMG, NAC, TRC.
Acid Black 60-----	TRC.
Acid Black 92-----	ACY.
Acid Black 107-----	G, NAC.
Acid Black 138-----	VPC.
Acid Black 140-----	G.
Other acid black dyes-----	ALT, BL, DUP, G, PDC.
AZOIC DYES AND COMPONENTS	
Azoic Compositions	
Azoic yellow dyes:	
*Azoic Yellow 1-----	ALL, ATL, G, HST, VPC.
*Azoic Yellow 2-----	ALL, ATL, G, HST, x.
Azoic Yellow 3-----	ATL, G.
Azoic Yellow 10-----	DUP.
Azoic orange dyes:	
*Azoic Orange 3-----	ALL, ATL, G, HST, x.
Azoic Orange 4-----	G.
*Azoic red dyes:	
*Azoic Red 1-----	ALL, ATL, BUC, G, HST, x.
*Azoic Red 2-----	ALL, ATL, BUC, G, x.
*Azoic Red 6-----	ALL, ATL, BUC, G, HST, VPC, x.
Azoic Red 12-----	G.
Azoic Red 13-----	G.
Azoic Red 14-----	G.
Azoic Red 15-----	G.
Azoic Red 16-----	ATL, G.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
AZOIC DYES AND COMPONENTS--Continued	
Azoic Compositions--Continued	
*Azoic red dyes--Continued	
Azoic Red 73-----	G.
Azoic Red 74-----	G.
Other azoic red dyes-----	BUC, G, VPC, x.
Azoic violet dyes:	
Azoic Violet 1-----	ATL, G, HST, x.
Other azoic violet dyes-----	G.
Azoic blue dyes:	
Azoic Blue 2-----	ATL, G.
*Azoic Blue 3-----	ALL, ATL, G, HST, x.
Azoic Blue 4-----	G.
Azoic Blue 5-----	G.
Azoic Blue 6-----	ATL, G.
Azoic Blue 7-----	G.
Other azoic blue dyes-----	G, VPC.
Azoic green dyes:	
Azoic Green 1-----	ATL, G.
Other azoic green dyes-----	VPC.
Azoic brown dyes:	
*Azoic Brown 9-----	ATL, G, HST, VPC, x.
Azoic Brown 10-----	G.
Azoic Brown 26-----	G.
Other azoic brown dyes-----	G, VPC, x.
Azoic black dyes:	
Azoic Black 1-----	G, HST.
Azoic Black 2-----	DUP.
*Azoic Black 4-----	ALL, ATL, G.
Azoic Black 15-----	G.
Other azoic black dyes-----	ATL, G, VPC.
All other azoic compositions-----	ALL.
Azoic Diazo Components, Bases (Fast Color Bases)	
Azoic Diazo Component 1, base-----	G, SDH.
Azoic Diazo Component 2, base-----	AAP, ATL.
Azoic Diazo Component 3, base-----	KLS, SDH, VPC.
*Azoic Diazo Component 4, base-----	ALL, G, KLS, NAC, SDH.
Azoic Diazo Component 5, base-----	G, NAC, SDH.
Azoic Diazo Component 8, base-----	DUP.
Azoic Diazo Component 9, base-----	AAP, DUP.
*Azoic Diazo Component 10, base-----	BUC, G, KLS, VPC.
Azoic Diazo Component 11, base-----	BUC.
*Azoic Diazo Component 12, base-----	AAP, ALL, AUG, KLS, SDH.
*Azoic Diazo Component 13, base-----	AAP, ALL, ATL, AUG, BUC, DUP, KLS, SDH.
Azoic Diazo Component 14, base-----	AAP.
Azoic Diazo Component 20, base-----	ALL, G.
Azoic Diazo Component 24, base-----	KLS.
Azoic Diazo Component 28, base-----	ALL, KLS.
*Azoic Diazo Component 32, base-----	AAP, ALL, ATL, AUG, BUC, DUP, KLS, SDH.
Azoic Diazo Component 34, base-----	G.
Azoic Diazo Component 41, base-----	ALL, G.
Azoic Diazo Component 42, base-----	ALL.
*Azoic Diazo Component 48, base-----	ALL, CWN, DUP, G.
Azoic Diazo Component 121, base-----	PCW.
Other azoic diazo components, bases-----	G, VPC.



TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
AZOIC DYES AND COMPONENTS--Continued	
<i>Azoic Diazo Components, Salts (Fast Color Salts)</i>	
*Azoic Diazo Component 1, salt-----	AAP, G, KLS, SDH.
*Azoic Diazo Component 2, salt-----	ALL, G, KLS.
*Azoic Diazo Component 3, salt-----	AAP, ALL, AUG, BUC, G, KLS, NAC, SDH, VPC.
Azoic Diazo Component 4, salt-----	ALL, AUG.
*Azoic Diazo Component 5, salt-----	AAP, AUG, G, KLS, SDH, VPC.
*Azoic Diazo Component 6, salt-----	AAP, G, KLS, SDH.
*Azoic Diazo Component 8, salt-----	AAP, ALL, AUG, BUC, G, KLS.
*Azoic Diazo Component 9, salt-----	AAP, ALL, AUG, BUC, G, KLS, NAC, SDH, VPC.
*Azoic Diazo Component 10, salt-----	AUG, BUC, G, KLS, SDH.
*Azoic Diazo Component 11, salt-----	AAP, G, KLS.
*Azoic Diazo Component 12, salt-----	AAP, ALL, AUG, BUC, G, KLS, SDH.
*Azoic Diazo Component 13, salt-----	AAP, ALL, AUG, BUC, G, KLS, NAC, SDH, VPC.
Azoic Diazo Component 14, salt-----	AAP.
*Azoic Diazo Component 20, salt-----	ALL, G, SDH.
*Azoic Diazo Component 28, salt-----	ALL, BUC, G, KLS, NAC, SDH, VPC.
Azoic Diazo Component 32, salt-----	ALL, KLS.
Azoic Diazo Component 33, salt-----	AUG.
Azoic Diazo Component 34, salt-----	G.
Azoic Diazo Component 35, salt-----	G.
*Azoic Diazo Component 36, salt-----	AAP, G, NAC.
Azoic Diazo Component 37, salt-----	G.
Azoic Diazo Component 41, salt-----	ALL, G.
*Azoic Diazo Component 42, salt-----	ALL, G, KLS.
Azoic Diazo Component 44, salt-----	G.
*Azoic Diazo Component 48, salt-----	AAP, ALL, G, NAC, SDH.
*Azoic Diazo Component 49, salt-----	AAP, BUC, G, KLS.
Other azoic diazo components, salts-----	G.
<i>Azoic Coupling Components (Naphthal AS and Derivatives)</i>	
*Azoic Coupling Component 2-----	ACY, ATL, DUP, G, NAC, PCW.
*Azoic Coupling Component 3-----	BUC, G, PCW.
*Azoic Coupling Component 4-----	ATL, BUC, G, PCW.
*Azoic Coupling Component 5-----	AAP, G, PCW, SDH.
*Azoic Coupling Component 7-----	AAP, AUG, G, NAC, PCW.
Azoic Coupling Component 8-----	ATL, G, PCW.
Azoic Coupling Component 10-----	ATL, PCW.
Azoic Coupling Component 11-----	G, PCW.
Azoic Coupling Component 12-----	ALL, BUC, G, PCW.
Azoic Coupling Component 13-----	ALL, G, PCW.
*Azoic Coupling Component 14-----	ALL, ATL, BUC, PCW.
Azoic Coupling Component 15-----	G.
Azoic Coupling Component 16-----	G, SDH.
*Azoic Coupling Component 17-----	ACY, ALL, ATL, BUC, DUP, PCW.
*Azoic Coupling Component 18-----	ACY, ATL, BUC, DUP, G, NAC, PCW.
Azoic Coupling Component 19-----	AAP, G, PCW.
*Azoic Coupling Component 20-----	ALL, ATL, BUC, DUP, G, PCW.
*Azoic Coupling Component 21-----	AAP, ALL, ATL, BUC, PCW.
Azoic Coupling Component 23-----	G, PCW.
Azoic Coupling Component 24-----	G, PCW.
*Azoic Coupling Component 29-----	ATL, AUG, G, PCW.
Azoic Coupling Component 31-----	PCW.
*Azoic Coupling Component 34-----	BUC, G, PCW.
*Azoic Coupling Component 35-----	ALL, G, PCW.

TABLE 8B.-- Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
AZOIC DYES AND COMPONENTS--Continued	
Azoic Coupling Components (Naphthol AS and Derivatives)--Continued	
Azoic Coupling Component 36-----	G.
Azoic Coupling Component 43-----	ALL, ATL, G.
Other azoic coupling components-----	ATL, BUC, G.
BASIC DYES	
Basic yellow dyes:	
Basic Yellow 1-----	DUP.
*Basic Yellow 2-----	ACY, DUP, NAC.
Basic Yellow 5-----	NAC.
Basic Yellow 11-----	DUP, G, NAC, VPC.
Basic Yellow 13-----	DUP, G, NAC.
Basic Yellow 15-----	DUP.
Basic Yellow 26-----	ACY.
Basic Yellow 27-----	ACY.
Other basic yellow dyes-----	G, DUP.
*Basic orange dyes:	
*Basic Orange 1-----	ACY, DUP, G, NAC.
*Basic Orange 2-----	ACY, DUP, G, NAC, PDC, TRC.
Basic Orange 14-----	G.
Basic Orange 17-----	NAC.
*Basic Orange 21-----	DUP, G, NAC, VPC.
Basic Orange 22-----	G, NAC.
Basic Orange 24-----	DUP.
Basic Orange 25-----	DUP.
Basic Orange 26-----	DUP.
Basic Orange 31-----	ACY.
Basic red dyes:	
Basic Red 1-----	DUP, G, NAC.
*Basic Red 2-----	DUP, G, NAC.
Basic Red 9-----	ACY, SUC.
Basic Red 12-----	DUP.
Basic Red 13-----	G, NAC.
Basic Red 14-----	ACY, DUP, G, NAC.
Basic Red 15-----	DUP, G.
Basic Red 16-----	DUP.
Basic Red 17-----	DUP.
Basic Red 18-----	DUP.
Basic Red 20-----	DUP.
Basic Red 30-----	ACY.
Other basic red dyes-----	ACY.
Basic violet dyes:	
*Basic Violet 1-----	ACY, DSC, NAC, SUC.
Basic Violet 2-----	ACY.
Basic Violet 3-----	DSC, DUP, G, NAC, SDH.
*Basic Violet 4-----	DSC, DUP, G, NAC.
Basic Violet 5-----	NAC.
Basic Violet 7-----	G, NAC.
*Basic Violet 10-----	ACY, DUP, G, NAC.
Basic Violet 13-----	DSC.
Basic Violet 14-----	ACY, NYC.
Basic Violet 15-----	DUP.
*Basic Violet 16-----	DUP, G, VPC.
Basic Violet 18-----	ACY.
Other basic violet dyes-----	DUP, G.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
BASIC DYES--Continued	
*Basic blue dyes:	
*Basic Blue 1-----	DSC, G, NAC, SDH.
Basic Blue 3-----	G.
Basic Blue 4-----	DUP.
Basic Blue 5-----	DSC, SDH.
Basic Blue 6-----	ACY, NAC.
*Basic Blue 7-----	DSC, DUP, G, NAC, SDH.
*Basic Blue 9-----	ACY, G, NAC, SDH.
Basic Blue 11-----	DSC, DUP.
Basic Blue 21-----	DUP.
Basic Blue 22-----	DUP, NAC.
*Basic Blue 26-----	DSC, DUP, G, NAC, SDH.
Basic Blue 27-----	G.
Basic Blue 35-----	DUP.
Basic Blue 36-----	DUP.
Basic Blue 38-----	ACY, DUP.
Basic Blue 39-----	DUP.
Basic green dyes:	
*Basic Green 1-----	ACY, DSC, DUP, NAC, SDH.
Basic Green 3-----	DUP.
*Basic Green 4-----	ACY, DSC, NAC, SDH.
Basic Green 5-----	ACY.
Other basic green dyes-----	DUP.
Basic brown dyes:	
*Basic Brown 1-----	ACY, DUP, G, NAC, TRC.
Basic Brown 2-----	G, NAC.
*Basic Brown 4-----	ACY, DUP, G, NAC, TRC.
Basic black dyes:	
Basic Black 3-----	G.
Other basic black dyes-----	DUP.
DIRECT DYES	
*Direct yellow dyes:	
*Direct Yellow 4-----	ACY, DUP, G, NAC, TRC.
*Direct Yellow 5-----	ACY, G, NAC.
*Direct Yellow 6-----	ACY, DUP, G, NAC, TRC.
Direct Yellow 7-----	ATL.
Direct Yellow 8-----	G, NAC.
Direct Yellow 9-----	DUP.
*Direct Yellow 11-----	ACY, DUP, G, NAC, TRC.
*Direct Yellow 12-----	BKS, DUP, G, NAC, TRC.
Direct Yellow 19-----	TRC.
Direct Yellow 20-----	NAC, TRC.
Direct Yellow 23-----	DUP.
*Direct Yellow 26-----	ALT, BKS, DUP.
Direct Yellow 27-----	G.
*Direct Yellow 28-----	ATL, DUP, G, NAC, TRC.
*Direct Yellow 29-----	ATL, DUP, G.
Direct Yellow 39-----	TRC.
*Direct Yellow 44-----	ALT, ATL, BKS, DUP, G, NAC, TRC, VPC.
*Direct Yellow 50-----	ATL, BL, DUP, G, NAC, TRC, VPC.
*Direct Yellow 59-----	ATL, DUP, NAC.
Direct Yellow 62-----	NAC.
Direct Yellow 63-----	DUP.
*Direct Yellow 81-----	BKS, NAC, TRC.
*Direct Yellow 84-----	G, NAC, TRC.
Direct Yellow 103-----	NAC.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct yellow dyes--Continued	
Direct Yellow 105-----	TRC.
Direct Yellow 106-----	TRC.
Direct Yellow 107-----	G.
Direct Yellow 114-----	ACY.
Direct Yellow 117-----	TRC.
Direct Yellow 118-----	TRC.
Direct Yellow 121-----	TRC.
Other direct yellow dyes-----	AAP, ACY, ALT, ATL, BL, DUP, FAB, VPC.
*Direct orange dyes:	
*Direct Orange 1-----	AAP, BKS, NAC, VPC.
Direct Orange 6-----	AAP, NAC.
*Direct Orange 8-----	ATL, DUP, G, NAC, TRC.
Direct Orange 10-----	AAP, NAC.
Direct Orange 11-----	G.
*Direct Orange 15-----	ACY, DUP, G, NAC, TRC.
*Direct Orange 26-----	ATL, CMG, DUP, G, NAC, TRC.
Direct Orange 29-----	ATL, BKS, TRC.
*Direct Orange 34-----	ACY, CMG, DUP, G, NAC.
*Direct Orange 37-----	ACY, CMG, DUP, G, TRC.
Direct Orange 38-----	NAC.
*Direct Orange 39-----	BKS, CMG, DUP, G.
Direct Orange 40-----	DUP.
Direct Orange 48-----	DUP.
Direct Orange 55-----	DUP, NAC.
Direct Orange 59-----	G, DUP.
Direct Orange 61-----	TRC.
Direct Orange 67-----	NAC, VPC.
Direct Orange 70-----	TRC.
*Direct Orange 72-----	ACY, ATL, BKS, BL, NAC, TRC, VPC.
*Direct Orange 73-----	DUP, G, NAC, TRC, VPC.
Direct Orange 74-----	DUP.
Direct Orange 76-----	DUP, NAC.
Direct Orange 78-----	DUP, VPC.
Direct Orange 79-----	DUP.
Direct Orange 80-----	DUP, VPC.
*Direct Orange 81-----	DUP, G, NAC, VPC.
Direct Orange 83-----	G, NAC.
Direct Orange 88-----	DUP.
*Direct Orange 102-----	ACY, DUP, G, NAC.
Direct Orange 105-----	BKS.
Direct Orange 110-----	TRC.
Other direct orange dyes-----	ALT, ATL, BL, DUP, VPC.
*Direct red dyes:	
*Direct Red 1-----	AAP, ATL, DUP, G, NAC, TRC, YAW.
*Direct Red 2-----	ATL, BKS, DUP, NAC, TRC.
*Direct Red 4-----	NAC, TRC, VPC.
Direct Red 5-----	NAC.
*Direct Red 10-----	AAP, ACY, NAC.
*Direct Red 13-----	AAP, ATL, DUP, G, NAC, TRC, YAW.
*Direct Red 16-----	AAP, ATL, DUP, G, NAC, TRC.
Direct Red 20-----	G, NAC.
*Direct Red 23-----	ATL, BKS, CMG, DUP, G, NAC, TRC, VPC.
*Direct Red 24-----	AAP, ATL, BKS, BL, FAB, NAC, TRC, VPC.
*Direct Red 26-----	ATL, BKS, CMG, DUP, G, NAC, TRC, VPC.
*Direct Red 28-----	ATL, DUP, NAC, TRC.
*Direct Red 31-----	ATL, DUP, G, NAC.
Direct Red 32-----	DUP, NAC.

TABLE 8B.-- Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct red dyes--Continued	
*Direct Red 37-----	AAP, ACY, ATL, G, NAC, TRC, YAW.
*Direct Red 39-----	ATL, G, NAC, TRC, YAW.
Direct Red 46-----	ATL, TRC.
Direct Red 53-----	NAC.
Direct Red 62-----	TRC.
Direct Red 72-----	G, TRC.
Direct Red 73-----	DUP, NAC.
*Direct Red 75-----	ACY, CMG, DUP, G, NAC.
Direct Red 76-----	G, NAC.
*Direct Red 79-----	CMG, TRC, VPC.
*Direct Red 80-----	AAP, ATL, BKS, BL, CMG, DUP, FAB, G, NAC, TRC, VPC.
*Direct Red 81-----	AAP, ACY, ALT, ATL, BKS, BL, CMG, DUP, G, NAC, SDH, TRC, VPC, YAW.
*Direct Red 83-----	ALT, ATL, BKS, CMG, DUP, NAC, TRC, VPC.
Direct Red 84-----	G, NAC, TRC.
Direct Red 94-----	NAC.
Direct Red 111-----	G.
Direct Red 117-----	DUP.
*Direct Red 122-----	CMG, DUP, G, NAC, TRC, VPC.
Direct Red 123-----	G, NAC.
Direct Red 127 and 127A-----	DUP, NAC, TRC.
Direct Red 138-----	NAC.
Direct Red 139-----	VPC.
Direct Red 148-----	DUP.
*Direct Red 149-----	AAP, DUP, G, NAC, TRC.
*Direct Red 152-----	CMG, DUP, NAC.
Direct Red 153-----	CMG, NAC.
Direct Red 155-----	G.
Direct Red 209-----	TRC.
Other direct red dyes-----	ALT, BL, DUP.
*Direct violet dyes:	
*Direct Violet 1-----	AAP, ATL, DUP, NAC.
Direct Violet 7-----	G, NAC.
*Direct Violet 9-----	AAP, ATL, BKS, DUP, G, NAC, TRC.
Direct Violet 14-----	NAC.
Direct Violet 22-----	NAC.
Direct Violet 30-----	AAP.
Direct Violet 47-----	DUP, G.
*Direct Violet 48-----	DUP, NAC, TRC.
Direct Violet 49-----	NAC.
Direct Violet 51-----	DUP, NAC.
Direct Violet 60-----	NAC.
Direct Violet 67-----	DUP, NAC.
Other direct violet dyes-----	ALT.
*Direct blue dyes:	
*Direct Blue 1-----	AAP, ACY, ATL, BKS, BL, DUP, G, NAC, TRC, VPC, YAW.
*Direct Blue 2-----	AAP, ATL, BKS, BL, DUP, FAB, G, NAC, TRC, VPC, YAW.
Direct Blue 3-----	NAC.
*Direct Blue 6-----	AAP, ACY, ATL, BL, DUP, G, NAC, TRC, YAW.
*Direct Blue 8-----	ACY, BKS, DUP, G, NAC, TRC.
Direct Blue 10-----	DUP.
*Direct Blue 14-----	ATL, DUP, NAC, TRC.
*Direct Blue 15-----	ATL, DUP, G, NAC, TRC.
Direct Blue 21-----	TRC.
*Direct Blue 22-----	ATL, CMG, DUP, NAC.
*Direct Blue 24-----	BKS, NAC, TRC, YAW.
*Direct Blue 25-----	DUP, G, NAC, TRC, YAW.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct blue dyes--Continued	
*Direct Blue 26-----	ATL, DUP, G, NAC.
Direct Blue 27-----	DUP.
Direct Blue 55-----	NAC.
Direct Blue 61-----	YAW.
Direct Blue 66-----	DUP, VPC.
*Direct Blue 67-----	DUP, NAC, TRC.
*Direct Blue 71-----	DUP, G, NAC, TRC.
Direct Blue 74-----	DUP.
Direct Blue 75-----	TRC.
*Direct Blue 76-----	ATL, BL, DUP, G, NAC, TRC, VPC.
*Direct Blue 78-----	ATL, CMG, DUP, G, NAC, TRC.
Direct Blue 79-----	TRC.
*Direct Blue 80-----	ALT, ATL, BKS, DUP, G, NAC, STD, TRC.
Direct Blue 84-----	DUP.
*Direct Blue 86-----	AAP, ACY, ATL, BKS, CMG, DUP, FAB, G, ICC, ICI, NAC, TMS, TRC, VPC.
*Direct Blue 98-----	AAP, ALT, ATL, BL, G, ICC, NAC, TRC, VPC.
Direct Blue 99-----	G.
Direct Blue 100-----	ALT, NAC.
Direct Blue 104-----	DUP.
*Direct Blue 120 and 120A-----	BKS, DUP, G, TRC.
*Direct Blue 126-----	DUP, G, NAC, TRC, VPC.
Direct Blue 127-----	G.
Direct Blue 130-----	NAC.
Direct Blue 133-----	G.
Direct Blue 136-----	G.
Direct Blue 143-----	DUP.
Direct Blue 151-----	ATL, NAC, TRC.
Direct Blue 180-----	NAC, TRC.
Direct Blue 191-----	G.
Direct Blue 199-----	G.
Direct Blue 238-----	ACY.
Other direct blue dyes-----	AAP, ALT, ATL, BL, DUP, ICI, NAC.
*Direct green dyes:	
*Direct Green 1-----	AAP, ACY, ATL, DUP, G, NAC, TRC, YAW.
*Direct Green 6-----	AAP, ATL, BKS, DUP, G, NAC, TRC, YAW.
*Direct Green 8-----	ATL, NAC, TRC, YAW.
*Direct Green 12-----	DUP, NAC, TRC.
Direct Green 14-----	NAC.
Direct Green 15-----	DUP.
Direct Green 26-----	NAC, TRC.
Direct Green 27-----	ATL, NAC, TRC.
Direct Green 28-----	TRC.
*Direct Green 38-----	DUP, G, NAC, TRC.
Direct Green 39-----	G.
Direct Green 41-----	DUP.
Direct Green 45-----	VPC.
Direct Green 47-----	DUP, G.
Other direct green dyes-----	ACY, ALT, ATL, BL, DUP.
*Direct brown dyes:	
*Direct Brown 1-----	ACY, ATL, BKS, BL, DUP, NAC.
*Direct Brown 1A-----	G, TRC, YAW.
*Direct Brown 2-----	AAP, ACY, ATL, BKS, BL, DUP, G, NAC, TRC, YAW.
*Direct Brown 6-----	DUP, G, NAC, TRC.
Direct Brown 11-----	NAC.
Direct Brown 21-----	DUP.
Direct Brown 25-----	DUP, NAC.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct brown dyes--Continued	
Direct Brown 27-----	G.
Direct Brown 29-----	NAC.
*Direct Brown 31-----	AAP, ATL, DUP, G, NAC, YAW.
Direct Brown 32-----	G.
Direct Brown 33-----	DUP, NAC.
Direct Brown 35-----	NAC.
Direct Brown 40-----	AAP, DUP.
Direct Brown 44-----	G, YAW.
Direct Brown 48-----	AAP.
Direct Brown 59-----	ACY.
*Direct Brown 74-----	AAP, DUP, NAC.
*Direct Brown 95-----	AAP, ALT, ATL, DUP, G, NAC, TRC, YAW.
Direct Brown 101-----	G.
Direct Brown 105-----	DUP.
Direct Brown 106-----	G, NAC.
*Direct Brown 111-----	DUP, G, TRC, VPC.
Direct Brown 112-----	ATL, NAC.
Direct Brown 125-----	G.
*Direct Brown 154-----	DUP, G, TRC, YAW.
Other direct brown dyes-----	ALT, BL, DUP, NAC, TRC, VPC, YAW.
*Direct black dyes:	
Direct Black 3-----	DUP.
*Direct Black 4-----	ATL, DUP, G, NAC, TRC, YAW.
Direct Black 8-----	TRC, YAW.
*Direct Black 9-----	ATL, DUP, G, NAC, TRC.
Direct Black 17-----	G, NAC, TRC.
*Direct Black 19-----	ATL, BKS, G, NAC, TRC.
*Direct Black 22-----	ALT, ATL, BKS, CMG, DUP, G, NAC, TRC, VPC, YAW.
Direct Black 36-----	AAP.
*Direct Black 37-----	AAP, DUP, NAC.
*Direct Black 38-----	AAP, ACY, ATL, BKS, BL, DUP, FAB, G, NAC, TRC, YAW.
Direct Black 44-----	TRC.
*Direct Black 51-----	AAP, ATL, DUP, G, NAC, TRC.
Direct Black 55-----	DUP.
Direct Black 56-----	NAC, TRC.
Direct Black 61-----	TRC.
Direct Black 67-----	DUP, NAC.
Direct Black 71-----	ATL, VPC.
Direct Black 75-----	G.
Direct Black 78-----	BKS, DUP, NAC.
*Direct Black 80-----	AAP, ATL, BKS, BL, FAB, G, NAC, TRC, VPC, YAW.
Direct Black 109-----	G.
Direct Black 130-----	ACY.
Other direct black dyes-----	ACY, ALT, ATL, BL, DUP, TRC, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
*Disperse Yellow 1-----	DUP, G, ICC.
Disperse Yellow 2-----	DUP.
*Disperse Yellow 3-----	AAP, DUP, EKT, G, HSH, ICC, NAC, SDH, STD, TRC.
*Disperse Yellow 5-----	EKT, G, ICC, STD.
Disperse Yellow 8-----	DUP, TRC.
Disperse Yellow 17-----	AAP.
*Disperse Yellow 23-----	DUP, EKT, G, ICC.
Disperse Yellow 31-----	G.
Disperse Yellow 32-----	DUP.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DISPERSE DYES--Continued	
*Disperse yellow dyes--Continued	
Disperse Yellow 33-----	AAP, EKT, ICC.
Disperse Yellow 34-----	EKT.
*Disperse Yellow 37-----	AAP, EKT, ICC.
Disperse Yellow 42-----	DUP, G, TRC.
Disperse Yellow 50-----	TRC.
Disperse Yellow 54-----	DUP, G, ICC.
Other disperse yellow dyes-----	DUP, EKT, G, ICC.
*Disperse orange dyes:	
*Disperse Orange 3-----	AAP, DUP, EKT, G, ICC, STD, TRC.
*Disperse Orange 5-----	AAP, EKT, G, NAC.
Disperse Orange 15-----	AAP.
Disperse Orange 16-----	AAP.
*Disperse Orange 17-----	AAP, EKT, G, HSH, ICC, NAC, STD.
Disperse Orange 21-----	TRC.
Disperse Orange 25-----	DUP.
Disperse Orange 26-----	DUP.
Disperse Orange 28-----	AAP.
Disperse Orange 38-----	TRC.
Other disperse orange dyes-----	BL, DUP, EKT, G, ICC.
*Disperse red dyes:	
*Disperse Red 1-----	AAP, DUP, EKT, G, ICC, NAC, SDH, STD, TRC, YAW.
Disperse Red 4-----	G.
*Disperse Red 5-----	AAP, EKT, G, HSH, ICC, SDH, STD.
Disperse Red 7-----	AAP.
Disperse Red 9-----	AAP, DUP.
*Disperse Red 11-----	AAP, DUP, G, TRC.
*Disperse Red 13-----	AAP, DUP, G, ICC.
*Disperse Red 15-----	G, HSH, ICC, NAC.
*Disperse Red 17-----	AAP, DUP, EKT, G, HSH, ICC, STD, TRC.
Disperse Red 20-----	NAC.
Disperse Red 21-----	EKT.
Disperse Red 30-----	EKT, TRC.
Disperse Red 31-----	ICC.
Disperse Red 32-----	G.
Disperse Red 55-----	TRC.
Disperse Red 56-----	DUP.
Disperse Red 59-----	DUP, G.
Disperse Red 60-----	AAP, DUP, VPC.
Disperse Red 61-----	DUP.
Disperse Red 65-----	DUP.
Disperse Red 66-----	AAP.
Other disperse red dyes-----	DUP, EKT, G, ICC, TRC, VPC.
Disperse violet dyes:	
*Disperse Violet 1-----	AAP, DUP, G, ICC, STD, TRC.
*Disperse Violet 4-----	AAP, DUP, G, ICC, NAC.
Disperse Violet 8-----	G.
Disperse Violet 11-----	EKT, NAC.
Disperse Violet 14-----	DUP.
Disperse Violet 17-----	ACY.
Disperse Violet 18-----	DUP.
Disperse Violet 22-----	G.
Disperse Violet 26-----	DUP.
Disperse Violet 27-----	DUP, G.
Other disperse violet dyes-----	EKT, ICC.
*Disperse blue dyes:	
*Disperse Blue 1-----	AAP, G, TRC.
*Disperse Blue 3-----	AAP, EKT, G, ICC, NAC, STD, TRC.



TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DISPERSE DYES--Continued	
*Disperse blue dyes--Continued	
*Disperse Blue 7-----	G, HSH, ICC, NAC, TRC.
Disperse Blue 8-----	DUP.
Disperse Blue 9-----	G, ICC.
Disperse Blue 27-----	EKT.
Disperse Blue 35-----	ICI.
Disperse Blue 41-----	NAC.
Disperse Blue 51-----	G.
Disperse Blue 55-----	TRC.
Disperse Blue 59-----	DUP.
Disperse Blue 60-----	DUP.
Disperse Blue 61-----	DUP.
Disperse Blue 62-----	DUP.
Disperse Blue 63-----	DUP.
*Disperse Blue 64-----	DUP, G, TRC.
Disperse Blue 67-----	DUP.
Disperse Blue 70-----	AAP.
Disperse Blue 71-----	VPC.
Other disperse blue dyes-----	EKT, G, ICC, STD, TRC, VPC.
*Disperse brown dyes:	
Disperse Brown 2-----	DUP.
Other disperse brown dyes-----	EKT, G, ICC, TRC.
Disperse black dyes:	
*Disperse Black 1-----	AAP, ATL, DUP, G, TRC.
Disperse Black 2-----	DUP, TRC.
Disperse Black 6-----	DUP.
Disperse Black 7-----	YAW.
*Disperse Black 9-----	AAP, BL, DUP, EKT, G, KLS, NAC.
Other disperse black dyes-----	DUP, EKT, ICC, YAW.
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 18-----	ICI.
Other reactive yellow dyes-----	DUP, HST, ICI.
Reactive orange dyes:	
Reactive Orange 1-----	ICI.
Reactive Orange 2-----	TRC.
Reactive Orange 4-----	ICI.
Reactive Orange 5-----	TRC.
Other reactive orange dyes-----	HST, ICI.
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.
Other reactive red dyes-----	DUP, HST, ICI.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
FIBER-REACTIVE DYES--Continued	
Reactive violet dyes:	
Reactive Violet 1-----	ICI.
Reactive Violet 2-----	TRC.
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.
Other reactive blue dyes-----	DUP, HST.
Reactive green dyes-----	HST.
Reactive brown dye: Reactive Brown 1-----	TRC.
Reactive black dyes:	
Reactive Black 1-----	TRC.
Other reactive black dyes-----	HST, ICI.
FLUORESCENT BRIGHTENING AGENTS	
Fluorescent Brightening Agent 1-----	GGY.
Fluorescent Brightening Agent 4-----	ACY.
Fluorescent Brightening Agent 6-----	ACY.
Fluorescent Brightening Agent 8-----	ACY.
Fluorescent Brightening Agent 9-----	ACY, FBC, G, TRC.
Fluorescent Brightening Agent 22-----	GGY.
Fluorescent Brightening Agent 24-----	GGY.
Fluorescent Brightening Agent 25-----	G.
Fluorescent Brightening Agent 28-----	ACY, FBC, DUP.
Fluorescent Brightening Agent 30-----	G.
Fluorescent Brightening Agent 33-----	G.
Fluorescent Brightening Agent 34-----	DUP.
Fluorescent Brightening Agent 37-----	TRC.
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 61-----	ACY.
Fluorescent Brightening Agent 66-----	SDH.
Fluorescent Brightening Agent 68-----	CCW, G, SDH.
Fluorescent Brightening Agent 71-----	ACY, G.
Fluorescent Brightening Agent 72-----	GGY.
Fluorescent Brightening Agent 75-----	G.
Fluorescent Brightening Agent 101-----	GGY.
Fluorescent Brightening Agent 102-----	DUP.
Fluorescent Brightening Agent 109-----	G.
Fluorescent Brightening Agent 113-----	VPC.
Fluorescent Brightening Agent 114-----	VPC.
Fluorescent Brightening Agent 125-----	ACY.
Fluorescent Brightening Agent 134-----	TRC.
Fluorescent Brightening Agent 135-----	TRC.
Fluorescent Brightening Agent 136-----	TRC.
Fluorescent Brightening Agent 139-----	TRC.
Other fluorescent brightening agents-----	ACY, CCW, DUP, FBC, G, GGY, S, TRC, VPC.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
FOOD, DRUG, AND COSMETIC COLORS	
<i>Food, Drug, and Cosmetic Dyes</i>	
*FD&C Blue No. 1-----	BAT, KON, NAC, SDH, WJ.
FD&C Blue No. 2-----	BAT, KON, NAC, SDH.
FD&C Green No. 1-----	NAC, WJ.
FD&C Green No. 2-----	BAT, NAC, WJ.
FD&C Green No. 3-----	BAT, WJ.
*FD&C Red No. 2-----	BAT, KON, NAC, SDH, STG, WJ.
*FD&C Red No. 3-----	BAT, KON, NAC, SDH, STG.
*FD&C Red No. 4-----	BAT, KON, NAC, SDH, STG, WJ.
FD&C Violet No. 1-----	NAC, SDH.
FD&C Yellow No. 3-----	SDH.
*FD&C Yellow No. 5-----	BAT, KON, NAC, SDH, STG, WJ.
*FD&C Yellow No. 6-----	BAT, KON, NAC, SDH, STG, WJ.
Other food, drug, and cosmetic dyes-----	KON, WJ.
<i>Drug and Cosmetic Dyes</i>	
D&C Black No. 1-----	KON, NAC, YAW.
D&C Blue No. 4-----	NAC.
D&C Blue No. 6-----	KON, NAC.
D&C Blue No. 7-----	KON.
D&C Blue No. 9-----	NAC.
D&C Brown No. 1-----	NAC.
D&C Green No. 5-----	KON, NAC.
D&C Green No. 6-----	KON, NAC.
D&C Green No. 8-----	KON, SDH.
D&C Orange No. 3-----	KON.
D&C Orange No. 4-----	NAC, SNA.
D&C Orange No. 5-----	KON, SNA, TMS.
D&C Orange No. 10-----	TMS.
D&C Orange No. 17-----	KON, SNA.
D&C Red No. 2-----	KON.
D&C Red No. 3-----	KON, TMS.
D&C Red No. 6-----	SNA, TMS.
*D&C Red No. 7-----	KON, SNA, TMS.
*D&C Red No. 8-----	KON, SNA, TMS.
D&C Red No. 9-----	KON, SNA, TMS.
D&C Red No. 10-----	KON, SNA.
D&C Red No. 11-----	KON, SNA.
D&C Red No. 12-----	SNA, TMS.
D&C Red No. 13-----	SNA, TMS.
D&C Red No. 17-----	KON, NAC.
*D&C Red No. 19-----	KON, SNA, TMS.
*D&C Red No. 21-----	KON, SNA, TMS.
D&C Red No. 22-----	KON.
D&C Red No. 27-----	TMS.
D&C Red No. 28-----	NAC.
D&C Red No. 30-----	KON.
D&C Red No. 31-----	KON.
D&C Red No. 33-----	KON, NAC.
D&C Red No. 34-----	TMS.
D&C Red No. 36-----	KON, TMS.
D&C Red No. 37-----	NAC.
D&C Red No. 39-----	SDH.
D&C Violet No. 2-----	NAC.
D&C Yellow No. 5-----	KON, SNA, TMS.
D&C Yellow No. 6-----	KON.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
FOOD, DRUG, AND COSMETIC COLORS--Continued	
Drug and Cosmetic Dyes--Continued	
D&C Yellow No. 7-----	TMS.
D&C Yellow No. 8-----	NAC, TMS.
D&C Yellow No. 10-----	KON, NAC.
D&C Yellow No. 11-----	NAC.
Drug and Cosmetic Dyes, External	
Ext. D&C Blue No. 1-----	NAC.
Ext. D&C Green No. 1-----	NAC.
Ext. D&C Orange No. 3-----	KON, NAC.
Ext. D&C Orange No. 4-----	NAC.
Ext. D&C Red No. 15-----	KON.
Ext. D&C Violet No. 2-----	KON.
Ext. D&C Yellow No. 1-----	KON, NAC.
Ext. D&C Yellow No. 3-----	KON.
Ext. D&C Yellow No. 5-----	KON.
Ext. D&C Yellow No. 7-----	KON.
INGRAIN DYES	
Ingrain blue dyes:	
Ingrain Blue 1-----	ICI.
Ingrain Blue 2-----	VPC.
Ingrain Blue 3-----	ICI.
Ingrain Blue 4-----	ICI.
Ingrain Blue 8-----	ICI.
Ingrain green dye: Ingrain Green 2-----	ICI.
MORDANT DYES	
*Mordant yellow dyes:	
*Mordant Yellow 1-----	G, PDC, TRC.
Mordant Yellow 3-----	ATL, NAC.
Mordant Yellow 5-----	DUP, NAC, TRC.
*Mordant Yellow 8-----	DUP, G, NAC, VPC.
Mordant Yellow 10-----	DUP.
Mordant Yellow 14-----	NAC, TRC.
Mordant Yellow 16-----	ACY, NAC.
Mordant Yellow 20-----	NAC.
Mordant Yellow 26-----	NAC, VPC.
Mordant Yellow 29-----	G.
Mordant Yellow 30-----	TRC.
Mordant Yellow 36-----	PDC.
*Mordant orange dyes:	
*Mordant Orange 1-----	AAP, ACY, G, PDC, TRC.
Mordant Orange 3-----	VPC.
Mordant Orange 4-----	G.
Mordant Orange 6-----	ATL, G, TRC.
Mordant Orange 8-----	NAC, TRC.
Mordant Orange 30-----	NAC.
*Mordant red dyes:	
Mordant Red 3-----	ACY, ICI, NAC.
Mordant Red 5-----	NAC.
Mordant Red 6-----	G.
*Mordant Red 7-----	ACY, CMG, G, NAC, TRC, VPC.
Mordant Red 9-----	G, MRX, NAC.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
MORDANT DYES--Continued	
*Mordant red dyes--Continued	
Mordant Red 11-----	ACY, NAC.
Mordant Red 19-----	NAC.
Mordant Red 36-----	TRC.
Mordant Red 59-----	TRC.
Mordant Red 64-----	PDC.
Mordant violet dyes:	
Mordant Violet 5-----	NAC, PDC.
Mordant Violet 11-----	G.
Mordant Violet 20-----	G.
*Mordant blue dyes:	
*Mordant Blue 1-----	AAP, DUP, G, NAC, TRC.
Mordant Blue 3-----	G.
Mordant Blue 7-----	NAC, TRC.
Mordant Blue 9-----	G, NAC.
Mordant Blue 13-----	HSH, NAC.
Mordant green dyes:	
Mordant Green 9-----	NAC.
Mordant Green 11-----	ACY.
Mordant Green 36-----	PDC, TRC.
Mordant Green 47-----	NAC.
*Mordant brown dyes:	
*Mordant Brown 1-----	CMG, DUP, G, NAC, TRC, YAW.
Mordant Brown 12-----	PDC.
Mordant Brown 13-----	NAC.
Mordant Brown 15-----	G.
Mordant Brown 17-----	CMG, G.
Mordant Brown 18-----	DUP, NAC.
*Mordant Brown 19-----	G, NAC, TRC.
Mordant Brown 21-----	G, VPC.
Mordant Brown 33-----	DUP, NAC, TRC.
*Mordant Brown 40-----	CMG, DUP, G, NAC, PDC, TRC, VPC.
Mordant Brown 43-----	G.
Mordant Brown 50-----	TRC.
Mordant Brown 63-----	TRC.
Mordant Brown 70-----	DUP, PDC.
*Mordant black dyes:	
Mordant Black 1-----	G, NAC.
*Mordant Black 3-----	G, NAC, TRC.
*Mordant Black 5-----	G, NAC, TRC.
Mordant Black 7-----	G.
Mordant Black 8-----	VPC.
Mordant Black 9-----	NAC, VPC.
*Mordant Black 11-----	G, NAC, TRC, VPC.
*Mordant Black 13-----	G, HSH, -ICI, NAC, TRC.
Mordant Black 16-----	NAC.
*Mordant Black 17-----	ACY, DUP, G, NAC, TRC.
Mordant Black 19-----	PDC.
Mordant Black 26-----	TRC.
*Mordant Black 38-----	CMG, DUP, G, NAC, TRC, VPC.
OXIDATION BASES	
Oxidation Base 8 and 8A-----	ACY.
Oxidation Base 22-----	ACY.
Oxidation Base 25-----	ACY.
Other oxidation bases-----	ACY.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 1-----	ACY.
*Solvent Yellow 2-----	AAP, DUP, G, PAT.
*Solvent Yellow 3-----	AAP, DUP, G, NAC, SDH.
Solvent Yellow 13-----	ACY, G, TRC.
*Solvent Yellow 14-----	AAP, ACY, DUP, FH, G, NAC, PAT, SDH.
Solvent Yellow 16-----	PAT.
Solvent Yellow 19-----	G.
Solvent Yellow 29-----	G, NAC.
Solvent Yellow 33-----	ACY, NAC.
Solvent Yellow 34-----	DUP.
Solvent Yellow 40-----	NAC.
Solvent Yellow 42-----	NAC.
Solvent Yellow 43-----	G, NAC.
Solvent Yellow 44-----	G, NAC.
Solvent Yellow 45-----	DUP, NAC.
*Solvent Yellow 47-----	ACY, DUP, G, NAC.
Solvent Yellow 53-----	NAC.
Solvent Yellow 56-----	ACY.
Solvent Yellow 66-----	NAC.
Solvent Yellow 71-----	ACY.
Solvent Yellow 72-----	ACY.
Other solvent yellow dyes-----	AAP, DSC, DUP, FH.
*Solvent orange dyes:	
Solvent Orange 2-----	AAP, PAT.
*Solvent Orange 3-----	ACY, DSC, G, NAC.
Solvent Orange 4-----	PAT.
Solvent Orange 5-----	G, TRC.
*Solvent Orange 7-----	ACY, G, NAC.
*Solvent Orange 20-----	ACY, G, NAC.
Solvent Orange 23-----	NAC.
Solvent Orange 24-----	DUP.
Solvent Orange 25-----	ACY, DUP.
Solvent Orange 31-----	NAC.
Solvent Orange 48-----	ACY.
Other solvent orange dyes-----	AAP, ACY, DSC, DUP.
Solvent red dyes:	
Solvent Red 8-----	G.
Solvent Red 22-----	G.
Solvent Red 24-----	ACY, DUP, FH, G, NAC, PAT, SDH.
*Solvent Red 26-----	AAP, ACY, NAC.
Solvent Red 27-----	NAC.
Solvent Red 33-----	DUP.
Solvent Red 34-----	DUP.
Solvent Red 35-----	G.
Solvent Red 40-----	G.
*Solvent Red 49-----	ACY, DUP, G.
Solvent Red 52-----	G, ICI.
Solvent Red 63-----	NAC.
Solvent Red 65-----	NAC.
Solvent Red 68-----	NAC.
Solvent Red 69-----	DUP.
Solvent Red 74-----	NAC.
Solvent Red 76-----	NAC.
Solvent Red 80-----	ACY, NAC.
Solvent Red 105-----	ACY.
Solvent Red 111-----	ACY.
Other solvent red dyes-----	AAP, ACY, DSC, DUP, FH, PAT.

TABLE 8B.-- Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SOLVENT DYES--Continued	
*Solvent violet dyes:	
Solvent Violet 7-----	NAC.
*Solvent Violet 8-----	ACY, DSC, NAC.
Solvent Violet 9-----	DSC.
Solvent Violet 13-----	AAP, HSH.
Solvent Violet 14-----	ICI.
Solvent Violet 17-----	NAC.
Other solvent violet dyes-----	DSC, PAT.
*Solvent blue dyes:	
Solvent Blue 3-----	ACY.
Solvent Blue 4-----	DSC, DUP, G, SDH.
Solvent Blue 5-----	DSC.
Solvent Blue 7-----	ACY, NAC.
Solvent Blue 9-----	G.
Solvent Blue 11-----	G, ICI.
Solvent Blue 12-----	DUP, NAC.
Solvent Blue 16-----	NAC.
Solvent Blue 30-----	NAC.
Solvent Blue 31-----	NAC.
Solvent Blue 33-----	G.
Solvent Blue 36-----	DUP, NAC.
Solvent Blue 37-----	DUP.
*Solvent Blue 38-----	ACY, CMG, DUP, NAC.
Solvent Blue 39-----	NAC.
Solvent Blue 43-----	NAC.
Solvent Blue 58-----	ACY.
Solvent Blue 59-----	ACY.
Solvent Blue 60-----	ACY.
Other solvent blue dyes-----	AAP, DSC, G, ICI, PAT, SDH, SW.
*Solvent green dyes:	
Solvent Green 1-----	ACY, SDH.
Solvent Green 2-----	G.
*Solvent Green 3-----	AAP, ACY, CMG, G, HSH, ICI, NAC.
Solvent Green 10-----	DUP.
Solvent Green 11-----	DUP.
Other solvent green dyes-----	DSC, NAC.
*Solvent brown dyes:	
Solvent Brown 11-----	G.
Solvent Brown 12-----	ACY, DSC, G.
Solvent Brown 17-----	DUP.
Solvent Brown 19-----	DUP.
Solvent Brown 20-----	ACY, DUP.
Solvent Brown 21-----	NAC.
Solvent Brown 38-----	ACY.
Other solvent brown dyes-----	DSC, FH, G.
Solvent black dyes:	
Solvent Black 3-----	NAC.
Solvent Black 5-----	ACY, NAC.
Solvent Black 7-----	ACY, NAC.
Solvent Black 12-----	NAC.
Solvent Black 13-----	NAC.
Solvent Black 17-----	DUP.
Solvent Black 19-----	G.
Solvent Black 20-----	NAC.
Solvent Black 26-----	ACY.
Other solvent black dyes-----	DSC, FH.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SULFUR DYES	
Sulfur yellow dyes:	
Sulfur Yellow 2-----	NAC.
Leuco Sulfur Yellow 2-----	NAC.
Solubilized Sulfur Yellow 2-----	ACY.
Sulfur Yellow 4-----	DUP, SDC.
Other sulfur yellow dyes-----	ACY.
Sulfur orange dye: Sulfur Orange 1-----	SDC.
Sulfur red dyes:	
Sulfur Red 1-----	ACY, NAC.
Leuco Sulfur Red 1-----	NAC.
Sulfur Red 6-----	ACY, DUP, NAC.
Sulfur Red 8-----	DUP.
Sulfur blue dyes:	
Sulfur Blue 5-----	ACY.
Sulfur Blue 7-----	ACY, DUP, NAC, SDC.
Leuco Sulfur Blue 7-----	NAC, SDC.
Solubilized Sulfur Blue 7-----	ACY.
Sulfur Blue 9-----	ACY, NAC.
Leuco Sulfur Blue 9-----	NAC.
Sulfur Blue 11-----	DUP, NAC.
Sulfur Blue 13-----	ACY.
Solubilized Sulfur Blue 13-----	ACY.
Sulfur Blue 15-----	ACY, DUP, NAC.
Other sulfur blue dyes-----	SDC.
Sulfur green dyes:	
Sulfur Green 1-----	NAC.
Leuco Sulfur Green 1-----	NAC.
Sulfur Green 2-----	DUP, NAC, SDC.
Leuco Sulfur Green 2-----	SDC.
Solubilized Sulfur Green 2-----	SDH.
Sulfur Green 3-----	NAC.
Sulfur Green 11-----	DUP.
Sulfur Green 14-----	DUP.
Other sulfur green dyes-----	AUG.
Sulfur brown dyes:	
Sulfur Brown 3-----	SDC.
Leuco Sulfur Brown 3-----	SDC.
Sulfur Brown 10-----	DUP, NAC, SDC.
Leuco Sulfur Brown 10-----	NAC, SDC.
Solubilized Sulfur Brown 10-----	AUG.
Sulfur Brown 14-----	ACY.
Solubilized Sulfur Brown 14-----	ACY.
Sulfur Brown 20-----	DUP.
Sulfur Brown 26-----	DUP.
Sulfur Brown 30-----	ACY.
Sulfur Brown 33-----	ACY.
Sulfur Brown 37-----	SDC.
Leuco Sulfur Brown 37-----	SDC.
Sulfur Brown 39-----	DUP.
Sulfur Brown 40-----	DUP.
Sulfur Brown 43-----	NAC.
Leuco Sulfur Brown 43-----	NAC.
Sulfur Brown 44-----	NAC.
Leuco Sulfur Brown 44-----	NAC.
Sulfur Brown 45-----	NAC.
Sulfur Brown 50-----	NAC.
Sulfur Brown 76-----	ACY.
Other sulfur brown dyes-----	ACY, NAC.



TABLE 8B.-- Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SULFUR DYES--Continued	
Sulfur black dyes:	
Sulfur Black 1-----	ACY, DUP, NAC, SDC.
Leuco Sulfur Black 1-----	NAC, SDC.
Solubilized Sulfur Black 1-----	ACY.
Sulfur Black 2-----	DUP, NAC.
Leuco Sulfur Black 2-----	NAC, SDC.
Solubilized Sulfur Black 2-----	ACY.
Sulfur Black 6-----	G.
Leuco Sulfur Black 6-----	NAC.
Sulfur Black 10-----	ACY, DUP.
Leuco Sulfur Black 10-----	NAC.
Solubilized Sulfur Black 10-----	ACY.
Sulfur Black 11-----	G, SDC.
Leuco Sulfur Black 11-----	SDC.
VAT DYES	
*Vat yellow dyes:	
Vat Yellow 1, 12-1/2%-----	NAC.
*Vat Yellow 2, 8-1/2%-----	AAP, ATL, DUP, G, HST, ICI, NAC, TRC, VPC.
Solubilized Vat Yellow 2, 25%-----	G, ICI.
Vat Yellow 3, 12-1/2%-----	DUP.
*Vat Yellow 4, 12-1/2%-----	AAP, ATL, CMG, G, HST, ICI, TRC, VPC.
Solubilized Vat Yellow 4, 37-1/2%-----	G, HST.
Vat Yellow 10, 10%-----	G.
Vat Yellow 13, 6-1/2%-----	ICI.
Vat Yellow 14, 12-1/2%-----	TRC.
Vat Yellow 15, 11-1/2%-----	ACY.
Vat Yellow 16, 16-2/3%-----	DUP.
Vat Yellow 21, 9-1/2%-----	ATL, DUP.
Vat Yellow 22, 10%-----	DUP, G.
Vat Yellow 27-----	VPC.
Vat Yellow 33-----	ICI, TRC.
Vat Yellow 41, 9%-----	ACY.
Other vat yellow dyes-----	MAY, NAC, VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%-----	CMG, G, HST, ICI, NAC, TRC, VPC.
*Solubilized Vat Orange 1, 26%-----	G, HST, ICI.
*Vat Orange 2, 12%-----	AAP, ACY, CMG, DUP, G, ICI, NAC, TRC.
Vat Orange 3, 13-1/2%-----	AAP, CMG, DUP, G.
*Vat Orange 4, 6%-----	ACY, CMG, DUP.
*Vat Orange 5, 10%-----	AAP, ACY, DUP, HST, NAC.
*Solubilized Vat Orange 5, 30%-----	G, HST, ICI.
*Vat Orange 7, 11%-----	G, HST, TRC.
*Vat Orange 9, 12%-----	AAP, ACY, CMG, DUP, G, ICI, NAC, TRC.
Vat Orange 11, 6%-----	DUP, NAC.
*Vat Orange 15, 10%-----	AAP, ACY, G, ICI, NAC, TRC, VPC.
Vat Orange 16-----	NAC.
Vat Orange 23, 17-1/2%-----	ACY, DUP.
Vat Orange 24-----	DUP.
Other vat orange dyes-----	DUP, G, NAC, SDC.
*Vat red dyes:	
*Vat Red 1, 13%-----	AAP, ACY, DUP, HST.
*Solubilized Vat Red 1, 37%-----	G, HST, ICI.
Vat Red 10, 18%-----	G, NAC, TRC.
Solubilized Vat Red 10, 31%-----	G, NAC.
Vat Red 12, 8-1/2%-----	DUP.
*Vat Red 13, 11%-----	DUP, G, NAC, TRC.

TABLE 8B.-- Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
VAT DYES--Continued	
*Vat red dyes--Continued	
Vat Red 14, 10%-----	G, HST.
*Vat Red 15, 10%-----	G, HST, TRC.
Vat Red 16, 11%-----	DUP.
Vat Red 17, 10%-----	G.
Vat Red 29, 18%-----	G, NAC.
*Vat Red 32, 20%-----	DUP, G, NAC.
Vat Red 35, 12-1/2%-----	NAC, TRC.
Vat Red 41, 20%-----	HST.
Vat Red 44, 17%-----	TRC.
Vat Red 52, 10%-----	DUP.
Vat Red 53, 12%-----	DUP.
Vat Red 56-----	ACY.
Vat Red 62-----	DUP.
Other vat red dyes-----	DUP, G.
*Vat violet dyes:	
*Vat Violet 1, 11%-----	ACY, DUP, G, ICI, MAY, NAC, TRC.
Solubilized Vat Violet 1, 26%-----	G, ICI.
*Vat Violet 2, 20%-----	ACY, G, HST, NAC, VPC.
Vat Violet 3, 15%-----	G, HST, NAC.
Solubilized Vat Violet 3, 43%-----	G.
*Vat Violet 9, 12%-----	DUP, G, ICI, MAY, NAC, TRC.
Vat Violet 12, 10%-----	DUP.
*Vat Violet 13, 6-1/4%-----	ACY, CMG, DUP, G, ICI, NAC, TRC.
Vat Violet 14, 12-1/2%-----	DUP, NAC.
*Vat Violet 17, 12-1/2%-----	DUP, G, NAC.
Other vat violet dyes-----	NAC.
*Vat blue dyes:	
Vat Blue 1, 20%-----	DUP, NAC.
Solubilized Vat Blue 1, 25%-----	G.
Vat Blue 3, 16%-----	HST.
*Vat Blue 4, 10%-----	ACY, DUP, G.
*Vat Blue 5, 16%-----	ATL, DUP, HST, NAC, VPC.
Solubilized Vat Blue 5, 38%-----	G, HST.
*Vat Blue 6, 8-1/3%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC, VPC.
*Solubilized Vat Blue 6, 17-1/2%-----	G, HST, ICI.
Vat Blue 7, 12-1/2%-----	NAC.
Solubilized Vat Blue 9, 35%-----	G.
Vat Blue 12, 6-1/2%-----	DUP.
*Vat Blue 14, 8-1/3%-----	DUP, G, NAC, TRC.
Vat Blue 16, 16%-----	ACY, DUP, NAC.
*Vat Blue 18, 13%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
*Vat Blue 20, 14%-----	AAP, ACY, ATL, DUP, G, ICI, MAY, NAC, TRC.
Vat Blue 29-----	G.
Vat Blue 39, 12%-----	G.
Vat Blue 43-----	SDC.
Vat Blue 53-----	G.
Vat Blue 60-----	DUP.
Vat Blue 61, 16%-----	DUP.
Other vat blue dyes-----	G, MAY, SDC, x.
*Vat green dyes:	
*Vat Green 1, 6%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
Solubilized Vat Green 1, 12-1/2%-----	G, HST, ICI.
*Vat Green 3, 10%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
*Solubilized Vat Green 3, 26%-----	G, HST, ICI.
*Vat Green 8, 8-1/2%-----	DUP, G, ICI, NAC.
*Vat Green 9, 12-1/2%-----	ACY, DUP, G, MAY, NAC, SDC, TRC.
Vat Green 15, 17%-----	NAC.

TABLE 8B.--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
VAT DYES--Continued	
*Vat green dyes--Continued	
Vat Green 18, 8%-----	DUP.
Vat Green 19, 13%-----	DUP.
Vat Green 20, 6%-----	DUP.
Other vat green dyes-----	ACY, G, MAY, SDC, VPC.
*Vat brown dyes:	
*Vat Brown 1, 11%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
Solubilized Vat Brown 1, 17%-----	G, ICI.
*Vat Brown 3, 11%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC, VPC.
*Vat Brown 5, 13%-----	AAP, ACY, G, HST, NAC, VPC.
Solubilized Vat Brown 5, 17%-----	G.
Vat Brown 6, 17-1/2%-----	TRC.
Vat Brown 11, 12%-----	MAY, TRC.
Vat Brown 12, 12-1/2%-----	DUP, NAC.
Vat Brown 13, 17%-----	MAY.
Vat Brown 14, 12%-----	HST.
Vat Brown 20, 10-1/2%-----	DUP, G, NAC.
Vat Brown 25, 11-1/2%-----	G.
Vat Brown 29, 13%-----	ACY.
Vat Brown 31, 28%-----	AAP.
Vat Brown 38, 20%-----	ICI.
Vat Brown 40, 14%-----	DUP.
Vat Brown 51-----	DUP.
Vat Brown 57-----	TRC.
Other vat brown dyes-----	DUP, G, MAY, NAC, SDC, VPC.
*Vat black dyes:	
Vat Black 1-----	G.
Solubilized Vat Black 1, 27-1/2%-----	G, HST, ICI.
*Vat Black 9, 16%-----	G, NAC, TRC.
Vat Black 11, 17-1/2%-----	ACY.
Vat Black 13, 14%-----	DUP, NAC.
Vat Black 14, 11-1/2%-----	DUP.
Vat Black 18, 15-1/2%-----	G, NAC.
Vat Black 21, 18-1/2%-----	ACY.
Vat Black 22, 19%-----	ACY, TRC.
*Vat Black 25, 12-1/2%-----	AAP, ACY, DUP, G, ICI, MAY, NAC, TRC.
Vat Black 26, 24%-----	NAC.
*Vat Black 27, 12-1/2%-----	AAP, ACY, CMG, DUP, G, ICI, MAY, NAC, TRC, VPC.
Vat Black 34, 16%-----	ICI.
Vat Black 38-----	G.
Other vat black dyes-----	ACY, DUP, G, MAY, NAC, SDC, TRC, VPC.
All other dyes-----	PAT, WIM.

## Synthetic Organic Pigments

TABLE 11B.--Synthetic organic pigments for which U.S. production or sales were reported, identified by manufacturer, 1963

[Synthetic organic pigments for which separate statistics are given in table 11A are marked below with an asterisk (\*); products not so marked do not appear in table 11A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product.]

Synthetic organic pigment	Manufacturers' identification codes (according to list in table 22)
TONERS	
*Yellow toners:	
*Hansa yellows:	
*Pigment Yellow 1, C.I. 11 680-----	ACY, AMS, DUP, EAK, FCL, G, HAR, HCC, HSH, ICI, IMP, KON, PPG, S, SDH, SNA, SUC, SW.
*Pigment Yellow 3, C.I. 11 710-----	HAR, HCC, HST, IMP, KCW, KON, PPG, S, SW.
Pigment Yellow 4, C.I. 11 665-----	HAR, HSH, SNA.
Pigment Yellow 5, C.I. 11 660-----	IMP.
Pigment Yellow 6, C.I. 11 670-----	CIK, IMP.
Pigment Yellow 9, C.I. 11 720-----	SNA.
Pigment Yellow 49, C.I. 11 765-----	ICI.
Pigment Yellow 60-----	SW.
Pigment Yellow 73-----	SW.
Pigment Yellow 74-----	DUP, SW.
All other Hansa yellows-----	DUP, HCC, IMP, KCW, SDH, SNA, WDC.
*Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090-----	ACY, AMS, DUP, FCL, G, HAR, HCC, HSH, ICC, IMP, KON, LVI, MRX, S, SDH, SNA, SUC, SW, WDC.
*Pigment Yellow 13, C.I. 21 100-----	FCL, G, HAR, HST, ICC, IMP, ROM, SNA, SW.
*Pigment Yellow 14, C.I. 21 095-----	ACY, AMS, DUP, FCL, G, HAR, HCC, HST, ICC, IMP, KON, MRX, ROM, S, SDH, SNA, SW, x.
*Pigment Yellow 17, C.I. 21 105-----	ACY, AMS, HST, ICC, IMP, SDH, SNA, SW.
Pigment Yellow 65-----	SW.
Pigment Yellow 83-----	HST.
All other benzidine yellows-----	HST, ICC, IMP, SW.
Pigment Yellow 18, C.I. 49 005-----	IMP.
(Basic Yellow 2), C.I. 41 000, fugitive-----	MRX, S.
(Vat Yellow 1), C.I. 70 600-----	HAR, TRC.
(Vat Yellow 20), C.I. 68 420-----	HAR.
All other-----	ACY, ICC, S, SW.
*Orange toners:	
Pigment Orange 1, C.I. 11 725-----	HAR, KCW, SNA.
*Pigment Orange 2, C.I. 12 060-----	FCL, IMP, SDH, SUC, SW.
*Pigment Orange 5, C.I. 12 075-----	ACY, EAK, HSH, IMP, SNA, SUC, SW.
Pigment Orange 9-----	DUP.
*Pigment Orange 13, C.I. 21 110-----	ACY, AMS, G, HAR, IMP, KON, S, SW.
Pigment Orange 15, C.I. 21 130-----	G, HAR.
*Pigment Orange 16, C.I. 21 160-----	DUP, G, HAR, HST, ICC, IMP, ROM, SDH, SNA, SW.
Pigment Orange 30-----	SW.
(Vat Orange 2), C.I. 59 705-----	G.
(Vat Orange 3), C.I. 59 300-----	HAR, TRC.
(Vat Orange 4), C.I. 59 710-----	HAR.
(Vat Orange 7), C.I. 71 105-----	G.
(Vat Orange 15), C.I. 69 025-----	HAR.
All other-----	ICC, KON, SDH, SNA.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310-----	EAK, G, HAR, HCC, IMP, KCW, KON, S, SDH, SW.
*Pigment Red 5, C.I. 12 490-----	DUP, G, HAR, ICC, ICI, IMP, ROM, S, SDH, SNA, 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-----	HAR, IMP, KCW, SW.

See note at end of table for definition of abbreviations.

TABLE 11B.--*Synthetic organic pigments for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Synthetic organic pigment	Manufacturers' identification codes (according to list in table 22)
TONERS--Continued	
*Red toners--Continued	
*Naphthol reds--Continued	
Pigment Red 14, C.I. 12 380-----	DUP.
Pigment Red 15, C.I. 12 465-----	DUP.
*Pigment Red 17, C.I. 12 390-----	ACY, BLN, FCL, ICC, IMP, S, SNA, SW.
*Pigment Red 18, C.I. 12 350-----	HAR, HSH, IMP, SW.
Pigment Red 19, C.I. 12 400-----	HAR.
*Pigment Red 22, C.I. 12 315-----	ACY, DUP, FCL, HAR, IMP, MRX, SNA, SW.
*Pigment Red 23, C.I. 12 355-----	ACY, DUP, FCL, HAR, HCC, ICC, IMP, ROM, SDH, SNA, SUC, SW.
*Pigment Red 31, C.I. 12 360-----	ICC, SNA, SW.
All other naphthol reds-----	ICC, IMP, KCW, S, SDH, SW, x.
*Pigment Red 1, C.I. 12 070, dark-----	ACY, AMS, APC, FCL, HAR, HCC, HSH, IMP, KON, LVY, SNA, SUC, SW, WDC.
*Pigment Red 1, C.I. 12 070, light-----	ACY, APC, EAK, HCC, HSH, IMP, KON, PPG, SDH, SUC, SW.
*Pigment Red 3, C.I. 12 120-----	ACY, APC, BLN, CIK, DUP, EAK, FCL, HAM, HAR, HCC, HSH, IMP, KCW, KON, MRX, PPG, SDH, SNA, SUC, SW, UHL, WDC.
*Pigment Red 4, C.I. 12 085-----	ACY, AMS, FCL, HCC, IMP, KON, SDH, SNA, SUC, SW, WDC.
Pigment Red 6, C.I. 12 090-----	DUP, G, HCC, SW.
*Pigment Red 38, C.I. 21 120-----	DUP, G, HAR, ICC, SNA, SW.
Pigment Red 40, C.I. 12 170-----	IMP.
Pigment Red 41, C.I. 21 200-----	G, HAR.
*Pigment Red 48, C.I. 15 865-----	ACY, AMS, BLN, DUP, FCL, G, HAR, HCC, HSH, IMP, KON, LVY, S, SNA, SUC, SW, WDC.
Pigment Red 49, C.I. 15 630:	
*Barium toner-----	ACY, AMS, CIK, FCL, HCC, IMP, KON, LVY, SDH, SNA, SUC, SW, UHL, WDC.
*Calcium toner-----	ACY, AMS, EAK, FCL, G, HCC, IMP, KON, LVY, PPG, SDH, SNA, SUC, SW.
*Sodium toner-----	ACY, AMS, CIK, FCL, G, KON, SDH, SUC, SW.
All other Pigment Red 49 toners-----	KON.
*Pigment Red 52, C.I. 15 860-----	AMS, FCL, HCC, HSH, IMP, SNA, SUC, SW.
Pigment Red 53, C.I. 15 585:	
*Barium toner-----	ACY, ADC, AMS, CIK, FCL, HCC, IMP, KON, LVY, MGR, MRX, SDH, SNA, SUC, SW, WDC.
Sodium toner-----	ADC.
*Pigment Red 54, C.I. 14 830, calcium toner-----	IMP, MRX, SDH.
Pigment Red 55, C.I. 15 820-----	DUP, HAR.
*Pigment Red 57, C.I. 15 850, calcium toner-----	ADC, AMS, BLN, CIK, DUP, FCL, HAR, HCC, HSH, IMP, KON, LVY, S, SDH, SNA, SUC, SW, WDC.
Pigment Red 58, C.I. 15 825-----	DUP, IMP.
Pigment Red 60, C.I. 16 105-----	SW.
*Pigment Red 63, C.I. 15 880-----	FCL, HAR, HSH, IMP, SNA, SW.
Pigment Red 64, C.I. 15 800-----	HAR.
Pigment Red 77, C.I. 15 826-----	SW.
Pigment Red 78-----	DUP.
Pigment Red 81, C.I. 45 160, fugitive-----	BLN, KCW, SNA.
*Pigment Red 81, C.I. 45 160, PMA-----	BLN, DUP, G, IMP, KON, LVR, LVY, MGR, MRX, NYC, S, SNA.
*Pigment Red 81, C.I. 45 160, PTA-----	ACY, AMS, BLN, DUP, FCL, G, HCC, IMP, KCW, KON, MGR, MRX, S, SDH, SNA.
Pigment Red 83, C.I. 58 000-----	SW.
Pigment Red 87, C.I. 73 310-----	HAR.
Pigment Red 88-----	HAR.
*Pigment Red 90, C.I. 45 380-----	ACY, AMS, FCL, ICC, IMP, LVR, LVY, NYC, SDH, SNA, WDC.
Pigment Red 101-----	SW.
Pigment Red 117, C.I. 15 603-----	SW.
Pigment Red 122-----	HAR.

See note at end of table for definition of abbreviations.

TABLE 11B.-- Synthetic organic pigments for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Synthetic organic pigment	Manufacturers' identification codes (according to list in table 22)
TONERS--Continued	
*Red toners--Continued	
Pigment Red 123-----	HAR.
(Basic Red 2), C.I. 50 240-----	HCC.
(Vat Red 10), C.I. 67 000-----	G, HAR.
(Vat Red 23)-----	HAR.
(Vat Red 29), C.I. 71 140-----	HAR.
All other-----	DUP, G, HAM, HCC, SW, TRC, x.
*Violet toners:	
Pigment Violet 1, C.I. 45 170, fugitive-----	BLN, UHL.
*Pigment Violet 1, C.I. 45 170, PMA-----	BLN, G, IMP, LVR, MRX.
*Pigment Violet 1, C.I. 45 170, PTA-----	ACY, AMS, BLN, DUP, FCL, G, HCC, IMP, KON, MRX, S, SNA.
*Pigment Violet 3, C.I. 42 535, fugitive-----	ACY, ADC, AMS, BLN, HCC, IMP, LVY, MGR, SDH, SUC, UHL.
*Pigment Violet 3, C.I. 42 535, PMA-----	ADC, AMS, BLN, CIK, DUP, EAK, G, HCC, IMP, KON, LVR, LVY, MGR, MRX, NYC, PPG, S, SDH, SNA, SUC, SW, UHL.
*Pigment Violet 3, C.I. 42 535, PTA-----	ACY, AMS, G, HCC, IMP, KON, MRX, SNA, SW.
Pigment Violet 19-----	HAR.
(Vat Violet 1), C.I. 60 010-----	DUP.
(Vat Violet 2), C.I. 73 385-----	HAR.
(Vat Violet 3), C.I. 73 395-----	HAR.
(Vat Violet 23)-----	TRC.
All other-----	ACY, G, ICC, x.
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA-----	ADC, BLN, DUP, EAK, G, HCC, IMP, KON, LVR, LVY, MGR, MRX, NYC, SDH, SNA, SW, UHL.
*Pigment Blue 1, C.I. 42 595, PTA-----	AMS, G, HAM, HAR, IMP, MGR, S, SNA, SW, UHL.
Pigment Blue 2, C.I. 44 045, fugitive-----	BLN.
Pigment Blue 2, C.I. 44 045, PMA-----	G, LVR.
Pigment Blue 2, C.I. 44 045, PTA-----	G, HAM.
Pigment Blue 3, C.I. 42 140, PMA-----	MGR.
Pigment Blue 3, C.I. 42 140, PTA-----	MGR, MRX.
Pigment Blue 5, C.I. 42 600-----	G.
*Pigment Blue 9, C.I. 42 025, PMA-----	IMP, LVR, MRX, NYC, UHL.
*Pigment Blue 9, C.I. 42 025, PTA-----	BLN, G, IMP, MGR, MRX, 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, G, IMP, NYC.
Pigment Blue 14, C.I. 42 600, PTA-----	DUP, G, NYC.
*Pigment Blue 15, C.I. 74 160, alpha form-----	ACY, DUP, FCL, G, HAR, ICC, ICI, IMP, SNA, SUC, SW, TMS, TRC.
*Pigment Blue 15, C.I. 74 160, beta form-----	ACY, DUP, FCL, IMP, KON, LVY, SNA, SUC, SW, TMS, TRC.
*Pigment Blue 19, C.I. 42 750A-----	ACY, ERD, NYC, SUC, SW.
Pigment Blue 22, C.I. 69 810-----	DUP, IMP.
*Pigment Blue 25, C.I. 21 180-----	DUP, G, HAR, ICC.
(Basic Blue 7), C.I. 42 595, PTA-----	DUP.
(Vat Blue 4), C.I. 69 800-----	G.
(Vat Blue 6), C.I. 69 825-----	ICI, TRC.
(Vat Blue 14), C.I. 69 810-----	HAR, TRC.
All other-----	ICC, IMP, MGR, S, SDH.
*Green toners:	
*Pigment Green 1, C.I. 42 040, PMA-----	BLN, G, IMP, MGR, MRX, NYC, UHL.
*Pigment Green 1, C.I. 42 040, PTA-----	BLN, IMP, MGR, SDH.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA-----	ADC, G, IMP, LVY, MGR, MRX, SDH, SNA, UHL.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA-----	ACY, AMS, BLN, DUP, IMP, KON, LVY, MGR, MRX, S, SDH, SNA, UHL.
Pigment Green 4, C.I. 42 000, fugitive-----	BLN, G.
*Pigment Green 4, C.I. 42 000, PMA-----	ADC, BLN, HCC.
*Pigment Green 4, C.I. 42 000, PTA-----	ACT, AMS, HAM, IMP, MGR, SNA.
*Pigment Green 7, C.I. 74 260-----	ACY, DUP, FCL, G, HAR, IMP, SNA, SUC, SW, TMS, TRC.

See note at end of table for definition of abbreviations.

TABLE 11B.--Synthetic organic pigments for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Synthetic organic pigment	Manufacturers' identification codes (according to list in table 22)
TONERS--Continued	
*Green toners--Continued	
*Pigment Green 8, C.I. 10 006-----	DUP, EAK, G, HSH, IMP, KCW, SW.
Pigment Green 10, C.I. 12 775-----	DUP.
Pigment Green 38-----	HAR.
All other-----	ACY, S.
*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-----	BLN, KCW.
Pigment Brown 5, C.I. 15 800-----	HAR, SNA, x.
(Vat Brown 3), C.I. 69 015-----	G, HAR.
All other-----	HSH, ICC, SDH, SW.
*Black toners:	
Pigment Black 7-----	SW.
All other-----	BLN, DUP, G, MGR, SNA, UHL.
LAKES	
*Yellow lakes:	
(Acid Yellow 1), C.I. 10 316-----	IMP.
(Acid Yellow 3), C.I. 47 005-----	IMP.
(Acid Yellow 23), C.I. 19 140-----	IMP, KON, MGR, MRX.
(Natural Yellow 10), C.I. 75 720-----	IMP.
All other-----	IMP.
Orange lakes:	
Pigment Orange 17, C.I. 15 510-----	CIK, CPC, IMP, KCW, MGR.
All other-----	APC, HAM.
*Red lakes:	
*Pigment Red 60, C.I. 16 105-----	BLN, DUP, HSH, KON, MRX, SNA, SW.
*Pigment Red 83, C.I. 58 000-----	IMP, KCW, KON, MRX, UHL.
(Acid Red 17), C.I. 16 180-----	IMP, KCW, WDC.
(Acid Red 25), C.I. 16 050-----	KON.
*(Acid Red 26), C.I. 16 150-----	CPC, EAK, HAM, IMP, KCW, UHL.
(Natural Red 4), C.I. 75 470-----	KON.
(Natural Red 24), C.I. 75 280-----	IMP.
All other-----	APC, G, IMP.
*Violet lakes:	
*Pigment Violet 5, C.I. 58 055-----	BLN, DUP, HAR, IMP, SNA.
Pigment Violet 20, C.I. 58 225-----	SW.
(Acid Violet 17), C.I. 42 650-----	BLN.
All other-----	HAM, HCC.
*Blue lakes:	
Pigment Blue 17, C.I. 74 180-----	BLN, CPC.
*Pigment Blue 24, C.I. 42 090-----	ADC, AMS, BLN, CIK, ICC, IMP, KON, Lvy, MGR, SDH.
(Acid Blue 93), C.I. 42 780-----	LVR.
(Acid Blue 104), C.I. 42 735-----	CPC, KCW.
Green lakes:	
(Acid Green 3), C.I. 42 085-----	BLN, CPC.
All other-----	APC.
Brown lakes-----	HAM.
Black lakes:	
*(Natural Black 3), C.I. 75 291-----	CPC, KON, NYC.
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.

## Medicinal Chemicals

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963

[Medicinal chemicals for which separate statistics are given in table 13A in pt. II are marked below with an asterisk (\*); medicinal chemicals not so marked do not appear in table 13A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
MEDICINAL CHEMICALS, ANTIBIOTICS	
*Antibiotics for human or veterinary use:	
Amphotericin B-----	OMS.
*Bacitracin-----	COM, PBS, PEN, PFZ.
Chloramphenicol-----	PD.
7-Chloro-6-demethyltetracycline-----	ACY.
Chlortetracycline hydrochloride-----	ACY.
Cycloheximide-----	UPJ.
Cycloserine-----	COM.
*Dihydrostreptomycin-----	MRK, OMS, PFZ.
Erythromycin-----	ABB, LIL.
Fumagillin-----	ABB.
Gramicidin-----	BAX, PEN.
Kanamycin-----	BRS.
*Neomycin, base-----	ACY, OMS, PEN, PFZ, UPJ.
Novobiocin-----	MRK, UPJ.
Nystatin-----	OMS.
Oleandomycin-----	PFZ.
Oleandomycin triacetate-----	PFZ.
Oxytetracycline hydrochloride-----	PFZ.
Paromomycin-----	MRK.
Penicillin salts:	
d- $\alpha$ -Aminobenzylpenicillin-----	BRS.
2,6-Dimethoxyphenylpenicillin, sodium-----	BRS.
Methylphenylisoxazolylpenicillin, sodium-----	BRS.
NEP penicillin-----	MRK.
*Penicillin G, benzathine-----	PFZ, WYT.
*Penicillin G, potassium-----	ABB, LIL, MRK, OMS, PFZ, WYT.
*Penicillin G, procaine-----	ABB, LIL, MRK, OMS, PFZ, WYT.
*Penicillin G, sodium-----	MRK, OMS, PFZ.
Penicillin O, chloroprocaine-----	UPJ.
Penicillin O, sodium-----	UPJ.
Penicillin V-----	LIL.
Penicillin V, benzathine-----	WYT.
Penicillin V, hydrabamine-----	ABB.
Penicillin V, potassium-----	ABB, LIL.
*dl- $\alpha$ -Phenoxyethylpenicillin-----	OMS, PFZ.
*dl- $\alpha$ -Phenoxyethylpenicillin, potassium-----	BRS, WYT.
Polymyxin B sulfate-----	PFZ.
Ristocetin-----	ABB.
Streptomycin-----	LIL, MRK, OMS, PFZ.
*Tetracycline-----	ACY, BRS, PFZ.
Thiostrepton-----	OMS.
Tyrothricin-----	BAX, PEN.
Vancomycin-----	LIL.
Viomycin-----	PFZ.
*Antibiotics for animal feed supplements, food preservation, and crop spraying:	
*Bacitracin-----	COM, DLI, GPR, PBS, PEN.
Chlortetracycline hydrochloride-----	ACY.
Hygromycin B-----	LIL.
Novobiocin mixture-----	UPJ.
Oxytetracycline hydrochloride-----	PFZ.



TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, ANTIBIOTICS--Continued	
*Antibiotics for animal feed supplements, food preservation, and crop spraying--Continued	
Penicillin salts:	
Penicillin G, benzathine-----	WYT.
*Penicillin G, procaine-----	ABB, LIL, MRK, OMS, PFZ, WYT.
Streptomycin-----	MRK, PFZ.
Tylosin-----	LIL.
MEDICINAL CHEMICALS, BENZENOID	
*Alkaloids and related products:	
Anisotropine methylbromide-----	CTN, EN.
Berberine hydrochloride-----	ABB, PEN.
Caffeine sodium benzoate-----	MAL.
Colchicine-----	PEN.
*Dihydrocodeinone bitartrate-----	EN, MAL, MRK, PEN.
Dihydrohydroxycodeinone hydrochloride-----	EN.
Ergonovine maleate-----	LIL.
Eserine salicylate-----	PEN.
Ethylmorphine hydrochloride-----	MAL, MRK.
Homatropine-----	CTN, HEX.
Homatropine hydrobromide-----	CTN.
*Homatropine methyl bromide-----	CTN, EN, HEX.
Hydrastine-----	PEN.
Hydrastine hydrochloride-----	PEN.
Lobelia sulfate-----	ABB.
d-3-Methoxy-N-methylmorphinan hydrobromide-----	HOF.
Papaverine hydrochloride, synthetic-----	LIL.
Quinidine gluconate-----	HEX.
Quinidine sulfate-----	HEX.
Rauwolfia serpentina (Alseroxylon) fraction-----	R.K.
Reserpine-----	CBP, PEN.
Tubocurarine-----	ABB, OMS.
Vincalkekoblastine sulfate-----	LIL.
Amino acids:	
dl-Acetyltryptophane-----	SDW.
3,5-Diiodotyrosine-----	EK.
dl-Phenylalanine-----	SDW.
*p-Aminobenzoic acid and derivatives:	
p-Aminobenzoic acid-----	LEM.
p-Aminobenzoic acid, calcium salt-----	LEM.
p-Aminobenzoic acid, magnesium salt-----	LEM.
p-Aminobenzoic acid, potassium salt-----	GAN, LEM.
p-Aminobenzoic acid, sodium salt-----	GAN, LEM.
p-Amino-N-(2-diethylaminoethyl)benzamide (Procainamide) hydrochloride.	OMS.
Benzocaine (Ethyl p-aminobenzoate)-----	ABB, LEM.
Butacaine base-----	ABB.
n-Butyl p-aminobenzoate-----	ABB.
p-Butylaminobenzoic acid, 2-dimethylaminoethyl ester (Tetracaine) base and hydrochloride.	ICO, SDW.
Di(n-butyl p-aminobenzoate) trinitrophenol-----	ABB.
2-Diethylaminoethyl 4-amino-2-propoxybenzoate-----	SDW.
Isobutyl p-aminobenzoate (Cycloform)-----	ICO.
ω-Methoxypoly(ethyleneoxy)ethyl p-butylaminobenzoate-----	CBP.
Procaine base-----	ABB.
Procaine hydrochloride-----	ABB, LEM.
Propyl p-aminobenzoate-----	ICO.
All other-----	ABB.

TABLE 13B. --Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
2-(p-Aminophenyl)-2-ethylglutarimide-----	CBP.
1-[(4-Amino-2-propyl-5-pyrimidinyl)methyl]-2-picolinium chloride hydrochloride.	MRK.
p-Anisoin (4,4'-Dimethoxybenzoin)-----	CTN.
Anthranilic acid, cadmium salt-----	MAL.
*Antihistamines:	
1-Benzhydryl-4-methylpiperazine (Cyclizine) base and hydrochloride.	BUR.
2-(Benzhydroyloxy)-N,N-dimethylethylamine 8-chloro- theophyllinate (Dimenhydrinate).	SRL.
2-(Benzhydroyloxy)-N,N-dimethylethylamine (Diphenhydra- mine) hydrochloride.	PD.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine (Tripeleennamine).	CBP.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine citrate---	CBP, RSA.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine hydro- chloride.	CBP.
2-[(p-Bromo- $\alpha$ -phenylbenzyl)oxy]-N,N-dimethylethylamine (Bromodiphenhydramine) hydrochloride.	PD.
2-[1-(p-Bromophenyl)-3-dimethylaminopropyl]pyridine (Brompheniramine) maleate.	SCH.
d-2-[1-(p-Bromophenyl)-3-dimethylaminopropyl]pyridine (Dexbrompheniramine) maleate.	SCH.
1-(4-Chlorobenzhydryl)-4-(p-tert-butylbenzyl)piperazine (Bucilizine) dihydrochloride.	PFZ.
1-(4-Chlorobenzhydryl)-4-(3-methylbenzyl)piperazine (Mecilizine) dihydrochloride.	PFZ.
1-(4-Chlorobenzhydryl)-4-methylpiperazine (Chlor- cyclizine) hydrochloride.	ABB, BUR.
2-[p-Chloro- $\alpha$ -(2-dimethylaminoethoxy)benzyl]pyridine (Carbinoxamine).	SCH.
l-2-[p-Chloro- $\alpha$ -(2-dimethylaminoethoxy)benzyl]pyridine--	SCH.
*2-[p-Chloro- $\alpha$ -(2-dimethylaminoethyl)benzyl]pyridine (Chlorpheniramine) maleate.	HEX, PYL, SCH, SK, x.
d-2-[p-Chloro- $\alpha$ -(2-dimethylaminoethyl)benzyl]pyridine (Dexchlorpheniramine) maleate.	SCH.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-2-butanol-----	LIL.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-1-butene (Pyrrobutamine) diphosphate, hydrobromide and hydro- chloride.	LIL.
4-(5H-Dibenzo[a,d]cyclohepten-5-ylidene)-1-methyl- piperidine.	MRK.
2-[ $\alpha$ -(2-Dimethylaminoethoxy)- $\alpha$ -methylbenzyl]pyridine (Doxylamine) succinate.	BKC.
2-[1-[2-(2-Dimethylaminoethyl)inden-3-yl]ethyl]pyridine (Dimethindene) maleate.	CBP.
2-[(2-Dimethylaminoethyl)(p-methoxybenzyl)amino] pyridine (Pyrilamine) maleate.	HEX, MRK, PYL.
2-[(2-Dimethylaminoethyl)(p-methoxybenzyl)amino] pyrimidine (Thonzylamine).	NEP.
2-[(2-Dimethylaminoethyl)-2-thenylamino]pyridine (Metha- pyrilene) fumarate.	ABB.
2-[(2-Dimethylaminoethyl)-2-thenylamino]pyridine hydro- chloride.	ABB, SDW.
2-[(2-Dimethylaminoethyl)-2-thenylamino]pyridine o-(p- hydroxybenzoyl)benzoate.	LIL.
*2-[3-(Dimethylamino)-1-phenylpropyl]pyridine (Phenira- mine) maleate.	HEX, SCH, x.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Antihistamines--Continued	
N,N-Dimethyl-2-(o-methyl- $\alpha$ -phenylbenzyloxy)ethylamine (Orphenadrine) citrate and hydrochloride.	RIK.
N,N-Dimethyl-2-( $\alpha$ -phenyl-o-tolyloxy)ethylamine dihydrogen citrate (Phenyltoloxamine).	BRS.
2,3,4,9-Tetrahydro-2-methyl-9-phenyl-1H-indeno[2,1-c]- pyridine (Phenindamine) hydrogen tartrate.	HOF.
*Antimony, arsenic, bismuth, and mercury compounds:	
Antimony, arsenic, and bismuth compounds:	
3-Acetamido-4-hydroxydithiobenzenearsonous acid, 3- hydroxypropylene ester (Arsthinol).	EN.
Acetarsonsone (N-Acetyl-4-hydroxy-m-arsanilic acid)-----	SDW.
Arsanilic acid (p-Aminobenzenearsonic acid)-----	SAL, WHL.
Arsanilic acid, sodium salt-----	WHL.
Bismuth resorcinol-----	NEP.
Bismuth salicylate, basic-----	MAL, NOR, PEN.
*Bismuth subgallate-----	BKC, MAL, PEN.
p-Carbamidobenzenearsonic acid-----	LIL, PYL, WHL.
N-Glycolylarsanilic acid, bismuth salt-----	WHL.
4-Hydroxy-3-nitrobenzenearsonic acid-----	SAL.
p-Nitrobenzenearsonic acid-----	SAL.
Sodium antimony(III)-bis(catechol-2,4-disulfonate) (Fouadin).	SDW.
Mercury compounds:	
o-Chloromercuriphenol (o-Hydroxyphenylmercuric chloride).	MTL.
Ethylmercurithiosalicylic acid-----	LIL.
Ethylmercurithiosalicylic acid, sodium salt (Thimerosal).	LIL, PYL.
Hydroxymercuri-4-nitro-o-cresol anhydride-----	ABB.
Merbromin (Dibromohydroxymercurifluorescein, sodium salt).	HYN.
Mercuric salicylate-----	MTL.
Phenylmercuric acetate-----	WRC.
Phenylmercuric benzoate-----	MTL, WRC.
Phenylmercuric borate-----	MTL, WRC.
Phenylmercuric nitrate-----	MTL, WRC.
Barbiturates:	
5-Ethyl-1-methyl-5-phenylbarbituric acid (Mephobarbital)	SDW.
*5-Ethyl-5-phenylbarbituric acid (Phenobarbital)-----	BPC, GAN, MAL, SDW.
*5-Ethyl-5-phenylbarbituric acid, sodium salt-----	BPC, GAN, MAL, SDW.
Benzaldehyde-----	HN.
Benzoic acid-----	MON.
Benzoic acid, ammonium salt-----	PEN.
*Benzothiadiazine dioxide derivatives:	
3-Benzyl-3,4-dihydro-6-(trifluoromethyl)-2H-1,2,4-benzo- thiadiazine-7-sulfonamide 1,1-dioxide (Benzhydro- flumethiazide).	OMS.
3-Benzylthiomethyl-6-chloro-2H-1,2,4-benzothiadiazine-7- sulfonamide 1,1-dioxide (Benzthiazide).	PFZ.
6-Chloro-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1- dioxide (Chlorothiazide).	MRK.
6-Chloro-3-chloromethyl-3,4-dihydro-2-methyl-2H-1,2,4- benzothiadiazine-7-sulfonamide 1,1-dioxide (Methyclo- thiazide).	ABB.
6-Chloro-3-dichloromethyl-3,4-dihydro-2H-1,2,4-benzo- thiadiazine-7-sulfonamide 1,1-dioxide (Hydrotrichloro- thiazide).	SCH.

TABLE 13B.-- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Benzothiadiazine dioxide derivatives--Continued	
6-Chloro-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide (Hydrochlorothiazide).	ABB, CBP, MRK.
6-Chloro-3,4-dihydro-2-methyl-3-(2,2,2-trifluoroethylthiomethyl)-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide (Polythiazide).	PFZ.
6-Chloro-3,4-dihydro-3-(5-norbornen-2-yl)-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide (Cyclothiazide).	LIL.
3,4-Dihydro-6-(trifluoromethyl)-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide (Hydroflumethiazide).	OMS.
6-(Trifluoromethyl)-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide (Flumethiazide).	OMS.
1-[2-(Benzylcarbamoyl)ethyl]-2-isonicotinoylhydrazine-----	PFZ.
Bis(3-nitrophenyl) disulfide-----	ACY.
2-Butoxy-N-[2-(diethylamino)ethyl]cinchoninamide (Dibucaine) hydrochloride.	CBP.
4-[3-(p-Butoxyphenoxy)propyl]morpholine (Pramoxine) hydrochloride.	ABB.
2-(n-Butylaminomethyl)-8-ethoxy-1,4-benzodioxane hydrochloride.	LIL.
4-n-Butyl-2-(p-hydroxyphenyl)-1-phenyl-3,5-pyrazolidine-dione.	GGY.
Carbamic acid, 2-hydroxy-2-phenylbutyl ester (Hydroxyphenamate).	ARP.
Carbamic acid, 2-hydroxy-2-phenylethyl ester (Styramate)--(3-Carbamoyl-3,3-diphenylpropyl)diisopropylmethylammonium iodide.	ARP. SK.
(3-Carbamoyl-3,3-diphenylpropyl)ethyldimethylammonium (Ambutonium) bromide.	ICO.
5-Chloro-2-benzoxazolidinone-----	x.
7-Chloro-4-(4-diethylamino-1-methylbutylamino)quinoline (Chloroquine).	SDW.
7-Chloro-4-(4-diethylamino-1-methylbutylamino)quinoline sulfate.	RDA.
p-Chloro- $\alpha,\alpha$ -dimethylphenethylamine hydrochloride-----	NEP.
7-Chloro-4-(4-[ethyl(2-hydroxyethyl)amino]-1-methylbutylamino)quinoline (Hydroxychloroquine) sulfate.	SDW.
2-Chloro-4-nitrobenzamide-----	SAL.
2-(4-Chlorophenyl)tetrahydro-3-methyl-4H-1,3-thiazin-4-one, 1,1-dioxide.	SDW.
Cozymase-----	PBS.
1-Cyclohexyl-3-diethylamino-1-phenyl-1-propanol ethiodide-	ACY.
$\alpha$ -Cyclohexyl-4-methyl- $\alpha$ -phenyl-1-piperazineethanol (Hexocyclium) dimethyl sulfate.	ABB.
$\alpha$ -Cyclohexyl- $\alpha$ -phenyl-1-piperidinepropanol-----	ACY, SDW.
Desoxyanisoin-----	CTN.
2,4-Diamino-5-(p-chlorophenyl)-6-ethylpyrimidine-----	BUR.
2,5-Diaminotoluene sulfate-----	EK.
4-(2,5-Diethoxy-4-nitrophenyl)morpholine-----	x.
$\alpha$ -Diethylamino-2,6-acetoxylidide-----	AST.
6-(2-Diethylaminoethoxy)-2-dimethylaminobenzothiazole hydrochloride.	HOF.
$\beta$ -Diethylaminoethyl diphenylthioacetate hydrochloride----	x.
N,N-Diethylaminoethylfluorene-9-carboxylate hydrochloride-	SRL.
N,N-Diethylaminoethylxanthene-9-carboxylate methobromide--	SRL.
Diethylaminopropiophenone-----	BKC, x.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 -- Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
10,11-Dihydro-N,N-dimethyl-5H-dibenzo[a,d]cycloheptene- $\Delta^{5,7}$ -propylamine.	MRK.
3,4-Dihydroxyphenylacetic acid-----	LIL.
l-3-(3,4-Dihydroxyphenyl)-2-methylalanine-----	MRK.
N,N-Diisopropylaminoethylxanthene-9-carboxylate methyl- bromide (Propantheline bromide).	SRL.
6,7-Dimethoxy-1-(4-ethoxy-3-methoxybenzyl)-3-methylquino- line (Dioxyline) phosphate.	LIL.
$\alpha$ -d-4-Dimethylamino-1,2-diphenyl-3-methyl-2-propoxybutane hydrochloride.	LIL.
4-(2-Dimethylaminoethoxy)-N-(3,4,5-trimethoxybenzoyl)- benzylamine hydrochloride.	HOF.
p, $\alpha$ -Dimethylbenzyl camphorate, diethanolamine salt-----	x.
([(2,3-Dimethyl-5-oxo-1-phenyl-3-pyrazolin-4-yl)methyl]- amino)methanesulfonic acid, sodium salt (Dipyrrone).	SDW.
3,4-Dimethyl-2-phenylmorpholine-----	x.
N,2-Dimethyl-2-phenylsuccinimide-----	PD.
N,N-Dimethyl-4-piperidylidene-1,1-diphenylmethane (Diphen- anil) methyl sulfate.	SCH.
Dimethyl-p-toluidine-----	EK, RSA.
3,5-Dinitrobenzamide-----	SAL.
Diphenylacetyldiethylaminoethanol hydrochloride-----	CBP.
*Dyes, medicinal:	
Acridine (3,6-Diamino-10-methylacridine chloride)----	NAC.
2,6-Diamino-3-phenylazopyridine hydrochloride-----	HOF, NEP.
Gentian violet-----	NAC, SDH.
Iodocyanine green-----	x.
Methylene blue-----	ACY, NAC.
Phenolphthalein-----	MON.
Phenolphthalein, yellow-----	WLI.
Pyruvinium pamoate-----	x.
Scarlet red (Phenol red)-----	NAC.
Other-----	NAC.
*Estrogens, steroid and nonsteroid:	
Steroid:	
Estrogenic substance-----	ORG.
Piperazine estrone sulfate-----	ABB.
Nonsteroid:	
3,4-Bis(p-acetoxyphenyl)-2,4-hexadiene-----	SCH.
$\alpha$ , $\alpha'$ -Diethyl-4,4'-stilbenediol (Diethylstilbestrol)---	CTN, LIL.
N-Ethyl-3,3'-diphenyldipropylamine-----	CTN.
N-Ethyl-3,3'-diphenyldipropylamine citrate-----	CTN.
N-Ethyl-3,3'-diphenyldipropylamine hydrochloride-----	CTN.
Ethyl 1-methyl-4-phenylisonipecotate-----	SDW, WYT.
2-Ethyl-2-phenylglutarimide (Glutethimide)-----	CBP.
N-Ethyl-3-piperidyl benzilate methobromide-----	LKL.
N-Ethyl-3-piperidyl diphenylacetate hydrochloride-----	LKL.
Hesperidin methyl chalcone-----	SKG.
1-Hexadecylpyridinium chloride-----	FIN, GAN, HEX.
Hexahydro-1-methyl-4-phenylazepine-4-carboxylic acid, ethyl ester, (Ethoheptazine) citrate.	WYT.
Hexamethylenetetramine mandelate-----	LEM, NEP, PYL, TNC.
Hydantoin derivatives:	
5,5-Diphenylhydantoin-----	PD.
5,5-Diphenylhydantoin, sodium salt-----	PD.
3-Ethyl-5-phenylhydantoin-----	ABB.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
1-Hydrazinonaphthalazine hydrochloride-----	CBP.
*p-Hydroxyacetanilide-----	ABB, MLS, NEP.
p-Hydroxybenzoic acid esters:	
Benzyl p-hydroxybenzoate-----	HN.
n-Butyl p-hydroxybenzoate (Butoben)-----	HN, ICO, WSN.
Ethyl p-hydroxybenzoate-----	HN.
*Methyl p-hydroxybenzoate-----	HN, ICO, LEM, PYL, WSN.
*Propyl p-hydroxybenzoate-----	HN, ICO, LEM, PYL, WSN.
o-(p-Hydroxybenzoyl)benzoic acid-----	LIL.
4-Hydroxycoumarin-----	FIN.
N-(2-Hydroxyethyl)gentisamide-----	ICO.
2,2'-(2-Hydroxyethylimino)bis[N-( $\alpha$ , $\alpha$ -dimethylphenethyl)- N-methylacetamide] (Oxethazaine).-----	WYT.
3-Hydroxy-1-methylpyridinium bromide dimethylcarbamate----	HOF.
*Imidazoline derivatives:	
2-Benzyl-2-imidazoline (Tolazoline) hydrochloride-----	CTN.
1-Methyl-2-undecyl-3-benzylimidazolium bromide-----	LIL.
2-(1-Naphthylmethyl)-2-imidazoline hydrochloride-----	CBP.
$\alpha$ -2-(1,2,3,4-Tetrahydro-1-naphthyl)-2-imidazoline hydro- chloride.-----	PFZ.
Isonicotinic acid hydrazide-----	NEP, RIL.
Mandelic acid (Phenylglycolic acid)-----	MAL.
Mandelic acid, calcium salt-----	MAL.
p-Methoxycinnamic acid, benzyl ester-----	GIV.
p-Methoxycinnamic acid, 2-methoxyethyl ester-----	GIV.
5-(o-Methoxyphenoxymethyl)-2-oxazolidinone-----	ACY.
2-Methylbenzothiazole-----	FMT.
4-Methyl- $\alpha$ , $\alpha$ -diphenyl-1-piperazineethanol dihydrochloride--	ABB.
3,3'-Methylenebis(4-hydroxycoumarin)-----	ABB, FIN.
5-Methyl-3-isoxazolecarboxylic acid, 2-benzylhydrazide----	HOF.
3-Methyl-2-phenylmorpholine hydrochloride-----	GGY.
N-Methyl-2-phenylsuccinimide-----	PD.
2-Methyl-1-piperidinepropanol, benzoate (Piperocaine) hydrochloride.-----	LIL.
N-Methyl-3-piperidyl benzilate methyl bromide-----	LKL.
3-(2-Methyl-1-piperidyl)propyl p-cyclohexyloxybenzoate----	LIL.
N-Methyl-N-2-propylbenzylamine hydrochloride-----	ABB.
2-Methyl-3-o-tolyl-4(3H)-quinazolinone-----	HEX.
Neostigmine bromide-----	HEX.
Neostigmine methyl sulfate-----	HEX, MED.
Nikethamide-----	CBP.
Phenacaine [(Di-p-ethoxyphenyl)acetamidine] hydrochloride--	GAN.
Phenacetin (Acetophenetidin)-----	DOW, MON.
*Phenols and derivatives:	
Chlorothymol-----	OPC.
Gallic acid-----	MAL.
*Guaiacol glyceryl ether-----	GAN, HEX, ICO, LEM, OTC.
Guaiacol, liquid and crystalline-----	HN, MON.
Hexylresorcinol-----	HEX, MRK.
2-Naphthol ( $\beta$ -Naphthol)-----	ACY, FIN.
Phenolsulfonic acid, aluminum salt-----	MAL.
Phenolsulfonic acid, ammonium salt-----	SAL.
Phenolsulfonic acid, sodium salt-----	MAL, SAL.
Phenolsulfonic acid, zinc salt-----	MAL.
Pyrogalllic acid-----	MAL.
Resorcinol-----	LEM.
Resorcinol dimethyl ether-----	ASL.
Resorcinol monoacetate-----	KPT.

TABLE 13B. --Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Phenols and derivatives--Continued	
Resorcinol monobenzoate-----	EKT.
Thymol-----	GIV.
Thymol iodide-----	MAL.
3-o-Toloxyl-1,2-propanediol (o-Cresyl- $\alpha$ -glyceryl ether)--	BKL, HEX.
Phenothiazine-----	CLV.
Phenylacetylurea (Phemurone)-----	ABB.
1-Phenylcyclohexaneglycolic acid, 1-methyl-1,4,5,6-tetrahydro-2-pyrimidinemethanol ester.	PFZ.
1-Phenylcyclopentanecarboxylic acid, 2-(2-diethylaminoethoxy)ethyl ester, citrate.	PFZ.
1-Phenylcyclopentanecarboxylic acid, 2-diethylaminoethyl ester ethanedisulfonate.	SK.
Phenylethylhydrazine dihydrogen sulfate-----	NEP.
2-Phenyl-1,3-indandione-----	CTN, GAN.
Phenylundecanoic acid-----	EK.
1-(2H)-Phthalazone-----	NAC, SDH.
Podophyllin powder-----	ABB.
Primaquine (8-(4-Amino-1-methylbutylamino)-6-methoxyquinoline) phosphate.	PD.
Pyrazine-2-carboxamide-----	MRK.
2-Pyridinemethanol tartrate-----	HOF.
$\alpha$ -(2-Pyridylaminomethyl)benzyl alcohol (Phenyramidol) hydrochloride.	x.
1-Pyrrolidineacetoxylidide (Pyrrocaine) hydrochloride-----	EN.
*8-Quinolinol and derivatives:	
5-Chloro-7-iodo-8-quinolinol (Iodochlorohydroxyquinoline)	CBP, PYL.
*5,7-Diiodo-8-quinolinol-----	LEM, PYL, RSA, SRL.
8-Hydroxyquinoline-5-sulfonic acid-----	LEM, MTL.
*8-Quinolinol-----	GAM, LEM, MTL.
*8-Quinolinol benzoate-----	GAM, LEM, MTL.
8-Quinolinol citrate-----	GAM.
*8-Quinolinol sulfate (Quinosol)-----	GAM, LEM, MTL, PYL.
8-Quinolinol, zinc salt-----	FMT.
Roentgenographic contrast media:	
3-Acetamido-2,4,6-triiodobenzoic acid (Acetrizoate) and sodium salt.	MAL.
3-(3-Amino-2,4,6-triiodophenyl)-2-ethylpropionic (Iodopanoic) acid.	SDW.
3,5-Diacetamido-2,4,6-triiodobenzoic acid (Diatrizoate), sodium salt.	SDW.
3,5-Dipropionamido-2,4,6-triiodobenzoic acid (Diprotirizoate) and sodium salt.	MAL.
Ethyl (iodophenyl)hendecanoate-----	x.
*Salicylic acid and derivatives:	
*Acetylsalicylic acid (Aspirin)-----	CFC, DOW, MLS, MON, NOR, SDG.
Acetylsalicylic acid, aluminum basic salt-----	ABB, SCH.
4-Aminosalicylic acid-----	MLS.
4-Aminosalicylic acid, calcium salt-----	MLS.
4-Aminosalicylic acid, potassium salt-----	MLS.
4-Aminosalicylic acid, sodium salt-----	MLS.
N-Butyl-3-phenylsalicylamide-----	KF.
Dipropylene glycol salicylate-----	SBC.
Dithiosalicylic acid-----	LIL.
Ethyl salicylate carbonate-----	PD.
Glycol monosalicylate-----	RDA.
Magnesium salicylate-----	MAL.
Menthyl salicylate-----	ICO.

TABLE 13B. --Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Salicylic acid and derivatives--Continued	
homo-Menthyl salicylate-----	ICO.
Potassium salicylate-----	HST, PEN.
Salicylamide-----	CFC, PEN.
Salicylanilide-----	LEM.
*Salicylic acid-----	DOW, HN, HST, MON, SDH.
Salol (Phenyl salicylate)-----	DOW, MAL, PEN.
Sodium salicylate-----	DOW, HN, MON.
Strontium salicylate-----	MAL.
Thiosalicylic acid-----	LIL.
All other-----	TNC.
Sodium benzyl succinate-----	LEM.
8-Succinoylfluoranthene (Florantyrone)-----	SRL.
*Sulfonamides and sulfones:	
N,N'-Bis(3-nitrobenzenesulfonyl)ethylenediamine-----	SAL.
Chloramine T (Sodium p-toluenesulfonchloramide)-----	MON.
3-(4-Chloro-3-sulfamoylphenyl)-3-hydroxyphthalimidine--	GGY.
4,5-Dichloro-m-benzenedisulfonamide-----	MRK.
Diphenyl sulfone-----	HEX.
p-(Di-n-propylsulfamoyl)benzoic acid-----	MRK.
*Phenylsulfonylurea derivatives:	
1-(p-Acetylphenylsulfonyl)-3-cyclohexylurea-----	LIL.
1-Butyl-3-p-tolylsulfonylurea-----	HST, x.
3-(p-Chlorophenylsulfonyl)-1-propylurea-----	PFZ.
*Sulfa drugs:	
6-Acetamido-4-hydroxy-3-(4'-sulfamoylphenylazo)-2,7-naphthalenedisulfonic acid, disodium salt.	SDW.
N'-Acetyl-3,4-dimethyl-5-sulfanilamidoisoxazole-----	HOF.
N'-Acetylsulfamethoxypyridazine-----	ACY.
4'-(Acetylsulfamoyl)phthalanilic acid-----	LEM.
Benzoylsulfanilamide-----	ACY.
Benzoylsulfanilamide, sodium salt-----	ACY.
p-Benzylaminobenzenesulfonamide-----	SDW.
N <sup>1</sup> -(2,6-Dimethoxy-4-pyrimidinyl)sulfanilamide-----	HOF.
N <sup>1</sup> -(3,4-Dimethyl-5-isoxazolyl)sulfanilamide-----	HOF.
N <sup>1</sup> -(5-Ethyl-1,3,4-thiadiazol-2-yl)sulfanilamide-----	ACY.
N <sup>1</sup> -(5-Methyl-3-isoxazolyl)sulfanilamide-----	HOF.
N <sup>1</sup> -(5-Methyl-1,3,4-thiadiazol-2-yl)sulfanilamide (Sulfamethizole).	ACY.
4'-(p-Nitrophenylsulfamoyl)acetanilide-----	SAL.
p-Nitrosulfathiazole-----	SDW.
Succinylsulfathiazole-----	LEM, MRK.
Sulfabromomethazine sodium-----	MRK.
Sulfadiazine-----	ACY.
Sulfadiazine, sodium salt-----	ACY.
Sulfaguanidine-----	ACY.
Sulfamerazine-----	ACY, PYL.
Sulfamerazine, sodium salt-----	ACY.
Sulfamethazine-----	ACY, PYL.
Sulfamethoxypyridazine-----	ACY.
Sulfanilamide-----	LEM, SAL.
N-Sulfanilylacetamide (Sulfacetamide)-----	LEM, SCH.
N-Sulfanilylacetamide, sodium salt-----	LEM, SCH.
Sulfapyridine-----	ACY, MRK.
Sulfapyridine, sodium salt-----	ACY, MRK.
Sulfaquinoxaline-----	MRK.
Sulfathiazole-----	ACY, LEM, MRK.



TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Sulfonamides and sulfones--Continued	
*Sulfa drugs--Continued	
Sulfathiazole, sodium salt-----	ACY, MRK.
4'-(2-Thiazolylsulfamoyl)phthalanilic acid-----	LEM, MRK.
[ Sulfonylbis(p-phenyleneimino)]dimethanesulfinic acid (Sulfoxone), disodium salt.	ABB.
*Sympathomimetic agents:	
d-N-Benzyl-N, $\alpha$ -dimethylphenethylamine hydrochloride----	x.
3,4-Dihydroxynorephedrine hydrochloride-----	SDW.
$\alpha$ , $\alpha$ -Dimethylphenethylamine-----	HEX.
*N, $\alpha$ -Dimethylphenethylamine (Desoxyephedrine) base and hydrochloride:	
N, $\alpha$ -Dimethylphenethylamine-----	HEX, PRR.
1-N, $\alpha$ -Dimethylphenethylamine-----	ABB.
N, $\alpha$ -Dimethylphenethylamine hydrochloride-----	GAN, HEX, PRR.
d-N, $\alpha$ -Dimethylphenethylamine hydrochloride-----	ABB, GAN, HEX.
Epinephrine-----	SDW.
m-Hydroxynorephedrine-----	SDW.
m-Hydroxynorephedrine bitartrate-----	x.
$\alpha$ -(Isopropylaminomethyl)protocatechuyl alcohol (Iso- proterenol).	CTN, GAN.
o-Methoxy-N, $\alpha$ -dimethylphenethylamine (Methoxyphenamine) hydrochloride.	x.
Methylaminoethanolcatechol, racemic-----	DOD, VB.
$\alpha$ -(1-Methylaminoethyl)benzyl alcohol (Pseudoephedrine) hydrochloride.	BUR, GAN.
$\alpha$ -(1-Methylaminoethyl)benzyl alcohol sulfate-----	GAN.
N-[2-(3,4-Methylenedioxyphenyl)isopropyl]- $\alpha$ -aminomethyl- protocatechuyl alcohol hydrochloride (Caytine).	LKL.
* $\alpha$ -Methylphenethylamine (Amphetamine and Dextroamphet- amine) base and salts:	
$\alpha$ -Methylphenethylamine (Amphetamine)-----	HEX, ORT, PRR.
$\alpha$ -Methylphenethylamine sulfate-----	HEX, SK.
$\alpha$ -Methylphenethylamine tannate-----	PRR.
d- $\alpha$ -Methylphenethylamine (Dextroamphetamine)-----	HEX.
d- $\alpha$ -Methylphenethylamine hydrochloride-----	HEX.
d- $\alpha$ -Methylphenethylamine sulfate-----	HEX, PRR, SK.
*Norephedrine hydrochloride-----	GAM, GAN, HEX, ICO, NEP, ORT.
trans-2-Phenylcyclopropylamine sulfate-----	x.
1-Phenylephrine base-----	CTN, GAN.
Phenylephrine bitartrate-----	GAN.
*Phenylephrine hydrochloride-----	CTN, GAN, HEX, SDW.
2-(4-Thiazolyl)benzimidazole-----	MRK.
*Tranquilizers:	
1-(p-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl] piperazine (Hydroxyzine) dihydrochloride.	PFZ.
1-(p-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl]di- ethylenediamine pamoate.	PFZ.
7-Chloro-1,3-dihydro-1-methyl-5-phenyl-2H-1,4-benzo- diazepin-2-one.	HOF.
trans-2-Chloro-N,N-dimethylthioxanthene- $\Delta^9$ , $\alpha$ -propyl- amine (Chlorprothixene).	HOF.
7-Chloro-2-methylamino-5-phenyl-3H-1,4-benzodiazepine- 4-oxide (Chlordiazepoxide) hydrochloride.	HOF.
2-(p-Chlorophenyl)-3-methyl-2,3-butanediol-----	LIL.
*Phenothiazine derivatives:	
2-Chloro-10-(3-dimethylaminopropyl)phenothiazine (Chlorpromazine) hydrochloride.	SK.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, BENZENOID--Continued	
*Tranquilizers--Continued	
*Phenothiazine derivatives--Continued	
2-Chloro-10-(3-[4-(2-hydroxyethyl)piperazinyl]-propyl)phenothiazine (Perphenazine).	SCH.
2-Chloro-10-[3-(1-methyl-4-piperazinyl)propyl]phenothiazine (Prochlorperazine) dimaleate.	SK.
2-Chloro-10-[3-(1-methyl-4-piperazinyl)propyl]phenothiazine ethanedisulfonate.	SK.
10-(2-Diethylaminopropyl)phenothiazine-----	NEP.
10-(3-Dimethylaminopropyl)phenothiazine (Promazine) hydrochloride.	WYT.
10-(2-Dimethylaminopropyl)phenothiazine (Promethazine) hydrochloride.	WYT.
1-[10-(3-[4-(2-Hydroxyethyl)-1-piperazinyl]propyl)-phenothiazine-2-yl]-1-propanone (Carphenazine) and maleate.	WYT.
N-Methylpiperidyl-3-methylphenothiazine hydrochloride hydrate.	NEP.
α-(4-Piperidyl)benzhydrol (Azacyclonol) hydrochloride-	BKC.
2-Trifluoromethyl-10-(3-dimethylaminopropyl)phenothiazine (Triflupromazine) hydrochloride.	OMS, SK.
4-(3-[2-(Trifluoromethyl)phenothiazin-10-yl]propyl)-1-piperazineethanol (Fluphenazine) dihydrochloride.	OMS, SCH.
Triphosphopyridine nucleotide-----	PBS.
Tropine benzhydryl ether methanesulfonate-----	x.
*Vitamins:	
*B <sub>2</sub> (Riboflavin) (100%):	
For animal and poultry consumption-----	COM, GPR, HOF, MRK, PBS.
For human consumption-----	HOF, MRK.
B <sub>6</sub> (Pyridoxine)-----	HOF, MRK.
*B <sub>12</sub> (100%):	
Feed grade-----	COM, GPR, IMC, MRK, PBS.
Pharmaceutical-----	IMC, MRK.
U.S.P. Crystalline-----	MRK.
E (α-Tocopherol)-----	CW, HOF.
E (α-Tocopherol acetate)-----	HOF.
Folic acid-----	ACY.
K <sub>1</sub> (2-Methyl-3-phytyl-1,4-naphthoquinone)-----	MRK.
*K <sub>3</sub> (Menadione) (2-Methyl-1,4-naphthoquinone)-----	ABB, HET, HFT.
K <sub>3</sub> (Menadione) (2-Methyl-1,4-naphthoquinone) sodium bisulfite.	ABB, HET, WHL.
K <sub>4</sub> (2-Methyl-1,4-naphthalenediol diacetate and diphosphate, tetrasodium salt).	HOF.
K <sub>5</sub> (4-Amino-2-methyl-1-naphthol) hydrochloride-----	PD.
Magnesium nicotinate-----	NEP.
*Niacin (Nicotinic acid):	
Animal feed grade-----	MRK, NEP, RIL.
Medicinal grade-----	ABB, ACP, CKL, MRK, NEP, NOP, RIL, SCR.
*Niacinamide (Nicotinamide)-----	MRK, NEP, PD, RIL, SCR.
Nicotinamide hydrochloride-----	NEP.
Riboflavin-5'-phosphate, monosodium salt-----	HOF.
Sodium nicotinate-----	MRK.
MEDICINAL CHEMICALS, NONBENZENOID	
2-Acetamido-5-nitrothiazole-----	ACY.
5-Acetamido-1,3,4-thiadiazole-2-sulfonamide-----	ACY.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
Acetylcarbomal (1-Acetyl-3-(2-bromo-2-ethylbutyryl)urea)-	MLS.
Acetylmethionine-----	DOW.
Acrylic acid copolymer-----	RSA.
Alkaloids and related products:	
Digitalis glucosides:	
Digitonin-----	PEN.
Digitoxin-----	BUR.
Veratrum viride (Alkavervir)-----	PEN, RIK.
*Amino acids:	
β-Alanine-----	BFG, NOP.
1(+)-Arginine hydrochloride-----	GNM.
Aspartic acid and salts:	
dl-Aspartic acid-----	HEX, NAC.
Magnesium hydrogen aspartate-----	WYT.
Potassium hydrogen aspartate-----	WYT.
Glutamic acid and salts:	
1(+)-Glutamic acid-----	IMC, LEM.
1(+)-Glutamic acid, calcium salt-----	LEM.
1(+)-Glutamic acid hydrochloride-----	IMC, LEM.
1(+)-Glutamic acid, monoammonium salt-----	IMC.
1(+)-Glutamic acid, monopotassium salt-----	IMC.
Glycine (Aminoacetic acid)-----	BPC, DOW.
Glycine hydrochloride-----	EK.
Histidine hydrochloride-----	GNM.
1(+)-Lysine hydrochloride-----	MRK.
1(+)-Lysine hydrochloride (feed grade)-----	MRK.
dl-Methionine (except feed grade)-----	DOW, LEM.
Methionine, feed grade-----	DOW.
Amino acid mixtures-----	ABB, CUT, STA.
2-Amino-5-nitrothiazole-----	ACY.
3-Amino-2-oxazolidinone-----	NOR.
Amyl nitrite (Isoamyl nitrite)-----	MAL.
*Barbiturates:	
5-Allyl-5-sec-butylbarbituric acid-----	SDW.
5-Allyl-5-(2-cyclopenten-1-yl)barbituric acid and salt--	GAN.
5-Allyl-5-isobutylbarbituric acid and salt-----	GAN.
5-Allyl-5-(1-methylbutyl)barbituric acid (Secobarbital) and salt.	BPC, GAN.
5-Allyl-5-(1-methylbutyl)-5-thiobarbituric acid (Surital).	PD.
dl-5-Allyl-1-methyl-5-(1-methyl-2-pentynyl)barbituric acid and salt.	LIL.
5-sec-Butyl-5-ethylbarbituric acid-----	ABB, BPC, GAN.
5-sec-Butyl-5-ethylbarbituric acid, sodium salt-----	ABB, BPC, GAN.
5-(1-Cyclohexen-1-yl)-1,5-dimethylbarbituric acid-----	GAN, SDW.
5-(1-Cyclohexen-1-yl)-1,5-dimethylbarbituric acid, sodium salt.	SDW.
5-(1-Cyclohexen-1-yl)-5-ethylbarbituric acid and salt---	SDW.
5,5-Diethylbarbituric acid (Barbital)-----	GAN.
5,5-Diethylbarbituric acid, sodium salt-----	GAN.
5-Ethyl-5-isoamylbarbituric acid and salt-----	BPC, GAN, LIL.
5-Ethyl-5-isopropylbarbituric acid and salt-----	BPC.
5-Ethyl-5-(1-methyl-1-butenyl)barbituric acid-----	x.
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid (Pento- barbital).	ABB, BPC, GAN.
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid, sodium salt	ABB, BPC, GAN.
5-Ethyl-5-(1-methyl-n-butyl)-2-thiobarbituric acid and salt.	ABB.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
*Barbiturates--Continued	
5-Ethyl-5-n-pentylbarbituric acid, sodium salt-----	BFC.
Betaine base-----	HFT, LEM.
Betaine hydrate-----	HFT.
Betaine hydrochloride-----	HFT, LEM.
*Bile acids and salts:	
Bile salts, natural, conjugated, unoxidized-----	LIL.
Bilirubin-----	PFN.
Cholic acid-----	SRL, WIL.
Dehydrocholic acid-----	MRK, WIL.
Dehydrocholic acid, sodium salt-----	WIL.
Desoxycholic acid-----	MRK, WIL.
Ketocholanic acids-----	MRK, SRL.
Mixed oxidized bile salts-----	WIL.
Ox bile extract-----	ABB.
*Bismuth and mercury compounds:	
Bismuth compounds:	
2-Propylvaleric acid, bismuth salt-----	x.
Sodium bismuth triglycolamate-----	x.
Mercury compounds:	
N-[3-(Carboxymethylmercaptomercuri)-2-methoxypropyl]- α-camphoramate, disodium salt.	WYT.
3-Chloromercuri-2-methoxypropylurea-----	LKL.
Ethylmercuric chloride-----	LIL.
β-Methoxy-γ-hydroxymercuric propylamide of camphoric acid, sodium salt with theophylline.	FIN.
Methoxyoxymercuripropylsuccinylurea-----	LKL.
Theophylline methoxymercuripropylsuccinylurea-----	LKL.
Calcium lactophosphate-----	MAL.
Calcium succinate-----	LEM.
*Camphor and derivatives:	
Bromocamphor, mono-----	MAL, PEN.
*Camphoric acid-----	FIN, PRR, PYL.
Camphoric anhydride-----	FIN.
Camphor, synthetic, U.S.P-----	HNW.
Camphosulfonic acid, calcium salt-----	FIN, PYL.
*Carbohydrates and derivatives:	
Aurothioglucose-----	SCH.
Carboxymethylcellulose, sodium salt (medicinal grade)---	CBP.
Cellulose, oxidized-----	EKT.
Dextran-----	PHR.
Fructose (Levulose)-----	DLI.
Galactose-----	PFN.
Glucoheptonic acid, calcium salt-----	PFN.
Gluconic acid salts:	
Ammonium gluconate-----	PFZ.
*Calcium gluconate (including feed grade)-----	MAL, PFZ, WHL.
Copper gluconate-----	PFZ.
Iron (ferrous) gluconate-----	PFZ.
Magnesium gluconate-----	PFZ.
Manganese gluconate-----	PFZ.
Potassium gluconate-----	PFZ.
Glucosamine hydrochloride-----	PFZ.
Maltose-----	PFN.
Methyl glucamine-----	ABB.
Sucrose octa-acetate-----	PD.
Carbromal (Bromodiethylacetylcarbamide)-----	MLS, PD.

TABLE 13B. --Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
2-Chlorothiophene-----	GAM.
$\beta$ -Chlorovinylethylethynylcarbinol-----	ABB.
*Choline derivatives:	
Acetylcholine bromide-----	EK.
Acetylcholine chloride-----	MRK.
Acetyl- $\beta$ -methylcholine chloride-----	RSA.
Choline bicarbonate-----	COM, HFT.
*Choline bitartrate-----	ACY, CFC, HFT.
*Choline chloride:	
Feed grade-----	COM, HFT.
Medicinal grade-----	CFC, HFT.
Technical grade-----	DLI, JCC, RH.
*Choline dihydrogen citrate-----	ACY, CFC, HFT.
*Succinylcholine dichloride-----	ABB, BUR, CTN, SDW.
Tricholine citrate-----	ACY, HFT.
Coenzyme A-----	PBS.
Cyclopentyl bromide-----	LIL.
1-Cyclopentyl-2-methylpropylamine (Cyclopentamine) hydrochloride.	LIL.
Diallylacetic acid-----	x.
Diethylaminocarbethoxybicyclohexyl (Dicyclomine) hydrochloride.	BKC.
Diethyl(2-hydroxyethyl)methylammonium bromide, $\alpha$ -cyclopentyl-2-thiopheneglycolate.	SDW.
3,3-Diethyl-5-methyl-2,4-piperidinedione-----	HOF.
3,5-Diiodo-4-pyridone-N-acetic acid, diethanolamine salt-----	SDW.
2-Dimethylaminoethanol bitartrate-----	x.
N, $\alpha$ -Dimethylcyclohexaneethylamine (1-Cyclohexyl-2-methylaminopropane) (Propylhexedrine).	SK.
Divinyl ether-----	MRK.
Ethyl carbamate (Urethane)-----	FMP.
2-Ethyl-cis-crotonyl urea-----	MLS.
5-Ethyl-3,5-dimethyl-2,4-oxazolidinedione-----	ABB.
Ethylenediamine diiodide-----	PYL, TNC, WHL.
Ethyl iodide-----	FMT, RSA.
2-Ethyl-2-methylsuccinimide-----	PD.
Ethyl nitrite-----	MAL.
1-Ethyl-3-(5-nitro-2-thiazolyl)urea-----	MRK.
Ethynylcyclohexyl carbamate-----	LIL.
Glutathione (oxidized)-----	SBR.
Hendecenoic (Undecylenic) acid, zinc salt-----	LEM, MCO.
Heparin sodium-----	ABB, RIK.
Hexamethyldiaminoisopropanol diiodide-----	SDW.
Hexamethylenebis(trimethylammonium chloride) (Hexamethonium chloride).	NEP, RSA.
Hexamethylenetetramine-----	HN.
Hexokinase-----	PBS.
*Hormones:	
17 $\alpha$ -Acetoxy-6 $\alpha$ -methylprogesterone-----	JUL.
17 $\alpha$ -Acetoxyprogesterone-----	JUL.
3-(7 $\alpha$ -Acetylthio-17 $\beta$ -hydroxy-3-oxo-4-androsten-17 $\alpha$ -yl) propionic acid- $\gamma$ -lactone.	SRL.
Adrenocorticotrophic hormone (ACTH)-----	ARP, ORG, WIL.
Dehydroisoandrosterone alcohol-----	JUL.
21-Desoxy-9 $\alpha$ -fluoro-6 $\alpha$ -methylprednisolone-----	UPJ.
Dexamethasone-----	MRK, SCH.
Dexamethasone acetate-----	SCH.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
*Hormones--Continued	
9 $\alpha$ ,11 $\beta$ -Dichloro-17 $\alpha$ ,21-dihydroxypregna-1,4-diene-3,20-dione, 21-acetate.	SCH.
Dienediol-----	UPJ.
17 $\alpha$ ,21-Dihydroxy-4-pregnene-3,20-dione-----	JUL.
17 $\alpha$ ,21-Dihydroxy-4-pregnene-3,20-dione, 21-acetate-----	JUL.
17 $\alpha$ -Ethinyl-17 $\beta$ -hydroxy-5(10)-estren-3-one (Norethynodrel).	SRL.
9 $\alpha$ -Fluorohydrocortisone acetate-----	UPJ.
9 $\alpha$ -Fluoro-16 $\beta$ -methyl-11 $\beta$ ,17 $\alpha$ ,21-trihydroxypregna-1,4-diene-3,20-dione.	SCH.
9 $\alpha$ -Fluoroprednisolone-----	UPJ.
Fluoxymesterone-----	UPJ.
*Hydrocortisone alcohol and acetate-----	MRK, PFZ, UPJ.
Hydrocortisone diethylaminoacetate hydrochloride-----	PFZ.
17-Hydroxy-11-dehydrocorticosterone (Cortisone) and acetate.	MRK, UPJ.
17 $\beta$ -Hydroxy-17 $\alpha$ -methylandrostando[3,2-c]pyrazole-----	SDW.
17-Hydroxy-4-pregnene-3,20-dione-----	SCH.
11 $\alpha$ -Hydroxyprogesterone-----	UPJ.
Methylprednisolone-----	UPJ.
Methyltestosterone-----	JUL.
Prednisolone-----	MRK, SCH, UPJ.
Prednisolone acetate-----	SCH.
*Prednisone-----	MRK, SCH, UPJ.
Progesterone-----	JUL, x.
Testosterone-----	JUL.
Triamcinolone-----	ACY, OMS.
Trienediol-----	UPJ.
Hydantoin derivatives:	
*Allantoin-----	CTN, FIN, HFT, SCL.
N-(5-Nitro-2-furfurylidene)-1-aminohydantoin-----	NOR.
trans-[4-(Hydroxydi-2-thienylmethyl)cyclohexyl]trimethylammonium bromide.	SCH.
1-(2-Hydroxyethyl)-2-methyl-5-nitroimidazole-----	RDA.
2-Hydroxy-4-methylisobutyric acid, calcium salt-----	MON.
2-Hydroxy-4-(methylthio)butyric acid, calcium salt-----	DUP.
4,5-Imidazoledicarboxamide (Glycarbylamide)-----	MRK.
2-Iodoethyl-1,3-dioxolane-4-methanol-----	x.
Iodomethanesulfonic acid, sodium salt-----	SDW.
Iron (ferrous) oxalate-----	BKL.
Lecithin, purified-----	ARP.
Magnesium citrate-----	MAL.
2-Mercapto-1-methylimidazole-----	LIL.
2-Methyl-2-propyl-1,3-propanediol-----	ABB.
5-Nitro-2-furaldehyde acetylhydrazone-----	NOR.
5-Nitro-2-furaldehyde diacetate-----	NOR.
5-Nitro-2-furaldehyde semicarbazone-----	NOR.
5-Nitro-2-furaldehyde semioxamazide-----	NOR.
3-[(5-Nitro-2-furfurylidene)amino]-2-oxazolidinone-----	NOR.
Nucleic acid-----	SBR.
Nucleic acid salts-----	SBR.
[2-(Octahydro-1-azocinyl)ethyl]guanidine sulfate-----	CBP.
Pantolactone, racemic-----	ABB, CKL, NOP.
Phytic acid-----	STA.
Phytic acid, calcium salt-----	STA.
*Piperazine and derivatives:	
N-Aminoethylpiperazine-----	UCC.
1-Diethylcarbamy-4-methylpiperazine dihydrogen citrate--	ACY.

TABLE 13B. --Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
*Piperazine and derivatives--Continued	
Dimethylaminoethyl-4-methylpiperazine-----	UCC.
Methyl-N-methyl-N-piperazine acetate-----	ABB.
N-Methylpiperazine-----	UCC.
*Piperazine-----	DOW, JCC, UCC, x.
Piperazine adipate-----	JCC, PYL.
Piperazine calcium ethylenediamine tetraacetate (Perin)--	EN.
Piperazine citrate-----	JCC, LEM, RDA.
Piperazine dihydrochloride-----	ACY, DOW, JCC, PYL.
Piperazine hexahydrate-----	JCC, RDA.
*Piperazine hydrochloride-----	DOW, JCC, RDA, WHL.
*Piperazine phosphate-----	BUR, JCC, PYL, RDA, WHL.
Piperazine sulfate-----	JCC, RDA.
Piperazine tartrate-----	PYL, RDA.
Propylene glycol diacetate-----	x.
2-Propyl valeric acid-----	x.
*Purine derivatives:	
Adenosine-----	PBS, SBR.
Adenosine-5-phosphoric acid-----	PBS, SBR.
Adenosinetriphosphoric acid-----	SBR.
Adenosinetriphosphoric acid, salt-----	PBS, SBR.
Adenylic acid-----	SBR.
*Caffeine:	
Natural-----	GNF, MYW.
Synthetic-----	MON, PFZ.
Caffeine citrate-----	MAL, MRK.
6-Chloropurine-----	BUR.
6-Mercaptopurine-----	BUR.
Theobromine, sodium acetate-----	MAL.
Theophylline (1,3-Dimethylxanthine) and derivatives:	
Theophylline aminoisobutanol-----	GAN.
Theophylline, anhydrous-----	LEM.
Theophylline choline-----	NEP.
*Theophylline ethylenediamine (Aminophylline)-----	GAN, LEM, SRL.
Theophylline ethylenediamine, sodium biphosphate-----	GAN.
Theophylline magnesium-----	MAL.
Theophylline monoethanolamine-----	LIL.
Theophylline sodium acetate-----	MAL.
Uric acid and derivatives-----	SCL.
Sitosterol B-----	UPJ.
Sodium succinate-----	PEN.
Sodium tartrate-----	MAL.
Sulfosuccinic acid, bis(2-ethylhexyl) ester-----	ACY.
Terpinol hydrate-----	PEN.
Tetraethylammonium chloride-----	RSA.
Tetramethylammonium chloride-----	ASL, EK, RSA.
Tetramethylammonium hydroxide-----	RSA.
Thiosemicarbazide-----	FMT.
*Tranquilizers:	
2-Methyl-2-sec-butyl-1,3-propanediol dicarbamate-----	x.
2-Methyl-2-n-propyl-1,3-propanediol dicarbamate (Meprobamate).	ABB, BKL, ICO, PEN, x.
*Trihalogenated compounds:	
Bromoform (Tribromomethane)-----	DOW.
Chloretone (tert-Trichlorobutyl alcohol)-----	BPC, PD.
Iodoform-----	MAL, PEN.
2,2,2-Tribromoethanol-----	SDW.
3,5,5-Trimethyl-2,4-oxazolidinedione-----	ABB.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MEDICINAL CHEMICALS, NONBENZENOID--Continued	
3-Tropanol (Tropine)-----	CTN.
*Uracil derivatives:	
6-Propyl-2-thiouracil-----	PYL.
Thymidine-----	SBR.
Thymine-----	ACY.
Uridine-----	PBS, SBR.
Uridine triphosphate-----	PBS, SBR.
1-Vinyl-2-pyrrolidinone iodine complex polymer-----	G.
*Vitamins:	
*A, from all sources:	
A acetate-----	EF, HOF, PFZ.
A acetate (feed grade)-----	HOF.
A alcohol-----	CW, HOF.
*A palmitate-----	EK, HOF, MRK, PFZ.
A palmitate (feed grade)-----	EK, HOF.
B <sub>1</sub> (Thiamin hydrochloride)-----	HOF, MRK.
B <sub>1</sub> (Thiamin nitrate)-----	HOF, MRK.
Biotin-----	HOF.
*C (Ascorbic acid) and derivatives:	
*Ascorbic acid-----	HOF, MRK, PFZ.
Ascorbic acid, calcium salt-----	PFZ.
Ascorbic acid, sodium salt-----	HOF, MRK, PFZ.
Ascorbyl palmitate-----	PFZ.
β-Carotene-----	HOF.
*D <sub>2</sub> (Irradiated ergosterol)-----	DLI, SCR, VTM.
D <sub>3</sub> (Irradiated animal sterol)-----	DLI, JUL, NOP, VTM.
Inositol-----	STA.
*Pantothenic acid and derivatives:	
Pantothenic acid-----	DLI.
Pantothenic acid, dl-calcium chloride complex-----	NOP.
Pantothenic acid, d-calcium salt-----	ACY, MRK, x.
*Pantothenic acid, dl-calcium salt-----	ABB, CKL, HFT, MRK, NOP, PRR.
Pantothenic acid, sodium salt-----	PD.
d-Pantothenyl alcohol (α,γ-Dihydroxy-N-(3-hydroxy-propyl)-β,β-dimethylbutyramide).-----	HOF.
dl-Pantothenyl alcohol-----	HOF.
Provitamin D <sub>3</sub> (7-Dehydrocholesterol)-----	JUL.



## Flavor and Perfume Materials

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963*

[Flavor and perfume materials for which separate statistics are given in table 14A are marked below with an asterisk (\*); those not so marked do not appear in table 14A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC	
Benzenoid and Naphthalenoid	
2'-Acetonaphthone (Methyl $\beta$ -naphthyl ketone)-----	GIV, TBK.
Acetophenone-----	GIV, TBK.
7-Acetyl-6-ethyl-1,1,4,4-tetramethyl-1,2,3,4-tetrahydro- naphthalene.	GIV, TBK.
p-Allylanisole-----	GIV.
Allyl phenoxyacetate-----	GIV.
*4-Allylveratrole (Eugenyl methyl ether)-----	FB, GIV, ICO, TBK.
*Anethole (p-Propenylanisole)-----	FB, GLD, HNW, HPC, UNG.
*p-Anisaldehyde (p-Methoxybenzaldehyde)-----	GIV, ICO, OPC, TBK, UNG.
Anisole (Methyl phenyl ether)-----	GIV.
Anisyl acetate-----	GIV, TBK.
Anisyl alcohol-----	GIV, TBK.
*Benzophenone-----	G, GIV, ICO, NEO, TBK.
*Benzyl acetate-----	GIV, OPC, RDA, SHL, TBK, x.
*Benzyl alcohol-----	BPC, GIV, OPC, SHL, TBK, TNP.
Benzyl benzoate-----	MON, OPC, TBK, TNP.
Benzyl butyrate-----	FB, TBK.
*Benzyl cinnamate-----	FB, GIV, ICO, TBK.
Benzyl ether-----	OPC, SHL.
Benzyl formate-----	TBK.
Benzyl glyceryl acetal-----	GIV.
Benzylidene acetone-----	FB.
Benzyl isoeugenyl ether-----	GIV, TBK.
Benzyl isopentyl ether-----	GIV.
Benzyl phenylacetate (Benzyl $\alpha$ -toluate)-----	GIV, TBK.
*Benzyl propionate-----	FB, GIV, TBK.
Benzyl salicylate-----	GIV, TBK.
$\alpha$ -Bromostyrene-----	TBK.
4'-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone (Musk ketone).	GIV.
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette)--	GIV, TBK.
p-tert-Butyl- $\alpha$ -methylhydrocinnamaldehyde ( $\alpha$ -Methyl- $\beta$ -(p- tert-butylphenyl)propionaldehyde).	
5-tert-Butyl-1,2,3-trimethyl-4,6-dinitrobenzene (5-tert- Butyl-4,6-dinitrohemimellitene).	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)-----	GIV.
Carvacrol (2-p-Cymenol)-----	GIV.
*Cinnamaldehyde-----	FB, OPC, RDA, TBK.
Cinnamic acid-----	BPC.
Cinnamyl acetate-----	FB, GIV, TBK.
*Cinnamyl alcohol-----	FB, GIV, NEO, TBK.
Cinnamyl anthranilate-----	FEL, GIV, RT.
Cinnamyl cinnamate-----	TBK.
Cinnamyl formate-----	TBK.
Cinnamyl isovalerate-----	TBK.
Cinnamyl propionate-----	FB.
trans-Decahydro-2-naphthol-----	IFF.
p, $\alpha$ -Dimethylbenzyl alcohol (p-Methylphenylmethylcarbinol)-	GIV.
* $\alpha$ , $\alpha$ -Dimethylphenethyl acetate-----	GIV, IFF, RDA, TBK.
$\alpha$ , $\alpha$ -Dimethylphenethyl alcohol-----	IFF.
$\alpha$ , $\alpha$ -Dimethyl-3-phenyl-1-propanol-----	IFF, TBK.

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
4,6-Dinitro-1,1,3,3,5-pentamethylindan-----	GIV.
Diphenylmethane-----	TBK.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)-----	GIV.
6-Ethoxy-m-anol (Propenyl methylguaethol)-----	SHL.
*2-Ethoxynaphthalene (Ethyl $\beta$ -naphthyl ether)-----	GIV, ICO, TBK.
Ethyl anisate-----	ICO.
Ethyl anthranilate-----	FB, FMT.
Ethyl benzoate-----	TBK.
Ethyl cinnamate-----	GIV, TBK.
Ethyl $\alpha,\beta$ -epoxy- $\beta$ -methylhydrocinnamate-----	GIV, TBK.
2-Ethylhexyl salicylate-----	FEL.
Ethyl 3-phenylglycidate-----	GIV, TBK.
Ethyl salicylate-----	TBK.
Ethylvanillin-----	MON, RDA.
*Eugenol-----	FB, GIV, ICO, LUE, NEO, PEN, TBK, UNG, VLY.
Eugenol acetate-----	GIV.
Geranyl benzoate-----	GIV.
Hexylcinnamaldehyde-----	GIV, IFF, TBK.
Hydratropaldehyde ( $\alpha$ -Phenylpropionaldehyde)-----	GIV, IFF.
Hydratropaldehyde, dimethyl acetal-----	GIV.
Hydrocinnamaldehyde (3-Phenylpropionaldehyde)-----	TBK.
2-Hydroxypropyl p-N,N-bis(2-hydroxypropyl)aminobenzoate---	SHL.
Isobutyl cinnamate-----	TBK.
*Isobutyl phenylacetate (Isobutyl $\alpha$ -toluate)-----	FB, GIV, TBK.
*Isobutyl salicylate-----	FB, GIV, TBK.
*Isoeugenol-----	FB, GIV, SHL, TBK, VLY.
Isoeugenyl acetate-----	TBK.
*Isopentyl salicylate (Amyl salicylate)-----	FB, GIV, ICO, OPC, TBK.
p-Isopropylbenzaldehyde (Cumaldehyde)-----	GIV.
p-Isopropylcyclohexanol-----	GIV.
*p-Isopropyl- $\alpha$ -methylhydrocinnamaldehyde (Cyclamen aldehyde)	GIV, OPC, RDA.
4'-Methoxyacetophenone-----	GIV, ICO.
2-Methoxynaphthalene (Methyl $\beta$ -naphthyl ether)-----	GIV, TBK.
4-( $\alpha$ -Methoxyphenyl)butanone-----	TBK.
4'-Methylacetophenone (Methyl p-tolyl ketone)-----	TBK.
p-Methylanisole (p-Cresyl methyl ether)-----	GIV, TBK.
*Methyl anthranilate-----	FB, GIV, MEE, OPC, SHL, UNG.
Methyl benzoate-----	HN.
$\alpha$ -Methylbenzyl acetate-----	GIV, TBK, VLY.
p-Methylbenzyl acetate-----	ICO, IFF.
$\alpha$ -Methylcinnamaldehyde-----	FB, GIV, VLY.
*Methyl cinnamate-----	FB, ICO, TBK.
Methyl N-methylantranilate (Dimethyl anthranilate)-----	GIV, OPC.
*Methyl phenylacetate (Methyl $\alpha$ -toluate)-----	GIV, OPC, TBK.
*Methyl salicylate (Synthetic wintergreen oil)-----	CFC, DOW, HN, MON, PEN.
* $\alpha$ -Pentylcinnamaldehyde ( $\alpha$ -Amylcinnamaldehyde)-----	FB, GIV, IFF, NEO, RDA, TBK, VLY.
*Phenethyl acetate-----	GIV, IFF, NEO.
Phenethyl alcohol-----	GIV, IFF, OPC.
Phenethyl formate-----	IFF.
Phenethyl isobutyrate-----	GIV, IFF, TBK.
Phenethyl isovalerate-----	FB.
Phenethyl methacrylate-----	GIV, IFF.
*Phenethyl phenylacetate (Phenethyl $\alpha$ -toluate)-----	GIV, IFF, TBK.
Phenethyl salicylate-----	TBK.
2-Phenoxyethyl isobutyrate-----	GIV, TBK.
Phenylacetaldehyde ( $\alpha$ -Tolualdehyde)-----	GIV, TBK.

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
Phenylacetaldehyde, dimethyl acetal-----	GIV, TBK.
o-Phenylanisole (2-Methoxybiphenyl)-----	GIV.
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	FB, GIV, TBK.
3-Phenyl-1-propyl acetate-----	GIV.
5-Propenyl-2-ethoxyphenol (Propenylguaethol)-----	ICO.
*4-Propenylveratrole (Isoeugenyl methyl ether)-----	GIV, ICO, TBK.
p-Propylanisole-----	GIV.
Styrollyl acetate-----	FB.
1,2,3,6-Tetrahydro-2,3,5-trimethylbenzaldehyde-----	IFF.
p-Tolualdehyde (p-Methylbenzaldehyde)-----	HN.
p-Tolyl acetate (p-Cresyl acetate)-----	GIV, IFF.
p-Tolyl isobutyrate (p-Cresyl isobutyrate)-----	IFF.
p-Tolyl phenylacetate (p-Cresyl $\alpha$ -toluate)-----	GIV, TBK.
$\alpha$ -(Trichloromethyl)benzyl acetate (Rosetone)-----	ICO, TBK.
Vanillin-----	MON, SLV.
All other-----	FB, GIV, x.
Terpenoid, Heterocyclic, and Alicyclic	
Allyl cyclohexyl propionate-----	GIV.
Allyl ionone-----	GIV, IFF.
Amyris acetate-----	GIV, TBK.
Bornyl acetate-----	FEL.
4-tert-Butylcyclohexanol-----	IFF.
4-tert-Butylcyclohexyl acetate-----	DOW, IFF.
Cadinene-----	FB.
Carvone (Carvol)-----	FB, FRM, OPC.
Caryophyllene-----	FB, GIV.
Cedranone-----	TBK.
Cedrenol-----	GIV.
*Cedrol-----	GIV, IFF, TBK, UNG.
*Cedryl acetate-----	GIV, IFF, NEO, TBK, UNG.
*Citral (Geranial)-----	FB, FEL, GIV, LUE, NEO, RT, TBK.
Citral dimethyl acetal-----	GIV.
Citronellal-----	GIV, IFF, TBK.
*Citronellol-----	FB, GIV, GLD, IFF, TBK, VLY.
*Citronellyl acetate-----	GIV, IFF, TBK.
Citronellyl butyrate-----	GIV.
*Citronellyl formate-----	FB, GIV, IFF, TBK.
Citronellyl isobutyrate-----	IFF, TBK.
Citronellyl oxyacetaldehyde-----	IFF, TBK.
Citronellyl propionate-----	GIV.
*Coumarin-----	DOW, MON, NEO, RDA, TBK.
Cyclohexadecanolide-----	IFF.
Cyclohexylcyclohexanone-----	GIV.
Cyclopentanol-----	ARA.
Cyclopentanone-----	ARA.
Dihydrogeraniol-----	ICO.
Dihydroterpinyl acetate-----	GIV.
*Essential oils, chemically modified:	
Cedarwood acetate-----	FB.
Citronella oil, acetone condensation product-----	CP.
Ethyl oxyhydrate-----	FEL, FLO, LUE, RT, VND.
Guaiacwood acetate-----	FB, GIV, TBK.
Lavandin, acetylated-----	FEL.
Oil clove stem, acetylated-----	FB.
Sassafras oil, hydrogenated-----	GIV.
$\alpha$ -Furfural mercaptan-----	RT.

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
*Geraniol-----	FB, FEL, GIV, GLD, IFF, NEO, TBK, VLY.
*Geranyl acetate-----	FEL, GIV, IFF, NEO, TBK, VLY.
Geranyl butyrate-----	FMT, GIV.
*Geranyl formate-----	GIV, TBK, VLY.
Geranyl isovalerate-----	FB.
Geranyl phenylacetate (Geranyl $\alpha$ -toluate)-----	GIV, TBK.
2-Hexyl-2-cyclopenten-1-one-----	IFF.
*Hydrocoumarin (3,4-Dihydrocoumarin)-----	GIV, ICO, OPC, TBK.
*Hydroxycitronellal-----	GIV, IFF, OPC, TBK, VLY.
*Hydroxycitronellal, dimethyl acetal-----	FB, GIV, TBK.
4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-1-carboxaldehyde.	IFF.
Indole-----	DOW, GIV.
*Ionones:	
$\alpha$ -Ionone-----	GIV, MYW, TBK.
$\beta$ -Ionone-----	MYW, NEO, TBK.
Ionone ( $\alpha$ - and $\beta$ -)-----	GIV, IFF, LUE, MYW, NEO, TBK.
Isoborneol (Isobornyl alcohol)-----	RDA.
*Isobornyl acetate-----	FB, GIV, OPC, RDA, TBK, UNG.
Isobutylquinoline-----	FMT, IFF.
Isomenthone-----	GIV, TBK.
Isopropylquinoline-----	FMT.
Isopulegol-----	GIV, VLY.
Isosafrole-----	GIV.
d-Limonene-----	RT, SKG.
*Linalool-----	FB, FEL, GIV, GLD, HOF, IFF, NEO, TBK, UNG.
*Linalyl acetate-----	DOW, FB, GIV, GLD, HOF, LUE, NEO, SHL, TBK, UNG.
Linalyl anthranilate-----	FMT.
Linalyl benzoate-----	FMT.
Linalyl cinnamate-----	TBK.
Linalyl isobutyrate-----	TBK.
Linalyl propionate-----	FB, GIV.
p-Menth-1-en-3-one-----	GIV.
*Menthol, synthetic:	
Tech-----	GIV, ICO.
U.S.P-----	GIV, GLD, HNW, NEO.
Menthone-----	GIV, HNW, NEO.
Menthyl acetate-----	FB, GIV.
6-Methylcoumarin-----	GIV.
*Methylionones:	
*Methyl- $\alpha$ -ionone-----	GIV, IFF, MYW, NEO.
*Methyl- $\beta$ -ionone-----	IFF, TBK.
*Methylionone ( $\alpha$ - and $\beta$ -)-----	GIV, LUE, MYW, TBK, UNG.
*Methyl- $\gamma$ -ionone-----	TBK.
*Methyl- $\delta$ -ionone-----	TBK.
*Nerol-----	FB, GIV, GLD, IFF, TBK, VLY.
Nopyl acetate-----	SHL, VLY.
p-tert-Pentylcyclohexanone-----	x.
Phellandrene-----	ICO.
*Piperonal (Heliotropin)-----	GIV, NEO, SHL, TBK.
Piperonal, sodium bisulfite complex-----	SHL.
Pseudolinalyl acetate (Myrcenyl acetate, principally)-----	IFF.
*Rhodinol-----	FB, FEL, GIV, IFF, LUE, RDA, SHL, UNG.
Rhodinyl acetate-----	FB, GIV, IFF.
Rhodinyl formate-----	GIV.
Safrole-----	GIV.
Santalol-----	GIV, IFF.
Santalyl acetate-----	GIV.

TABLE 14B. -- Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
*Sweeteners, synthetic:	
Cyclohexanesulfamic acid-----	ABB.
Cyclohexanesulfamic acid, calcium salt-----	ABB, NRS, PBV.
Cyclohexanesulfamic acid, sodium salt-----	ABB, NRS, PBV.
Saccharin-----	MEE, MON.
Saccharin, calcium salt-----	MEE, x.
Saccharin, sodium salt-----	MEE, MON.
*Terpineols:	
α-Terpineol-----	GLD, HNW, HPC.
β-Terpineol-----	HNW.
Terpineol (α- and β-)-----	GIV, NEO.
Terpinol hydrate (Terpin hydrate), tech-----	HPC.
*Terpinyl acetate-----	GIV, HNW, OPC, RDA, TBK.
Terpinyl propionate-----	GIV, TBK.
Tetrahydro alloocimanol-----	x.
3,5,5-Trimethylcyclohexanal-----	OPC.
3,5,5-Trimethylcyclohexanol-----	ICO.
Vertofix (Acetyl cedrene, principally)-----	x.
Vetivenol-----	GIV, TBK.
*Vetivenyl acetate-----	FB, GIV, IFF, NEO, TBK, VLY.
All other-----	FB.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Allyl heptanoate (Allyl enanthate)-----	DOW, FB, TBK.
*Allyl hexanoate (Allyl caproate)-----	DOW, FB, GIV, TBK.
Allyl isothiocyanate (Synthetic mustard oil)-----	ICO, MRT, OPC.
Allyl sulfide (Diallyl sulfide)-----	RT.
Butyl butyrate-----	TBK.
Butyl isovalerate-----	TBK.
Butyrene (Di-n-propyl ketone)-----	TBK.
Butyryl butyl lactate-----	ICO.
*Decanal (Capraldehyde) (C <sub>10</sub> )-----	GIV, IFF, TBK.
Diethyl sebacate (Ethyl sebacate)-----	FEL, TBK.
Diethyl succinate-----	UCC.
Diethyl tridecanedioate (Ethylene brassylate)-----	RDA, VLY.
3,6-Dimethyl-3-octanol-----	AIR.
3,7-Dimethyl-1-octanol-----	GIV, TBK.
3,7-Dimethyl-3-octanol-----	GIV.
Dimethyl succinate-----	ICO.
*Ethyl butyrate-----	FB, NW, RT, TBK.
Ethyl decylate-----	TBK.
Ethyl heptanoate (Ethyl enanthate)-----	FEL, TBK.
*Ethyl hexanoate (Ethyl caproate)-----	FB, NW, TBK.
Ethyl isovalerate-----	FB, TBK.
Ethyl laurate-----	FB.
Ethyl levulinate-----	IFF.
Ethyl nonanoate (Ethyl pelargonate)-----	FB, TBK.
Ethyl octanoate (Ethyl caprylate)-----	FB.
Ethyl pentanone-----	GIV.
*Glutamic acid, monosodium salt (Monosodium glutamate)-----	COM, GRW, HPC, IMC, MRK, PFZ.
Heptanal (Enanthaldehyde) (C <sub>7</sub> )-----	BAC.
Heptyl alcohol (Heptanol)-----	BAC, UCC.
Heptyl ether (Enanthic ether)-----	TBK.
cis-3-Hexen-1-ol-----	x.
Hexyl octanoate (Hexyl caprylate)-----	TBK.
cis-3-Hexyn-1-ol-----	x.
3-Hydroxy-2-butanone (Acetoin)-----	FMT.

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
4-Hydroxynonanoic acid, $\gamma$ -lactone ( $\gamma$ -Nonalactone)-----	GIV, TBK.
4-Hydroxyoctanoic acid, $\gamma$ -lactone ( $\gamma$ -Octalactone)-----	GIV, TBK.
*4-Hydroxyundecanoic acid, $\gamma$ -lactone ( $\gamma$ -Undecalactone)-----	FB, GIV, TBK.
Isobutyl acetate-----	FB.
*Isopentyl butyrate (Amyl butyrate)-----	FB, GIV, NW, RT, TBK.
Isopentyl formate (Amyl formate)-----	FEL, TBK.
Isopentyl heptanoate (Amyl caproate)-----	FEL.
Isopentyl isovalerate (Amyl isovalerate)-----	FB, TBK.
Isopentyl propionate-----	FB.
*Lauraldehyde (Dodecyl aldehyde) ( $C_{12}$ )-----	GIV, IFF, TBK.
6-Methyl-5-hepten-2-one-----	GIV, TBK.
Methyl isovalerate-----	FB.
2-Methylundecanal (2-Methylnonylacetalddehyde)-----	GIV, TBK.
Myristaldehyde-----	GIV.
Nonanal (Pelargonaldehyde) ( $C_9$ )-----	GIV, TBK.
Nonanediol monoacetate-----	GIV.
Nonanol-----	TBK.
Nonyl acetate-----	TBK.
Nonyl acetate, isomeric (Tepyl acetate)-----	IFF.
Octanal (Caprylaldehyde) ( $C_8$ )-----	GIV, IFF, TBK.
Octanol-----	GIV.
Octyl acetate-----	FB, TBK.
Octyl isobutyrate-----	FB, ICO.
Octyl salicylate-----	FB.
Omega decenol-----	x.
Pentyl propionate (Amyl propionate)-----	GIV.
Tepyl acetate-----	TBK.
Trimethylhexanal, sodium bisulfite complex-----	SHL.
3,5,5-Trimethylhexyl acetate-----	OPC.
Trimethylundecenal-----	VPC.
2,6,10-Trimethyl-9-undecen-1-ol-----	GIV.
Undecanal (Hendecanaldehyde) ( $C_{11}$ )-----	GIV, TBK.
2-Undecanone (Methyl nonyl ketone)-----	GIV.
Undecenal (Hendecenaldehyde)-----	GIV, TBK.
10-Undecen-1-ol-----	GIV.
Valerolactone-----	GIV.
All other-----	GIV, TBK.

## Plastics and Resin Materials

TABLE 15B.-- *Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1963*

[Plastics and resin materials for which separate statistics are given in table 15A are marked below with an asterisk (\*); chemicals not so marked do not appear in table 15A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Material and use	Manufacturers' identification codes (according to list in table 22)
<b>THERMOSETTING RESINS</b>	
*Alkyd resins:	
Protective coatings:	
*Phthalic anhydride type-----	AAI, ABR, ACP, ACY, ADM, AMF, APV, ARO, BAL, BEN, BOY, BRU, CIK, CM, COM, CPL, CPV, DAV, DEG, DSO, DUN, DUP, EW, FAR, FBR, FCD, FLW, FOC, FRE, FSH, GEI, GIL, GLD, GRG, GRV, HAN, HPC, HRS, ICF, JAM, JOB, JCD, JWL, KEL, KPS, KPV, KYN, LON, MCC, MID, MNP, MR, MRW, NCI, NPV, NTL, ORO, OSB, PER, PFP, PPG, PRT, QCP, RCI, RED, REL, RH, RMC, SCF, SCN, SED, SIP, SPP, SRR, SW, TV, VTV, WAS, WPC.
*Polybasic acid type-----	ACP, ACY, ADM, AMF, APT, APV, ARO, BEN, CGL, CM, COM, CPV, DSO, DUN, DUP, EW, FAR, FBR, FCD, FLW, FOC, FSH, GEI, GLD, GRV, HPC, ICF, KYN, LON, MID, NCI, NON, NOP, NPV, ORO, OSB, PPG, PRT, RCI, RH, RMC, TV, VTV.
*All other uses-----	ACP, ACY, AMR, CIK, DUP, FAR, HPC, JSC, KPS, MCC, MMM, MOB, ORO, REL, RH, SNW, WTC, x.
*Coumarone-indene and petroleum polymer resins:	
*Floor tile-----	ACC, ACP, CFX, NEV, NSP, PAI, VEL.
*Rubber compounding-----	ACC, ACP, CFX, NEV, NSP, PAI, VEL, WTC.
*All other uses-----	ACC, ACP, CFX, DSO, DUP, ENJ, KPI, MCA, NEV, PAI, PPG, VEL, VSV.
*Epoxy resins:	
Unmodified:	
*Bonding and adhesives-----	CBA, DOW, JOD, SHC, UCP.
*Protective coatings-----	CBA, DOW, JOD, RCI, SHC, UCP.
*Reinforced plastics-----	CBA, DOW, RCI, SHC, UCP.
*All other uses-----	CBA, DOW, SHC, UCP.
*Modified-----	ACP, AMF, BEN, CM, DSO, FMP, GLD, HAP, ISO, JOB, KPT, MID, MNP, MRB, NON, ORO, OSB, PYR, REZ, SPP, SRR, TV, WAS.
*Polyester resins:	
Reinforced plastics:	
*Sheets, flat and corrugated-----	ACP, ACY, ADM, DA, DSO, EW, FRE, GLD, HKD, ICF, LAS, MFG, ORO, PPG, RCI, RH, SCN, SIC, SW, USR.
*All other-----	AAI, ACP, ACY, ADM, APD, CAP, CPV, DA, DSO, FRE, GLD, GRV, HKD, ICF, IPC, KPS, LAS, MFG, MRO, PPG, RCI, SPP, SW, USR.
*Surface coatings-----	ACP, ACY, ADM, APD, COM, CPV, DA, DAV, GLD, GYR, ICF, IPC, PPG, SW, USR.
*All other uses-----	ACP, ACR, ACY, AMR, CIK, DA, DSO, EPC, EW, FMP, GEI, GLD, GNT, GRG, GYR, HKD, HYC, LAS, OCF, ORO, PLU, PPG, RCI, SCN, SW, x.
*Silicone resins-----	ACP, DCC, SPD, UCS.
*Phenolic and other tar acid resins:	
*Molding materials-----	DUR, GE, HER, HKD, HVG, IRC, MRB, PLS, RCI, RGC, SYR, UCP, VAR, VSV.
Bonding and adhesive resins for:	
*Laminating-----	ACP, AMR, BOR, CAT, CBR, CD, DRL, EW, FOM, GE, HKD, IRI, MCA, MON, NPI, NPP, NVF, PGU, PYZ, RCD, RCI, SCN, SPL, SYR, TAY, TKL, UCP, VAR.
*Coated and bonded abrasives-----	BME, BOR, CAT, CBR, HKD, MMM, MON, PYZ, SYR, UCP, VAR.
*Friction materials-----	ABS, ACP, BME, BOR, GE, HKD, MON, PYZ, RAB, SCN, SYR, SYV, UCP, VAR.

TABLE 15B.-- *Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Material and use	Manufacturers' identification codes (according to list in table 22)
THERMOSETTING RESINS--Continued	
*Phenolic and other tar acid resins--Continued	
Bonding and adhesive resins for--Continued	
*Thermal insulation-----	ACP, AMR, CAT, GE, HKD, ICF, MON, NPL, OCF, PYZ, RCI, SYV, UCP.
*Foundry or shell molding-----	ACP, ACR, AMR, BOR, GE, HKD, MON, PYZ, RCI, UCP, VAR, WCA.
*Plywood-----	ACP, AMR, BGC, BOR, CAT, CBC, DA, HKD, MON, PGU, PYZ, RCI, RH, SIM, x.
*Fibrous and granulated wood-----	AMR, BOR, HKD, MCA, MON, MRB, NPI, PYZ, RCI, SIM, UCP.
*All other bonding and adhesive uses-----	ACP, AMR, ARK, BME, BOR, CAT, GE, HKD, IRI, KPT, MON, NTC, PYZ, RPC, SCN, SNC, SYR, UCP, USR, VAR.
*Protective coatings-----	ACP, ADM, AMF, AMR, CIK, CPV, DSO, EW, FCD, GE, GEI, GRG, GRV, HER, HKD, ICF, INL, KND, KRM, MON, NCI, NPI, ORO, PFP, PYZ, RCI, RH, RMC, SCN, SNC, SPP, SW, UCP, VAR, WAS.
*All other uses-----	ACP, ACR, AMR, CAT, DA, EVM, EW, GEI, HKD, IOC, IRC, MMM, MON, MRB, PLS, PYR, PYZ, RCI, REZ, RGC, RH, SCN, SNC, UCP, VAR, VSV.
*Polyurethane and diisocyanate resins-----	ACB, ADM, APV, ARK, BFG, CWN, DUP, GPM, HAP, IPI, NOP, PEL, PFP, PYR, QUN, SCN, SFC, SW.
*Rosin modifications:	
*Rosin and rosin esters, unmodified (ester gums)-----	ADM, APV, CBY, DPP, FAR, FCD, FRP, HPC, KRM, MCC, SRR.
*All other-----	ADM, APV, CBY, CPT, DPP, DSO, DUN, FAR, FCD, FLW, FRP, HPC, KRM, MCC, OSB, REL, RH, SCF, SRR, VSV, x.
*Styrene and alkyd polyesters-----	ADM, BRR, DEG, FLW, REL, SNW.
*Urea and melamine resins:	
*Textile treating and coating resins-----	ACY, APX, BRY, CAT, CRC, DAN, DEP, DUP, HNC, HRT, JSC, MON, MRA, ONX, PC, QCF, RCI, RH, RPC, S, SNW, SYN, TRC, TV, USO, VAL, WIC, WON.
*Paper treating and coating resins-----	ACP, ACY, AMR, BME, BOR, BRR, CBR, DUP, EDY, HPC, MMM, MON, RH, RCI, x.
Molding materials-----	ACP, ACY, BOR, CAP, FMW, GDN, SFA.
Bonding and adhesive resins for:	
*Laminating-----	ACY, CAT, FOM, GE, MON, NPP, NTC, PGU.
*Plywood-----	ACY, BGC, BOR, BRR, CAT, CBC, DA, MON, NPI, NTC, PGU, RCI, RH, SIM, SOR, x.
*Fibrous and granulated wood-----	ACY, BGC, BOR, IPR, MON, NTC, PGU, RCI, SOR, SYV, UPL.
*All other bonding and adhesive uses-----	ACP, ACY, AMR, BOR, MON, NTC, RCI.
*Protective coatings-----	ACP, ACY, AMR, APV, CPV, DUP, GLD, GRV, HNC, JOD, KPS, MON, PPG, RCI, REL, RH, SW.
All other uses-----	ACY, GGY, HNC, MMM, MON, MRA, RCI, VAL, VAR.
All other thermosetting resins-----	ACY, GGY, HPC, HVG, KRM, MON, RPC.
THERMOPLASTIC RESINS	
Acrylic resins-----	ACO, ACY, CAT, CLD, DUP, FLH, GLC, GLX, HCO, JSC, PII, PPG, QUN, RH, RPI, SAR, TRC, USP, WIC.
*Cellulose plastics materials:	
Sheets, continuous:	
*Under 0.003 gage-----	CEL, DOW, DUP, EKT.
*0.003 gage and over-----	CEL, EKT, MON, MPP, NIX, PDJ, SPY.
*All other sheets, rods, and tubes-----	CEL, MPP, NIX, PDJ, RSB, SPY.
*Molding and extrusion materials-----	CEL, DOW, EKT, MON, PMP, RPI, RSB.
*Polyamide resins-----	ALF, APX, BCM, DEP, DUP, EMR, FBF, FG, GNM, HN, JSC, KRM, MRA, POL, RPC, SNW, SPN, TRC, x.



TABLE 15B.--Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Material and use	Manufacturers' identification codes (according to list in table 22)
THERMOPLASTIC RESINS--Continued	
*Styrene type plastics materials:	
*Molding-----	BFG, BKC, BPL, CST, DOW, FBF, FG, GOR, GRP, GYR, KPP, MON, MPL, PLA, RCC, SHC, SOL, TIC, UCP, USR, x.
*Textile and paper treating and coating-----	BFG, BOR, DOW, FIR, GNT, GYR, ILC, KPP, MON, MRT, USR, WAS, WIC.
*Emulsion paint-----	BFG, BOR, DOW, FIR, GLD, GNT, GYR, KPP, MON, RMC, USR.
*Extrusion-----	BFG, BKC, CSD, DOW, GRP, KPP, MON, RCC, UCP, USR, x.
*All other uses-----	ACC, BCN, BFG, BOR, DOW, DSO, DUP, FIR, GRD, GRP, GYR, IOC, KPP, MON, MRT, ONX, PAI, POL, PVI, RH, SHC, SPI, UBS, UCP, UNC, WAS, x, x.
Vinyl resins:	
*Polyvinyl acetate resins:	
*Emulsion paint-----	ACP, AIR, AML, APV, BOR, CEL, DAV, DSO, DUP, FAR, FLH, GLD, GRD, HAN, JOD, MCC, NPV, NSC, RCI, REL, SED, SRC, SW, UCP, WAS, WIC.
*Adhesives-----	ACP, AIR, BOR, CEL, CST, DUP, ESC, FC, FLH, GRD, HNC, MRN, NSC, OCF, PII, RCI, SH, SRC, SYR, UCP, WIC.
*Bonding and sizing-----	AAE, AML, CST, DAN, DUP, GRD, PII, QCP, RPC, SRC, WIC.
*All other uses-----	BOR, CEL, CST, DUP, ESC, GRD, HRT, JSC, NSC, PVI, RPC, SCO, SRC, UCP, WIC, x.
*Polyvinyl chloride and copolymer resins:	
*Film, under 6 mils-----	ATU, BFG, BOR, CRY, DA, DOW, ESC, FCP, FIR, GNT, GYR, MON, PNT, THC, UCP.
*Sheet, 6 mils and over-----	ATU, BFG, BOR, CRY, DA, DOW, ESC, FCP, FIR, GNT, GYR, MON, PNT, THC, UCP, USR.
*Flooring-----	AME, BFG, BOR, CRY, CUC, DA, ESC, FCP, FIR, GNT, GYR, MON, PNT, THC, UCP, USR.
*Paper and textile coating-----	ATU, BFG, BOR, CRY, DA, ESC, MON, ONX, UCP, USR.
Extrusion:	
*Wire and cable-----	BFG, BOR, CRY, DA, DOW, ESC, FIR, MON, PNT, THC, UCP, USR.
*Garden hose-----	ATU, BFG, BOR, DA, DOW, ESC, MON, THC.
*All other extrusions-----	BFG, BOR, CRY, DA, DOW, ESC, FCP, FIR, GNT, GYR, MON, THC, UCP, USR.
Molding:	
*Records-----	BFG, BOR, CRY, DA, ESC, KYS, MON, PLA, PNT, THC, UCP, USR.
*Slush and rotational molding-----	BFG, CRY, DA, ESC, FIR, MON, UCP, USR.
*All other moldings-----	BFG, CRY, DA, DOW, ESC, GYR, MON, UCP.
*All other uses-----	ATU, BFG, BOR, CLR, CRY, DA, DOW, ESC, FCP, FIR, GRA, GYR, MON, NSC, PNT, PYR, UCP, USR.
*All other vinyl resins-----	ADM, AIR, BEN, BOR, BOY, CLD, DOW, DSO, DUP, FC, FCD, G, GLD, GRD, IQC, JOD, MR, NSC, RMC, RPC, SRC, SW, UCP.
Polyolefin plastics materials:	
*Polyethylene, density 0.940 and below:	
*Injection molding-----	CEL, DOW, DUP, EKX, ENJ, GRP, KPP, MON, PLC, RCC, SHC, SPN, UCP, USI.
*Blow molding-----	CEL, DOW, DUP, EKX, GRP, KPP, MON, PLC, RCC, SHC, SPN, UCP, USI.
Extrusions:	
*Film and sheet-----	CEL, DOW, DUP, EKX, ENJ, GRP, KPP, MON, PLC, RCC, SHC, SPN, UCP, USI.
*Wire and cable coating-----	CEL, DOW, DUP, EKX, GRP, KPP, MON, PLC, SHC, SPN, UCP, USI.
*Extrusion coating on paper and other substrates-----	CEL, DUP, EKX, GRP, KPP, MON, PLC, RCC, SHC, SPN, UCP, USI.

TABLE 15B. --Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Material and use	Manufacturers' identification codes (according to list in table 22)
THERMOPLASTIC RESINS--Continued	
Polyolefin plastics materials--Continued	
*Polyethylene, density 0.940 and below--Continued	
*Extrusions--Continued	
*Pipe-----	ACP, CEL, DOW, DUP, EKX, GRP, KPP, MON, SHC, SPN, UCP, USI.
*All other extrusions-----	CEL, DOW, DUP, EKX, GRP, KPP, MON, RCC, SPN, UCP.
*All other uses-----	ACP, CEL, DOW, DUP, EKX, GRP, KPP, MON, PLC, RCC, SHC, SPN, UCP, USI.
*Polyethylene, density over 0.940:	
*Injection molding-----	CEL, DOW, DUP, EKX, GRP, HPC, KPP, PLC, RCC, SHC, UCP, USI.
*Blow molding-----	CEL, DOW, DUP, EKX, GGC, GRP, HPC, KPP, PLC, SHC, UCP, USI.
Extrusions:	
*Film and sheet-----	CEL, DOW, DUP, EKX, GGC, GRP, HPC, KPP, MON, PLC, SHC, UCP, USI.
*Wire and cable coating-----	CEL, DUP, EKX, GRP, HPC, PLC, UCP.
*Pipe-----	ACP, CEL, DUP, EKX, GGC, GRP, HPC, KPP, PLC, SHC, UCP, USI.
*All other extrusions-----	CEL, DUP, EKX, GGC, GRP, HPC, KPP, PLC, UCP, USI.
*All other uses-----	ACP, CEL, DOW, DUP, GGC, GRP, MON, PLC, UCP, USI.
*Polypropylene:	
*Molding-----	AVS, DOW, DUP, EKX, ENJ, GRP, HPC, NVT, SHC, SPN, UCP.
*Extrusion-----	AVS, DOW, EKX, ENJ, GRP, HPC, RCC, SHC, SPN, UCP.
*All other uses-----	DOW, EKX, GRP, HPC, SHC, SPN, UCP.
All other thermoplastic resins-----	ACG, ACY, CBY, CWN, DUP, FBF, GE, HPC, MMM, MOB, SCN, UCP.

## Rubber-Processing Chemicals

TABLE 16B.--Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963

[Rubber-processing chemicals for which separate statistics are given in table 16A are marked below with an asterisk (\*); chemicals not so marked do not appear in table 16A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC	
*Accelerators:	
*Aldehyde-amines:	
Acetaldehyde-aniline-----	USR.
n-Butyraldehyde-aniline-----	DUP, MON, USR.
Butyraldehyde-butylidene-aniline-----	MON.
4,4'-Dithiodimorpholine-----	MON.
$\alpha$ -Ethyl- $\beta$ -propylacrylanilide-----	CCO.
Formaldehyde-p-toluidine (Methylene-p-toluidine)-----	DUP.
Heptaldehyde-aniline-----	USR.
Triethyltrimethylenetriamine-----	USR.
p-Benzquinone dioxime-----	CTA, DUP.
Dibenzoyl-p-quinonedioxime-----	CTA, USR.
Dibenzylamine-----	MLS, USR.
Di-N-pentamethylenethiuram tetrasulfide-----	DUP, VNC.
*Dithiocarbamic acid derivatives:	
Dibenzylidithiocarbamic acid, sodium salt-----	USR.
Dibenzylidithiocarbamic acid, zinc salt-----	USR.
Dibutylidithiocarbamic acid, N,N-dimethylcyclohexylamine salt.	MON.
Dibutylidithiocarbamic acid, diphenylguanidine salt-----	CCO.
Dimethylethylene diphenylidithiocarbamic acid, lead salt.	CCO.
2,4-Dinitrophenyl dimethylidithiocarbamate-----	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts.	DUP.
Guanidines:	
Dicatechol borate, di-o-tolylguanidine salt-----	DUP.
Diphenylguanidine-----	ACY.
Diphenylguanidine phthalate-----	MON.
Di-o-tolylguanidine-----	ACY, DUP.
1,2,3-Triphenylguanidine-----	NAC.
2-Imidazoline-2-thiol-----	DUP, RBC.
Poly-p-dinitrosobenzene-----	DUP.
*Thiazole derivatives:	
2-Benzothiazyl N,N-diethylthiocarbamoyl sulfide-----	PAS.
1,3-Bis(2-benzothiazolymercaptomethyl)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, sodium salt-----	ACY, GYR, MON.
2-Mercaptobenzothiazole, zinc salt-----	ACY, GYR, USR.
4-Morpholinyl-2-benzothiazyl disulfide-----	GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide-----	ACY, MON.
Thiazoline-2-thiol-----	ACY.
All other cyclic accelerators-----	DUP, VNC.
Antioxidants:	
Aldehyde- and acetone-amines:	
Acetaldehyde-aniline hydrochloride-----	USR.
Aldol- $\alpha$ -naphthylamine condensate-----	BFG.
Diphenylamine-acetone-----	ACY, BFG, USR.
Phenyl-2-naphthylamine-acetone-----	USR.

TABLE 16B.--Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
Antioxidants--Continued	
*Amino and hydroxy compounds:	
*Amino compounds:	
p-Anilinophenol-----	BFG, DUP.
N-sec-Butyl-N'-phenyl-p-phenylenediamine-----	USR.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine-----	MON, USR.
Diarylarylene diamines, mixed-----	GYR.
N,N'-Di(1-ethyl-3-methylpentyl)-p-phenylenediamine---	EKT, MON, UPM.
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.
p,p'-Dimethoxydiphenylamine-----	DUP.
N,N'-Di(1-methylheptyl)-p-phenylenediamine-----	EKT, MON, UPM.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
4,4'-Dioctyldiphenylamine-----	BFG.
N,N'-Di-2-octyl-p-phenylenediamine-----	BFG.
N,N'-Diphenylethylenediamine-----	CCO, NOP, x.
*N,N'-Diphenyl-p-phenylenediamine-----	BFG, DUP, USR.
N,N'-Diphenyl-1,3-propanediamine-----	CCO.
N,N'-Di-o-tolylethylenediamine-----	CCO.
p-Isopropoxydiphenylamine-----	BFG.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	MON, USR.
4,4'-Methylenedianiline-----	USR.
N-(1-Methylheptyl)-N'-phenyl-p-phenylenediamine-----	UPM.
Octyldiphenylamine-----	PAS, USR.
Octyldiphenylamine mixture (mono-, nonyl-, and di)--	BFG.
N-Phenyl-1-naphthylamine-----	DUP.
N-Phenyl-2-naphthylamine-----	BFG, DUP.
Tetramethyldiphenylethylenediamine-----	NOP.
p-(p-Toluenesulfonamido)diphenylamine-----	USR.
All other amino antioxidants-----	EKT, x.
*Hydroxy compounds:	
Alkylated bis-phenol and alkylated and phosphited bis-phenol, mixed.	BFG.
p-Benzoyloxyphenol-----	BFG.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)-----	MON.
2,5-Di(1,1-dimethylpropyl)hydroquinone-----	MON.
N-Lauroyl-p-aminophenol-----	MLS.
2,2'-Methylenebis(6-tert-butyl-p-cresol)-----	ACY.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)-----	ACY.
*Phenol, alkylated-----	ACY, BFG, CCO, GYR, PAS, USR.
Phenol, hindered-----	DUP, GYR, PIT.
Phenol, styrenated-----	BFG, GYR.
N-Stearoyl-p-aminophenol-----	MLS.
2,2'-Thiobis(4,6-di-sec-amylphenol)-----	MON.
4,4'-Thiobis(6-tert-butyl-m-cresol)-----	MON.
Blowing agents:	
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide-----	DUP.
Dinitrosopentamethylenetetramine-----	DUP, NPI.
p,p'-Oxybis(benzenesulfonhydrazide)-----	USR.
Inhibitors, modifiers, and stabilizers:	
Alkylated o-cresol-----	PIT.
Dicresyl disulfide-----	USR.
N,4-Dinitroso-N-methylaniline-----	CTA, MON.
*N-Nitrosodiphenylamine-----	BFG, CTA, GYR, USR.
Nonylphenylphosphites, mixed-----	USR.

TABLE 16B. -- Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Peptizers:	
Alkylated o-thiocresol-----	PIT.
Alkylated thiophenol, zinc salt-----	PIT.
Aryl mercaptans-----	PIT.
2-Benzamidothiophene, zinc salt-----	ACY.
2',2''-Dithiobis(benzanilide)-----	ACY.
Dixyllyl disulfides, mixed-----	DUP, PIT.
2-Naphthalenethiol-----	DUP.
Pentachlorobenzenethiol-----	DUP.
Pentachlorobenzenethiol, zinc salt-----	DUP.
Thiocresol-----	PIT.
Thiophenol-----	PIT.
Xylenethiol-----	DUP.
Tackifiers: p-tert-Amylphenol sulfide-----	PAS.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators:	
n-Butyraldehyde-butylamine-----	DUP.
Di-n-butylammonium oleate-----	DUP.
N,N'-Dibutylthioadipamide-----	DUP.
*Dithiocarbamic acid derivatives:	
*Dibutylthiocarbamic acid, sodium salt-----	DUP, PAS, USR, VNC.
*Dibutylthiocarbamic acid, zinc salt-----	ALC, DUP, PAS, RBC, USR, VNC.
Diethylthiocarbamic acid, cadmium salt-----	VNC.
Diethylthiocarbamic acid, selenium salt-----	VNC.
Diethylthiocarbamic acid, sodium salt-----	ALC, USR.
Diethylthiocarbamic acid, tellurium salt-----	VNC.
*Diethylthiocarbamic acid, zinc salt-----	ALC, GYR, RBC, USR, VNC.
Dimethylthiocarbamic acid, bismuth salt-----	VNC.
Dimethylthiocarbamic acid, copper salt-----	VNC.
Dimethylthiocarbamic acid, lead salt-----	VNC.
*Dimethylthiocarbamic acid, potassium salt-----	GYR, PAS, USR.
Dimethylthiocarbamic acid, selenium salt-----	VNC.
*Dimethylthiocarbamic acid, sodium salt-----	ALC, BFG, DUP, GYR, PAS, USR.
Dimethylthiocarbamic acid, sodium salt and sodium polysulfide.	BFG, GNT.
*Dimethylthiocarbamic acid, zinc salt-----	ALC, FMN, GYR, PAS, RBC, USR, WRC.
All other-----	PAS, VNC.
*Thiurams:	
Bis(dibutylthiocarbamoyl) sulfide-----	USR.
Bis(diethylthiocarbamoyl) disulfide-----	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide-----	BFG, CLY; DUP, GNT, GYR, PAS, RBC, USR, VNC.
*Bis(dimethylthiocarbamoyl) sulfide-----	DUP, GYR, USR.
Bis(ethylmethylcarbamoyl) sulfide-----	VNC.
Thiuram blend-----	VNC.
Xanthates and sulfides:	
Di-n-butylxantho disulfide-----	USR.
Di-isopropylxantho disulfide-----	BFG.
Zinc dibutylxanthate-----	USR.
All other acyclic accelerators:	
3-Ethyl-1,1-dimethyl-2-thiourea-----	VNC.
Ethylenediamine carbamate-----	DUP.
Polyoxyalkylene tetrasulfide-----	TKL.
1,1,3-Trimethyl-2-thiourea-----	VNC.
Blowing agents:	
1,1'-Azobisformamide-----	FMT, NPI, USR.
Urea-biuret mixture-----	SW.

TABLE 16B.--Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued	
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.
Peptizers and modifiers:	
Alkyl mercaptans, mixed-----	PLC.
*Dodecyl mercaptans-----	HK, PAS, PLC.
Zinc laurate-----	USR.
All other-----	ACY, TKL, USR, x.

## Elastomers (Synthetic Rubbers)

TABLE 17B.--*Elastomers (synthetic rubbers) for which U.S. production or sales were reported, identified by manufacturer, 1963*

[Elastomers (synthetic rubbers) for which separate statistics are given in table 17A are marked below with an asterisk (\*); products not so marked do not appear in table 17A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22]

Product	Manufacturers' identification codes (according to list in table 22)
ELASTOMERS, CYCLIC	
*Polybutadiene-styrene type (S-type)-----	ASY, BFG, CPY, FRS, GGC, GLC, GNT, GRD, GYR, HER, ILC, PLC, RUB, SHC, TUS, URC, USR.
*Polybutadiene-styrene-vinylpyridine type-----	BFG, FIR, FRS, GNT, GYR, PLC, USR.
*Polyurethane type-----	BAC, BFG, DUP, GNT, MOB, ORU, TKL, USR.
ELASTOMERS, ACYCLIC	
Polyacrylate ester type-----	BFG, TKL.
Polybutadiene type-----	BFG, FRS, GYR, TKL, TUS.
*Polybutadiene-acrylonitrile type (N-type)-----	BFG, FRS, GYR, ILC, USR.
*Polychloroprene type (Neoprene)-----	DUP.
*Polyisobutylene-isoprene type (Butyl)-----	CBN, ENJ.
Polysulfide polymers-----	TKL.
Reaction products of natural rubber-----	GYR, HPC.
*Silicone elastomers-----	DCC, SPD, UCS.
*Stereo elastomers-----	ASY, DUP, ENJ, FRS, GGC, GYR, PLC, SHC, TUS.
All other-----	BFG, DUP, ENJ.

## Plasticizers

TABLE 18B.--Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1963

[Plasticizers for which separate statistics are given in table 18A are marked below with an asterisk (\*); products not so marked do not appear in table 18A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22]

Chemical	Manufacturers' identification codes (according to list in table 22)
PLASTICIZERS, CYCLIC	
Coumarone-indene plasticizer-----	NEV.
Diethylene glycol dibenzoate-----	TNP.
Di-tert-octylphenyl ether-----	DOW.
Diphenyl cyclohexane, o-, m-, p-----	MON.
Dipropandiol dibenzoate-----	TNP.
N-Ethyl-p-toluenesulfonamide-----	MON.
Isopropylidenediphenoxypropanol-----	DOW.
Naphthalene, alkylated-----	ACC.
Phosphoric acid esters:	
*Cresyl diphenyl phosphate-----	CEL, KIK, MON, MTR, SPP.
Dibutyl phenyl phosphate-----	MON.
Diphenyl mono-o-xenyl phosphate-----	DOW.
Diphenyl octyl phosphate-----	MON.
Methyl diphenyl phosphate-----	MON.
*Tricresyl phosphate-----	CEL, FMP, KIK, MON, MTR.
*Triphenyl phosphate-----	CEL, DOW, EK, MON.
*Phthalic anhydride esters:	
Butyl benzyl phthalate-----	GRH, MON.
Butyl cyclohexyl phthalate-----	ACP.
Butyl decyl phthalate-----	ACP, GRH, PCC, RUB, THC, UCC.
*Butyl octyl phthalate-----	ACP, GRH, MON, PCC, PFZ, RCI, RUB, UCC.
Butyl phthalyl butyl glycolate-----	MON, NOP.
*Di(2-butoxyethyl) phthalate-----	FMP, GRH, KES, WM.
*Dibutyl phthalate-----	ACP, AIR, COM, DUP, EKT, GRD, GRH, HAL, KIK, LAS, MON, PCC, PFZ, RCI, RUB, SW, WTH, UCC.
Dicarbitol phthalate-----	FMP.
*Dicyclohexyl phthalate-----	ACP, DUP, FMP, MON.
Diethylene glycol phthalate-----	ARK.
*Diethyl phthalate-----	DUP, EKT, KF, MON.
*Dihexyl phthalate-----	ACP, CCA, ENJ, GRH, ROS.
*Disodecyl phthalate-----	ACP, BFG, EKT, ENJ, FCP, GRH, MON, PCC, PFZ, RCI, ROS, RUB, THC, UCC, WTH.
*Di(2-methoxyethyl) phthalate-----	CEL, DUP, EKT, FMP, RCI.
*Dimethyl phthalate-----	ACP, DUP, EKT, KF, KIK, MON, PFZ.
Dinonyl phthalate-----	RCI.
*Diocetyl phthalates:	
*Di(2-ethylhexyl) phthalate-----	ACP, BFG, EKT, ENJ, FCP, GRH, MON, PCC, PFZ, RCI, ROS, RUB, SW, THC, UCC, WTH.
*Diso-octyl and mixed dioctyl phthalates-----	ACP, ADM, BFG, EKT, ENJ, GDL, GRH, LEH, MON, PCC, PFZ, RCI, ROS, RUB, THC, UCC, WTH.
Diphenyl phthalate-----	MON.
*Ditridecyl phthalate-----	ACP, ENJ, GRH, MON, PCC, PFZ, RCI, RUB, THC, UCC.
Ethyl (and methyl) phthalyl ethyl glycolate-----	MON.
Hexyl iso-octyl phthalate-----	PFZ.
Isodecyl tridecyl phthalate-----	THC.
*Octyl decyl phthalates:	
*Iso-octyl isodecyl phthalate-----	ACP, EKT, PCC, PFZ, THC.
*n-Octyl n-decyl phthalate-----	ACP, GRH, HPC, MON, PCC, PFZ, RCI, RUB, THC, UCC.
Polyglycol phthalate esters-----	ARG, FMP, HAL, HPC.
All other phthalic anhydride esters-----	ACP, BFG, DUP, EK, MON, PCC, PFZ, UCC.
Tetrahydrofurfuryl oleate-----	CCW, EMR.



TABLE 18B.--Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PLASTICIZERS, CYCLIC--Continued	
Toluenesulfonamide, o-, p- mixtures-----	MON.
*Trimellitic acid esters-----	PCC, PFZ, RUB.
All other cyclic plasticizers-----	EKT, MON, TNP, WTH.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
*Di(2-(2-butoxyethoxy)ethyl) adipate-----	FMP, GRH, HAL, RCI, TKL.
*Di(2-ethylhexyl) adipate-----	EKT, LEH, MON, PCC, PFZ, THC, UCC, WTH.
*Diisobutyl adipate-----	FMP, GRH, HAL, RCI.
*Diisodecyl adipate-----	ACP, EKT, GRH, HAL, LEH, MON, PCC, PFZ, RCI, RH, RUB, THC, UCC.
*Diiso-octyl adipate-----	ACP, GDL, GRH, HAL, LEH, PFZ, RCI, RH, RUB.
*Octyl decyl adipate-----	ACP, BFG, GRH, LEH, MON, NOP, PCC, PFZ, RCI, RUB, THC.
All other adipic acid esters-----	ACP, EKX, KES, LEH, PCC, PFZ, RCI, THC, TKL.
*Azelaic acid esters:	
Di(2-ethylhexyl) azelate-----	DUP, EKT, EMR, HAL, LEH, PFZ, RCI, RUB, THC, UCC.
Diisobutyl azelate-----	HAL, RCI.
Diiso-octyl azelate-----	EMR, GDL, GRH, RCI.
All other azelaic acid esters-----	ACP, EMR, LEH, PFZ.
Citric and acetylcitric acid esters-----	PFZ.
*Complex linear polyesters and polymeric plasticizers-----	ADM, EKT, EMR, HAL, HPC, LEH, MON, PFZ, RH, ROS, RUB, UCC, WM, WTC.
Di(2-(2-butoxyethoxy)ethyl)methane-----	TKL.
Diethylene glycol dinonanoate-----	EMR, RUB.
Diiso-octyl diglycolate-----	CCA, FMP.
*Epoxidized esters:	
Butyl epoxytallate-----	ADM, THC.
*Epoxidized soya oils-----	ADM, ARG, BAC, CCW, RCI, RH, SWT, THC, UCC.
Iso-octyl epoxystearates-----	ROS.
*Octyl epoxy tallates-----	ADM, ARG, BAC, RH, THC, UCC.
All other-----	ADM, ARG, BAC, CCW, EMR, RCI, RH, THC.
Glycerol pelargonate-----	EMR.
Glyceryl tributyrates and tripropionate-----	EKT.
Glycol pelargonate-----	EMR.
Isodecyl nonanoate (Isodecyl pelargonate)-----	EMR, LEH.
Lauric acid esters-----	FOR, HAL.
Myristic acid esters:	
Butyl myristate-----	ICI, KES.
*Isopropyl myristate-----	DRW, ICI, KES, PRP.
Methyl myristate-----	FOR.
*Oleic acid esters:	
*Butyl oleate-----	CIN, HAL, ICI, KES, LAS, NOP, RUB, SWT, WM, WTH.
*Glycerol trioleate (Triolein)-----	DRW, EMR, HAL, SWT, WM.
*Isopropyl oleate-----	EMR, ICI, KES, WM, WTC.
*Methyl oleate-----	CHL, EMR, FOR, ICI, NOP, SWT.
*n-Propyl oleate-----	CHL, EMR, WM.
All other oleic acid esters-----	DRW, HAL, ICI, KES, RH.
Palmitic acid esters:	
*Isopropyl palmitate-----	DRW, ICI, KES, PRP, WM.
All other palmitic acid esters-----	EKT, FOR, KES, NOP, RUB.
*Phosphoric acid esters:	
Tri(2-butoxyethyl) phosphate-----	CEL, FMP.
Triethyl phosphate-----	EKT.
Trioctyl phosphate-----	UCC.
Tris(chloropropyl) phosphate-----	CEL.

TABLE 18B.--*Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Chemical	Manufacturers' identification codes (according to list in table 22)
PLASTICIZERS, ACYCLIC--Continued	
Polyethylene glycol di-2-ethylhexanoate-----	UCC.
Ricinoleic and acetylricinoleic acid esters:	
*Glycerol monoricinoleate-----	BAC, GLY, HAL, NOP.
All other ricinoleic and acetylricinoleic acid esters---	BAC, KES, RCI.
*Sebacic acid esters:	
*Dibutyl sebacate-----	EKT, GRH, HAL, PCC, PFZ, RCI, RH, WTH.
*Di(2-ethylhexyl) sebacate-----	GRD, GRH, HAL, LEH, PCC, PFZ, RCI, RH, WTH.
All other sebacic acid esters-----	KES, LEH, NOP, RCI, RUB.
*Stearic acid esters:	
*n-Butyl stearate-----	CHL, HAL, ICI, KES, LAS, RUB, SCP, SWT, WTH.
All other stearic acid esters-----	BAC, CHL, DRW, FMP, HK, HPC, JNS, KES, RCI, RH, ROS, WM.
Sucrose acetate isobutyrate-----	EKT.
*Triethylene glycol di(caprylate-caprate)-----	DRW, FOR, GRH, HAL, RUB.
Triethylene glycol di-2-ethylbutyrate-----	UCC.
Trimethyl pentanediol diisobutyrate-----	EKX.
All other acyclic plasticizers-----	EKT, EKX, EMR, HAL, KES, LEH, PFZ, RH, RUB, TKL, UCC, WM.

## Surface-Active Agents

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963

[Surface-active agents for which separate statistics are given in table 19A are marked below with an asterisk (\*); products not so marked do not appear in table 19A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
BENZENOID SURFACE-ACTIVE AGENTS	
Not Sulfated or Sulfonated	
*Amides, amines, and quaternary ammonium salts:	
*Heterocyclic compounds:	
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium chloride.	PCS, UVC.
1-Benzyl-2-picolinium bromide-----	FIN.
2-Dodecylisoquinolinium bromide-----	ONX, WSN.
1-Dodecylpyridinium chloride-----	BC, HK.
2-(2-Lauroyloxyethyl)carbamoyl-1-methylpyridinium chloride.	WTC.
1-Methyl-2-(2-stearoyloxyethyl)carbamoylpyridinium chloride.	WTC.
*Oxygen-containing compounds:	
Benzylbis(2-hydroxyethyl)(2-stearamidomethoxyethyl)-ammonium chloride.	TRC.
Benzyl(ethoxylated coconut oil alkyl)dimethylammonium chloride.	G.
(Dodecylbenzyl)(2-hydroxyethyl)dimethylammonium chloride.	PCS.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride--	RH.
(Ethoxybenzyl)dimethyl(octyltoloxo)ammonium chloride--	RH.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine-----	APX.
(Tridecylbenzyl)diethyl(2-hydroxyethyl)ammonium chloride.	ORO.
Trialkyl(alkylbenzyl)ammonium salts:	
(Dodecylbenzyl)dimethyloctadecylammonium chloride-----	AML.
(Dodecylbenzyl)triethylammonium chloride-----	PC.
*(Dodecylbenzyl)trimethylammonium chloride-----	BC, VIS, WSN, WTC.
(Dodecylmethylbenzyl)trimethylammonium chloride-----	RH.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride----	ONX.
Trialkylbenzylammonium salts:	
Benzyl(coconut oil alkyl)dimethylammonium chloride-----	BC, FIN.
Benzyl(dimethyl(mixed alkyl)ammonium chloride-----	BC, FIN, ONX, PCS, RH, VAC.
*Benzyl(dimethyloctadecylammonium chloride-----	ONX, RET, WSN.
Benzyl(dimethyltetradecylammonium chloride-----	WSN.
*Benzyl(dodecyl)dimethylammonium chloride-----	DEF, ONX, SDH, WSN.
Benzyl(hexadecyl)dimethylammonium chloride-----	FIN, ONX, RH, SDW.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride.	ARC, GNM, ONX.
Benzyl(trimethylammonium chloride-----	COM.
*(3,4-Dichlorobenzyl)dodecyl(dimethylammonium chloride---	BC, ONX, SDW, VAC, WSN.
*Carboxylic acid esters and ethers:	
Alkylphenol - formaldehyde, alkoxylated:	
(Mixed alkyl)phenol - formaldehyde, alkoxylated-----	RTF, VIS.
Nonylphenol - formaldehyde, alkoxylated-----	RTF.
t-Octylphenol - formaldehyde, ethoxylated-----	SDW.
Pentylphenol - formaldehyde, alkoxylated-----	APD, RTF.
Cresol, ethoxylated-----	VIS.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
BENZENOID SURFACE-ACTIVE AGENTS--Continued	
<i>Not Sulfated or Sulfonated--Continued</i>	
*Carboxylic acid esters and ethers--Continued	
Diisobutylphenol, ethoxylated-----	G, RH.
Dinonylphenol, ethoxylated-----	G, STP, VIS.
*Dodecylphenol, ethoxylated-----	G, MON, PCS, UCC.
*Iso-octylphenol, ethoxylated-----	APX, DRW, NOP, OMC.
(Mixed alkyl)phenol, ethoxylated-----	G, PCS, RH, STP.
(Mixed alkyl)phenol, ethoxylated, butyl ether-----	RH.
*Nonylphenol, ethoxylated-----	APD, CLY, DOW, DRW, FBC, G, HPC, JCC, MON, OMC, PCS, RH, RTF, STP, TRC, UCC, VIS.
Nonylphenoxypoly(ethyleneoxy)ethyl iodide-----	G.
Pentadecylphenol, ethoxylated-----	G.
*Phenol, ethoxylated-----	APD, G, NOP, UCC.
Phthalic acid, octadecyl ester, potassium salt-----	TRC.
Tall oil acids, alkoxyated pentyphenol - formaldehyde ester.	APD.
Tetradecylphenol, ethoxylated-----	ORO.
Tridecylphenol, ethoxylated-----	PCS.
Xylenol, ethoxylated-----	VIS.
All other-----	PRC.
*Phosphoric and polyphosphoric acid esters and salts:	
Dodecylphenol, ethoxylated and phosphated-----	TXZ.
Dodecylphenol, ethoxylated and phosphated, sodium salt---	TXZ.
*Nonylphenol, ethoxylated and phosphated-----	CIN, G, PCS, RZL, TCC, UVC, WAY, WTC.
Octylphenol, ethoxylated and phosphated, magnesium salt---	SMC.
All other-----	RZL.
<i>Sulfated and Sulfonated</i>	
*Alkylphenols, ethoxylated and sulfated:	
Dodecylphenol, ethoxylated and sulfated-----	EFH, G, LEV, STP.
(Mixed alkyl)phenol, ethoxylated and sulfated-----	G.
*Nonylphenol, ethoxylated and sulfated-----	G, OMC, STP, WTC.
Nonylphenol, ethoxylated and sulfated, ammonium salt-----	MYW, TRC, TXZ.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	x.
n-Octylphenol, ethoxylated and sulfated-----	RH.
*Benzenesulfonates:	
*Benzene-, toluene-, and xylenesulfonates:	
Benzenesulfonic acid, sodium salt-----	UPF.
p-Toluenesulfonic acid, hexadecyltrimethylammonium salt.	FIN.
*Toluenesulfonic acid, potassium salt-----	MYW, NES, RCD, STP, WTC.
*Toluenesulfonic acid, sodium salt-----	CO, MYW, NES, PIL, STP, WTC.
*Xylenesulfonic acid, ammonium salt-----	ATR, CO, MYW, RCD, STP, WTC.
Xylenesulfonic acid, potassium salt-----	ATR, MYW, WTC.
*Xylenesulfonic acid, sodium salt-----	ATR, CO, MYW, NES, PIL, STP, WTC.
*Dodecylbenzenesulfonates:	
*Dodecylbenzenesulfonic acid-----	ARD, CIN, CO, HLI, LEV, MON, MYW, NAC, NOP, PCI, PIL, PRX, RCD, SEY, STP, TDC, TN, TXZ, WTC.
Dodecylbenzenesulfonic acid, ammonium salt-----	ARI, CTL, MYW, PRX, RCD, TXZ.
Dodecylbenzenesulfonic acid, butylamine salt-----	WTC.
*Dodecylbenzenesulfonic acid, calcium salt-----	APD, RCD, RH, SMC, STP, VIS, WTC.
Dodecylbenzenesulfonic acid, diethanolamine condensate, fatty acid monoester.	MAH.
Dodecylbenzenesulfonic acid, diethanolamine salt-----	PCS, WON.
Dodecylbenzenesulfonic acid, ethylenediamine salt-----	APD.

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
BENZENOID SURFACE-ACTIVE AGENTS--Continued	
Sulfated and Sulfonated--Continued	
*Benzenesulfonates--Continued	
*Dodecylbenzenesulfonates--Continued	
Dodecylbenzenesulfonic acid, isopropanolamine salt----	SMC, WON.
*Dodecylbenzenesulfonic acid, isopropylamine salt-----	APD, ARD, CIN, CTL, PCS, RCD, SNW, STP, WTC.
*Dodecylbenzenesulfonic acid, (mixed alkyl)amine salt--	PCS, STP, WTC.
Dodecylbenzenesulfonic acid, propoxylated ethylene-	PCS.
diamine salt.	
*Dodecylbenzenesulfonic acid, sodium salt-----	AAC, AML, APX, ARD, ARL, ATR, CLD, CO, CP, CTL, DEF, EFH, EMK, HLI, HRT, ICI, LEV, MON, NAC, NOP, PCI, PG, PIL, PRX, RCD, SEX, STP, TN, UNP, WIC, WON, WTC.
*Dodecylbenzenesulfonic acid, triethanolamine salt----	AML, ARD, ARL, ATR, CIN, CO, CTL, HLI, NAC, PCS, PEK, PIL, RCD, RZL, SOS, STP, WTC.
Dodecylbenzenesulfonic acid, zinc salt-----	CHM.
*Other benzenesulfonates:	
Decylbenzenesulfonic acid, sodium salt-----	MON.
Didodecylbenzenesulfonic acid-----	CO.
Nonylbenzenesulfonic acid, sodium salt-----	WTC.
Pentylbenzenesulfonic acid, sodium salt-----	MON.
Tridecylbenzenesulfonic acid-----	RCD.
Tridecylbenzenesulfonic acid, ammonium salt-----	PRX.
*Tridecylbenzenesulfonic acid, sodium salt-----	BLA, CP, PRX, RCD, WTC.
Tridecylbenzenesulfonic acid, triethanolamine salt----	AAC.
All other-----	PRC.
*Lignosulfonates:	
Lignosulfonic acid, aluminum salt-----	MAR.
Lignosulfonic acid, ammonium salt-----	CRZ.
*Lignosulfonic acid, calcium salt-----	CRZ, CWP, INP, LKY, LPC, MAR, PSP.
Lignosulfonic acid, chromium salt-----	MAR.
Lignosulfonic acid, iron salt-----	CRZ.
Lignosulfonic acid, magnesium salt-----	LPC, MAR.
Lignosulfonic acid, sodium salt-----	CRZ, CWP, INP, MAR, WVA.
*Naphthalenesulfonates:	
Benzyl-naphthalenesulfonic acid-----	G.
*Butyl-naphthalenesulfonic acid-----	SCP.
*sec-Butyl-naphthalenesulfonic acid-----	PFZ.
*Butyl-naphthalenesulfonic acid, sodium salt-----	CLD, CMG, GGY.
Dibutyl-naphthalenesulfonic acid-----	G, MRA, S.
Didodecyl-naphthalenesulfonic acid, sodium salt-----	PFZ.
*Diisopropyl-naphthalenesulfonic acid-----	DUP, G, GRD.
Diisopropyl-naphthalenesulfonic acid, sodium salt-----	G, PFZ.
Dipentyl-naphthalenesulfonic acid-----	GGY.
Dipentyl-naphthalenesulfonic acid, (mixed alkyl)amine	VIS.
salt.	
*Isopropyl-naphthalenesulfonic acid-----	DUP, NAC, NOP, ONX.
Methylenebis(2-naphthalenesulfonic acid)-----	DUP.
Methylnaphthalenesulfonic acid, sodium salt-----	UDI.
Methylnonyl-naphthalenesulfonic acid, sodium salt-----	UDI.
Pentyl-naphthalenesulfonic acid-----	ONX.
Tetrahydronaphthalenesulfonic acid, sodium salt-----	DUP.
*Other benzenoid surface-active agents:	
Butylhydroxybiphenylsulfonic acid-----	ICO, RBC.
Dodecyl-diphenyloxidedisulfonic acid, sodium salt-----	DOW.
Heptadecylmethylbenzimidazolinesulfonic acid, sodium	TRC.
salt.	
n-Octylphenol, ethoxylated and sulfonated-----	RH.
Petroleum-sulfonic acid, water soluble (acid layer),	SIN, SON.
sodium salt.	
Trichlorophenol sulfate, ethanolamine salt-----	G.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS	
<i>Not Sulfated or Sulfonated</i>	
*Amides, amines, and quaternary ammonium salts:	
*Acyclic quaternary ammonium salts:	
Alkylethyldimethylammonium salts:	
Ethyl(dimethyl(9-octadecenyl)ammonium bromide-----	ONX.
Ethyl(dimethyloctadecylammonium ethyl hydrogen phosphite.	APD.
Ethyl(dimethyl(soybean oil alkyl)ammonium bromide----	BC.
Alkyltrimethylammonium salts:	
(Coconut oil alkyl)trimethylammonium chloride-----	ARC.
*Dodecyltrimethylammonium bromide-----	DUP.
*Dodecyltrimethylammonium chloride-----	ARC, GNM, RCD.
*Hexadecyltrimethylammonium bromide-----	DUP, FIN, ICI.
*Hexadecyltrimethylammonium chloride-----	ARC, WSN.
*Hexadecyltrimethylammonium stearate-----	FIN.
(Hydrogenated tallow alkyl)trimethylammonium chloride.	ARC.
Trimethyl(mixed alkyl)ammonium chloride-----	GNM.
Trimethyloctadecylammonium chloride-----	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride-----	ARC, VAC.
Trimethyl(tallow alkyl)ammonium chloride-----	ARC, GNM.
Dialkyldimethylammonium salts:	
Bis(coconut oil alkyl)dimethylammonium chloride-----	ARC, GNM.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride.	ADM, ARC, FOR, GNM, VAC.
Didodecyldimethylammonium bromide-----	ONX.
Dimethylbis(soybean oil alkyl)ammonium chloride-----	ARC.
Dimethyldioctadecylammonium chloride-----	PG.
Other acyclic quaternary ammonium salts:	
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated)- methylammonium chloride.	ARC, VAC.
Decylbetaine-----	DUP.
Hexadecylbetaine-----	DUP.
(2-Hydroxyethyl)dimethyl(stearamidopropyl)ammonium dihydrogen phosphate.	ACY.
(2-Hydroxyethyl)dimethyl(stearamidopropyl)ammonium nitrate.	ACY.
2-Hydroxy-1,3-propylenebis[(coconut oil alkyl)- dimethylammonium chloride].	TRC.
Methyltrioctylammonium chloride-----	GNM.
Methyltris(mixed alkyl)ammonium chloride-----	ADM, VAC.
Octadecylbetaine-----	DUP.
Triethyloctadecyloxymethyl ammonium chloride-----	x.
*Amine salts:	
*Amine acetates:	
(Coconut oil alkyl)amine acetate-----	ADM, ARC.
(Hydrogenated tallow alkyl)amine acetate-----	ADM, ARC, CIN, WAY.
(9-Octadecenyl)amine acetate-----	GNM.
Octadecylamine acetate-----	ACY, ARC.
Octylamine acetate-----	ARC.
(Soybean oil alkyl)amine acetate-----	ARC.
(Tallow alkyl)amine acetate-----	ADM, ARC.
N-(Tallow alkyl)diethanolamine acetate-----	PG.
Naphthenic acids, N-(tallow alkyl)-1,3-propylene- diamine salt.	APD.
Oleic acid, diethylamine salt-----	WTC.
*Oleic acid, triethanolamine salt-----	DOM, HAL, NOP, TCC.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Amides, amines, and quaternary ammonium salts--Continued	
*Amine salts--Continued	
Rosin acids, triethanolamine salt-----	RTF.
Stearic acid, ethoxylated ethylenediamine salt-----	CST.
Stearic acid, N,N,N',N'-tetrakis(2-hydroxyethyl)- ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt-----	AML, TCC.
*Amines, alkoxylated:	
N,N-Bis(2-hydroxyethyl)dodecylamine-----	FIN.
N,N-Bis(2-hydroxyethyl)octadecylamine-----	FIN.
(Coconut oil alkyl)amine, ethoxylated-----	APD, ARC, VAC, VIS.
*(Hydrogenated tallow alkyl)amine, ethoxylated-----	TCH, TRC, VAC.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl) ethylenediamine.	VIS.
*(Mixed alkyl)amine, ethoxylated-----	APD, G, NOP, RH, TRC, VAC.
(9-Octadecenyl)amine, ethoxylated-----	ARC.
Octadecylamine, ethoxylated-----	ARC, ICI, VAC.
Polyethylenepolyamine, alkoxylated-----	VIS.
*Rosin amine, ethoxylated-----	APD, HPC, PCS, RTF, VIS.
(Soybean oil alkyl)amine, ethoxylated-----	ARC, VAC.
*(Tallow alkyl)amine, ethoxylated-----	ARC, DUP, TRC.
N-(Tallow alkyl)-1,3-propylenediamine, ethoxylated----	ARC.
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine-----	VIS.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated.	WYN.
Triethanolamine, ethoxylated-----	JCC.
*Fatty acid - alkanolamine condensates:	
*Diethanolamine condensates:	
*Capric acid - diethanolamine condensate-----	GGY, ONX, PCS, RZL.
Castor oil acids - diethanolamine condensate-----	PCS, VND.
Coconut oil acids - diethanolamine condensates:	
*(Amine/acid ratio=2/1)-----	AML, ARD, BSC, BSW, CIN, CLI, CTL, DEP, DRW, HLI, HRT, JOR, KNP, LEV, LUR, MOA, NOP, ONX, PC, PCS, PG, PNK, RCD, RPC, RZL, SBC, SNW, TCC, TRC, TXC, TXZ, UNN, UVC, VAL, VND, WTC.
*(Amine/acid ratio=1/1)-----	APX, ARD, ARL, CLI, CST, CTL, DRW, EFH, EMK, GGY, HLI, MOA, MRV, NOP, ONX, PCS, PEK, QCP, RCD, RPC, RZL, SBC, SCO, STP, TXZ.
All other ratios-----	JRG, PCS.
*Lauric acid - diethanolamine condensate-----	ARD, CLI, CTL, HLI, MOA, NOP, ONX, PCS, PG, RCD, RZL, SBC, WON, WTC.
Linoleic acid - diethanolamine condensate-----	VND.
Myristic acid - diethanolamine condensate-----	CLI.
Oleic acid - diethanolamine condensates:	
*(Amine/acid ratio=2/1)-----	CCW, CLI, MRA, ONX, RCD, SEY, STP, WTC.
*(Amine/acid ratio=1/1)-----	GGY, NOP, PCS, SBC, SCP, SEY, STP.
*Stearic acid - diethanolamine condensate-----	AML, APX, ARD, BSC, CLI, DEP, EMR, GGY, GLY, JOR, MRA, NOP, ONX, RPC, SCO, TXC, VAL, WTC.
*Tall oil acids - diethanolamine condensate-----	EFH, MRA, RCD, SEY, WTC.
Tallow acids - diethanolamine condensate-----	PCS, PG, SEY.
Other diethanolamine condensates-----	BSC, HLI, RPC, SEY, WTC.
Ethanolamine condensates:	
Coconut oil acids - ethanolamine condensate-----	AML, APX, CCL, CLI, HRT, MOA, PCS, PG, VND, WTC.
Lauric acid - ethanolamine condensate-----	WTC.
Myristic acid - ethanolamine condensate-----	WTC.
Stearic acid - ethanolamine condensates:	
*(Amine/acid ratio=1/1)-----	ARD, CIN, KES, STP, VND.
*(Amine/acid ratio=1/2)-----	SBC, WTC.
*All other ratios-----	CLI.
Tall oil acid - ethanolamine condensate-----	JCC.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Amides, amines, and quaternary ammonium salts--Continued	
*Fatty acid - alkanolamine condensates--Continued	
Isopropanolamine condensates:	
Coconut oil acids - isopropanolamine condensate-----	LEV, STP.
Lauric acid - isopropanolamine condensate-----	ARC, ARD, CLI, PCS, WTC.
Myristic acid - isopropanolamine condensate-----	ARD.
Oleic acid - isopropanolamine condensate-----	WTC.
Fatty acid - alkanolamine condensates, ethoxylated:	
Hydrogenated tallow acids - ethanolamine condensate, ethoxylated.	ARC.
Oleic acid - ethanolamine condensate, ethoxylated-----	ARC, G.
Oleic acid - methanolamine condensate, ethoxylated----	G.
Tall oil acids - ethanolamine condensate, ethoxylated----	JCC.
*Fatty acid - polyamine condensates:	
Adipic and stearic acids - diethylenetriamine condensate.	APX.
Coconut oil acids - diethylenetriamine condensate-----	APX, NOP.
Mixed fatty acid - polyalkylenepolyamine condensate---	VIS.
Oleic acid - aminoethylpiperazine condensate-----	PCS.
Oleic acid - diethylenetriamine condensate-----	HDG, PCS.
Oleic acid - diethylenetriamine condensate, acetic acid salt.	PCS, UVC.
Oleic acid - N,N-dimethyl-1,3-propylenediamine condensate.	CCW, DUP, SNW, TRC.
Oleic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW.
Pelargonic acid - tetraethylenepentamine condensate---	ICI.
*Stearic acid - diethylenetriamine condensate-----	APX, CST, DEP, HRT, NOP, ONX, QCP, S.
Stearic acid - N,N-diethylethylenediamine condensate---	CBP.
Stearic acid - N,N'-diethylethylenediamine condensate (amine/acid ratio=1/2).	SNW.
Stearic acid - dipropylenetriamine condensate-----	x.
Stearic acid - ethylenediamine condensate (amine/acid ratio=1/2).	CCW, ICI.
Stearic acid - tetraethylenepentamine condensate-----	ICI, ONX.
Tall oil acids - diethylenetriamine condensate -----	NCW.
All other-----	WM.
*Fatty acid - polyamine condensates, ethoxylated:	
Coconut oil acids - diethylenetriamine condensate, polyethoxylated.	TCC.
Coconut oil acids - ethylenediamine condensate, monoethoxylated.	DEX, NOP.
Mixed fatty acid - alkylenediamine condensate, polyethoxylated.	G.
Oleic acid - ethylenediamine condensate, monoethoxylated.	CLD, DEX, NOP, SOC, TNA.
Palm oil acids - ethylenediamine condensate, monoethoxylated.	APX, SCP.
Stearic acid - diethylenetriamine condensate, polyethoxylated.	TCC, TRC.
Stearic acid - ethylenediamine condensate, diethoxylated.	TCC.
*Stearic acid - ethylenediamine condensate, monoethoxylated.	AML, CLD, DEP, DEX, ICI, MRA, NOP, S, SCP, SNW.
Stearic acid - ethylenediamine condensate, polyethoxylated.	APD, EFH, TCC.



TABLE 19B. -- Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Amides, amines, and quaternary ammonium salts--Continued	
*Heterocyclic amides, amines, and quaternary ammonium salts:	
Imidazole derivatives:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium chloride, disodium salt.	PCS.
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolium hydroxide, disodium salt.	MIR.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolium chloride, sodium salt.	PCS.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolium hydroxide, sodium derivative, sodium salt.	MIR.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolium bromide.	BC.
*2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline--	FBC, GGY, PCS, UVC.
2-(8-Heptadecenyl)-2-imidazoline-----	HDG.
*2-Heptadecyl-1-(2-hydroxyethyl)-2-imidazoline-----	GGY, ONX, UVC.
2-Heptadecyl-2-imidazoline-----	SCO.
1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline-----	PCS.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazolium chloride.	GGY.
1-(2-Hydroxyethyl)-2-undecyl-2-imidazoline-----	GGY, UVC.
Rosinpolyamidoimidazoline-----	GRD, UVC.
Oxazole derivatives:	
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline.	COM, NOP, SEY.
2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline.	COM, UVC.
*N-Substituted amino acids and polypeptides:	
N-[2-(Carboxymethylamino)ethyl]-N-(2-hydroxyethyl)-coconut oil amide, sodium salt.	TCC.
N-(Coconut oil acyl)sarcosine-----	GGY.
N-(Coconut oil alkyl)- $\beta$ -alanine-----	GNM.
N-Dodecyl-3-iminodipropionic acid-----	GNM.
N-(2-Hydroxyethyl)-N-(2-stearamidoethyl)glycine-----	G.
N-Lauroylpolypeptide-----	MYW.
N-Lauroylsarcosine, sodium salt-----	CP, GGY, ONX.
N-Oleoylpolypeptide-----	MYW.
N-Oleoylsarcosine, sodium salt-----	G, GGY.
Polypeptide-----	MYW.
N-Stearoylsarcosine, sodium salt-----	GGY.
N-(Tallow alkyl)-3-iminodipropionic acid, sodium salt	GNM.
Other amides, amines, and quaternary ammonium salts:	
N,N-Bis(2-hydroxyethyl)-2-(stearamidomethoxy)ethylamine.	TRC.
N-(Coconut oil alkyl)-1,3-propylenediamine-----	GNM.
N-Dodecyldiethylenetriamine-----	FIN.
Hexadecyldimethylamine oxide-----	ONX.
N-(Mixed alkyl)polyethylenepolyamine-----	CCW.
N-(9-Octadecenyl)-1,3-propylenediamine-----	GNM.

TABLE 19B. -- Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Amides, amines, and quaternary ammonium salts--Continued	
*Other amides, amines, and quaternary ammonium salts--Continued	
Stearic acid - N-(2-cyanoethyl)diethylenetriamine condensate (amine/acid ratio=1/2).	TRC.
Stearoylbiguanidine hydrochloride-----	G.
N-(Tallow alkyl)-1,3-propylenediamine-----	GNM.
All other-----	CGL, STC, TRC, x.
*Carboxylic acid esters:	
Anhydrosorbitol esters:	
Anhydrosorbitol dioleate-----	APD.
Anhydrosorbitol mixed fatty acid ester-----	GLY.
Anhydrosorbitol monolaurate-----	APD, GLY, HDG.
Anhydrosorbitol mono-oleate-----	APD, GLY, HDG, PCS.
Anhydrosorbitol monopalmitate-----	APD, GLY.
Anhydrosorbitol monostearate-----	APD, GLY, HDG, PCS.
Anhydrosorbitol sesqui-oleate-----	GLY.
Anhydrosorbitol tall oil ester-----	APD, GLY, HDG.
Anhydrosorbitol tetrastearate-----	APD.
Anhydrosorbitol trioleate-----	APD, GLY, HDG.
Anhydrosorbitol triricinoleate-----	APD.
Anhydrosorbitol tristearate-----	APD.
*Diethylene glycol esters:	
Diethylene glycol distearate-----	KES.
Diethylene glycol mono(coconut oil)ester-----	DRW.
*Diethylene glycol monolaurate-----	CCW, DRW, GLY, HAL, HDG, KAL, KES, NOP, SEY, WTC.
*Diethylene glycol mono-oleate-----	EMR, GLY, HAL, KES, WTC.
Diethylene glycol monoricinoleate-----	GLY.
*Diethylene glycol monostearate-----	AML, CCW, CIN, CLI, GLY, HAL, HDG, KES, NOP, PC, PCS, QCP, SEY, TCC, VAL, VND, WM, WTC.
Diethylene glycol tall oil ester-----	HDG, QCP, WTC.
Ethoxylated anhydrosorbitol esters:	
Ethoxylated anhydrosorbitol castor oil ester-----	APD.
Ethoxylated anhydrosorbitol monolaurate-----	AAC, APD, DRW, GLY, TCH.
*Ethoxylated anhydrosorbitol mono-oleate-----	AAC, APD, DRW, GLY, HDG, PCS, TCH.
Ethoxylated anhydrosorbitol monopalmitate-----	APD, TCH.
*Ethoxylated anhydrosorbitol monostearate-----	AAC, APD, DRW, GLY, HDG, PCS, TCH.
Ethoxylated anhydrosorbitol tall oil ester-----	APD, TCH.
Ethoxylated anhydrosorbitol trioleate-----	AAC, APD, GLY, TCH.
Ethoxylated anhydrosorbitol tristearate-----	APD, DRW, GLY, TCH.
Ethoxylated sorbitol esters:	
Ethoxylated sorbitol beeswax ester-----	APD.
Ethoxylated sorbitol distearate-----	APD.
Ethoxylated sorbitol hexaoleate-----	APD.
Ethoxylated sorbitol hexa(tall oil) ester-----	APD, RTF.
Ethoxylated sorbitol lanolin ester-----	APD.
Ethoxylated sorbitol mono-oleate-----	APD, VAC.
Ethoxylated sorbitol pentalaurate-----	APD.
Ethoxylated sorbitol pentaoleate, acetylated-----	APD.
Ethoxylated sorbitol penta(tall oil) ester-----	APD.
Ethoxylated sorbitol tall oil ester-----	APD.
Ethoxylated sorbitol tetra(laurate, oleate)-----	APD.
Ethoxylated sorbitol tetra(tall oil) ester-----	APD.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Carboxylic acid esters--Continued	
*Ethylene glycol esters:	
Ethylene glycol distearate-----	EMR, HAL, HDG, KES.
Ethylene glycol mono-oleate-----	EFH, HAL.
*Ethylene glycol monostearate-----	CCW, CLI, GLY, HAL, HDG, KES, KNP, PCS, VND, WM.
All other-----	WM.
*Glycerol esters:	
*Complex glycerol esters:	
Glycerol diacetyltartrate monostearate-----	DRW, PCS, WTC.
Glycerol lactate palmitate-----	DRW, GLD.
Glycerol lactate stearate-----	APD, GLD.
Glycerol maleate mono-oleate-----	NOP, WTC.
Glycerol mono-oleate, acetylated-----	x.
*Glycerol mono- and diesters of chemically defined fatty acids:	
Glycerol dioleate-----	KES.
*Glycerol distearate-----	APX, EFH, KES, PCS.
Glycerol monocaprylate-----	KES.
Glycerol monolaurate-----	GLY, KES, KNP.
*Glycerol mono-oleate-----	ACT, APD, CCW, DRW, EK, EMR, GLY, HAL, HDG, KES, PAR, PCS, VND, WM.
Glycerol monoricinoleate-----	CCW, HAL.
*Glycerol monostearate-----	CCW, DRW, EK, GLY, HAL, HDG, KES, LUR, MCO, MRA, NOP, NW, PCS, PG, SNW, TCC, VND, WM, WTC, x.
*Glycerol mono- and diesters of mixed fatty acids:	
Glycerol diester of lard-----	EFH, PCS.
Glycerol diester of unspecified mixed fatty acids-----	HAL.
Glycerol ester of castor oil acids-----	GLY.
Glycerol mono- and diesters of unspecified mixed fatty acids.	APD.
Glycerol monoester of coconut oil acids-----	DRW, EFH, HAL, HDG, JRG, WM.
Glycerol monoester of cottonseed oil acids-----	DRW, GLD, PCS.
Glycerol monoester of edible fats and oils-----	EK.
Glycerol monoester of hydrogenated cottonseed oil acids.	LEV.
Glycerol monoester of hydrogenated soybean oil acids-----	DRW.
Glycerol monoester of lard-----	EK, GLD.
Glycerol monoester of unspecified mixed fatty acids-----	EFH, EMR, GLD, GLY, HDG, LEV, WTC.
*Polyethylene glycol esters:	
*Polyethylene glycol esters of chemically defined fatty acids:	
*Polyethylene glycol dilaurate-----	EFH, GLY, HAL, HDG, JOR, KES, PCS, UVC, WM.
*Polyethylene glycol dioleate-----	CLD, EFH, GGY, GLY, HAL, HDG, KES, NOP, OTH, SPP, UVC, WM.
*Polyethylene glycol distearate-----	GLY, HAL, KES, PCS, QCP.
*Polyethylene glycol monolaurate-----	AAC, ARC, BSC, CCA, DRW, GGY, GLY, HAL, ICI, JOR, KES, KNP, NOP, QCP, SYC, TCH, UVC, WM.
*Polyethylene glycol mono-oleate-----	ARC, CCA, CLD, CRC, DEX, DRW, G, GGY, GLY, HAL, HDG, ICI, KES, NOP, ONX, PAR, PCS, QCP, SPP, SYC, TCH, UVC, WTC.
Polyethylene glycol monopalmitate-----	APD, CST.
Polyethylene glycol monoricinoleate-----	AAC, HAL, NOP.
*Polyethylene glycol monostearate-----	AML, APD, ARC, CCW, CIN, DEP, DEX, DRW, G, GGY, GLY, HAL, HDG, ICI, JOR, KES, KNP, NOP, ONX, PC, PCS, PD, RH, RPC, SEY, TCH, UNN, UVC, VND, WTC.
All other-----	CCA.

TABLE 19B.-- Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Carboxylic acid esters--Continued	
*Polyethylene glycol esters--Continued	
*Polyethylene glycol esters of mixed fatty acids:	
Polyethylene glycol ester of castor oil acids-----	G, GGY, GLY, NOP, UVC, WTC,
*Polyethylene glycol ester of coconut oil acids-----	ARL, GLY, JRG, NOP, ONX, PG, VND.
Polyethylene glycol ester of rosin acids-----	APD, HPC, QCP.
*Polyethylene glycol ester of tall oil acids-----	AML, APD, APX, ARC, DRW, GLY, HDG, JCC, KES, MON, NOP,
	OMC, RTF, TCH, UVC, WTC.
Polyethylene glycol ester of tallow acids-----	ONX, SOS.
Polyethylene glycol ester of unspecified mixed fatty acids.	GLY, HDG, SYC.
1,2-Propanediol esters:	
1,2-Propanediol distearate-----	PCS.
*1,2-Propanediol monolaurate-----	HAL, KES, SBC, WM.
1,2-Propanediol mono-oleate-----	HAL, KES.
*1,2-Propanediol monostearate-----	APD, CCW, GLY, HAL, HDG, KES, PCS, PG, WTC.
Other carboxylic acid esters:	
Anhydrosorbitol glycerol monolaurate-----	APD.
Coconut oil acids, ethoxylated methanol ester-----	DRW, JOR.
Diisobutylene maleate-----	RH.
Disorbitolethoxyethylpropoxypropyl diglycolate-----	APD.
Ethoxylated glucose distearate-----	APD.
Ethoxylated 1,2-propanediol stearate-----	APD.
Mannitol dioleate, propoxylated-----	APD.
Methyl glucoside laurate-----	HDG.
Methyl glucoside oleate-----	HDG.
Pentaerythritol distearate-----	VAL.
Polyalkylene glycol adipate-----	PFZ.
Polyalkylene glycol diglycolate-----	RTF, VIS.
Polyalkylene glycol dimaleate-----	VIS.
Polyalkylene glycol naphthenate-----	APD.
Polyglycerol monoester of cottonseed oil acids-----	DRW.
Polyglycerol oleate-----	DRW, WTC.
Sucrose esters of fatty acids-----	SUG.
All other-----	WM.
*Ethers:	
n-Butyl alcohol, ethoxylated-----	VAC.
*Castor oil, ethoxylated-----	AAC, APD, BAC, DRW, ICI, NOP, PCS, TCH, VIS.
Coconut oil alcohols, ethoxylated-----	G.
n-Decyl alcohol, ethoxylated-----	G, ICI, PCS.
*n-Dodecyl alcohol, ethoxylated-----	AAC, APD, DRW, DUP, G, GLY, JCC, NAC, OMC, PCS, UCC.
n-Hexadecyl alcohol, ethoxylated-----	APD, ICI, JCC, TRC.
Hydrogenated castor oil, ethoxylated-----	APD, TCH.
Iso-octyl alcohol, ethoxylated-----	G.
*Lanolin, ethoxylated-----	AAC, APD, VAC.
Mixed primary straight-chain alcohols, ethoxylated-----	CO, G, JCC, RH, RTF, TCH, VAC.
Mixed primary straight-chain alcohols, propoxylated-----	JCC.
*9-Octadecenyl alcohol, ethoxylated-----	AAC, APD, DRW, DUP, G, ICI, NOP, TCH, TRC.
*n-Octadecyl alcohol, ethoxylated-----	AAC, APD, G.
Polyethylene glycol tert-dodecyl thioether-----	MON, PAS.
Poly(mixed ethylene, propylene) glycol-----	UCC, WYN.
Polypropylene glycol, ethoxylated-----	RTF, VIS, WYN.
Ricinoleyl alcohol, propoxylated and ethoxylated-----	PCS.
Rosin alcohol, ethoxylated-----	HPC, TRC, VIS.
Sorbitol, alkoxylated-----	APD, VAC.
Sperm oil alcohol, ethoxylated-----	DUP.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Ethers--Continued	
Tallow alcohol, ethoxylated-----	G.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated-----	AIR.
*Tridecyl alcohol, ethoxylated-----	AAC, AHC, APD, DRW, EFH, G, GLY, ICI, JCC, MON, OMC, PCS, RTF, TCH, UCC, VIS.
Tridecyl alcohol, ethoxylated and carbonated, sodium salt.	x.
Tridecyl alcohol, propoxylated and ethoxylated-----	JCC, PCS.
Trimethylheptanol, ethoxylated-----	PCS.
Trimethylnonyl alcohol, ethoxylated-----	UCC.
Trimethylolpropane, alkoxyated-----	RTF.
All other-----	UCC.
*Fatty acids, potassium and sodium salts:	
Castor oil acids, potassium salt-----	BAC, OTT, SEA.
*Castor oil acids, sodium salt-----	BAC, MRV, SEA, WHI.
*Coconut oil acids, potassium salt-----	ARL, LUR, OTT, PCH.
Coconut oil acids, sodium salt-----	CON.
Corn oil acids, potassium salt-----	PCH.
Corn oil acids, sodium salt-----	LUR.
Cottonseed oil acids, sodium salt-----	WHI.
*Lauric acid, potassium salt-----	BSC, DRW, NOP.
Mixed vegetable fatty acids, potassium salt-----	AML, ARL, PCH.
*Oleic acid, potassium salt-----	AML, BSC, DAN, DEX, EFH, NOP, OTH, OTT, QCP, S, SHP, TRC, WBG, WTC.
*Oleic acid, sodium salt-----	BSW, LUR, NOP, QCP, SEA, WBG, WTC.
Olive oil acids, sodium salt-----	LUR.
Palm oil acids, sodium salt-----	LUR.
Peanut oil acids, potassium salt-----	KAL, SLC.
Rosin acids, potassium salt-----	OTT, SNW.
*Rosin acids, sodium salt-----	MRA, OTT, QCP.
Soybean oil acids, potassium salt-----	CON, KAL.
Stearic acid, potassium salt-----	DRW, VAL.
*Stearic acid, sodium salt-----	BSW, LEV, MAL, NOP, WTC.
*Tall oil acids, potassium salt-----	BSC, CIN, CON, KAL, LUR, OTT, PNK, QCP.
*Tall oil acids, sodium salt-----	BSW, DEX, PCS, QCP, UNP.
*Tallow acids, potassium salt-----	OTT.
*Tallow acids, sodium salt-----	CON, LUR, NOP, QCP.
All other-----	SLC.
*Phosphoric and polyphosphoric acid esters:	
Alcohols, alkoxyated and phosphated or polyphosphated:	
Dodecyl alcohol, ethoxylated and phosphated-----	G.
Dodecyl alcohol, propoxylated and polyphosphated-----	VIC.
2-Ethylhexyl alcohol, ethoxylated and phosphated-----	WAY.
9-Octadecenyl alcohol, ethoxylated and phosphated-----	G.
Octyl phosphate, ethoxylated-----	DUP.
Propylene glycol, propoxylated and phosphated-----	APD.
Tridecyl alcohol, ethoxylated and phosphated-----	G, RZL, SEY.
*Alcohols, phosphated and polyphosphated:	
Decyl, octyl phosphate-----	UVC.
2-Ethylhexyl phosphate-----	UVC.
*2-Ethylhexyl phosphate, sodium salt-----	TXZ, UCC, UVC.
2-Ethylhexyl polyphosphate-----	UVC.
Hexyl polyphosphate, potassium salt-----	x.
Mixed alkyl phosphate, diethanolamine salt-----	DUP.
Mixed decyl, dodecyl, and octyl phosphates, morpholine salt.	DUP.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Not Sulfated or Sulfonated--Continued	
*Phosphoric and polyphosphoric acid esters--Continued	
*Alcohols, phosphated and polyphosphated--Continued	
Mixed mono- and dialkyl phosphate-----	DUP, UVC.
9-Octadecenyl phosphate-----	DUP.
Octyl phosphate, alkylamine salt-----	DUP.
Octyl polyphosphate-----	BCN, DEX, UVC.
Octyl polyphosphate, potassium salt-----	x.
Octyl polyphosphate, sodium salt-----	VIC.
Tri(mixed alkyl) phosphate-----	VIC.
Other phosphoric and polyphosphoric acid esters-----	VIC, WTC.
*Other nonbenzenoid surface-active agents, not sulfated or sulfonated:	
2,4,7,9-Tetramethyl-5-decyne-4,7-diol-----	AIR.
All other-----	AIR, LMI, STC.
Sulfated and Sulfonated	
Acids, sulfated and sulfonated:	
Acetyloleic acid, sulfonated-----	DUP.
*Oleic acid, sulfonated-----	ACT, ACY, BRY, DRW, G, ICI, LEA, LUR, MRV, NOP, PCI, QCP, SCO, SWT, TN, WHI, WHW.
Ricinoleic acid, sulfonated-----	NOP.
Alcohols, sulfated and sulfonated:	
Branched hexadecyl sulfate, sodium salt-----	APX.
n-Decyl sulfate, sodium salt-----	DUP, ONX, PCS.
n-Decyl sulfate, triethanolamine salt-----	DUP.
3,9-Diethyl-6-tridecyl sulfate-----	UCC.
n-Dodecyl sulfate, 2-amino-2-methylpropanol salt-----	DUP.
*n-Dodecyl sulfate, ammonium salt-----	AAC, DUP, ONX, PCS, STP.
n-Dodecyl sulfate, diethanolamine salt-----	AAC, DUP, HLI, JRG, ONX, STP.
n-Dodecyl sulfate, N,N-diethylcyclohexylamine salt-----	DUP.
n-Dodecyl sulfate, isopropanolamine salt-----	JRG, PCS.
n-Dodecyl sulfate, magnesium salt-----	AAC, HLI.
n-Dodecyl sulfate, potassium salt-----	HLI, PG.
*n-Dodecyl sulfate, sodium salt-----	AAC, DUP, HLI, JRG, MYW, ONX, PCI, PCS, PG, RCD, RET, STP.
*n-Dodecyl sulfate, triethanolamine salt-----	AAC, DUP, HLI, MYW, ONX, PCS, PG, RCD, RET, STP.
2-Ethylhexyl sulfate, sodium salt-----	AAC, UCC, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate-----	UCC.
Hexadecyl and octadecenyl sulfate-----	CMG.
n-Hexadecyl sulfate-----	AAC, DUP.
Hexyl sulfate, potassium salt-----	DEX.
Mixed coconut oil alkyl and sperm oil alkyl sulfate, sodium salt.	DUP.
Nonyl sulfate-----	TN.
n-Octadecyl sulfate-----	AAC, DUP, EMK, PG.
n-Octadecyl sulfate, sodium salt-----	ONX.
n-Octadecyl sulfate, triethanolamine salt-----	DUP.
n-Octyl sulfate, sodium salt-----	DUP, PCS.
n-Tetradecyl sulfate, sodium salt-----	ONX.
Tridecyl sulfate, sodium salt-----	AAC.
Amides, amines, and quaternary ammonium salts, sulfated and sulfonated:	
*Dicarboxylic acid amides, sulfated and sulfonated:	
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt.	ACY.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Sulfated and Sulfonated--Continued	
Amides, amines, and quaternary ammonium salts, sulfated and sulfonated--Continued	
*Dicarboxylic acid amides, sulfated and sulfonated--Con.	
N-(2-Hydroxyethyl)-N-(tallow alkyl)sulfosuccinamide---	SCP.
N-Octadecylsulfosuccinamide, disodium salt-----	ACY.
N-(Oleoyloxyisopropyl)sulfosuccinamide-----	WTC.
Fatty acid - alkanolamine condensates, sulfated:	
*Coconut oil acids - ethanolamine condensate, sulfated, potassium salt.	DEX, EMK, HRT, ONX.
Coconut oil acids - ethanolamine condensate, sulfated, sodium salt.	AML, DEP.
Lauric acid - isopropanolamine condensate, sulfated---	PCS.
Neat's-foot oil acids - ethanolamine condensate, sulfated, ammonium salt.	APX.
Oleic acid - ethanolamine condensate, sulfated-----	SCP.
Stearic acid - diethanolamine condensate, methyl sulfate.	DUP.
Stearic acid - ethanolamine condensate, sulfated-----	NOP.
All other-----	EMR.
Heterocyclic amides, amines, and quaternary ammonium salts, sulfated and sulfonated:	
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2-imidazolinium ethyl sulfate.	APD.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate-----	APD.
N-Ethyl-N-octadecylmorpholinium ethyl sulfate-----	APD.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate.	APD.
Taurine derivatives:	
N-Cyclohexyl-N-palmitoyltaurine-----	G.
N-Methyl-N-(coconut oil acyl)taurine-----	G.
*N-Methyl-N-oleoyltaurine-----	CRC, DEP, DRW, G, HRT, MRA, NOP, PCI, VAL.
N-Methyl-N-palmitoyltaurine-----	G.
N-Methyl-N-(tall oil acyl)taurine, sodium salt-----	G.
N-Methyl-N-(tallow acyl)taurine-----	G.
N-Methyl-N-(tallow acyl)taurine, sodium salt-----	LEV.
Other amides, amines, and quaternary ammonium salts, sulfated and sulfonated:	
Bis(hydrogenated tallow alkyl)dimethylammonium methyl sulfate.	x.
Dimethyldioctadecylammonium ethyl sulfate-----	RPC.
Dimethyldioctadecylammonium methyl sulfate-----	ONX.
Ethyltrimethyl(mixed alkyl)ammonium ethyl sulfate-----	x.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl)-ethylenediamine, distearate methyl sulfate.	DUP.
(Lauramidopropyl)trimethylammonium methyl sulfate-----	ACY.
Lauric acid, 2-sulfoacetamidoethyl ester, potassium salt.	WTC.
N-(Mixed alkyl sulfonyl)glycine, sodium salt-----	G.
Mixed primary amines, ethoxylated and sulfated-----	RH, TRC.
Stearic acid - ethylenediamine condensate, mono-ethoxylated, ethyl sulfate.	WTC.
Tall oil acids - polyalkylenepolyamine condensate, sulfated.	VIS.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine dioleate methyl sulfate.	DUP.
All other-----	S.

TABLE 19B. -- Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
Sulfated and Sulfonated--Continued	
Carboxylic acid esters, sulfated and sulfonated:	
*Dicarboxylic acid esters, sulfated and sulfonated:	
*Sulfosuccinic acid, bis(2-ethylhexyl) ester-----	ACY, CIN, CRC, CST, DAN, EFH, EMK, GGY, HRT, ICI, MOA, MRA, PC, TXZ.
Sulfosuccinic acid, bis(tallow monoglyceride) ester----	ACY.
Sulfosuccinic acid, didecyl ester, sodium salt-----	WTC.
Sulfosuccinic acid, dihexyl ester-----	ACY, MOA.
Sulfosuccinic acid, dioctyl ester, sodium salt-----	RH.
Sulfosuccinic acid, dipentyl ester, sodium salt-----	ACY.
Sulfosuccinic acid, ditridecyl ester, sodium salt-----	ACY, WTC.
All other-----	G.
Esters of sulfated and sulfonated alcohols:	
Coconut oil isethionate-----	DRW.
Coconut oil isethionate, sodium salt-----	G, LEV.
Glycerol mono(coconut oil) ester, sulfated, ammonium salt.	CP.
Glycerol mono(coconut oil) ester, sulfated, sodium salt.	CP.
2-Lauroxyloxy-1-propanesulfonic acid-----	SDH.
Esters of sulfated and sulfonated fatty acids:	
2-Butoxyethyl sulfo-oleate-----	S.
*n-Butyl sulfo-oleate-----	AML, CIN, ICI, ONX, PC.
n-Butyl sulforicinoleate-----	NOP.
Dodecyl sulfoacetate-----	NAC.
Ethyl sulfo-oleate-----	G, KAL, NOP.
Glycerol monostearate sulfoacetate-----	WTC.
Glycerol tri(sulfo-oleate)-----	DRW, MRV, SCP.
*Isopropyl sulfo-oleate-----	BRY, DEX, EMR, ICI, LEA, LUR, QCP.
Methyl sulfo-oleate-----	ICI, NOP.
*n-Propyl sulfo-oleate-----	ACY, BSC, EFH, HRT, MRV, NOP, WM.
All other-----	EMR.
Ethers, sulfated and sulfonated:	
n-Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	AAC.
n-Dodecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, PCS, RET.
n-Dodecyl alcohol, ethoxylated and sulfated, tri-ethanolamine salt.	PG.
2-Hexyloxyethyl sulfate, sodium salt-----	SEY.
Hexyloxypropyl sulfate, sodium salt-----	x.
Sperm oil alcohol, ethoxylated and sulfated-----	DUP.
Tridecyl alcohol, ethoxylated and sulfated, ammonium salt.	PCS, VIS.
*Tridecyl alcohol, ethoxylated and sulfated, sodium salt	AAC, ARL, RCD, SEY.
All other-----	APX, PG.
*Fats, oils, and waxes, sulfated and sulfonated:	
*Animal (including fish and marine animal) fats and oils, sulfated and sulfonated:	
*Cod oil, sulfonated-----	ACT, BAO, DRW, LEA, MRD, NOP, OTT, S, SEA, WAW, WHI, WHW.
*Grease, other than wool, sulfonated-----	NOP, SEA, WHI, WHW.
Herring oil, sulfonated-----	NOP.
Lard, sulfonated-----	EFH, WAW.
Mixed fish oils, sulfonated-----	AML, SCO.
*Neat's-foot oil, sulfonated-----	ACT, APX, BAO, KAL, LEA, LUR, MRD, NOP, OTT, PC, SEA, SEY, WHW.
Red fish oil, sulfonated-----	WHI.



TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
NONBENZENOID SURFACE-ACTIVE AGENTS--Continued	
<i>Sulfated and Sulfonated--Continued</i>	
*Fats, oils, and waxes, sulfated and sulfonated--Con.	
*Animal (including fish and marine animal) fats and oils, sulfated and sulfonated--Continued	
*Sperm oil, sulfonated-----	ACT, BAO, CLD, DRW, HRT, KAL, KNG, LEA, MRD, NOP, ONX, OTT, QCP, RTC, S, SEA, SWT, WHI, WHW.
*Tallow, sulfonated-----	ACT, ACY, BCC, BRY, BSW, DRW, EFH, FRR, ICI, LEA, LUR, MRA, MRD, NOP, ONX, OTT, PC, PCI, SCP, SEY, SID, SOS, SNW, WHI, WHW.
Whale oil, sulfonated-----	KNG.
*Vegetable oils, sulfated and sulfonated:	
*Castor oil, sulfonated-----	AAE, ACT, ACY, AML, APX, BAO, BRY, BSC, BSW, CLD, DEX, DRW, DUP, G, HRT, ICI, KAL, KNG, LEA, LUR, MRA, MRD, MRV, NOP, ONX, OTT, PC, PCI, S, SCO, SCP, SEA, SLC, SWT, WHI, WHW.
*Coconut oil, sulfonated-----	ACY, BAO, MRD, NOP, RTC, SEA, WHW.
Cottonseed oil, sulfonated-----	NOP, RTC.
Linseed oil, sulfonated-----	LEA.
Mixed vegetable oils, sulfonated-----	LEA.
Mustard seed oil, sulfonated-----	LUR, NOP.
*Peanut oil, sulfonated-----	ACY, ICI, LEA, LUR, NOP, SCP, SEY, SLC, SOS.
Rapeseed oil, sulfonated-----	LEA.
*Rice-bran oil, sulfonated-----	EFH, HRT, KNG, LUR, NOP, OTT, QCP.
*Soybean oil, sulfonated-----	APX, DRW, HRT, KAL, LEA, MRD, ONX, SWT.
*Other fats, oils, and waxes, sulfated and sulfonated:	
Oleostearin, sulfonated-----	SEA.
Tall oil, sulfonated-----	ACY, APX, BAO, ICI, QCP, SEA, WHW.
Other nonbenzenoid surface-active agents, sulfated and sulfonated: Mixed alkanesulfonic acids, sodium salt--	DUP.

## Pesticides and Other Organic Agricultural Chemicals

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963

[Pesticides and other organic agricultural chemicals for which separate statistics are given in table 20A are marked below with an asterisk (\*); products not so marked do not appear in table 20A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC	
*Fungicides:	
2,6-Bis(dimethylaminomethyl)cyclohexanone-----	MTL.
5-Chloro-2-mercaptobenzothiazole, laurylpyridium salt---	VNC.
2,4-Dichloro-6-o-chloroanilino-s-triazine-----	CHG.
2,3-Dichloro-1,4-naphthoquinone (Dichlone)-----	USR.
Diphenylammonium propionate-----	MTL.
2-Heptadecyl-2-imidazoline acetate (Glyodin)-----	UCC.
2-Mercaptobenzothiazole, monoethanolamine salt-----	VNC.
*Mercury fungicides:	
2-Chloro-4-(hydroxymercuri)phenol-----	DUP.
N-(Ethylmercuri)-p-toluenesulfonanilide-----	DUP.
1,4,5,6,7,7-Hexachloro-N-(ethylmercuri)-5-norbornene- 2,3-dicarboximide.	RBC.
4-(Hydroxymercuri)-2-nitrophenol-----	DUP.
8-(Methylmercurioxy)quinoline-----	MTL.
2-(Phenylmercuriamino)ethyl acetate-----	CLY.
Phenylmercuriammonium acetate-----	GUA, SCI, TRO.
N-Phenylmercuriiformamide-----	VIN.
Phenylmercury hydroxide-----	WRC.
Phenylmercury lactate-----	WRC.
Phenylmercury oleate-----	CLY, HNX, MTL, TRO, WRC.
Phenylmercury propionate-----	MTL.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium lactate---	CLY.
All other-----	SCI.
2-(1-Methylheptyl)-4,6-dinitrophenyl crotonate-----	RH.
*Naphthenic acid, copper salt-----	CCA, FER, HNX, HSH, MLD, SM, SOC, SRR, TGL, TRO, WTC.
Pentachloronitrobenzene-----	MON, OMC.
*Pentachlorophenol (PCP)-----	BXT, DOW, FRO, MON, RCI.
Pentachlorophenol, sodium salt-----	DOW, MON, RCI.
*8-Quinololinol (8-Hydroxyquinoline), copper salt-----	GAM, HNX, MTL.
Tetrachloro-p-benzoquinone (Chloranil)-----	USR.
2,3,4,6-Tetrachlorophenol-----	DOW.
2,3,4,6-Tetrachlorophenol, sodium salt-----	DOW.
Tetrahydro-3,5-dimethyl-2H,1,3,5-thiadiazine-2-thione---	CLY, SF.
N-(Trichloromethylthio)-4-cyclohexene-1,2-dicarboximide (Captan).	CHO, MTL.
N-(Trichloromethylthio)phthalimide (Folpet)-----	CHO.
*2,4,5-Trichlorophenol-----	DA, DOW, HK.
*2,4,5-Trichlorophenol, ethanolamine salt-----	G.
*2,4,5-Trichlorophenol, sodium salt-----	DOW, MON.
2,4,6-Trichlorophenol-----	DOW.
*Herbicides and plant hormones:	
5-Bromo-3-sec-butyl-6-methyluracil-----	DUP.
5-Bromo-3-isopropyl-6-methyluracil-----	DUP.
1-Butyl-3-(3,4-dichlorophenyl)-1-methylurea (Neburon)---	DUP.
2-sec-Butyl-4,6-dinitrophenol (DNBP)-----	CIS, DOW, FMN, TNA.
2-sec-Butyl-4,6-dinitrophenol, ammonium salt-----	CIS, DOW, FMN.
2-sec-Butyl-4,6-dinitrophenol, triethanolamine salt-----	CIS, DOW, FMN.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)-----	GGY.
4-Chloro-2-butynyl m-chlorocarbamate (Barban)-----	SPN.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine (Atrazine).	GGY.

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
3'-Chloro-2-methyl-p-valeroluidide-----	FMN.
3-(p-Chlorophenyl)-1,1-dimethylurea (Monuron)-----	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea trichloroacetate----	ACG.
2,5-Dichloro-3-aminobenzoic acid, ammonium salt-----	G.
3,6-Dichloro-2-anisic acid-----	VEL.
3',4'-Dichloro-2-methylacrylanilide (Dicryl)-----	FMN.
2-(2,4-Dichlorophenoxy)ethanol sulfate, sodium salt-----	G.
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-----	x.
3,4-Dichloropropionanilide-----	MON, x.
1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide)-----	ACY, USR.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamide)-----	LIL.
1,1-Dimethyl-3-phenylurea (Fenuron)-----	DUP.
1,1-Dimethyl-3-phenylurea trichloroacetate-----	ACG.
Dimethyl tetrachloroterephthalate-----	DA.
4,6-Dinitro-o-cresol (DNOC)-----	FMN.
4,6-Dinitro-o-cresol, sodium salt-----	CIS, FMN.
Diphenylacetoneitrile-----	LIL.
N,N-Dipropyl-2,6-dinitro-4-trifluoromethyl aniline-----	x.
Gibberellic acid-----	ABB, MRK.
3-(Hexahydro-4,7-methanoindan-5-yl)-1,1-dimethylurea (Norea).	HPC.
Indolebutyric acid-----	ARA.
Isopropyl carbanilate (Isopropyl N-phenylcarbamate) (IPC)	FMP, PPG.
Isopropyl 3-chlorocarbanilate (Isopropyl N-(3-chloro- phenyl)carbamate) (CIPC).	PPG.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetamide-----	AMC.
1-Naphthaleneacetic acid-----	AMC, COK.
1-Naphthaleneacetic acid, methyl ester-----	AMC, COK.
1-Naphthaleneacetic acid, sodium salt-----	AMC, BKL.
2-Naphthylloxyacetic acid-----	BKL.
2-Naphthylloxyacetic acid, sodium salt-----	BKL.
N-1-Naphthylphthalamic acid (NPA)-----	USR.
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (Endothal).	PAS.
Phenoxyacetic acid derivatives:	
(4-Chloro-o-tolyloxy)acetic acid (MCPA)-----	CHC, DOW.
(4-Chloro-o-tolyloxy)acetic acid, potassium salt-----	GTH.
*(2,4-Dichlorophenoxy)acetic acid (2,4-D)-----	CHC, DA, DOW, HPC, MON.
*(2,4-Dichlorophenoxy)acetic acid esters and salts:	
(2,4-Dichlorophenoxy)acetic acid, 2-butoxyethyl ester	AMC.
(2,4-Dichlorophenoxy)acetic acid, butoxypolypropyl- eneglycol ester.	DOW.
*(2,4-Dichlorophenoxy)acetic acid, n-butyl ester-----	AMC, DA, DOW, HPC, IMR, MON, RIV.
(2,4-Dichlorophenoxy)acetic acid, sec-butyl ester----	CHC, MON.
*(2,4-Dichlorophenoxy)acetic acid, dimethylamine salt	ALC, AMC, CHC, DA, DOW, HPC, RIV, TMH.
(2,4-Dichlorophenoxy)acetic acid, ethanolamine and isopropanolamine salt.	CHC, DOW.
*(2,4-Dichlorophenoxy)acetic acid, ethyl ester-----	AMC, DOW, MON.
(2,4-Dichlorophenoxy)acetic acid, 2-ethylhexyl ester	DA, HPC.
*(2,4-Dichlorophenoxy)acetic acid, iso-octyl ester---	CHC, DOW, MON, RIV.
*(2,4-Dichlorophenoxy)acetic acid, isopropyl ester---	AMC, CHC, DA, DOW, HPC, MON, RIV.
(2,4-Dichlorophenoxy)acetic acid, lithium salt-----	GTH.
(2,4-Dichlorophenoxy)acetic acid, sodium salt-----	DOW.

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
Phenoxyacetic acid derivatives--Continued	
* (2,4,5-Trichlorophenoxy)acetic acid (2,4,5-T)-----	DA, DOW, HPC, MON.
* (2,4,5-Trichlorophenoxy)acetic acid esters and salts:	
(2,4,5-Trichlorophenoxy)acetic acid, amyl ester-----	HPC.
(2,4,5-Trichlorophenoxy)acetic acid, 2-butoxyethyl ester.	AMC.
(2,4,5-Trichlorophenoxy)acetic acid, butoxypolypropyleneglycol ester.	DOW.
* (2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester--	DA, DOW, HPC, MON, RIV.
(2,4,5-Trichlorophenoxy)acetic acid, sec-butyl ester	MON.
(2,4,5-Trichlorophenoxy)acetic acid, 2-ethylhexyl ester.	DA, HPC.
* (2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester	DOW, MON, RIV, TMH.
(2,4,5-Trichlorophenoxy)acetic acid, isopropyl ester	DA, MON.
(2,4,5-Trichlorophenoxy)acetic acid, triethylamine salt.	DOW, HPC, RIV, TMH.
*Phenylmercury acetate (PMA)-----	BKM, CLY, GUA, MIL, SCI, TRO, WRC.
Polychloro-tetrahydro-methanoindene (Polychlorodicyclopentadiene) isomers.	VEL.
N-Tolylphthalamide acid-----	USR.
Tributyl(2,4-dichlorobenzyl)phosphonium chloride-----	VC.
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)-----	DOW, HPC.
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-ethylhexyl ester.	HPC.
Tris[2-(2,4-dichlorophenoxy)ethyl]phosphite (2,4-DEP)---	USR.
Insect attractants: tert-Butyl 4(and 5)-chloro-2-methylcyclohexanecarboxylate.	TBK.
*Insecticides:	
Allethrin (Allyl homolog of Cinerin I)-----	BPC.
Benzyl thiocyanate-----	HK.
*Chlorinated insecticides:	
*Aldrin-toxaphene group:	
Heptachloro-tetrahydro-methanoindene (Heptachlor)---	VEL.
Hexachloro-epoxy-octahydro-endo, endo-dimethanonaphthalene (Endrin).	SHC, VEL.
Hexachloro-epoxy-octahydro-endo, exo-dimethanonaphthalene (Dieldrin).	SHC.
Hexachloro-hexahydro-endo, exo-dimethanonaphthalene (Aldrin).	SHC.
Octahydro-tetrahydro-methanoindan (Chlordan)-----	VEL.
Toxaphene (Chlorinated camphene)-----	HPC.
1,1-Bis(p-chlorophenyl)-2-nitrobutane-----	COM.
1,1-Bis(p-chlorophenyl)-2-nitropropane-----	COM.
2-(p-tert-Butylphenoxy)-1-methylethyl 2-chloroethyl sulfite.	USR.
p-Chlorophenyl p-chlorobenzenesulfonate (Ovex)-----	CIS, DA, DOW.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone-----	FMN.
4,4'-Dichlorobenzilic acid-----	GGY.
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethane (DDD) (TDE)	ACG, PIC, RH.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane-----	RH.
4,4'-Dichloro- $\alpha$ -(trichloromethyl)benzhydrol-----	RH.
*Hexachlorocyclohexane (Benzene hexachloride)-----	DA, FRO, HK, PFG, SF.
*Hexachlorocyclohexane, 100% $\gamma$ -isomer (Lindane)-----	HK.
Hexachloro-hexahydro-methano-benzodioxathiepinoxide (Endosulfan).	FMN.

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Insecticides--Continued	
*Chlorinated insecticides--Continued	
*1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)---	ACG, DA, GGY, LEB, MTO, OMC, RBC.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	DUP.
N,N-Diethyltoluamide-----	HPC.
Isobornyl thiocyanatoacetate-----	CIS, HPC.
1-Naphthyl methylcarbamate-----	UCC.
*Organophosphorus insecticides:	
4-tert-Butyl-2-chlorophenyl methyl methylphosphor- amidate.	DOW.
2-Chloro-1-(2,4-dichlorophenyl)vinyl diethyl phosphate	SHC.
O-(3-Chloro-4-methyl-2-oxo-2H-1-benzopyran-7-yl) O,O- diethyl phosphorothioate.	CHG.
S-(p-Chlorophenylthio)methyl O,O-diethyl phosphoro- dithioate (Carbophenothion).	SF.
S-(p-Chlorophenylthio)methyl O,O-dimethyl phosphoro- dithioate.	SF.
O,O-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate (Diazinon).	GGY.
*O,O-Diethyl O-(p-nitrophenyl) phosphorothioate (Parathion).	ACY, AMP, MON, SF.
O,O-Dimethyl O-[4-(methylthio)-m-tolyl] phosphoro- thioate.	CHG.
*O,O-Dimethyl O-(p-nitrophenyl) phosphorothioate (Methyl parathion).	AMP, MON, SF, SHC.
O,O-Dimethyl S-(4-oxo-1,2,3-benzotriazin-3(4H)- ylmethyl) phosphorodithioate.	CHG.
O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphoro- thioate (Rommel).	DOW.
p-Dioxane-2,3-diyl ethyl phosphorodithioate-----	HPC.
O-Ethyl O-(p-nitrophenyl) phenylphosphonothioate-----	x.
α-Methylbenzyl 3-hydroxycrotonate, dimethyl phos- phate ester.	SHC.
Nematocides: O-2,4-Dichlorophenyl O,O-diethyl phosphoro- thioate.	VC.
*Rodenticides:	
3-(Acetonylbenzyl)-4-hydroxycoumarin-----	ABB, PEN.
2-Pivaloyl-1,3-indandione-----	MOT, PIC.
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC	
*Fungicides:	
Bis-1,4-bromoacetoxy-2-butene-----	VIN.
Bis(trichloromethyl)sulfone-----	SF.
Cadmium succinate-----	MAL.
3,3-Diacetoxypropene-1-----	SHC.
Disodium cyanodithioimidocarbonate-----	BKM.
Dithiocarbamic acid fungicides:	
*Dimethyldithiocarbamic acid, ferric salt (Ferbam)-----	DUP, FMN, RBC, WRC.
Dimethyldithiocarbamic acid, manganese salt-----	FMN.
Ethylene bis(dithiocarbamic acid), diammonium salt----	CIS, RBC.
*Ethylene bis(dithiocarbamic acid), disodium salt (Nabam).	ALC, CIS, DUP, FMN, RBC, RH.

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC--Continued	
*Fungicides--Continued	
Dithiocarbamic acid fungicides--Continued	
Ethylene bis(dithiocarbamic acid), manganese salt (Maneb).	CIS, DUP, RH.
*Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)-- Dodecylguanidine acetate (Dodine)-----	CIS, DUP, FMN, RH. ACY.
Mercury fungicides:	
Chloromethoxypropylmercury acetate-----	TRO.
3-Ethyl-(mercurithio)-1,2-propanediol-----	DUP.
Ethylmercury acetate-----	DUP.
Ethylmercury chloride-----	DUP.
Ethylmercury phosphate-----	DUP.
Hydroxyethylmercury acetate-----	WRC.
2-Methoxyethylmercury acetate-----	WRC.
Methoxyethylmercury chloride-----	MTL.
3-Methyl (mercurithio)-1,2-propanediol-----	DUP.
Methylmercury acetate-----	DUP.
Methylmercury hydroxide-----	MRT.
Methylmercury nitrile-----	WRC.
*Herbicides and plant hormones:	
Cacodylic acid-----	ASL.
2-Chloroallyl diethyldithiocarbamate (CDEC)-----	MON.
N,N-Diallyl-2-chloroacetamide (CDAA)-----	MON.
2,3-Dichloroallyl diisopropylthiocarbamate-----	MON.
2,2-Dichloropropionic acid, sodium salt-----	DOW.
Diethyl dithiobis(thionoformate)-----	RBC.
S-Ethyl dipropylthiocarbamate (EPTC)-----	SF.
Hexachloroacetone-----	ACG.
*Methanearsonic acid, disodium salt-----	ASL, CLY, VIN.
Methanearsonic acid, dodecyl- and octylammonium salts--	CLY, VIN.
Methanearsonic acid, monosodium salt-----	ASL.
S-Propyl butylethylthiocarbamate-----	SF.
S,S,S-Tributyl phosphorotrithioate-----	CHG.
Tributyl phosphorotrithioate-----	VC.
Trichloroacetic acid, sodium salt (TCA)-----	DOW.
2,3,3-Trichloroallyl diisopropylthiocarbamate-----	MON.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate-----	X.
Butoxypolypropylene glycol (Fly repellent)-----	UCC.
Metalddehyde-----	COM.
*Organophosphorus insecticides:	
Bis(dialkoxylphosphinothioyl) disulfides-----	FMN.
S-[1,2-Bis(ethoxycarbonyl)ethyl] O,O-dimethyl phos- phorodithioate (Malathion).	ACY.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled).	SHC.
2,2-Dichlorovinyl dimethyl phosphate (DDVP)-----	MTR, SHC.
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate--	CHG.
O,O-Diethyl O-[2-(ethylthio)ethyl] phosphorothioate--	CHG.
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorothioate--	CHG.
O,O-Diethyl S-[(ethylthio)methyl] phosphorodithioate--	ACY.
O,O-Diethyl phosphorochloridothioate-----	MON.
Diethyl phosphorochloridothionate-----	SF.
O,O-Diethyl phosphorodithioate, sodium salt-----	MON.
Dimethyl 3-hydroxycrotonate, dimethyl phosphate ester--	SHC.
O,O-Dimethyl phosphorochloridothioate-----	MON.

TABLE 20B.--Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers identification codes (according to list in table 22)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC--Continued	
*Insecticides--Continued	
*Organophosphorus insecticides--Continued	
Dimethyl phosphorochloridothionate-----	SF.
Ethyl methylene phosphorodithioate (Ethion)-----	FMN.
*Ethyl pyrophosphate (Tetraethyl pyrophosphate) (TEPP)-	ALC, AMP, OTH, TGL.
S-2-(Ethylsulfinyl)ethyl 0,0-dimethyl phosphoro-	CHG.
dithioate.	
Methyl 3-hydroxycrotonate, dimethyl phosphate ester---	SHC.
2-Thiocyanatoethyl laurate-----	x.
*Rodenticides: Sodium fluoroacetate-----	RBC.
*Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium	ACY.
salt.	
*Soil fumigants:	
*Bromomethane (Methyl bromide)-----	AMP, DOW, GTL, KKL, MCH.
Chloropicrin (Trichloronitromethane)-----	DOW, IMC.
*1,2-Dibromo-3-chloropropane-----	AMP, DOW, SHC.
1,3-Dichloropropene-----	DOW.
1,3-Dichloropropene, 1,2-dichloropropane-----	DOW, SHC.
N-Methyldithiocarbamic acid, sodium salt-----	DUP, SF, x.

## Miscellaneous Synthetic Organic Chemicals

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963

[Miscellaneous chemicals for which separate statistics are given in table 21A are marked with an asterisk (\*); chemicals not so marked do not appear in table 21A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. 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 22)
MISCELLANEOUS CHEMICALS, CYCLIC	
6-Acetoxy-2,4-dimethyl-m-dioxane-----	GIV.
Adenine and sulfate-----	KF.
Adenosine derivatives-----	PBS, SBR.
Alkylpiperazine quaternary ammonium compounds-----	HOU.
2-Aminobenzothiazole-----	FMT.
1-(2-Aminoethyl)piperazine-----	JCC.
Aminopropylmorpholine-----	JCC.
Aryldiamines, mixed-----	DA.
Barium octylphenate-----	CCA.
Benzoic acid salts:	
Ammonium benzoate-----	GAM.
Barium benzoate-----	CCW.
Cadmium benzoate-----	CCW.
Calcium benzoate-----	HN.
Ferric benzoate-----	RBC.
*Sodium benzoate, tech-----	HN, TNP.
*Sodium benzoate, U.S.P-----	HK, HN, MON, TNP.
Zinc benzoate-----	CCW.
p-Benzquinone (p-Quinone)-----	EKT.
Benzothiazole-----	ACY.
*Benzoyl peroxide-----	CAD, NOC, OXY, RCI, SDH, UPR, WTL.
Benzoylresorcinol-----	G.
Bibenzyl (Dibenzyl)-----	GIV.
Biological stains-----	EKT, HLC, NAC.
Bis(2,4-dichlorobenzoyl) peroxide-----	CAD, OXY.
Bis[1-(2-methylaziridinyl) phenyl phosphine oxide-----	ICO.
1,4-Bis[2-(4-methyl-5-phenyloxazolyl)] benzene-----	ARA.
1,4-Bis[2-(5-phenyloxazolyl)] benzene-----	ARA.
Boron fluoride-phenol complex-----	ACG.
α-[2-(2-Butoxyethoxy)ethoxy]-4,5-methylenedioxy-2-propyl- toluene (Piperonyl butoxide).-----	FMN, FMP.
Butyl benzoate-----	CIN, KIK, TNP.
p-tert-Butylbenzoic acid, barium bis-salt-----	CCA.
2(and 3)-tert-Butyl-4-methoxyphenol-----	EKT, UPM.
p-tert-Butyl-α-methylcinnamaldehyde-----	GIV.
tert-Butyl peroxybenzoate-----	WTL.
4-tert-Butylpyrocatechol-----	DOW.
Camphene-----	GLD, HPC.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)-----	OTC, PAS.
Chemical indicators-----	EK, HLC, LAM, NAC.
Chemical reagents-----	ACG, EK, GFS, HLC, NAC, PIC.
Chloramine B (Sodium derivative of N-chlorobenzenesulfon- amide).-----	NES.
Chlorinated terphenyls-----	KPT.
o-Chlorobenzylidenemalononitrile-----	GAM.
Chlorocyclohexane-----	CLB.
Chlorophyllin, sodium-potassium-copper-----	KCH.
Copper phthalocyaninedisulfonic acid-----	NAC.
Cumene hydroperoxide-----	HPC.
Cyanuric acid, sodium salt-----	FMW.
*Cyclohexanone peroxide-----	NOC, UPR, WTL.



TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid) disubstituted, polyester salts: Barium and cadmium salts	RCI.
1,4-Cyclohexylenedimethanol-----	EKT.
*Cyclopropane-----	MAL, OH, OMS, TAE.
Cytidine and derivatives-----	PBS, SBR.
Decahydronaphthalene (Decalin)-----	DUP.
Decyl diphenyl phosphite-----	HK.
Deoxyribonucleic acid-----	SBR.
2,5-Di-tert-amylhydroquinone-----	EKT.
1,4-Diazabicyclo[2.2.2]octane (Triethylenediamine)-----	HOU.
Diazodinitrophenol-----	HPC.
1,3-Dibromo-5,5-dimethylhydantoin-----	ARA.
4',5-Dibromo(and 3,4',5-tribromo)salicylanilide-----	FIN.
*2,6-Di-tert-butyl-p-cresol:	
*Food grade-----	CAT, EKT, HPC, KPT, SHC.
*Tech-----	CAT, EKT, HPC, KPT, PIT, SHC.
2,5-Di-tert-butylhydroquinone-----	EKT.
1,3-Dichloro-5,5-dimethylhydantoin-----	GLY.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloroisocyanuric acid).	MON.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione, potassium salt-	FMW, MON.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione, sodium salt----	OMC.
Dicyclohexylammonium nitrite-----	ARA, TNA.
Dicyclopentadienyliron-----	HK.
Didecyl phenyl phosphite-----	G.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone-----	EK.
2,6-Dihydroxyisonicotinic acid (2,6-Dihydroxy-4-carboxypyridine).	
2,2'-Dihydroxy-4-methoxybenzophenone-----	ACY.
2,2'-Dihydroxy-4-(octadecyloxy)benzophenone-----	ACY.
3,5-Diiodosalicylic acid-----	MRT.
Diisopropylbenzene hydroperoxide, mixed isomers-----	HPC.
Diisopropyl-m,p-cresols-----	GIV.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)-----	ASL, EKT, ICO.
2,5-Dimethylhexane-2,5-di(peroxybenzoate)-----	UPR, WTL.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol-----	MRK.
Dioxane (1,4-Diethylene oxide)-----	DOW, UCC.
2,5-Diphenyl-p-benzoquinone-----	EKT.
Diphenyloxazole-----	ARA.
4-Dodecyloxy-2-hydroxybenzophenone-----	EKT.
Enzymes:	
Hydrolytic:	
Amylases-----	BAX, CRN, PBS, RH.
Proteases-----	BAX, PBS, RH.
Other-----	RH.
Nonhydrolytic-----	FMO, MLS.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)-----	SHC.
6-Ethoxy-m-anol (Propenylmethylguaethol)-----	ICO.
Ethylenediaminebis[o-hydroxyphenylacetic acid], monosodium ferric salt.	GGY.
2-Ethylhexyl octylphenyl phosphite-----	VC.
2-Ethylhexyl salicylate-----	ICO.
2-Ethylhexyl tallate-----	UCC.
Ethyl hydrocaffeate-----	ICO.
*4-Ethylmorpholine-----	BC, JCC, UCC.
Fenchone-----	HNW.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Flotation reagents:	
Benzoylthiono-1-ethylpropyl carbamate-----	DOW.
Dicresylphosphorodithioic acid (Dicresylthiophosphoric acid).	ACY.
Dicresylphosphorodithioic acid, ammonium salt-----	ACY.
Dicresylphosphorodithioic acid, sodium salt-----	KCU.
2,2'-Dimethylthiocarbanilide (Di-o-tolylthiourea)-----	DUP, RBC.
Rosin amines-----	HPG.
*Thiocarbanilide (Diphenylthiourea)-----	ACY, MON, NAC.
Furan derivatives:	
2-Furaldehyde (Furfural)-----	QKO.
Tetrahydrofurfuryl alcohol-----	QKO.
Gallic acid, tech-----	MAL.
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT.
p-Butylaminophenol-----	DUP.
N'-sec-Butyl-N-phenyl-o-phenylenediamine-----	UPM.
2,6-Di-tert-butylphenol-----	TNA.
*N,N'-Di-sec-butyl-p-phenylenediamine-----	DUP, EKT, UPM.
N,N'-Diisopropyl-p-phenylenediamine-----	DUP, EKT.
Di(nonylphenol) salt of triethylenetetramine-----	SPP.
*N,N'-Disalicylidene-1,2-propanediamine-----	DUP, EKT, SOI, SPP, TNA, TX, UPM.
Methylcyclopentadienylmanganese tricarbonyl-----	TNA.
2,2'-Thiobis[6-tert-butyl-4-methylphenol]-----	CAT.
All other-----	EKT, UPM.
Glyceryl p-aminobenzoate-----	VND.
Guanosine phosphates-----	PBS, SBR.
Hesperidin-----	SKG.
*Hexamethylenetetramine, tech-----	BOR, DUP, HKD, HMP, HN, PLS, UCP.
o-(2-Hydroxy-p-anisoyl)benzoic acid-----	ACY.
2-Hydroxy-4-methoxybenzophenone-----	ACY, G.
2-Hydroxy-4-methoxy-5-sulfobenzophenone trihydrate-----	ACY.
Hydroxymethyl-5,5-dimethylhydantoin-----	GLY.
2-Imidazolidinethione (1,3-Ethylene-2-thiourea)-----	PAS.
Inosine phosphates-----	PBS, SBR.
Isocyanuric acid-----	MON.
Isopropylcresols-----	CP, GIV.
p-Isopropyl- $\alpha$ -methylcinnamaldehyde-----	GIV.
Isopropyl tallate-----	DEX.
Laurylmorpholine-----	BC.
Lemon biflavonoid-----	SKG.
*Lubricating oil and grease additives:	
Chlorosulfurized and sulfurized compounds:	
Alicyclic compounds, sulfurized-----	SOI.
Heterocyclic compounds, sulfurized-----	ORO.
Liquid disulfide-----	HK.
Tall oil ester, sulfurized-----	LUB.
Terpenes, sulfurized-----	LUB.
Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt-----	SIN.
*Oil-soluble petroleum sulfonate, barium salt-----	ATR, CO, LUB, SIN, SON, TX.
*Oil-soluble petroleum sulfonate, calcium salt-----	CO, LUB, ORO, SHO, SOI, SON, x.
*Oil-soluble petroleum sulfonate, sodium salt-----	CO, ENJ, MOR, NOP, PAR, SHO, SOC, SOI, SON, WTC, x.
Phenol salts:	
Barium salt of dodecylphenol-----	TX.
Barium salt of nonylphenol-----	CCA.
Barium salts of other alkylphenols-----	LUB, TX, x.
Calcium salt of octylphenol-formaldehyde-----	SHC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Lubricating oil and grease additives--Continued	
Phenol salts--Continued	
Calcium salt of polypropylphenol-----	ORO.
Calcium salts of other alkylphenols-----	LUB, SIN.
All other-----	ENJ, LUB, ORO, SIN, TNA.
Phosphorodithioates (Dithiophosphates)-----	ORO, x.
All other-----	DOW, ENJ, ICO, LUB, MON, ORO, RBC, SIN, SPP, VC, x.
p-Menthane-----	HPC.
8-p-Menthyl hydroperoxide-----	HNW, HPC.
4-Methoxyphenol-----	ASL, EKT, ICO.
N-Methylantranilic acid-----	GIV.
2-Methylaziridine-----	ICO.
2,2'-Methylenebis[6-tert-butyl-4-methylphenol]-----	CAT.
2,2'-Methylenebis[4-chlorophenol] (Dichlorophene)-----	GIV.
4,4'-Methylenebis[2,6-di-tert-butylphenol]-----	SHC.
Methylenebis[5,5-dimethylhydantoin]-----	GLY.
2,2'-Methylenebis[3,4,6-trichlorophenol] (Hexachlorophene)	GIV.
2,2'-Methylenedi-p-cresol (Bis(5-methyl-2-hydroxyphenyl) methane).	GIV.
Methylenenorbornylene-----	RBC.
Methylglucoside-----	CRN.
4-Methylmorpholine-----	JCC, UCC.
Methylnorbornene-2,3-dicarboxylic anhydride (Methylbi- cyclo-(2.2.1)heptene-2,3-carboxylic anhydride).	ICO.
Methyl phenyl phosphates-----	TNA.
1-Methyl-2-pyrrolidone, monomer-----	G.
Methyl tallate-----	CHM.
*Morpholine-----	DOW, JCC, UCC.
Morpholine salt of p-toluenesulfonic acid-----	AMB.
*Naphthenic acid salts:	
Aluminum naphthenate-----	HSH, WTC.
Barium naphthenate-----	CCA, QCP.
Cadmium naphthenate-----	CCA.
*Calcium naphthenate-----	CCA, FER, HNX, HSH, MLD, MR, SHP, SOC, SPP, SRR, SW, TRO, WTC.
Cobalt lead manganese naphthenate-----	HNX, HSH.
*Cobalt naphthenate-----	CCA, CCC, CS, FER, HNX, HSH, MLD, MR, SHP, SOC, SPP, SRR, SW, TRO, WTC.
*Iron naphthenate-----	CCA, HNX, HSH, MLD, SOC, SRR, WTC.
*Lead naphthenate-----	CCA, CCC, CCW, FER, HNX, HSH, MLD, MR, QCP, SHP, SOC, SPP, SRR, SW, TRO, WTC.
Lithium naphthenate-----	CCA.
*Manganese naphthenate-----	CCA, CCC, FER, HNX, HSH, MLD, SHP, SOC, SPP, SRR, SW, TRO, WTC.
Mercury naphthenate-----	MTL.
Nickel naphthenate-----	CCA.
Rare earths naphthenate-----	CCA, HNX, MLD, WTC.
Sodium naphthenate-----	CCA.
Strontium naphthenate-----	CCA.
*Zinc naphthenate-----	CCA, CCC, FER, HNX, HSH, MLD, SHP, SOC, SRR, SW, TRO, WTC.
Other-----	SPP.
o-Nitrobenzoic acid and sodium salt-----	WAY.
5-Norbornene-2-methanol (Bicyclo[2.2.1]hept-5-ene-2- methanol) and acrylate ester-----	ICO.
Octafluorocyclobutane-----	DUP.
Octylphenyl acid phosphate-----	VC.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Organic mercury compounds:	
Phenyl mercuric borate-----	WRC.
Pyridyl mercuric acetate-----	MAL.
Pentaerythrityl tetra(diphenyl phosphite)-----	HK.
o-Phenanthroline-----	COK.
Phenolthiosulfonic acid-----	G.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)-----	DOW.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether).	DOW.
Phenyl acid phosphate-----	VC.
Phenyl benzoate-----	CIN.
2,2'-(p-Phenylene)diethanol-----	EKT.
Phenylmagnesium bromide-----	ARA.
4-Phenylmorpholine-----	UCC.
Photographic chemicals:	
N-(o-Acetamidophenylmethyl)-1-hydroxy-2-naphthamide-----	EKT.
2-(4-Amino-N-ethyl-m-toluidino)ethyl sulfate-----	EKT.
4-Amino-6-methylguaiacol (2-Methyl-6-methoxy-4-amino-phenol hydrochloride).	x.
3-Amino-1,2,4-triazole (5-Amino-1,3,4-triazole)-----	FMT.
*Benzotriazole-----	EK, FMT, MEE, MRT.
p-Benzylaminophenol hydrochloride-----	EK.
2,2',4,4'-Biphenyltetrol-----	FMT.
Catechol (Pyrocatechin)-----	KPT.
3-Chloro-4-diethylaminobenzenediazonium chloride (p-Diazo-2-chloro-N,N-diethylaniline) - zinc chloride.	FMT.
Chlorohydroquinone-----	EK.
2,4-Diaminophenol dihydrochloride (Amidol)-----	VPC.
N-(4-Diazo-2,5-dibutoxyphenyl)morpholine-----	FMT, IDC.
N-(4-Diazo-2,5-diethoxyphenyl)morpholine-----	FMT, IDC.
2,5-Diethoxy-4-morphinyldiazonium chloride - zinc chloride.	G.
*p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline) - zinc chloride.	FMT, G, IDC, MRT.
p-Diethylaminobenzenediazonium (p-Diazo-N,N-Diethylaniline) fluoroborate.	IDC.
N,N-Diethyl-p-phenylenediamine hydrochloride-----	EKT, FMT, IDC.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride-----	EKT, FMT.
2,5-Dihydroxybenzenesulfonic acid-----	EK.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline) - zinc chloride.	FMT, G, IDC.
4-(2',6'-Dimethylmorpholinyl)benzenediazonium chloride - zinc chloride.	IDC.
p-Diphenylaminediazonium sulfate-----	FMT.
p-(N-Ethylbenzimidobenzediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline) - zinc chloride.	FMT, MRT.
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride (p-Diazo-N-ethyl-N-hydroxyethylaniline) - zinc chloride.	FMT, IDC.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate-----	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.	FMT, IDC.
3-Hydroxy-N-(2-hydroxyethyl)-2-naphthamide (β-Oxynaphthoicmonoethanolamide).	FMT.
N-(p-Hydroxyphenyl)glycine-----	IDC.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
1-(3-Hydroxyphenyl)urea-----	FMT, IDC.
4-Methoxy-1-naphthol-----	x.
p-Methylaminophenol sulfate (Metol)-----	EK.
5-Methylbenzotriazole-----	EK.
4-Methyl-1-phenyl-3-pyrazolidinone-----	WAY.
2-Methylthiazoline-----	FMT.
5-Methyl-s-triazolo[1,5-a]pyrimidin-7-ol (7-Hydroxy-5-methyl-1,3,4-triazolindolizine).	FMT.
4-Morpholinylbenzenediazonium chloride-----	FMT, IDC.
4-Morpholinylbenzenediazonium fluoroborate-----	IDC.
6-Nitrobenzimidazole-----	EK, FMT.
Octylphenyl salicylate-----	EKT.
Phenyl-5-mercaptotetrazole-----	FMT, TNC.
1-Phenyl-3-pyrazolidinone-----	GGY, WAY.
4-Phenylpyrocatechol-----	x.
4,4'-Thiodiresorcinol (Diresorcy sulfide)-----	BKO.
1-(2,4,6-Trichlorophenyl)-3-(4-nitroanilino)-2-pyrazolin-5-one.	EKT.
All other-----	EK, EKT, FMT, G, IDC.
Phthalic acid, lead salt, dibasic-----	NTL.
*Pinene-----	CBY, GLD, HPC.
Polyethylene terephthalate-----	DUP, EK.
Polyvinyl phthalate-----	EK.
Propyl gallate-----	EKT, HN.
Pyridylborane-----	CAL.
Pyrogallol (Pyrogallic acid)-----	MAL.
Rosin acid salts:	
Aluminum resinate-----	JMS, MAL.
Calcium resinate-----	JMS, SW.
Copper resinate-----	JMS.
Iron resinate-----	HSH, JMS.
Lead resinate-----	JMS.
Manganese resinate-----	JMS.
Zinc resinate-----	JMS, SW.
Salicylanilide-----	DUP, FIN, MEE, MON.
Salicylic acid, lead salt-----	NTL.
Silicones-----	DCC.
Sodium cresoxide (Cresylic acid, sodium salt)-----	DEX, GOC.
Sterols, soya, crude-----	GNM.
trans-Stilbene-----	EK.
Sucrose benzoate-----	TNP.
Sulfosalicylic acid-----	MON, MRK.
Tall oil fatty acid chloride-----	G.
*Tall oil salts (Linoleic-rosin acid salts):	
Barium zinc tallate-----	HSH.
*Calcium tallate-----	CCA, HNX, MLD, TRO, WTC.
*Cobalt tallate-----	CCA, CCC, FER, HNX, HSH, MLD, SHP, SRR, TRO, WTC.
Copper tallate-----	MLD, SHP.
Iron tallate-----	CCA, MCA, MLD, SRR, WTC.
Lead manganese tallate-----	HSH.
*Lead tallate-----	CCA, CCC, FER, HNX, MLD, SHP, SPP, SRR, TRO, WTC.
*Manganese tallate-----	CCA, CCC, FER, HNX, HSH, MLD, SHP, SRR, TRO, WTC.
Zinc glyceryl tallate-----	CCA.
Zinc tallate-----	CCA, HSH.
Tannic acid-----	HSH, MAL.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Tanning materials, synthetic:	
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	G, GGY.
*2-Naphthalenesulfonic acid, formaldehyde condensate and salts.	GRD, NOP, NYC, RH.
1-Phenol-2-sulfonic acid, formaldehyde condensate-----	NAC, NOP, RH.
Styrene maleic anhydride interpolymers, partial sodium salt.	DUP.
Sulfonyldiphenolsulfonic acid, formaldehyde condensate--	G.
All other-----	NOP.
1,2,3,4-Tetrahydronaphthalene (Tetralin)-----	DUP.
Tetrahydro-2-naphthylmethylidene-1-octadecenylpyrimidine--	SPP.
Tetrahydrothiophene-----	ORO, PAS.
Tetraphenylbutadiene-----	ARA.
Tetraphenyltin-----	x.
*Textile chemicals, other than surface-active agents:	
1,3-Bis(hydroxymethyl)-2-imidazolidone (Dimethylol ethylene urea).	ACY, x.
1-[(Octadecyloxy)methyl]pyridinium chloride-----	DUP.
Phenol, sulfated-----	G.
Tetrahydro-3,5-bis(methoxymethyl)-4H-1,3,5-oxadiazin-4- one.	x.
2,2',4,4'-Tetrahydroxybenzophenone-----	G.
2-Thienyltrifluoroacetone-----	CLB.
2,2'-Thiobis[4-chlorophenol]-----	GIV, OPC.
2,2'-Thiobis[4,6-dichlorophenol]-----	MON, SDH.
[2,2'-Thiobis(4-octylphenolate)]-n-butylamine nickel-----	ACY.
Tocopherol, soya, crude-----	GNM.
o-Toluidine-formaldehyde hydrochloride-----	RBC.
o-Tolylbiguanide-----	MON.
Tribenzylamine-----	EK.
3,4',5-Tribromosalicylanilide-----	FIN.
3,4,4'-Trichlorocarbanilide-----	MON.
Trichloromelamine-----	WTM.
1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)trione (Tri- chloroisocyanuric acid).	FMW, MON.
Tri-(m,p)-cresyl borate-----	USB.
Triphenyl phosphite-----	HK, MON.
Triphenylphosphorus-----	MET.
Tris(1-aziridinyl)phosphine oxide-----	CEM.
Tris[1-(2-methylaziridinyl)]phosphine oxide-----	ICO.
Uridine and derivatives-----	PBS, SBR.
Vinyl cyclohexenedioxide-----	UCC.
1-Vinyl-2-pyrrolidinone, monomer and polymer-----	G.
1-Vinyl-2-pyrrolidinone - styrene copolymer-----	G.
1-Vinyl-2-pyrrolidinone - vinyl acetate copolymer-----	G.
1-Vinyl-2-pyrrolidinone - ethyl acrylate, copolymer-----	G.
MISCELLANEOUS CHEMICALS, ACYCLIC	
Acetacetamidoacetamide-----	RBC.
*Acetaldehyde-----	BFG, CEL, COM, DUP, EKT, HPC, MON, PUB, SHC, UCC.
Acetamide-----	ACG.
Acetamidine hydrochloride-----	MRK.
2-Acetamidoethanol (N-Acetyethanolamine)-----	RBC.
*Acetic acid, synthetic, 100%-----	CEL, COM, EKT, HPC, PUB, UCC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Acetic acid salts:	
Aluminum acetate-----	ACY, UCC.
Aluminum subacetate-----	MAL.
*Ammonium acetate-----	ACG, BKC, MAL, WSN.
Barium acetate-----	ACG, BKC, MAL.
Cadmium acetate-----	ACG, BKC.
Calcium acetate-----	ACG, BKC, MAL.
Chromium acetate-----	ACY.
Cobalt acetate-----	BKC, HSH, SHP.
*Copper acetate-----	ACG, BKC, UCC.
Lead acetate-----	BKC, MAL, SRR, SW.
Lead subacetate-----	ACG, BKC, MAL.
Lead tetraacetate-----	ARA.
Magnesium acetate-----	ACG, BKC.
Manganese acetate-----	HSH, SHP.
Mercuric acetate-----	ACG, BKC, MAL.
Methylmercury acetate-----	DUP.
Nickel acetate-----	BKC, HSH, SHP.
*Potassium acetate-----	ACG, BKC, CWL, MAL, UCC, WSN.
Silver acetate-----	MAL.
*Sodium acetate-----	ACG, BKC, DAN, EKT, MAL, UCC, WSN.
Sodium diacetate-----	UCC.
Strontium acetate-----	BKC.
*Zinc acetate-----	ACG, BKC, HSH, MAL, SNW, UCC.
Zirconium acetate-----	NTL.
*Acetic anhydride, 100%:	
From acetaldehyde-----	HPC.
From acetic acid, other than recovered, by the vapor- phase process.	CEL, EKT.
From acetic acid, recovered, by the vapor-phase process-	CEL.
From ethylene-----	UCC.
Acetin:	
Mono-----	HAL, KES.
Tri-----	EKT, WM.
*Acetone:	
By fermentation-----	PUB.
From cumene-----	ACP, HPC, MON, SHC, SKO, SOC.
*From isopropyl alcohol-----	EKT, ENJ, SHC, UCC.
All other-----	CEL, HPC.
Acetone, dimethyl acetal (2,2-Dimethoxypropanone)-----	DOW.
Acetone semicarbazone-----	NOR.
Acetonitrile-----	EKX, UCC.
Acetyl chloride-----	TBK.
Acetyl peroxide-----	WTL.
Aconitic acid-----	PCW.
Acrolein (Acrylaldehyde)-----	SHC, UCC.
*Acrylic acid-----	BFG, CEL, DBC, MMM, RH, UCC.
*Acrylonitrile-----	ACY, BFG, DUP, MON, SOH, UCC.
*Adipic acid-----	CS, DUP, MON, NAC, RH.
Adiponitrile-----	CS, DUP.
Adipoyl chloride-----	TBK.
*Alcohols, monohydric, unsubstituted:	
*Alcohols C <sub>9</sub> or lower:	
*Allyl alcohol-----	DOW, OMC, SHC, UCC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Alcohols, monohydric, unsubstituted--Continued	
*Alcohols C <sub>9</sub> or lower--Continued	
Amyl alcohols:	
Unmixed:	
Isopentyl alcohol (3-Methyl-1-butanol)-----	FB.
2-Methyl-2-butanol (tert-Amyl alcohol)-----	PAS.
1-Pentanol-----	PAS.
2-Pentanol-----	UCC.
3-Pentanol-----	EK, UCC.
Mixed:	
Fusel oil, refined-----	PUB.
Other than fusel oil:	
Primary mixed-----	PAS, UCC.
Secondary mixed-----	PAS.
Other-----	PAS.
*Butyl alcohols:	
Primary:	
Iso (Isopropylcarbinol)-----	CEL, DBC, EKT, EKX, ENJ, SHC, UCC.
*Normal (n-Propylcarbinol)-----	CEL, CO, DBC, ENJ, EKX, PUB, SHC, UCC.
Secondary (Methylethylcarbinol)-----	CEL, ENJ, SHC.
Tertiary (Trimethylcarbinol)-----	SHC.
Mixed-----	CEL, EKX.
*Ethyl alcohol, synthetic-----	DUP, EKX, ENJ, HPC, SHC, UCC, USI.
2-Ethyl-1-butanol (sec-Hexyl alcohol)-----	UCC.
2-Ethyl-1-hexanol-----	CEL, EKX, ENJ, SHC, UCC.
2-Ethyl-4-methyl-1-pentanol-----	EKX.
4-Ethyl-1-octyn-3-ol-----	AIR.
*Hexyl alcohol-----	ENJ, EKX, PG, UCC.
1-Hexyn-3-ol-----	AIR.
*Iso-octyl alcohols-----	EKX, ENJ, GOC, HOU, SOI, TID, UCC.
*Isopropyl alcohol-----	ENJ, SHC, UCC.
*Methanol, synthetic-----	ACN, BOR, CEL, COM, DUP, ESC, HPC, MON, RH, SPN, UCC.
2-Methyl-3-buten-2-ol-----	AIR.
2-Methyl-3-butyne-2-ol-----	AIR.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)-----	ENJ, SHC, UCC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)-----	AIR.
1-Octanol-----	DUP.
2-Octanol-----	RH, WTH.
Octanols, mixed-----	PG.
Propyl alcohol (Propanol)-----	CEL, UCC.
2-Propyn-1-ol-----	G.
All other-----	CEL, CO, EKX.
*Alcohols C <sub>10</sub> and higher:	
*Decyl alcohol-----	DUP, ENJ, GOC, HOU, PG, TID, UCC.
3,9-Diethyl-6-tridecanol-----	UCC.
*Dodecyl alcohol (Lauryl alcohol)-----	DUP, PG, RH.
7-Ethyl-2-methyl-4-hendecanol-----	UCC.
*1-Hexadecanol (Cetyl alcohol)-----	ADM, DUP, ENJ, GIV, RH.
*1-Octadecanol (Stearyl alcohol)-----	ADM, DUP, PG, RH.
cis-9-Octadecen-1-ol (Oleyl alcohol)-----	ADM, DUP.
1-Tridecanol-----	ENJ, GOC.
Tridecanols, mixed-----	UCC.
2,6,8-Trimethyl-4-nonanol-----	UCC.
All other-----	ADM, CO, NEP, PG, RH, UCC.
Aldol (Acetaldo)-----	UCC.
Alkyl and alkylene hydrocarbons-----	ADM, AIR, HMY.
Alkyl sulfides, mixed-----	ORO.



TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
1-Allyl-3-(2-hydroxyethyl)-2-thiourea (N-β-Hydroxyethyl-N'-allylthiourea).	FMT, IDC.
Allyl isothiocyanate, nonflavoring grade-----	ICO.
Allyl methacrylate-----	SAR.
Allyl nitrile (Allyl cyanide)-----	RBC.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)-----	DOW, SHC.
3-(Allyloxy)-1,2-propanediol (Allyl glyceryl ether)-----	SHC.
Aluminum isopropoxide (Aluminum isopropylate)-----	SFA.
Amidinourea (Guanyluarea) phosphate and sulfate-----	ACY.
*Amines:	
Butylamine-----	EKT, PAS, UCC.
tert-Butylamine-----	MON, RH.
Cetyl dimethylamine-----	BC.
*Coconut oil amine-----	ADM, ARC, FOR, GNM.
Cocotrimethylenediamine-----	ARC, FOR.
Cottonseed oil amines-----	FOR.
Diallylamine-----	SHC.
Dibutylamine-----	PAS, UCC.
*Diethylamine-----	DUP, PAS, UCC.
Diethylamine hydrochloride-----	BKL, TNC.
Diethylenetriamine-----	DOW, UCC.
N,N-Diethylethylenediamine-----	ALB, COK.
N <sup>1</sup> ,N <sup>1</sup> -Diethyl-1,4-pentanediamine (Novoldiamine)-----	SDH.
N,N-Diethyl-1,3-propanediamine-----	UCC.
Diisobutylamine-----	PAS.
Diisopropylamine-----	PAS, UCC.
*Dimethylamine-----	COM, DUP, PAS, RH.
Dimethylamine hydrochloride-----	EK, TNC.
Dimethylamine sulfate-----	RH.
Dimethylmyristylamine-----	BC.
N,N-Dimethyloctadecylamine (Stearyldimethylamine)-----	ARC.
N,N-Dimethyl-1,3-propanediamine-----	JCC, UCC.
Dipentylamine (Diamylamine)-----	PAS.
Dipropylamine-----	PAS, UCC.
Dipropylenetriamine-----	UCC.
*Dodecylamine-----	ADM, ARC, FOR, GNM.
Ethylamine-----	DUP, PAS, UCC.
Ethylenediamine-----	DOW, UCC.
Ethylenediamine dihydrochloride-----	BKC.
Ethylenediamine sulfate-----	EK.
Hexadecylamine-----	ADM, ARC, GNM.
1,6-Hexanediamine (Hexamethylenediamine)-----	CS, DUP.
3,3'-Iminobispropylamine-----	UCC.
Isobutylamine-----	PAS.
Isopropylamine-----	PAS, UCC.
Lauryl dimethylamine-----	ARC, BC.
*Methylamine-----	COM, DUP, ESC, PAS, RH.
*Octadecylamine-----	ADM, ARC, FOR, GNM.
Octylamine-----	ARC, RH, UCC.
*Oleylamine-----	ARC, FOR, GNM.
Primary amines, mixed-----	RH.
1,2-Propanediamine (Propylenediamine)-----	UCC.
1,3-Propanediamine-----	UCC.
Propylamine-----	PAS, UCC.
Soybean oil amine-----	ARC.
*Tallow amine-----	ADM, ARC, FOR, GNM.
*Tallow amine, dihydrogenated-----	FOR.
*Tallow amine, hydrogenated-----	ADM, ARC, FOR, GNM.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Amines--Continued	
Tallow methylamines, dihydrogenated-----	ARC, FOR.
Tetraethylenepentamine-----	DOW, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine-----	UCC.
Tetramethylethylenediamine-----	RH.
Triallylamine-----	SHC.
Tributylamine-----	PAS.
Tricaprylylamine-----	GNM.
Tridodecylamine-----	GNM.
Triethylamine-----	PAS, UCC.
Triethylenetetramine-----	CCW, DOW, UCC.
*Trimethylamine-----	COM, DUP, PAS, RH.
Trimethylenediamine fatty derivatives-----	ARC, FOR.
Triptylamine-----	PAS.
All other-----	ADM, ALB, ARC, BRD, DUP, GNM, ONX, PAS, RH, SDH.
2-Amino-1-butanol-----	COM.
1-Aminoethanol (Acetaldehyde ammonia)-----	PAS.
Aminoethoxypropylsilane-----	UCS.
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)-----	DOW, UCC.
2-Amino-2-ethyl-1,3-propanediol-----	COM.
Aminoguanidine bicarbonate-----	FMT, TRJ.
2-Amino-2-(hydroxymethyl)-1,3-propanediol (Tris(hydroxymethyl)aminomethane).-----	COM.
2-Amino-2-methyl-1,3-propanediol-----	COM.
2-Amino-2-methyl-1-propanol-----	COM.
2-Amino-2-methyl-1-propanol hydrochloride-----	SNW.
3-Amino-1-propanol-----	UCC.
*Amyl acetates, 90%:	
Amyl acetate (n-Pentyl acetate)-----	COM, PUB, TBK.
Isopentyl acetate (Isoamyl acetate)-----	FB, NW.
Mixed-----	PAS, UCC.
Azelaic acid-----	EMR.
2,2'-Azobis[2-methylpropionitrile] ( $\alpha, \alpha'$ -Azodiisobutyronitrile).-----	DUP.
Behenamide (Docosanamide)-----	HUM.
Behenic acid-----	ADM.
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).-----	DOW, UCC.
Bis(2-chloroethoxy)methane (Dichloroethylformal)-----	TKL.
*Bis(2-chloroethyl) ether (Dichlorodiethyl ether)-----	DOW, JCC, OMC, WYN.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).-----	DOW, WYN.
Bis(2,6-dimethyl-4-heptyl) maleate-----	G.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether).-----	UCC.
Bis(hydroxyethyl) ether butynediol-----	G.
Bis(2-hydroxyethyl) sulfone-----	x.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)-----	GLY, x.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether).-----	ASL.
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl ether).-----	ASL, OMC.
Bis(tributyltin) oxide-----	x.
Biuret-----	SW.
Boron organic compounds:	
Alkylboranes-----	CAL.
Boron alcoholate-----	SFA.
Boron fluoride ethyl ether complex-----	ACG.
Boron trifluoride monoethylamine complex-----	ACG.
Triethylborane-----	CAL, TNA.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Boron organic compounds--Continued	
Triethyl borate-----	USB.
Trimethoxyboroxine-----	CAL.
All other-----	CAL, USB.
N-Bromoacetamide-----	ARA.
N-Bromosuccinimide (Succinibromimide)-----	ARA.
1,2(and 1,3)-Butanediol (Butylene glycol)-----	CEL.
1,4-Butanediol-----	G.
2,3-Butanediol (2,3-Butylene glycol)-----	UCC.
2,3-Butanedione 2-oxime-----	EK, ICO.
1,2,4-Butanetriol-----	G.
2-Butanone (Methyl ethyl ketone)-----	ENJ, RUB, SHC, UCC.
Butanone mixture-----	CEL.
*2-Butanone oxime-----	ALB, CCA, MLD, NAC, TRO.
*2-Butanone peroxide-----	CAD, NOC, RCI, UPR, WTL.
2-Butene-1,4-diol-----	G.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	DOW, SHC.
2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	JCC, OMC, UCC.
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether).-----	OMC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether).-----	DOW, OMC.
2-(2-Butoxyethoxy)ethyl acetate-----	UCC.
1-Butoxyethoxy-2-propanol-----	UCC.
2-Butoxyethyl acetate-----	UCC.
*Butyl acetates, 90%:	
Iso-----	CEL, EKT, ENJ, PAS, UCC.
*Normal-----	CEL, COM, EKT, ENJ, PUB, UCC.
Secondary-----	ENJ, HPC, PUB, SHC.
Mixed-----	CEL.
Butyl acrylate-----	CEL, DBC, UCC.
Butylene oxide-----	DOW, UCC.
Butyl ether (Di-n-butyl ether)-----	UCC.
Butylethylthiourea-----	PAS.
tert-Butyl hydroperoxide-----	CAD, UPR, WTL.
2,2'-(Butylimino)diethanol (N,N-Bis(2-hydroxyethyl)butylamine).-----	PAS.
Butyl isocyanate-----	CWN.
Butyl lactate-----	COM.
n-Butyllithium-----	FTE.
Butylmagnesium chloride-----	ARA.
*tert-Butyl peroxide (Di-tert-butyl peroxide)-----	SHC, UPR, WTL.
tert-Butyl peroxyacetate-----	WTL.
tert-Butyl peroxyisobutyrate-----	WTL.
tert-Butyl peroxy-pivalate-----	WTL.
1-Butyne (Ethylacetylene)-----	AIR.
2-Butyne-1,4-diol-----	G.
Butyraldehyde-----	CEL, EKX, UCC.
Butyraldehyde oxime-----	NAC.
Butyric acid-----	EKT, UCC.
Butyric anhydride-----	EKT, UCC.
Butyrolactone-----	G.
Butyronitrile-----	EKX, UCC.
*Caprolactam (2-Oxohexamethylenimine) (Hexahydro-2H-azepin-2-one).-----	DBC, DUP, NAC.
Caprolactone-----	UCC.
*Carbon disulfide-----	ACG, BKT, FMW, OLH, PAS, PPG, SF.
Castor oil maleate-----	RH.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Cellulose esters:	
*Cellulose acetate-----	AV, CEL, DUP, EKT.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Cellulose propionate-----	CEL.
Nitrocellulose (Cellulose nitrate)-----	DUP, HPC.
All other-----	EK.
*Cellulose ethers:	
Ethylcellulose-----	DOW, HPC.
Ethylhydroxyethylcellulose-----	HPC.
Hydroxyethylcellulose-----	HPC, UCC.
Methylcellulose-----	DOW.
*Sodium carboxymethylcellulose, 100%-----	BUK, DUP, HPC, KON, WYN.
Sodium carboxymethylhydroxyethylcellulose-----	HPC.
Cetyl chloride-----	BC.
*Chloral (Trichloroacetaldehyde)-----	DA, FMW, GGY, MTO.
Chloroacetamide-----	BPC, DOW.
*Chloroacetic acid, mono-----	BUK, DOW, HPC, MON.
Chloroacetic acid, mono, derivatives:	
Butyl chloroacetate-----	MON.
*Ethyl chloroacetate-----	DOW, KF, MON.
Methyl chloroacetate-----	BPC, DOW, KF.
Sodium chloroacetate-----	DOW.
Chloroacetonitrile-----	BPC.
Chloroacetyl chloride-----	DOW.
2-Chloro-N,N-diethylamine hydrochloride-----	NES.
2-Chloro-1,1-dimethoxyethane (Dimethyl chloroacetal)-----	LIL.
*2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride.	ABB, GAM, HEX, MCH, NES, WYT.
2-Chloro-N,N-dimethylpropylamine-----	SK.
2-Chloro-N,N-dimethylpropylamine hydrochloride-----	NES, WYT.
3-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.
Chlorodimethylvinylsilane-----	DCC.
2-Chloroethanol (Ethylene chlorohydrin)-----	OMC, UCC.
2-(2-Chloroethoxy)ethyl 2-chloroethyl ether (Triethylene glycol dichloride).	UCC.
2-Chloroethylamine hydrochloride-----	ICI.
2-Chloroethyl vinyl ether-----	UCC.
4-Chloro-3-hydroxybutyronitrile-----	x.
Chloromaleic anhydride-----	RBC.
β-Chloro-N-methylallylamine-----	LIL.
Chloromethyl methyl ether-----	HK, x.
1-Chloro-1-penten-3-one (β-Chlorovinyl ethyl ketone)-----	ABB.
3-Chloro-1,2-propanediol (Glycerol α-chlorohydrin)-----	EVN, ICO.
*1-Chloro-2-propanone (Chloroacetone)-----	BPC, EK, GAM, MRK.
N-Chlorosuccinimide (Succinichlorimide)-----	NAC.
2-Chlorotriethylamine hydrochloride-----	HEX, MCH, x.
Chlorotrimethylsilane-----	DCC, UCS.
Citric acid-----	BZ, MLS, PFZ.
Citric acid salts:	
Ammonium citrate-----	MAL, PFZ.
Barium citrate-----	SW.
Calcium citrate-----	PFZ.
Ferric ammonium citrate-----	MAL, PFZ.
Ferric citrate-----	MAL.
Ferrous calcium citrate-----	BKL.
Potassium citrate-----	MLS, PFZ.
Sodium citrate-----	MLS, PFZ.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Coconitrile-----	FOR.
Coconut oil amide-----	ARC, KES, PG.
Cottonseed oil nitrile-----	FOR.
Creatine and creatinine-----	PFN.
Crotonaldehyde-----	CEL, EKT, UCC.
Crotonic acid (2-Butenoic acid)-----	EKT.
2-Cyanoacetamide-----	KF.
Cyanoacethydrazide-----	KF.
Cyanoacetic acid and salt-----	KF.
Cyanogen bromide-----	EK.
1,10-Decanediol-----	NEP.
Decanoic acid (Capric acid)-----	FOR.
Decanoyl chloride-----	TBK.
Decanoyl peroxide-----	CAD, UPR, WTL.
1-Decene-----	HMY.
Dialdehyde starch-----	MLS.
Diallyl maleate-----	FMP.
1,2-Dibutoxyethane (Ethylene glycol di-n-butyl ether)-----	DOW.
2-Dibutylaminoethanol-----	AAC, PAS.
Dibutylaminopropanol-----	ABB.
Dibutyl ammonium laurate-----	UCC.
*Dibutyl fumarate-----	MON, PCC, RCI, RUB.
*Dibutyl maleate-----	AIR, DUP, GRD, GRH, LAS, MON, PCC, RCI, RUB.
1,3-Dibutyl-2-thiourea-----	PAS, RBC.
Dibutyltin compounds:	
Dibutylmethoxytin (Dibutyltin methoxide)-----	CCA.
Dibutyltin bis(lauryl mercaptide)-----	x.
Dibutyltin dichloride-----	x, x.
Dibutyltin dilaurate-----	CCA, CCW, x.
Dibutyltin maleate-----	CCA, x.
Dibutyltin mercaptopropionate-----	CCA, x.
Dibutyltin oxide-----	x.
All other-----	x.
Dichloroacetaldehyde-----	FMW.
Dichloroacetic acid-----	KF.
Dichloroacetyl chloride-----	EK.
2,2-Dichloro-1,1-difluoroethyl methyl ether-----	DOW.
Dichlorodimethylsilane-----	DCC, UCS.
Dichlorohydrogenmethylsilane-----	DCC, UCS.
Dichloromethylvinylsilane-----	DCC.
1,3-Dichloro-2-propanol-----	PRR.
2,3-Dichloro-1-propanol-----	UCC.
Dicyanobutene-----	x.
Diethoxydimethylsilane-----	UCS.
Diethylaluminum chloride-----	TNA, TSA.
Diethyl allyl(1-methylbutyl)malonate-----	BPC.
2-Diethylaminoethanethiol hydrochloride-----	EVN.
2-Diethylaminoethanol-----	AAC, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol-----	PAS.
2-Diethylaminoethyl methacrylate-----	DUP.
Diethylaminopropionamide-----	x.
Diethyl sec-butylethylmalonate-----	ABB.
Diethyl butylmalonate-----	BPC.
Diethyl sec-butylmalonate-----	ABB.
Diethylcarbamoyl chloride-----	GAM.
Diethyl carbonate (Ethyl carbonate)-----	CTN, FMP.
Diethyl diethylmalonate (Diethyl malonic ester)-----	BPC, LIL.
*Diethylene glycol-----	ACN, CAU, DOW, G, HCH, JCC, OMC, UCC, WYN.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Diethylene glycol chloroformate-----	PPG.
Diethyl (ethoxymethylene)malonate-----	KF.
Diethyl ethylisopentylmalonate-----	LIL.
Diethyl ethylmalonate (Ethyl malonic ester)-----	LIL.
Diethyl ethyl(1-methylbutyl)malonate-----	ABB, BPC.
Diethyl ethyl(3-methylbutyl)malonate-----	BPC.
Diethyl ethyl(1-methylpropyl)malonate-----	BPC.
Diethyl fumarate-----	MON.
Di-2-ethyl-1-hexyl fumarate-----	RUB.
Di-2-ethyl-1-hexyl maleate-----	CIN.
N,N-Diethylhydroxylamine sulfate-----	EK.
Diethyl maleate-----	ACY, UCC.
Diethyl malonate (Malonic ester)-----	ABB, KF, LIL.
Diethyl (1-methylbutyl)malonate-----	ABB, BPC, LIL.
Diethyl (3-methylbutyl)malonate-----	BPC.
Diethyl methylmalonate-----	BPC.
Diethyl (1-methylpropyl)malonate-----	BPC.
Diethyl oxalate (Ethyl oxalate)-----	FMP.
2,2-Diethylpropanediol-----	RBC.
Diethylthiophosphoryl chloride-----	ACY.
1,3-Diethyl-2-thiourea-----	PAS, RBC.
Diethylzinc-----	TNA.
Diglycolic acid-----	DUP.
Dihydropseudoionone-----	GIV.
3,4-Dihydro-2H-pyran-2-carboxaldehyde (Acrolein dimer)---	UCC.
1,4-Dihydroxy-2-butanone-----	G.
1,3-Dihydroxy-2-propanone (Dihydroxy acetone)-----	BAX, PFZ.
2-Diisopropylaminoethanol (N,N-Diisopropylethanolamine)---	PAS, UCC.
Diisopropylammonium nitrite-----	OMC.
O,O-Diisopropyl dithiobis(thioformate)-----	DUP.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)---	PPG.
1,3-Diisopropyl-2-thiourea-----	G.
*Dilauryl 3,3'-thiodipropionate (Didodecyl thiodipropio- nate).	ACY, CCW, EVN, HAB.
Dimethoxyethane (Ethylene glycol dimethyl ether)-----	ASL, OMC.
N,N-Di(methoxyethyl)hydroxylamine-----	UPJ.
N,N-Dimethylacetamide-----	DUP.
N,N-Dimethylacetoacetamide-----	EKT.
*2-Dimethylaminoethanol-----	PAS, RH, UCC.
Dimethylamino-2-propanol-----	COM.
3-Dimethylaminopropionitrile-----	ACY.
Dimethylcarbamoyl chloride-----	GAM.
Dimethyl carbonate-----	FMP.
N-(1,1-Dimethyldodecyl)methylenimine-----	SPP.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane-----	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3-----	WTL.
N,N-Dimethylformamide-----	DUP.
Dimethylglyoxime-----	EK.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)-----	UCC.
2,5-Dimethyl-2,5-hexanediol-----	AIR.
2,5-Dimethyl-3-hexyne-2,5-diol-----	AIR.
1,1-Dimethylhydrazine-----	FMP, FMW.
Dimethyl malonate-----	KF.
Di(4-methyl-2-pentyl) maleate-----	RUB.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	EKX.
1,3-Dimethylurea-----	PAS.
Diocanoyl peroxide (Caprylyl peroxide)-----	x.
Diocetyl fumarate-----	MON.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Diethyl maleate-----	MON, RUB.
1,3-Diethyl-2-thiourea-----	PAS.
*Dipropylene glycol-----	CEL, DOW, JCC, OMC, UCC.
$\beta$ , $\beta$ -Dipropyleneimine sulfone-----	RBC.
Distearyl 3,3'-thiodipropionate-----	CCW.
Dithiooxamide-----	MAL.
Ditridecyl maleate-----	RUB.
Divinyl sulfone-----	RBC.
n-Dodecane-----	HMY.
*Dodecenylsuccinic anhydride-----	HMY, MON, NAC.
Epichlorohydrin-----	DOW, SHC, UCC.
Erucamide-----	FIN, HUM.
Ethanedithiol-----	RBC.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)-----	ACN, DOW, JCC, UCC.
*2,2'-Iminodiethanol (Diethanolamine)-----	ACN, DOW, JCC, UCC.
*2,2',2''-Nitrilotriethanol (Triethanolamine)-----	ACN, DOW, JCC, UCC.
Ethanolamine hydrochloride-----	WSN.
Ethanolamine sulfite-----	EVN, SUM.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	DOW, JCC, OMC, UCC.
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	DOW, OMC, UCC.
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	DOW, OMC.
2-(2-Ethoxyethoxy)ethyl acetate-----	UCC.
2-Ethoxyethyl acetate-----	UCC.
3-Ethoxypropanol (Propylene glycol monoethyl ether)-----	UCC.
3-Ethoxypropionitrile-----	ACY.
1-Ethoxy-1,3,3-trimethoxypropane-----	KF.
*Ethyl acetate, 85%-----	CEL, COM, EKT, ENJ, HPC, PUB, SRC, UCC.
*Ethyl acetoacetate-----	EKT, FMP, UCC.
*Ethyl acrylate-----	CEL, DBC, RH, UCC.
Ethylaluminum dichloride-----	TNA.
Ethylaluminum sesquichloride-----	TNA, TSA.
2-Ethylaminoethanol (Ethylmonoethanolamine)-----	PAS.
Ethyl bromoacetate-----	GAM.
2-Ethylbutyraldehyde-----	UCC.
2-Ethylbutyric acid (Diethylacetic acid)-----	UCC.
Ethyl carbamate-----	FMP.
Ethyl chloroformate-----	FMP.
Ethyl 3-(chloroformyl)propionate ( $\beta$ -Carbethoxypropionyl chloride)-----	ABB.
Ethyl cyanoacetate-----	KF.
Ethylene, from ethyl alcohol-----	OH.
Ethylene carbonate-----	DOW, JCC.
*Ethylene glycol-----	ACN, APD, CAU, CEL, DOW, DUP, ENJ, G, GOC, HCH, JCC, OMC, UCC, WYN.
Ethylene glycol diacetate-----	UCC.
Ethylene glycol dimercaptoacetate-----	EVN.
Ethylene glycol dimethacrylate-----	SAR.
*Ethylene oxide-----	ACN, CAU, DOW, G, HCH, JCC, OMC, SNO, UCC, WYN.
*Ethyl ether:	
Absolute-----	MAL.
Tech-----	ENJ, HPC, UCC, USI.
U.S.P-----	MAL, OMS.
*Ethyl formate-----	COM, FB, TBK, UCC.
2-Ethylhexanal ( $\alpha$ -Ethylcaproaldehyde)-----	EKX, UCC.
2-Ethyl-1,3-hexanediol-----	UCC.
2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid)-----	EKT, UCC.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate-----	WTC.
Barium 2-ethylhexanoate-----	CCA.
Cadmium 2-ethylhexanoate-----	CCA.
*Calcium 2-ethylhexanoate-----	CCA, FER, HNX, HSH, MLD, SRR, SW, WTC.
*Cobalt 2-ethylhexanoate-----	CCA, FER, HNX, HSH, MLD, SHP, SRR, SW, WTC.
Copper 2-ethylhexanoate-----	CCA, SRR.
Dibutyltin di-2-ethylhexanoate-----	x.
Iron 2-ethylhexanoate-----	CCA.
*Lead 2-ethylhexanoate-----	CCA, HNX, HSH, MLD, SHP, SRR, SW, WTC.
*Manganese 2-ethylhexanoate-----	CCA, HNX, MLD, SRR.
Potassium 2-ethylhexanoate-----	CCA.
Rare earths 2-ethylhexanoate-----	CCA, MLD.
Stannous 2-ethylhexanoate-----	WTC, x.
Strontium 2-ethylhexanoate-----	CCA.
*Zinc 2-ethylhexanoate-----	CCA, HNX, HSH, SRR, WTC, x.
Zirconium 2-ethylhexanoate-----	CCA, HNX, WTC.
2-Ethyl-1-hexyl acetate-----	EKT, UCC.
*2-Ethyl-1-hexyl acrylate-----	CEL, DBC, RH, UCC.
2-Ethylhexyl cyanoacetate-----	KF.
2-Ethylhexyl methacrylate-----	DUP.
Ethyl 2-hydroxy-3-methylbutyrate (Ethyl $\alpha$ -hydroxyiso- valerate).	RH.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylol- propane).	CEL.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol allyl ethers---	CEL.
Ethyl isocyanate-----	OTC.
Ethyl lactate-----	KF.
Ethylmagnesium bromide-----	ARA.
2-(Ethylmercapto)ethanol-----	PAS.
Ethyl 2-methyl lactate (Ethyl $\alpha$ -hydroxyisobutyrate)-----	RH.
Ethyl propionate-----	FB, NW, TBK.
*Ethyl silicate (Tetraethoxysilane)-----	MTR, SFA, UCC.
Ethyl sulfate (Diethyl sulfate)-----	UCC.
Ethyl vinyl ether-----	UCC.
Fats and oils, chemically modified:	
Castor oil, phosphonated-----	VIC.
Lard oil, nitrated-----	SPP.
Oxy stearin-----	BCN.
Vegetable oils, brominated-----	ABB, DOM, RT.
Other-----	CHL.
Fatty acids, chemically modified:	
$\alpha$ -Bromo(lauric-stearic) acids-----	DUP.
Castor oil fatty acids, dehydrated-----	BAC.
All other-----	GNM, RH, RT.
Fatty acid esters, not included with plasticizers or surface-active agents:	
Ethyl stearate-----	ICO.
Methyl caprylate-----	FOR.
Methyl esters of coconut oil fatty acid-----	PPG.
Methyl esters of tallow-----	BFR.
Methyl linoleate-----	CLI.
All other-----	CLI, ICO, RT, x.
Fish oil fatty acid amide-----	ADM.
Flotation reagents:	
Isopropyl ethylthionocarbamate-----	DOW.
Phosphorodithioates (Dithiophosphates):	
Potassium dihexyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate-----	ACY.



TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Flotation reagents--Continued	
Phosphorodithioates (Dithiophosphates)--Continued	
Sodium di-sec-butyl phosphorodithioate-----	ACY.
Sodium diethyl phosphorodithioate-----	ACY.
Sodium dihexyl phosphorodithioate-----	ACY.
Sodium diisopropyl phosphorodithioate-----	ACY.
Other-----	ACY.
Xanthates:	
Potassium n-butylxanthate-----	USR.
Potassium ethylxanthate-----	ACY, DOW.
Potassium isopropylxanthate-----	DOW.
Potassium pentylxanthates-----	ACY, DOW.
Potassium sec-pentylxanthate-----	DOW.
Sodium n-butylxanthate-----	KCC, USR.
Sodium sec-butylxanthate-----	ACY, DOW.
Sodium ethylxanthate-----	ACY, ADM, DOW.
Sodium isobutylxanthate-----	DOW.
Sodium isopropylxanthate-----	ACY, DOW.
All other-----	ACY, ADM.
*Formaldehyde, 37% by weight-----	ACN, BOR, CEL, COM, DUP, HKD, HN, HPC, MON, RCI, RH, SPN, TRJ, UCP.
Formamide-----	DUP.
*Formic acid, 90%-----	DUP, HN, VIC.
*Formic acid salts:	
*Aluminum formate-----	SNW, UCC, VIC.
Ammonium formate-----	ACG.
Calcium formate-----	TRJ.
Chromic formate-----	G.
Copper formate-----	CTN.
Lead formate-----	NTL.
Nickel formate-----	HSR.
Potassium formate-----	TNC.
Sodium formate, refined-----	ACG, BKC.
Sodium formate, tech-----	HN, HPC.
Thallous formate-----	EK.
*Fumaric acid-----	BZ, HN, MON, NAC, NTL, PCC, PTT, SOC.
*Gluconic acid, tech-----	CWL, DLI, IBI, PFZ.
Gluconic acid, calcium salt-----	DLI.
*Gluconic acid, sodium salt, tech-----	CWL, DLI, PFZ.
Glucono-delta-lactone-----	DLI, PFZ.
Glucose pentaacetate-----	BKL.
Glutaraldehyde bis[sodium bisulfite]-----	IDC, RZL.
Glutaric acid-----	CS, EK.
*Glycerol, synthetic-----	APD, DOW, IBI, OMC, RH, SHC, UCC.
Glycidol (2,3-Epoxy-1-propanol)-----	OTC.
Glycine (Aminoacetic acid), tech-----	BPC.
Glycine ethyl ester hydrochloride-----	BPC.
Glycolic acid (Hydroxyacetic acid)-----	DUP.
Glycolic acid salts:	
Aluminum glycolate-----	TRC.
Sodium glycolate-----	MED.
Glycolonitrile-----	ACY.
Glyoxal-----	UCC.
Guanidine hydrochloride-----	ACY.
4-Guanyl-1-isonitrosoguanyl-1-tetrazene-----	REM.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Halogenated hydrocarbons:	
*1-Bromobutane (n-Butyl bromide)-----	ABB, BPC, CLB, DOW, MCH.
2-Bromobutane (sec-Butyl bromide)-----	ABB, BPC.
Bromochloromethane-----	DOW.
1-Bromo-3-chloropropane (Trimethylenechlorobromide)-----	DOW, MCH.
2-Bromo-2-chloro-1,1,1-trifluoroethane-----	ICI.
Bromoethane (Ethyl bromide)-----	DOW, MCH.
1-Bromohexane (n-Hexyl bromide)-----	BPC.
1-Bromo-2-methylbutane-----	LIL.
1-Bromo-octadecane-----	DUP, G.
*1-Bromopentane (n-Amyl bromide)-----	BPC, CLB, DOW.
2-Bromopentane (1-Methylbutyl bromide)-----	ABB, LIL.
*1-Bromopropane (n-Propyl bromide)-----	CLB, DOW, EK.
2-Bromopropane-----	BPC, DOW.
3-Bromopropene (Allyl bromide)-----	CLB, DOW.
3-Bromopropyne-----	G.
Bromotrichloromethane-----	DOW.
Bromotrifluoromethane-----	DUP.
*Carbon tetrachloride-----	ACG, ACS, DA, DOW, FMW, FRO, KIK, PPG, SF.
*Chlorinated paraffins:	
Less than 35% chlorine-----	HK, WOI.
*35%-64% chlorine-----	CCH, DA, DVC, HK, HPC, KPT, WOI.
65% or more chlorine-----	DA, DVC, WOI.
1-Chlorobutane (n-Butyl chloride)-----	PUB, UCC.
1-Chloro-1,1-difluoroethane-----	ACG.
*Chlorodifluoromethane-----	ACG, DUP, KAI, PAS, UCC.
*Chloroethane (Ethyl chloride):	
Tech-----	AME, DOW, DUP, HPC, TNA, USI.
U.S.P-----	DOW, SHC.
*Chloroform:	
*Tech-----	ACS, DA, DOW, DUP, FRO, KIK, SF.
*U.S.P-----	ACS, DA, DOW.
2-Chloro-3-hexyne-----	LIL.
*Chloromethane (Methyl chloride):	
Crude-----	ANM, DCC, DOW, TNA.
Refined (refrigerant grade)-----	ACS, DA, DOW, DUP, KIK.
2-Chloro-2-methylpropane (tert-Butyl chloride)-----	DUP, EK, RBC.
3-Chloro-2-methylpropene (Methallyl chloride)-----	FMP.
Chloropentafluoroethane-----	DUP.
1-Chloropentane (n-Amyl chloride)-----	CLB.
Chloropentanes, mixed isomers-----	PAS.
2-Chloropropane (Isopropyl chloride)-----	DOW.
3-Chloropropene (Allyl chloride)-----	DOW, SHC.
Chlorotrifluoroethylene (Trifluorovinyl chloride)-----	ACG, MMM.
Chlorotrifluoroethylene, polymerized-----	HK, MMM.
Chlorotrifluoromethane-----	ACG, DUP, PAS.
1,2-Dibromo-1,1-dichloroethane-----	DOW.
Dibromodifluoromethane-----	DOW.
1,2-Dibromoethane (Ethylene dibromide)-----	DOW, ETD, FMW, HCH, MCH.
Dibromomethane (Methylene bromide)-----	DOW.
1,3-Dibromopropane-----	EK.
1,2-Dibromo-1,1,2,2-tetrafluoroethane-----	DUP.
1,4-Dichlorobutane-----	DUP, RBC.
1,4-Dichlorobutene-----	DUP.
*Dichlorodifluoromethane-----	ACG, DUP, KAI, PAS, UCC.
*1,2-Dichloroethane (Ethylene dichloride)-----	AME, DA, DOW, JCC, MON, OMC, PPG, TNA, UCC, WYN.
1,2-Dichloroethylene-----	DUP.
Dichlorofluoromethane-----	ACG.



TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Halogenated hydrocarbons--Continued	
*Dichloromethane (Methylene chloride)-----	ACS, DA, DOW, DUP, FRO, KLK, SF.
Dichloropentanes, mixed isomers-----	PAS.
*1,2-Dichloropropane (Propylene dichloride)-----	DOW, JCC, UCC, WYN.
*2,3-Dichloropropene-----	DOW, UCC.
*Dichlorotetrafluoroethane-----	ACG, DUP, PAS.
1,1-Difluoroethane-----	ACG, DUP.
1,1-Difluoroethylene-----	ACG.
Difluorotetrachloroethane-----	DUP.
Diiodomethane (Methylene iodide)-----	NTB, SDW, x.
Hexafluoropropylene, monomer-----	DUP.
Iodoethane (Ethyl iodide), tech-----	CLB, EK.
*Iodomethane (Methyl iodide)-----	CLB, EK, NTB, RSA.
Poly-2,3-dichlorobutadiene-1,3-brominated-----	CWN.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)-----	DOW.
Tetrabromomethane-----	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)-----	DUP, PPG.
*Tetrachloroethylene (Perchloroethylene)-----	DA, DOW, DUP, FRO, HK, PPG, SF, TTX.
Tetrafluoroethane polymer-----	DUP.
Tetrafluoroethylene, monomer-----	DUP.
Tetrafluoromethane-----	DUP.
1,1,1-Trichloroethane (Methyl chloroform)-----	DOW, PPG.
*1,1,2-Trichloroethane (Vinyl trichloride)-----	DOW, TNA, UCC.
*Trichloroethylene-----	DOW, DUP, HK, PPG, TTX.
*Trichlorofluoromethane-----	ACG, DUP, KAI, PAS, UCC.
1,2,3-Trichloropropane-----	DOW, SHC.
1,2,3-Trichloropropene-----	DOW.
Trichlorotrifluoroethane-----	ACG, DUP, PAS.
*Vinyl chloride, monomer (Chloroethylene)-----	ACS, AME, BFG, BOR, CUM, DA, DOW, GNT, GYR, MNO, MON, TNA, UCC.
Vinyl fluoride-----	DUP.
Vinylidene chloride, monomer (1,1-Dichloroethylene)-----	DOW, TNA.
Vinylidene fluoride-----	DUP.
All other-----	CLB, KPT, NES, SDH, x.
2-Heptanone (Methyl amyl ketone)-----	UCC.
3-Heptanone (Ethyl butyl ketone)-----	UCC.
Hexachloro-2-propanone-----	DUP.
Hexadecane-----	HMY.
Hexadecenyl succinic anhydride-----	HMY.
Hexamethylenediamine dicarbamate-----	BKL.
Hexamethylenediammonium adipate-----	CS.
2,5-Hexanedione (Acetylacetone)-----	RBC.
1,2,6-Hexanetriol-----	UCC.
1,2,6-Hexanetriol octoate-----	KES.
Hexanoic acid (Caproic acid)-----	FB, TBK.
5-Hexen-2-one (Allylacetone)-----	FMP.
Hexyl acetate-----	ENJ.
n-Hexyl ether-----	UCC.
2-[2-(Hexyloxy)ethoxy]ethanol-----	UCC.
Hydracrylonitrile (Ethylene cyanohydrin)-----	UCC.
Hydrazine and salts-----	FMT, OMC.
2-Hydrazinoethanol-----	NOR.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylol ethane).-----	TRJ.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris(hydroxy- methyl)nitromethane).-----	COM.
N-(Hydroxymethyl)octadecanamide (N-Hydroxymethylsteara- mide).-----	DUP.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	SHC, UCC.
(Hydroxymethyl)urea (Methylol-urea)-----	DUP.
Hydroxypropyl methacrylate-----	JCC.
3,3'-Iminodipropionitrile-----	ACY.
Iodomethylmercury iodide-----	NTB.
N-Iodosuccinimide-----	ARA.
Isethionic acid (2-Hydroxyethanesulfonic acid)-----	G.
Isethionic acid, sodium salt-----	WTC.
Isoascorbic acid-----	MRK, PFZ.
Isoascorbic acid, sodium salt-----	BAX, MRK, PFZ.
Isobutoxyethanol-----	UCC.
Isobutyl acrylate-----	DBC.
Isobutyl isobutyrate-----	EKX.
Isobutyl vinyl ether-----	G, UCC.
Isobutyraldehyde-----	EKX, UCC.
Isobutyric acid and anhydride-----	EKT.
Isobutyronitrile-----	EKX.
Isodecaldehyde, mixed isomers-----	UCC.
Isodecanoic acid, mixed isomers-----	UCC.
Isodecyl acrylate-----	UCC.
Iso-octanoic acid, mixed isomers-----	UCC.
Isopentyl ether (Isoamyl ether)-----	GIV.
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.
Isopropenyl acetate (Methyl vinyl acetate)-----	UCC.
3-Isopropoxypropylamine-----	DUP.
*Isopropyl acetate-----	EKT, ENJ, HPC, UCC.
2-Isopropylaminoethanol-----	PAS, WTC.
Isopropyl chloroformate-----	CTN, FMP, PPG.
*Isopropyl ether-----	ENJ, SHC, UCC.
Isovalerone (Diisobutyl ketone)-----	EKT, UCC.
Itaconic acid (Methylenesuccinic acid)-----	PFZ.
*Lactic acid, 100%:	
*Edible-----	AMZ, CLN, DUP.
*Medicinal-----	DUP, PFN.
*Technical-----	AMZ, CLN, DUP.
Lactic acid salts:	
Aluminum lactate-----	TNC.
Aluminum sodium chlorohydroxylactate-----	REH.
Aluminum sodium lactate-----	REH.
Calcium lactate-----	AMZ, SHF.
Lactic anhydride-----	FB.
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)-----	CLN.
Lauric acid salts-----	CCW.
Lauroitrile-----	FOR.
Lauroyl bromide-----	DOW.
*Lauroyl chloride-----	BC, G, HK, MON, TBK.
Lauroyl peroxide-----	CAD, UPR, WTL.
Levulinic acid-----	CRZ, QKO.
*Linoleic acid salts:	
*Calcium linoleate-----	CCA, LEF, SHP, SRR.
*Cobalt linoleate-----	HSB, SHP, SRR.
Copper linoleate-----	WTC.
Iron linoleate-----	HSB.
Lead linoleate-----	SHP, SRR.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Linoleic acid salts--Continued	
Lead manganese linoleate-----	SDH, SRR.
Manganese linoleate-----	SHP, SRR.
*Lubricating oil additives:	
Chloronaphtha xanthate-----	MON.
Chlorosulfurized hydrocarbon-----	ENJ.
Chlorosulfurized lard oil-----	CCW.
Chlorosulfurized sperm oil-----	CCW.
High-molecular-weight hydrocarbons and their phosphorus derivatives.	SOI.
Oxidized hydrocarbons-----	ALX.
*Phosphorodithioates (Dithiophosphates):	
Barium alkyl phosphorodithioates-----	LUB.
Barium dioctyl phosphorodithioate-----	ACY.
Barium polyisobutylene phosphorodithioate-----	x.
Nickel zinc alkyl phosphorodithioates-----	SIN.
Zinc alkyl phosphorodithioates-----	ENJ, LUB.
Zinc di(butylhexyl) phosphorodithioate-----	ORO.
Zinc dihexyl phosphorodithioate-----	MON, SIN.
Zinc hexyl isopropyl phosphorodithioate-----	TX.
All other-----	ACY, LUB, MON, TX.
Phosphorosulfurized compounds-----	ENJ, SIN.
Sulfurized butenes-----	LUB.
*Sulfurized lard oil-----	CCW, GOC, SIN, SOI.
Sulfurized methyl oleate-----	SIN.
*Sulfurized sperm oil-----	CCW, LUB, QCP, SIN, SOI, WBG.
Tetradecyl selenide-----	ORO.
All other-----	CCW, ENJ, HK, LUB, MON, ORO, SIN, SOI, x.
Magnesium methylate-----	MRT.
Maleic acid-----	NAC, PFN.
Maleic acid, tribasic lead salt-----	NTL.
*Maleic anhydride-----	ACY, HN, KPS, MON, NAC, PCC, PTT, RCI, SOC.
Malic acid-----	EK, NAC, PFN.
Malonic acid-----	KF.
Malonic acid salts-----	EK, GIV.
Malononitrile-----	KF.
Mannitol-----	APD.
Mannitol hexanitate-----	APD.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN, RET.
*Mercaptoacetic acid (Thioglycolic acid) derivatives:	
*2-Aminoethyl mercaptoacetate (Monoethanolamine thio- glycolate).	EVN, HAB, RET.
Ammonium mercaptoacetate (Ammonium thioglycolate)-----	EVN, HAB, RET.
Antimony mercaptoacetate-----	CCA.
Calcium mercaptoacetate-----	EVN.
Dibutyltin bis(iso-octylmercaptoacetate)-----	x.
Dibutyltin mercaptoacetate-----	CCA.
Iso-octyl mercaptoacetate-----	CCW, EVN.
Potassium mercaptoacetate-----	EVN.
Sodium mercaptoacetate-----	EVN.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
$\beta$ -Mercaptopropionic acid-----	EVN.
Mercaptosuccinic acid (Thiomalic acid)-----	EVN.
Metal soaps of oxidized hydrocarbons-----	ALX.
Methacrylamide-----	RH, x.
Methacrylate monomers, above methyl-----	DUP, SAR.
Methacrylic acid-----	DUP, RH.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Methacrylic acid, potassium salt-----	DUP.
Methacryloyl chloride-----	DUP.
Methanesulfonic acid-----	EK, PAS.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)----	DOW, JCC, OMC, UCC.
2-(2-Methoxyethoxy)ethanol (Diethylene glycol mono- methyl ether).	DOW, JCC, OMC, UCC.
*2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether).	DOW, OMC, UCC.
2-Methoxyethyl acetate-----	UCC.
2-Methoxyethylamine-----	EKT, WYN.
4-Methoxy-4-methyl-2-pentanol-----	SHC.
4-Methoxy-4-methyl-2-pentanone-----	SHC.
Methoxypolyethylene glycol-----	JCC, UCC.
1-Methoxy-2-propanol-----	DOW, SHC.
3-Methoxypropionitrile-----	ACY.
3-(3-Methoxypropoxy)propanol (Dipropylene glycol methyl ether).	DOW.
3-[3-(3-Methoxypropoxy)propoxy]propanol (Tripropylene glycol methyl ether).	DOW.
3-Methoxypropylamine-----	DUP, EKT.
Methoxytriethyleneglycol acetate-----	RBC.
*Methyl acetate-----	BOR, EK, GRD, SRC, UCC.
Methyl acetoacetate-----	EKT, UCC.
Methyl acrylate, monomer-----	CEL, DBC, RH.
Methylal (Dimethoxymethane)-----	CEL.
Methylaluminum sesquichloride-----	TNA.
2-Methylaminoethanol (N-Methylethanolamine)-----	UCC.
Methyl borate-----	CAL, MHI, SFA.
Methyl butynoxyethanol-----	AIR.
Methyl carbamate-----	FMP.
Methyl chloroformate-----	CTN, FMP.
Methyl cyanoacetate-----	KF.
Methyl 2-cyanoacrylate-----	EKT.
Methyl dichloroacetate-----	KF, PD.
Methyl disulfide (Dimethyl disulfide)-----	CRZ.
N,N'-Methylenebisacrylamide-----	ACY.
N,N'-Methylenebisoctadecanamide-----	ARC.
Methyl ether (Dimethyl ether)-----	COM, DUP.
Methyl ethyl carbamate (Methyl urethane)-----	BKL.
Methyl formate-----	DUP.
N-Methylglucamine-----	DUP.
Methylglycerol-----	APD.
Methyl hexanoate (Methyl caproate)-----	FOR.
5-Methyl-2-hexanone (Methyl isoamyl ketone)-----	EKT, UCC.
2,2'-(Methylimino)diethanol (Methyl diethanolamine)----	DOW, UCC.
Methyl isocyanate-----	OTC.
2-Methylallactonitrile (Acetone cyanohydrin)-----	RH, x.
Methylmagnesium bromide-----	ARA.
Methylmagnesium chloride-----	ARA.
Methyl methacrylate, monomer-----	DUP, RH, USP.
2-Methyl-2-nitro-1,3-propanediol-----	COM.
2-Methyl-2-nitro-1-propanol-----	COM.
2-Methyl-2,4-pentanediol (Hexylene glycol)-----	EKT, SHC, UCC.
*4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	EKT, ENJ, SHC, UCC.
4-Methyl-2-pentanone oxime (Methylisobutyl ketoxime)----	ALB.
4-Methyl-3-penten-2-one (Mesityl oxide)-----	SHC, UCC.
4-Methyl-2-pentyl acetate-----	PUB, SHC, UCC.
Methylpolyethanolamine-----	G.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
2-Methyl-2-propyl-1,3-propanediol-----	ICO.
Methylpseudoionone-----	GIV.
Methyl sulfate (Dimethyl sulfate)-----	DUP.
Methyl sulfide (Dimethyl sulfide)-----	CRZ, PAS.
Methyl sulfone-----	CRZ.
Methyl sulfoxide (Dimethyl sulfoxide)-----	CRZ.
N-Methyltaurine-----	G.
2-Methylvaleraldehyde (2-Methylpentanaldehyde)-----	UCC.
2-Methylvaleric acid-----	UCC.
Methyl vinyl ether-----	G.
Mucochloric acid (2,3-Dichloro-3-formylacrylic acid)-----	EK.
Myristoyl chloride-----	BC, G.
Naringin-----	SKG.
Nitriminobispropionic acid-----	ACY.
2-Nitro-1-butanol-----	COM.
Nitroethane-----	COM.
Nitromethane-----	COM.
1-Nitropropane-----	COM.
2-Nitropropane-----	COM.
Nonanoic acid (Pelargonic acid)-----	EMR.
Nonenylsuccinic anhydride-----	HMY.
Nylon-----	CS, DUP.
1-Octadecene-----	HMY.
Octadecyl isocyanate-----	CWN, MOB.
Octadecyl vinyl ether-----	G.
1-Octanethiol (n-Octyl mercaptan)-----	PAS.
Octanoic acid (Caprylic acid)-----	FOR.
Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate-----	NOP.
Barium octanoate-----	CCW.
Cadmium octanoate-----	CCW.
Zinc octanoate-----	BKC.
2-Octanone (Hexyl methyl ketone)-----	EKT, RH, TBK, WTH.
Octanoyl chloride-----	HK, TBK.
1-Octene-----	ADM, HMY.
1-(and 2-)Octene-----	WTH.
2-Octene-----	HMY.
Octenylsuccinic anhydride-----	HMY.
Octyltins-----	x.
Oleamide (Octadecene amide)-----	ADM, ARC, FIN, HUM.
*Oleic acid salts:	
Aluminum oleate-----	MAL, WTC.
Ammonium oleate-----	BCN.
Barium zinc oleate-----	HSH, WTC.
Copper oleate-----	SHP, WTC.
Lead oleate-----	SHP, WTC.
Stannous oleate-----	CCW, x.
Oleonitrile-----	ARC, FOR, GNM.
Oleoyl chloride-----	DEP, G.
Oleylpalmitamide-----	FIN.
*Oxalic acid-----	ACG, HK, MAL, PFZ, VIC.
*Oxalic acid salts:	
Ammonium oxalate-----	ACG, BKC, PFZ.
Calcium oxalate-----	VIC.
Ferric ammonium oxalate-----	PFZ.
Ferric oxalate-----	PFZ.
Ferric sodium oxalate-----	PFZ.
Potassium binoxalate-----	BKC.

TABLE 21B.-- *Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued*

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Oxalic acid salts--Continued	
Potassium oxalate-----	ACG, BKC, PFZ.
Sodium binoxalate-----	VIC.
Sodium oxalate-----	ACG, BKC, MAL, VIC.
Oxidized hydrocarbon mixtures, other than lubricating oil additives.	ALX.
*Palmitic acid salts:	
Aluminum palmitate-----	NOP, WTC.
Zinc palmitate-----	ACY, NOP, WTC.
*Palmitoyl chloride-----	G, HAL, TBK.
Paraformaldehyde-----	CEL, HN.
Paraldehyde (Paracetaldehyde)-----	UCC.
*Pentaerythritol-----	COM, DCI, HN, HPC, RCI, TRJ.
Pentaerythritol, di- and tri- -----	HPC.
Pentaerythritol pelargonate-----	DRW.
*Pentaerythritol tetranitrate-----	APD, DUP, HPC, TRJ.
2,4-Pentanedione (Acetylacetone)-----	UCC.
2,4-Pentanedione, metallic complexes:	
Ferric-----	MAK.
Other-----	MAK.
2-Pentanone (Methyl propyl ketone)-----	UCC.
3-Pentanone (Diethyl ketone)-----	UCC.
Pentyl nitrate (Amyl nitrate)-----	TNA.
Perchloromethanethiol (Perchloromethyl mercaptan)-----	CHO.
Peroxyacetic acid-----	FMB.
*Phosgene (Carbonyl chloride)-----	CTN, DUP, MOB, NAC, PPG, SF, UCC.
*Phosphorus acid esters, not elsewhere specified ( <i>See also</i> Plasticizers, Surface-Active Agents, Pesticides, Flo- tation reagents, and Lubricating oil additives):	
Bis(2-chloroethyl) vinylphosphonate-----	VIC.
Bis(2-ethylhexyl) hydrogen phosphate-----	UCC, VC.
Bis(2-ethylhexyl) hydrogen phosphite-----	VC.
Butyl phosphates (mono and di)-----	VC, VIC.
Chloropropyl phosphorothioate-----	TNA.
Dibutyl butylphosphonate-----	VC.
Didodecyl hydrogen phosphate-----	DUP.
Diethyl hydrogen phosphite-----	VC.
Dimethyl hydrogen phosphite-----	VC.
Dimethyl methylphosphonate-----	VC.
Dioctyl hydrogen phosphite-----	HK.
Dodecyl phosphates (mono)-----	VIC.
2-Ethylhexyl phosphates (mono and di)-----	VIC.
Ethyl phosphates (mono and di)-----	VC, VIC.
Iso-octyl hydrogen phosphate-----	VC.
Isopentyl octyl hydrogen phosphate-----	VC.
Methyl phosphates (mono and di)-----	HK, VC, VIC.
Octyl phosphates (mono and di)-----	DUP.
Pentyl phosphates (Mono and diamyl phosphates)-----	VIC.
*Tributyl phosphate-----	CEL, COM, FMP.
Tri-n-butyl phosphorotrithioate-----	x.
Tridecyl phosphite-----	HK.
Triethyl phosphite-----	VC.
Triiso-octyl phosphite-----	VC.
Trimethyl phosphite-----	TNA, VC.
Tris(2-chloroethyl) phosphate-----	CEL, ENJ.
Tris(2-chloroethyl) phosphite-----	VC.
Tris(2,3-dibromopropyl) phosphate-----	DUP, MCH.
Tris(2-ethylhexyl) phosphite-----	HK, VC.
All other-----	DUP, ENJ, MON, VC.



TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Pine oil, synthetic-----	CBY.
Polyacrylamide-----	ACY.
Polyacrylic acid-----	BFG, NOP, RH.
*Polyacrylic acid salts:	
Ammonium polyacrylate-----	BFG.
Sodium polyacrylate-----	BFG, JOR, RH.
All other-----	ALC, BFG.
Polyacrylonitrile-----	DUP.
Polyethoxyethylglycerol-----	GLY.
Polyethoxyethylsorbitol-----	APD, GLY, TCH.
*Polyethylene glycol-----	ACN, DOW, G, JCC, OMC, UCC, WYN.
Polyethylene glycol dimethacrylate-----	SAR.
Polyethylene oxide-----	UCC.
Polyethylene polysulfide-----	BFG.
Polygalacturonic acid-----	SKG.
Polyglycerol-----	DRW, WTC.
Polyglycols, ethylene glycol and glycol ethers, mixtures--	DOW.
Polymethacrylic acid esters-----	DUP.
Polymethacrylic acid, sodium salt-----	GRD.
*Polypropoxy ethers:	
Glycerol tri(polyoxypropylene) ether-----	JCC, OMC, UCC, WYN.
Polypropoxysorbitol-----	APD.
1,2,3-Tri(polypropoxypropyl)hexane-----	UCC.
Tri(polypropoxy)sorbitol-----	JCC, UCC.
Other-----	ACS, DOW, WYN.
*Polypropylene glycol-----	DOW, JCC, OMC, UCC, VIS, WYN.
Polytetramethylene glycol ether-----	x.
Potassium methylate-----	RBC.
Propanedithiol-----	RBC.
Propanone peroxide (Acetone peroxide)-----	SDH.
Propionaldehyde-----	EKK, UCC.
*Propionic acid-----	CEL, COM, DUP, EKT, UCC.
Propionic acid salts:	
*Calcium propionate-----	CEL, CPR, DUP, HFT, ISC, UCC, WSN.
*Sodium propionate-----	CEL, CPR, DUP, ISC, UCC, WSN.
Zinc propionate-----	BKC.
Propionic anhydride-----	CEL, EKT, UCC.
Propionyl chloride-----	ABB, ICO, TBK.
Propionyl peroxide-----	WTL.
Propyl acetate-----	CEL, ENJ, PUB, UCC.
Propylene carbonate-----	DOW, JCC.
*Propylene glycol (1,2-Propanediol)-----	APD, CEL, DOW, DUP, JCC, OMC, UCC.
*Propylene oxide-----	CEL, DOW, JCC, OMC, UCC, WYN.
n-Propyl isocyanate-----	CWN, OTC.
Propyl 4-methylvalerate (Propyl isocaproate)-----	COM.
2-Propylvaleric acid (Di-n-propylacetic acid)-----	BPC.
Propyne (Methylacetylene)-----	ATR.
Pseudoionone-----	GIV.
Pyrvaldehyde-----	UCC.
Quaternary ammonium compounds (butyl and lower)-----	EK, RSA.
Rare sugars-----	PFN.
Ricinolamide-----	TKL.
Ricinoleic acid salts:	
Calcium ricinoleate-----	BAC.
Lithium ricinoleate-----	BAC.
*Sarcosine (N-Methylaminoacetic acid)-----	ATL, G, HMP, VPC.
*Sarcosine, sodium salt-----	GGY.
Sebacic acid-----	WTH, x.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Sebacoyl chloride-----	EK, TBK.
Semicarbazide base and hydrochloride-----	FMT.
Semioxamazide-----	NOR.
*Sequestering agents:	
N,N-Bis(2-hydroxyethyl)glycine, sodium salt-----	DOW, HKD, MOA, RKD.
(Diethylenetrinitrilo)pentaacetic acid-----	HMP.
(Diethylenetrinitrilo)pentaacetic acid, monosodium hydrogen ferric salt.	GGY.
* (Diethylenetrinitrilo)pentaacetic acid, sodium salt----	DOW, GGY, HMP, MOA, RPC, TCC.
N,N-Dihydroxyethylglycine, sodium salt-----	DOW, HMP, MOA, RKD.
* (Ethylenedinitrilo)tetraacetic acid (Ethylenediamine- tetraacetic acid).	DOW, GGY, HMP, MOA, VIC.
(Ethylenedinitrilo)tetraacetic acid, dihydrogen, disodium salt.	DOW, EK, GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, dipotassium salt---	EK.
(Ethylenedinitrilo)tetraacetic acid, disodium calcium salt.	DOW.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	GGY.
(Ethylenedinitrilo)tetraacetic acid, manganese salt----	GGY.
(Ethylenedinitrilo)tetraacetic acid, monohydrogen trisodium salt.	GGY, HMP.
* (Ethylenedinitrilo)tetraacetic acid, monosodium iron salt.	DOW, GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetraammonium salt-	DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	GGY.
* (Ethylenedinitrilo)tetraacetic acid, tetrasodium salt---	ACY, DOW, GGY, HMP, HRT, MOA, NOP, RKD, RPC, TCC.
Glucosheptonic acid, sodium salt-----	RPC.
Hexahydroxyheptanoic acid, sodium salt-----	PCW.
* (N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt.	DOW, GGY, HMP, MOA, RKD, RPC, TCC.
(N-Hydroxyethylethylenedinitrilo)triacetic acid, other salts.	GGY, HMP.
Nitrilotriacetic acid, trisodium salt-----	HMP.
Sodium salts of sugar acids-----	PFN.
Silicones-----	DCC, ORO.
Sodium ethoxide-----	FMP.
Sodium ethyl oxalacetate-----	FMP.
Sodium formaldehydebisulfite-----	EK, IDC.
*Sodium formaldehydesulfoxylate-----	NOP, RH, ROY.
*Sodium methoxide (Sodium methylate)-----	HSH, KF, OMC, RBC, SFA, x.
Sodium polypectate-----	SKG.
Sodium sorbitol borate-----	APD.
Sorbaldehyde (Hexadienal)-----	UCC.
Sorbic acid (2,4-Hexadienoic acid), and potassium and sodium salts.	UCC.
Sorbitol-----	APD, MRK.
Stearamide (Octadecane amide)-----	ADM, DUP, FIN, HUM.
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum monostearate-----	MAL, MCO, NOP, SYP.
*Aluminum distearate-----	ACY, JTC, MAL, MCO, NOP, PRP, SYP, WTC.
*Aluminum tristearate-----	ACY, MAL, MCO, NOP, PRP, SYP, WTC.
Ammonium stearate-----	DEX, FRR, NOP, WTC.
Barium stearate-----	MCO, NOP, PRP, SYP, WTC.
Cadmium stearate-----	NOP, SYP, WTC.
*Calcium stearate-----	ACY, HNX, JTC, LEF, MAL, MCO, NOP, PRP, SYP, WTC.
Cobalt stearate-----	WTC.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963 --Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Stearic acid salts--Continued	
Copper stearate-----	MCO.
Ferric and ferrous stearates-----	WTC.
*Lead stearate-----	HSB, LEF, NOP, NTL, WTC.
Lead stearate, dibasic-----	MCO, NTL, WTC.
*Lithium stearate-----	FTE, LEF, NOP, PRP, SYP, WTC.
*Magnesium stearate-----	ACY, LEF, MAL, MCO, NOP, PRP, SYP, WTC.
Manganese stearate-----	MCO, WTC.
Nickel stearate-----	WTC.
*Zinc stearate-----	ACY, BCN, CCA, HNX, JTC, LEF, MAL, MCO, NOP, PRP, SYP, WTC.
All other-----	APD.
Stearonitrile (Octadecanenitrile)-----	FOR.
Stearoyl chloride-----	G, TBK.
Stearyl-2-lactic acid-----	x.
Succinic acid-----	BKC, CS, NAC.
Succinic acid, sodium salt-----	MAL.
Succinic anhydride-----	NAC.
Succinimide-----	NAC.
Succinonitrile-----	ACY, RSA.
Succinyl peroxide-----	WTL.
Sucrose octa-acetate-----	UCC.
Tallow amide, hydrogenated-----	ADM, ARC, HUM.
Tallow nitrile-----	FOR, GNM.
Tallow nitrile, hydrogenated-----	FOR.
Tartaric acid salts, nonmedicinal-----	BKC, PFZ.
Tetrabutylphosphonium hydroxide-----	RSA.
n-Tetradecane-----	HMY.
1,1,3,3-Tetraethoxypropane-----	KF.
Tetra(2-ethylbutyl) ortho-silicate-----	UCC.
Tetraethylene glycol-----	DOW, JCC, UCC.
Tetraethylene glycol dimethacrylate-----	SAR.
Tetraethyllead-----	DUP, HCH, TNA.
Tetrafatytetramide of triethylenetetramine-----	DCH.
2,2,3,3-Tetrafluoro-1-propyl acetate-----	DUP.
Tetrahydroxysuccinic acid (Dioxytartaric acid)-----	ACY.
Tetrakis(hydroxymethyl)phosphonium chloride-----	HK.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine-----	WYN.
1,1,3,3-Tetramethoxypropane-----	KF.
Tetramethyl (and ethyl) lead-----	DUP.
Tetramethylguanidine-----	ACY.
Tetramethyllead-----	DUP, TNA.
Tetraoctyl orthosilicate-----	MON.
Thioacetamide-----	BKC.
2,2'-Thiodiethanol (Thiodiethylene glycol)-----	UCC.
3,3'-Thiodipropionic acid-----	CCW, EVN.
3,3'-Thiodipropionitrile-----	ACY, HAB.
Titanic acid esters-----	DUP.
Triacetoxyvinylsilane-----	DCC.
Triallyl cyanurate-----	ACY.
Trichloroacetic acid-----	DOW.
Trichloroacetyl chloride-----	EK.
Trichloroethylsilane (Ethyl silicone trichloride)-----	UCS.
Trichloromethylsilane-----	DCC.
Trichloropentylsilane-----	UCS.
Trichloropropylsilane-----	DCC.
Trichlorovinylsilane-----	DCC, UCS.
Triethoxyethylsilane-----	UCS.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1963--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Triethoxyvinylsilane-----	UGS.
Triethyl acetylcitrate-----	PFZ.
Triethylaluminum-----	TNA.
*Triethylene glycol-----	ACN, CAU, DOW, G, HCH, JCC, OMC, UCC.
Triethylene glycol dimethacrylate-----	SAR.
Triethyl orthoacetate-----	KF.
Triethyl orthoformate-----	KF.
Triethyl orthopropionate-----	KF.
Trifluoroacetic anhydride-----	EK.
Triisobutylaluminum-----	TNA.
Triisodecyl orthoformate-----	KF.
Trimethylaluminum-----	TNA.
2,6,8-Trimethyl-4-nonanone-----	UCC.
Trimethyl orthoformate-----	KF.
2,2,4-Trimethyl-1,3-pentanediol-----	EKX.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate-----	EKX.
Trimethylpentanol-----	EKX.
Tripropylaluminum-----	TNA.
Tripropylene glycol-----	DOW, UCC.
2-Undecanone-----	TBK.
Undecenoic acid (Undecylenic acid)-----	BAC.
Undecenoic acid salts:	
Calcium undecenoate-----	WTL.
Sodium undecenoate-----	BAC.
Zinc undecenoate-----	BAC, TNC, WTL.
*Urea in compounds or mixtures, 100%:	
*In feed compounds-----	ACN, DUP, GCC, JDC, MON, MSC, SHC, SOH.
*In liquid fertilizer-----	ACN, ARM, CFA, DUP, ESC, FCA, GCC, HPC, JDC, MON, MSC, NIT, SHC, SNI, SOH, SPN.
*In solid fertilizer-----	ACN, DUP, GCC, HPC, JDC, MON, MSC, SHC, SNO, SOH, SPN.
In plastics-----	DUP, MON.
All other-----	ACN, DUP, MON, MSC, SOH.
Urea peroxide-----	FMB.
Urea urethane copolymer-----	DUP.
Valeraldehyde-----	UCC.
Valeric acid-----	UCC.
*Vinyl acetate, monomer-----	AIR, BOR, CEL, DUP, MON, NSC, UCC.
Zinc formaldehydesulfoxylate-----	NOP, ROY.

## Directory of Manufacturers

The Directory of Manufacturers lists the companies that report their production of synthetic organic chemicals to the U.S. Tariff Commission. The name of each manufacturer is preceded by an alphabetical identification symbol. These identification symbols consist of not more than three capital letters, and usually bear a relation to the company name.

For 1963, the Directory of Manufacturers lists 783 primary manufacturers (see table 22). Some of the companies that report production of synthetic organic chemicals do not sell the materials, but consume their entire output in further manufacturing.

The Directory of Manufacturers lists the reporting companies in two ways: Section 1 lists them in alphabetical order by identification symbols; section 2 lists the reporting companies in alphabetical order by company name, and gives the corresponding identification symbol and the company address. Company divisions are usually listed under the parent company's name.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963

## SECTION 1. ALPHABETICAL DIRECTORY BY CODE

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1963 are listed below in the order of their identification codes as used in tables in pt. III. Sec. 2 of this table lists these manufacturers alphabetically and gives their office address]

Code	Name of company	Code	Name of company
AAC	Alcolac Chemical Corp.	ARA	Arapahoe Chemicals, Inc.
AAE	American Aniline & Extract Co., Inc.	ARC	Armour & Co., Armour Industrial Chemical Co. Div.
AAI	American Alkyd Industries	ARD	Ardmore Chemical Co.
AAP	American Aniline Products, Inc.	ARG	Argus Chemical Corp.
ABB	Abbott Laboratories	ARK	Armstrong Cork Co.
ABR	Andrew Brown Co.	ARL	Arol Chemical Products Co.
ABS	American Brake Shoe Co., American Brakeblok Div.	ARM	Armour Agricultural Chemical Co.
ACB	Allied Chemical Corp., Barrett Div.	ARO	Mobil Finishes Co., Inc., Arco Div.
ACC	Amoco Chemical Corp.	ARP	Armour Pharmaceutical Co.
ACG	Allied Chemical Corp., General Chemical Div.	ASH	Ashland Oil & Refining Co.
ACN	Allied Chemical Corp., Nitrogen Div.	ASL	Ansul Chemical Co.
ACO	Acralite Co., Inc.	AST	Astra Pharmaceutical Products, Inc.
ACP	Allied Chemical Corp., Plastics Div.	ASY	American Synthetic Rubber Corp.
ACR	Acme Resin Corp.	ATL	Atlantic Chemical Corp.
ACS	Allied Chemical Corp., Solvay Process Div.	ATR	Atlantic Refining Co.
ACT	Arthur C. Trask Co.	ATU	Atlantic Tubing & Rubber Co.
ACY	American Cyanamid Co.	AUG	Augusta Chemical Co.
ADC	Ad-Co Color Corp.	AV	FMC Corp., American Viscose Div.
ADM	Archer-Daniels-Midland Co.	AVS	Avisun Corp.
AIR	Air Reduction Co., Inc., Air Reduction Chemical & Carbide Co. Div.	BAC	Baker Castor Oil Co.
ALB	Ames Laboratories, Inc.	BAL	Baltimore Paint & Chemical Corp.
ALC	Alco Chemical Corp.	BAO	Bayoil Co., Inc.
ALD	Aldrich Chemical Co., Inc.	BAT	Bates Chemical Co.
ALF	Allied Chemical Corp., Fibers Div.	BAX	Baxter Laboratories, Inc.
ALL	Alliance Color & Chemical Co.	BC	Barlow Chemical Corp.
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.	BCC	Bercen Chemical Co., Inc.
ALX	Alox Corp.	BCM	Belding Chemical Industries
AMB	American Bio-Synthetics Corp.	BCN	Beacon Chemical Industries, Inc.
AMC	Amchem Products, Inc.	BEN	Bennett's
AME	American Chemical Corp.	BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
AMF	Mobil Finishes Co., Inc., Ferbert-Schorndorfer Div.	BFR	Branchflower Co.
AML	Amalgamated Chemical Corp.	BGC	Balfour Chemicals, Inc.
AMO	American Oil Co. (Texas)	BJL	Burdick & Jackson Laboratories, Inc.
AMP	American Potash & Chemical Corp.	BKC	J. T. Baker Chemical Co.
AMR	Pacific Resins & Chemical Co.	BKL	Millmaster Chemical Corp., Berkeley Chemical Dept.
AMS	Martin-Marietta Corp., Ridgway Color & Chemical Div.	BKM	Buckman Laboratories, Inc.
AMZ	American Maize Products Co.	BKS	Berkshire Color & Chemical Co.
ANM	Ancon Chemical Co.	BKT	J. T. Baker Chemical Co., Taylor Div.
APC	Appleton Coated Paper Co.	BL	Belle Chemical Co., Inc.
APD	Atlas Chemical Industries, Inc., Chemicals Div.	BLA	Blue Arrow, Inc.
APR	Atlas Processing Co.	BLN	Brooklyn Color Works, Inc.
APT	American Petrochemical Corp.	BLS	Beech-Nut Life Savers, Inc.
APV	Armstrong Paint & Varnish Works, Inc.	BME	Bendix Corp., Marshall-Eclipse Div.
APX	Apex Chemical Co., Inc.	BOR	Borden Co., Borden Chemical Co. Div.
		BOY	Walter N. Boysen Co.
		BPC	Benzol Products Co.
		BPL	Brand Plastics Co.
		BRD	Baird Chemical Industries, Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Code	Name of company
BRR	Raymond Chemical Co.	CPR	Certified Proteins Corp.
BRS	Bristol-Meyers Co., Bristol Laboratories Div.	CPT	Consolidated Paint Co.
BRU	M. A. Bruder & Sons, Inc.	CPV	Cook Paint & Varnish Co.
BRY	Bryant Chemical Corp.	CPY	Copolymer Rubber & Chemical Corp.
BSC	Burkart-Schier Chemical Co.	CRC	Crown Chemical Corp.
BSW	Original Bradford Soap Works, Inc.	CRN	Corn Products Co.
BUC	Blackman-Uhler Chemical Co.	CRS	Carus Chemical Co., Inc.
BUK	Buckeye Cellulose Corp.	CRY	Cary Chemicals, Inc.
BUR	Burroughs-Wellcome & Co. (U.S.A.), Inc.	CRZ	Crown Zellerbach Corp., Chemical Products Div.
BXT	J. H. Baxter & Co.	CS	Chemstrand Corp.
BZ	Bzura Chemical Co., Inc.	CSD	Cosden Oil & Chemical Co.
CAD	Cadet Chemical Corp.	CSO	Cities Service Oil Co.
CAL	Callery Chemical Co.	CST	Charles S. Tanner Co.
CAP	Cap-Roc, Inc., Capital Plastics Div.	CTA	Conestoga Chemical Corp.
CAT	Catalin Corp. of America	CTL	Continental Chemical Co.
CAU	Calcasieu Chemical Corp.	CTN	Chemetron Corp., Chemetron Chemicals, Organic Chemical Dept.
CBA	Ciba Corp., Ciba Products Co. Div.	CUC	Cumberland Chemical Corp.
CBC	Georgia-Pacific Corp., Coos Bay Div.	CUT	Cutter Laboratories, Inc.
CBN	Columbian Carbon Co., Pigments & Elastomers Div.	CW	Collett-Week Corp.
CBP	Ciba Corp., Ciba Pharmaceutical Co. Div.	CWL	Cowles Chemical Co.
CBR	Colab Resin Corp.	CWN	Upjohn Co., Carwin Co. Div.
CBT	Samuel Cabot, Inc.	CWP	Consolidated Papers, Inc.
CBY	Crosby Chemicals, Inc.	DA	Diamond Alkali Co., and Western Div.
CCA	Carlisle Chemical Works, Inc., Advance Div.	DAN	Dan River Mills, Inc.
CCC	Chase Chemical Corp.	DAV	Conchemco, Inc., H. B. Davis Co. Div.
CCH	Pearsall Chemical Co.	DBC	Dow Badische Chemical Co.
CCL	Charlotte Chemical Laboratories	DCC	Dow Corning Corp.
CCO	Chemico, Inc.	DCH	Dearborn Chemical Co.
CCP	Crown Central Petroleum Corp.	DCI	Delaware Chemicals, Inc.
CCW	Carlisle Chemical Works, Inc.	DEG	Degen Oil & Chemical Co.
CD	Budd Co., Polychem Div.	DEP	DePaul Chemical Co., Inc.
CEL	Celanese Corp. of America: Celanese Chemical Co. Div. Celanese Plastics Co. Div. Celanese Polymer Co. Div.	DEX	Dexter Chemical Corp.
CEM	Chemirad Corp.	DLH	Hess Oil & Chemical Corp.
CFA	Cooperative Farm Chemicals Association	DLI	Dawe's Laboratories, Inc.
CFC	Rexall Chemical Co. - Kearny	DOD	Donald A. Dodd
CFX	Chemfax, Inc.	DOM	Dominion Products, Inc.
CGL	Cargill, Inc.	DOW	Dow Chemical Co.
CHC	Chipman Chemical Co., Inc.	DPP	Dixie Pine Products Co., Inc.
CHG	Chemagro Corp.	DRL	Caradco, Inc., Durel Div.
CHL	Chemol, Inc.	DRW	Drew Chemical Corp.
CHM	Chapman Chemical Co.	DSC	Dye Specialties, Inc.
CHO	Stauffer Chemical Co., Calhio Chemicals Div.	DSO	DeSoto Chemical Coatings, Inc.
CIK	California Ink Co., Inc.	DUN	Frank W. Dunne Co.
CIN	Cindet Chemicals, Inc.	DUP	E. I. duPont de Nemours & Co., Inc.
CIS	Chemical Insecticide Corp.	DUR	Duraphene Corp.
CKL	Chemlek Laboratories, Inc.	DVC	Dover Chemical Co.
CLB	Columbia Organic Chemicals Co., Inc.	DXS	Sunray DX Oil Co.
CLD	Colloids, Inc.	EAK	J. S. & W. R. Eakins, Inc.
CLI	Clintwood Chemical Co.	EDY	Eddystone Manufacturing Co.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	EFH	E. F. Houghton & Co.
CLV	Clover Chemical Co.	EK	Eastman Kodak Co.
CLY	W. A. Cleary Corp.	EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
CM	Carpenter-Morton Co.	EKX	Eastman Kodak Co., Texas Eastman Co. Div.
CMG	Chemical Manufacturing Co., Inc.	ELP	El Paso Natural Gas Products Co.
CO	Continental Oil Co.	EMK	Emkay Chemical Co.
COK	Cockertille Chemicals, Inc.	EMR	Emery Industries, Inc.
COL	Collier Carbon & Chemical Corp.	EN	Endo Laboratories, Inc.
COM	Commercial Solvents Corp.	ENJ	Enjay Chemical Co., Div. of Humble Oil & Refining Co.
CON	Concord Chemical Co., Inc.	EPC	Epoxylyte Corp.
COP	Coopers Creek Chemical Corp.	ERD	Erdmann Chemical Co., Inc.
COR	Commonwealth Oil Refining Co., Inc.	ESC	Escambia Chemical Corp.
COS	Coastwise Petroleum Co.	ETD	Ethyl-Dow Chemical Co.
CP	Colgate-Palmolive Co.	EVM	Everledge Manufacturing, Inc.
CPC	Childs Pulp Colors, Inc.	EVN	Evans Chemetics, Inc.
CPD	Chemical Products Corp.	EW	Westinghouse Electric Corp., Micarta Div.
CPL	Reliance Varnish Co., Coast Paint & Lacquer Co. Div.	FAB	Fabricolor Chemical Corp.
		FAR	Farnow, Inc.
		FB	Fritzsche Bros., Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Code	Name of company
FBC	Diamond Alkali Co., Fiber Chemical Dept.	GTL	Great Lakes Chemical Corp.
FBF	Fiberfil, Inc.	GUA	Guard Chemical Co., Inc.
FBR	Fibreboard Paper Products Corp.	GYR	Goodyear Tire & Rubber Co.
FC	Franklin Chemical Co.		
FCA	Farmers Chemical Association, Inc.	HAB	Halby Products Co., Inc.
FCD	France, Campbell & Darling, Inc.	HAL	C. P. Hall Co. of Illinois
FCL	Federal Color Laboratories, Inc.	HAM	Hampden Color & Chemical Co.
FCP	J. P. Frank Chemical & Plastic Corp.	HAN	Hanna Paint Manufacturing Co., Inc.
FEL	Felton Chemical Co., Inc.	HAP	Applied Plastics Co., Inc.
FER	Ferro Corp., Ferro Chemical Div.	HAR	Allied Chemical Corp., National Aniline Div., Harmon Color Works
FG	Foster Grant Co., Inc.	HCC	Holland Color & Chemical Co.
FH	Foster-Heaton Co.	HCH	Houston Chemical Corp.
FIN	Fine Organics, Inc.	HCO	Hamilton Chemical Corp.
FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.	HDG	Hodag Chemical Corp.
FLH	H. B. Fuller Co.	HER	Heresite & Chemical Co.
FLO	Florasynth Laboratories, Inc.	HET	Heterochemical Corp.
FLW	W. P. Fuller & Co.	HEX	Hexagon Laboratories, Inc.
FMB	FMC Corp., Inorganic Chemicals Div.	HFT	Hoffman-Taff, Inc.
FMN	FMC Corp., Niagara Chemical Div.	HK	Hooker Chemical Corp.
FMO	Fermco Laboratories, Inc.	HKD	Hooker Chemical Corp., Durez Plastics Div.
FMP	FMC Corp., Organic Chemicals Div.	HLC	Hartman-Leddon Co.
FMT	Fairmount Chemical Co., Inc.	HLI	Haag Laboratories, Inc.
FMW	FMC Corp., Chemical Div.	HMP	Hampshire Chemical Corp.
FOC	Farac Oil & Chemical Co.	HMY	Humphrey Chemical Co.
FOM	Formica Corp.	HN	Heyden Newport Chemical Corp.
FOR	Foremost Chemical Products Co.	HNC	H & N Chemical Co.
FRE	Freeman Chemical Corp.	HNW	Heyden Newport Chemical Corp., Newport Industries Div.
FRM	Farmers' Chemical Co.	HNX	Heyden Newport Chemical Corp., Nuodex Products Div.
FRO	Vulcan Materials Co., Frontier Chemical Co. Div.	HOF	Hoffmann-LaRoche, Inc.
FRP	Filtered Rosin Products Co.	HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Co. Div.
FRR	Estate of W. U. Farrington	HPC	Hercules Powder Co.
FRS	Firestone Tire & Rubber Co., Firestone Syn- thetic Rubber & Latex Co. Div.	HRS	Bernz-O-Matic, Harris Paint Co. Div.
FSH	Frisch & Co., Inc.	HRT	Hart Products Corp.
FTE	Foot Mineral Co.	HSB	Harshaw Chemical Co.
		HST	Hoechst Chemical Corp.
G	General Aniline & Film Corp.	HUM	National Dairy Products Corp., Humko Products Chemical Div.
GAM	Gamma Chemical Corp.	HUS	Husky-Dominion Briquets
GAN	Gane's Chemical Works, Inc.	HVG	Haveg Industries, Inc., Resin & Compound Div.
GCC	W. R. Grace & Co., Nitrogen Products Div.	HYC	Hysol Corp.
GDL	Gordon-Lacey Chemical Products Co., Inc.	HYN	Hynson, Westcott & Dunning, Inc.
GDN	Gordon Chemicals, Inc.		
GE	General Electric Co., Chemical Materials Dept.	IBI	Industrial Biochemicals
GEI	General Electric Co., Insulating Materials Dept.	ICC	Interchemical Corp., Color & Chemicals Div.
GFS	G. Frederick Smith Chemical Co.	ICF	Interchemical Corp., Finishes Div.
GGC	Goodrich-Gulf Chemicals, Inc.	ICI	I.C.I. (Organics), Inc.
GGY	Geigy Chemical Corp.	ICO	Interchemical Corp., Organic Chemicals Dept.
GIL	Gilman Paint & Varnish Co.	IDC	Industrial Dyestuff Co.
GIV	Givaudan Corp.	IFF	International Flavors & Fragrances, Inc.
GLC	General Latex & Chemical Corp.	ILC	International Latex Corp.
GLD	Glidden Co.	IMC	International Minerals & Chemical Corp.
GLX	Glasflex, Inc.	IMP	Hercules Powder Co., Imperial Color & Chemical Dept.
GLY	Glyco Chemicals, Inc.	IMR	Imperial Chemical Co., Inc.
GNF	General Foods Corp., Maxwell House Div.	IMS	Importers Service Corp.
GNM	General Mills, Inc.	INL	Inland Steel Container Co.
GNT	General Tire & Rubber Co., Chemical Div.	INP	International Paper Co.
GOC	Gulf Oil Corp.	IOC	Pfaunder Permutit, Inc., Ionac Chemical Co. Div.
GOR	Gordon Chemical Co., Inc.	IPC	Interplastic Corp., Commercial Resins Div.
GPM	General Plastics Manufacturing Co.	IPI	Isocyanate Products, Inc.
GPR	Grain Processing Corp.	IPR	Inter-Pacific Resins, Inc.
GRA	Great American Chemical Corp.	IRC	International Resistance Co.
GRD	W. R. Grace & Co., Dewey & Almy Chemical Div.	IRI	Ironsides Resins, Inc.
GRG	P. D. George Co.	ISO	Isochem Resins Co.
GRH	W. R. Grace & Co., Hatco Chemical Div.		
GRP	W. R. Grace & Co., Polymer Chemicals Div.	JAM	Jamestown Paint & Varnish Co.
GRS	Pontiac Refining Corp.	JCC	Jefferson Chemical Co., Inc.
GRV	Guardsman Chemical Coatings, Inc.	JDC	John Deere Chemical Co.
GRW	Great Western Sugar Co.	JEN	Jennison-Wright Corp.
GTH	Guth Chemical Co.	JMS	J. Meyer & Sons, Inc.
		JNS	S. C. Johnson & Son, Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Code	Name of company
JOB	Jones-Blair Paint Co.	MER	Jefferson Lake Sulphur Co., Chemical Div.
JOC	Joclin Manufacturing Co.	MET	M & T Chemicals, Inc.
JOD	Devoo & Reynolds Co., Inc., Jones-Dabney Div.	MFG	Molded Fiber Glass Body Co., Resin Div.
JOR	W. H. & F. Jordan, Jr. Manufacturing Co., Inc.	MGR	Magruder Color Co., Inc.
JRG	Andrew Jergens Co.	MHI	Metal Hydrides, Inc.
JSC	Jersey State Chemical Co.	MID	Midland Industrial Finishes Co.
JTC	Joseph Turner & Co.	MIR	Miranol Chemical Co., Inc.
JUL	Julian Laboratories, Inc.	MLD	Metalead Products Corp.
JWL	Jewel Paint & Varnish Co.	MLS	Miles Laboratories, Inc.
KAI	Kaiser Aluminum & Chemical Corp.	MMM	Minnesota Mining & Manufacturing Co.
KAL	Kali Manufacturing Co.	MNO	Monochem, Inc.
KCC	Kennecott Copper Corp., Chino Mines Div.	MNP	Minnesota Paints, Inc.
KCH	Keystone Chemurgic Corp.	MOA	Mona Industries, Inc.
KCU	Kennecott Copper Corp., Utah Copper Div.	MOB	Mobay Chemical Co.
KCW	Keystone Color Works, Inc.	MOC	Marathon Oil Co., Texas Refining Div.
KEL	Kelly-Pickering Chemical Corp.	MON	Monsanto Co.
KEN	Kendall Refining Co.	MOR	Mineral Oil Refining Co.
KES	Armour Industrial Chemical Co., Kessler Chemical Div.	MOT	Motomco, Inc.
KF	Kay-Fries Chemicals, Inc.	MPL	Massachusetts Plastic Corp.
KLK	Kolker Chemical Corp., DBA Frontier Chemical Co.	MPP	Midwest Plastic Products Co.
KLS	Kilsdonk Chemical Corp.	MR	Benjamin Moore & Co.
KND	Knoedler Chemical Co.	MRA	Metro-Atlantic, Inc.
KNG	Far-Best Corp., O. L. King Div.	MRB	Marblette Corp.
KNP	Knapp Products, Inc.	MRD	Marden-Wild Corp.
KON	H. Kohnstamm & Co., Inc.	MRK	Merck & Co., Inc.
KPI	Kenrich Petrochemicals, Inc.	MRN	Morningstar Paisley, Inc.
KPP	Koppers Co., Inc., Plastics Div.	MRO	Marco Chemical Corp.
KPS	Koppers Pittsburgh Co.	MRT	Morton Salt Co., Morton Chemical Co. Div.
KPT	Koppers Co., Inc., Tar Products Div.	MRV	Marlowe-Van Loan Corp.
KPV	Keystone Paint & Varnish Corp.	MRW	Morwear Paint Co.
KRM	Lawter Chemicals, Inc., Krumbhaar Resin Div.	MRX	Max Marx Color & Chemical Co.
KYN	Kyanize Paints, Inc.	MSC	Mississippi Chemical Corp.
KYS	Keysor Chemical Co.	MTL	Metalsalts Corp.
LAK	Lakeway Chemical Co.	MTO	Montrose Chemical Corp. of California
LAM	LaMotte Chemical Products Co.	MTR	Baldwin-Montrose Chemical Co., Inc., Montrose Chemical Div.
LAS	Lasco Industries, Inc.	MYW	Stepan Chemical Co., Maywood Div.
LEA	Leatex Chemical Co.	NAC	Allied Chemical Corp., National Aniline Div.
LEB	Lebanon Chemical Corp.	NCI	Nelio Chemicals, Inc.
LEF	Leffingwell Chemical Co.	NCW	Nostrup Chemical Works, Inc.
LEH	Lehigh Chemical Co.	NEO	Norda Essential Oil & Chemical Co., Inc.
LEM	B. L. Lemke & Co., Inc.	NEP	Nepera Chemical Co., Inc.
LEN	Leonard Refineries, Inc.	NES	Nease Chemical Co., Inc.
LEV	Lever Brothers Co.	NEV	Neville Chemical Co.
LIL	Eli Lilly & Co.	NIL	Nilok Chemicals, Inc.
LKL	Lakeside Laboratories, Inc.	NIT	Nitrin, Inc.
LKY	St. Regis Paper Co., Lake States Yeast & Chemical Div.	NIX	Nixon-Baldwin Chemicals, Inc.
LMI	Lawrence Mills, Inc.	NOC	Norac Co., Inc.
LON	Mobil Finishes Co., Inc., American-Marietta Paint Div.	NON	A. P. Nonweiler Co.
LPC	Lignin Products Co.	NOP	Nopco Chemical Co., Inc.
LUB	Lubrizol Corp.	NOR	Norwich Pharmacal Co.
LUE	George Lueders & Co.	NPI	National Polychemicals, Inc.
LUR	Laurel Soap Manufacturing Co.	NPP	National Plastic Products Co., Inc.
LVR	C. Lever Co., Inc.	NPV	Norris Paint & Varnish Co.
LVY	Fred'k H. Levey Co., Inc.	NRS	Norse Chemical Corp.
MAH	Maher Color & Chemical Co.	NSC	National Starch & Chemical Corp.
MAK	MacKenzie Chemical Works, Inc.	NSP	Alabama Binder & Chemical Corp.
MAL	Mallinckrodt Chemical Works	NTB	National Biochemical Co.
MAR	American Can Co., Marathon Div.	NTC	National Casein Co.
MAY	Otto B. May, Inc.	NTL	National Lead Co.
MCA	Masonite Corp., Alpine Chemical Div.	NVF	National Vulcanized Fibre Co.
MCB	Borg-Warner Corp., Marbon Chemical Div.	NVT	Novamont Corp.
MCC	McCloskey Varnish Co.	NW	Northwestern Chemical Co.
MCH	Michigan Chemical Corp.	NYC	American Dyewood Co., Inc., New York Color & Chemical Co. Div.
MCO	Mathe Chemical Co.	OCF	Owens-Corning Fiberglas Corp.
MED	Medical Chemicals Corp.	OH	Air Reduction Co., Inc., Ohio Chemical & Surgical Equipment Co. Div.
MEE	Maumee Chemical Co.	OLH	Old Hickory Chemical Co.
		OMC	Olin Mathieson Chemical Corp.



TABLE 22.-- *Synthetic organic chemicals: Directory of manufacturers, 1963--Continued*

Code	Name of company	Code	Name of company
OMS	Olin Mathieson Chemical Corp., E. R. Squibb & Sons Div.	QCP	Quaker Chemical Products Corp.
ONX	Onyx Chemical Corp.	QKO	Quaker Oats Co.
OPC	Orbis Products Corp.	QUN	K. J. Quinn & Co., Inc.
ORG	Organics, Inc.	RAB	Raybestos-Manhattan, Inc., Raybestos Div.
ORO	California Chemical Co., Oronite Div.	RBC	Roberts Chemicals, Inc.
ORT	Roehr Chemicals, Inc.	RCC	Rexall Chemical Co.
ORU	Eagle-Pitcher Co., Ohio Rubber Co. Div.	RCD	Richardson Co., Krystall Chemical Corp. Div.
OSB	C. J. Osborn Co.	RCI	Reichhold Chemicals, Inc.
OTA	Ottawa Chemical Co.	RDA	Rhodia, Inc.
OTC	Ott Chemical Co.	RED	Red Spot Paint & Varnish Co., Inc.
OTH	California Chemical Co., Ortho Div.	REH	Armour Pharmaceutical Co., Reheis Co. Div.
OTT	Ottol Oil Co., Inc.	REL	Reliance Varnish Co.
OXY	Oxy Chemical Co.	REM	Remington Arms Co., Inc.
		RET	Rayette, Inc.
PAI	Pennsylvania Industrial Chemical Corp.	REZ	Rezolin, Inc.
PAN	Pan American Petroleum Corp.	RGC	Rogers Corp.
PAR	Pennsylvania Refining Co.	RH	Rohm & Haas Co.
PAS	Pennsalt Chemicals Corp.	RIC	Richfield Oil Corp.
PAT	Patent Chemicals, Inc.	RIK	Riker Laboratories, Inc.
PBS	Pabst Brewing Co.	RIL	Reilly Tar & Chemical Corp.
PBY	Pillsbury Co.	RIV	Riverdale Chemical Co.
PC	Proctor Chemical Co., Inc.	RKD	Rockland Industries
PCC	Pittsburgh Chemical Co.	RMC	Rinshed-Mason Co.
PCH	Peerless Chemical Co.	ROC	Rock Hill Printing & Finishing Co.
PCI	Pioneer Chemical Works, Inc.	ROM	Roma Chemical Corp.
PCS	Emery Industries, Inc., Western Div.	ROS	Rosett Chemicals, Inc.
PCW	Pfister Chemical Works	ROY	Royce Chemical Co.
PD	Parke, Davis & Co.	RPC	Refined Products Co.
PDC	Berncolors-Poughkeepsie, Inc.	RPI	Rowland Products, Inc.
PDJ	Joseph Davis Plastics Co.	RSA	R. S. A. Corp.
PEK	Peck's Products Co.	RSB	Rosenberg Bros. & Co.
PEL	Pelron Corp.	RT	F. Ritter & Co.
PEN	S. B. Penick & Co.	RTC	Ritter Chemical Co., Inc.
PER	Perry & Derrick Co.	RTF	Retzloff Chemical Co.
PET	Petroleum Chemicals, Inc.	RUB	Rubber Corp. of America
PFN	Pfanstiehl Laboratories, Inc.	RUR	Ruberoid Co.
PFP	Phelan-Faust Paint Manufacturing Co.	RZL	Rozilda Laboratories, Inc.
PFZ	Chas. Pfizer & Co., Inc.		
PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co. Div.	S	Sandoz, Inc.
PGU	Perkins Glue Co.	SAL	Dr. Salsbury's Laboratories
PHR	Pharmachem Corp.	SAR	Sartomer Resins, Inc.
PIC	Pierce Chemical Co.	SBC	Scher Bros.
PII	Polymer Industries, Inc.	SBR	Schwarz Bioresearch, Inc.
PIL	Pilot Chemical Co.	SCC	Standard Chlorine Chemical Co., Inc.
PIT	Pitt-Consol Chemical Co.	SCF	Schaefer Varnish Co., Inc.
PLA	Richardson Co., Richardson Polymers Div.	SCH	Schering Corp.
PLC	Phillips Petroleum Co.	SCI	Stecker Chemicals, Inc.
PLP	Phillips Petroleum Co., Chemical Dept.	SCL	Schuylkill Chemical Co.
PLS	Plastics Engineering Co.	SCN	Schenectady Chemicals, Inc.
PLU	Plumb Chemical Corp.	SCO	Scholler Bros., Inc.
PMP	Plastics Material & Polymers, Inc.	SCP	Standard Chemical Products, Inc.
PNT	Pantasote Co.	SCR	R. P. Scherer Corp.
PNX	Phoenix Oil Co.	SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.
POL	Polymer Corp.	SDG	Sterling Drug, Inc., Glenbrook Laboratories Div.
PPG	Pittsburgh Plate Glass Co.	SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.
PRC	Paragon Chemicals	SDW	Sterling Drug, Inc., Winthrop Laboratories Div.
PRD	Productol Chemical Co.	SEA	Seaboard Chemicals, Inc.
PRO	Pure Oil Co.	SED	Seidlitz Paint & Varnish Co.
PRP	S. B. Penick & Co., Parsons-Plymouth Div.	SEY	Seydel-Woolley & Co., Inc.
PRR	L. Perrigo Co.	SF	Stauffer Chemical Co.
PRT	Pratt & Lambert, Inc.	SFA	Stauffer Chemical Co., Anderson Chemical Co. Div.
PRX	Purex Corp., Ltd.	SFC	Stahl Finish Co.
PSP	Georgia-Pacific Corp., Puget Sound Div.	SH	Stein, Hall & Co., Inc.
PTT	Petro-Tex Chemical Corp.	SHC	Shell Oil Co., Shell Chemical Co. Div.
PUB	Publicker Industries, Inc.	SHF	National Dairy Products Corp., Sheffield Chemical Co. Div.
PVI	Polyvinyl Chemicals, Inc.	SHL	Shulton, Inc., Fine Chemicals Div.
PYL	Polychemical Laboratories, Inc.	SHM	Shamrock Oil & Gas Corp.
PYR	Poly Resins	SHO	Shell Oil Co.
PYZ	Polyrez Co., Inc.	SHP	Shepherd Chemical Co.
		SIC	Silmar Chemical Corp.

TABLE 22.-- *Synthetic organic chemicals: Directory of manufacturers, 1963--Continued*

Code	Name of company	Code	Name of company
SID	George F. Siddall Co., Inc.	THC	Thompson Chemical Co.
SIM	Simpson Timber Co.	TIC	Ticonderoga Chemical Corp.
SIN	Sinclair Refining Co.	TID	Tidewater Oil Co.
SIO	Standard Oil Co. of Ohio	TKL	Thiokol Chemical Corp.
SIP	James B. Sipe & Co.	TMH	Thompson-Hayward Chemical Co.
SK	Smith, Kline & French Laboratories	TMS	Sterling Drug, Inc., Thomasset Colors Div.
SKC	Sinclair Koppers Chemical Co.	TN	Tennessee Corp.
SKG	Sunkist Growers, Inc.	TNA	Ethyl Corp.
SKO	Skelly Oil Co.	TNC	Tennant Development Corp., Chemical Div.
SLC	Soluol Chemical Co., Inc.	TNP	Velsicol Chemical Corp., Tensyn Div.
SLV	Sterling Drug, Inc., Salvo Chemical Div.	TOC	Tenneco Oil Co.
SM	Socony Mobil Oil Co., Inc.: Mobil Chemical Co. Div. Mobil Oil Co. Div.	TRC	Toms River Chemical Corp.
SMC	Stamford Chemical Co.	TRJ	Trojan Powder Co.
SNA	Ansbacher-Siegle Corp. Div. of Sun Chemical Corp.	TRO	Troy Chemical Co.
SNC	Sonoco Products Co.	TSA	Texas Alkyls, Inc.
SNI	Southern Nitrogen Co., Inc.	TTX	Detrex Chemical Industries, Inc.
SNO	SunOlin Chemical Co.	TUS	Texas-U.S. Chemical Co.
SNT	Suntide Refining Co.	TV	Tousey Varnish Co.
SNW	Sun Chemical Corp., Warwick Chemical Co. Div.	TX	Texaco, Inc.
SOC	Standard Oil Co. of California, Western Operations, Inc.	TXC	Tex Chemical Co.
SOG	Signal Oil & Gas Co., Houston Div.	UBS	A. E. Staley Manufacturing Co., U B S Chemical Co. Div.
SOH	Sohio Chemical Co., Agent: Sohio Petroleum Co. Solar Nitrogen Chemicals, Inc.	UCC	Union Carbide Corp., Chemicals Div.
SOI	American Oil Co. (Maryland)	UCP	Union Carbide Corp., Plastics Div.
SOL	Solar Chemical Corp.	UCS	Union Carbide Corp., Silicones Div.
SON	Sonneborn Chemical & Refining Corp.	UDI	Universal Detergents, Inc. & Petrochemicals Co.
SOR	Thomason Industries, Inc., Southern Resin Div.	UHL	Paul Uhlich & Co., Inc.
SOS	Southern Sizing Co.	UNC	United Cork Companies
SPD	General Electric Co., Silicone Products Dept.	UNG	Ungerer & Co.
SPI	Sinclair Petrochemicals, Inc.	UNN	United Chemical Corp. of Norwood
SPL	Spaulding Fibre Co., Inc.	UNP	United Chemical Products Corp.
SPN	Spencer Chemical Co.	UOC	Union Oil Co. of California
SPP	Socony Paint Products Co.	UPF	United States Pipe & Foundry Co.
SPY	Standard Pyroxoloid Corp.	UPJ	Upjohn Co.
SRC	Shawinigan Resins Corp.	UPL	United States Plywood Corp.
SRL	G. D. Searle & Co.	UPM	Universal Oil Products Co.
SRR	Fred'k A. Stresen-Reuter, Inc.	UPR	U.S. Peroxygen Corp.
STA	A. E. Staley Manufacturing Co.	URC	United Carbon Co.
STC	Sou-Tex Chemical Co., Inc.	USB	U.S. Borax Research Corp.
STD	Standard Dyestuff Corp.	USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.
STG	Wm. J. Stange Co.	USO	U.S. Oil Co.
STH	South Hampton Co.	USP	U.S. Plastic & Chemical Corp.
STN	Standard Naphthalene Products Co., Inc.	USR	Naugatuck Chemical Div. of U.S. Rubber Co.
STP	Stepan Chemical Co.	UTR	Utah Resin Co., Inc.
SUC	Standard Ultramarine & Color Co.	UVC	Universal Chemicals Corp.
SUG	Colonial Sugars Co., Sucro-Chemical Div.	VAC	Varney Chemical Co.
SUM	Summit Chemical Products Corp.	VAL	Valchem
SUN	Sun Oil Co.	VAR	Reichhold Chemicals, Inc., Varcum Chemical Div.
SVT	Solvent Chemical Co., Inc.	VB	Vermilye-Bell
SW	Sherwin-Williams Co.	VC	Socony Mobil Oil Co., Inc., Virginia-Carolina Chemical Co. Div.
SWR	Switzer Bros., Inc.	VEL	Velsicol Chemical Corp.
SWT	Swift & Co.	VIC	Stauffer Chemical Co., Victor Chemical Works Div.
SYC	Synthetic Chemicals, Inc.	VIN	Vineland Chemical Co.
SYN	Synthron, Inc.	VIS	Nalco Chemical Co., Visco Div.
SYP	Synthetic Products Co.	VLY	Chem-Fleur, Inc.
SYR	Synco Resins, Inc.	VNC	Vanderbilt Chemical Corp.
SYV	Synvar Corp.	VND	Van Dyk & Co., Inc.
TAE	Thomas A. Edison Industries, McGraw-Edison Co., Medical Gas Div.	VPC	Verona-Pharma Chemical Corp.
TAY	Taylor Corp.	VPT	Vickers Refining Co., Inc.
TBK	Universal Oil Products Co., Trubek Chemical Co. Div.	VSV	Valentine Sugars, Inc., Valite Div.
TCC	Tanatex Chemical Corp.	VTM	Vitamins, Inc.
TCH	Trylon Chemical Corp.	VTV	Vita-Var Corp., Div. of Textron Industries, Inc.
TCI	Texize Chemicals, Inc.	WAS	Washburn-Purex Co.
TDC	Diversey Corp.	WAW	W. A. Wood Co.
TGL	Triangle Chemical Co.	WAY	Wayland Chemical Co.
		WBG	White & Bagley Co.
		WCA	West Coast Adhesives Co.
		WDC	Western Dry Color Co.

TABLE 22.-- *Synthetic organic chemicals: Directory of manufacturers, 1963* --Continued

Code	Name of company	Code	Name of company
WHI	White & Hodges, Inc.	WRC	Wood Ridge Chemical Corp.
WHL	Whitmoyer Laboratories, Inc.	WRD	Weyerhaeuser Co., Wood Products Div.
WHW	Whittemore-Wright Co., Inc.	WSN	Washine Chemical Corp.
WIC	Wica Chemicals, Inc.	WTC	Witco Chemical Co., Inc.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.	WTH	Wallace & Tiernan, Inc., Harchem Div.
WJ	Warner-Jenkinson Manufacturing Co.	WTL	Wallace & Tiernan, Inc., Lucidol Div.
WLI	White Laboratories, Inc.	WTM	Wallace & Tiernan, Inc.
WLM	Wilmot & Cassidy, Inc.	WVA	West Virginia Pulp & Paper Co., Polychemicals Div.
WM	Wilson & Co., Inc., Wilson-Martin Div.	WYN	Wyandotte Chemicals Corp.
WOI	Neville Chemical Co., Chlorinated Products Div.	WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.
WON	Woonsocket Color & Chemical Co.		
WPC	Warren Paint & Color Co.	YAW	Young Aniline Works, Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

## SECTION 2. ALPHABETICAL DIRECTORY BY COMPANY

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1963 are listed below alphabetically, together with their identification codes as used in tables in pt. III. Sec. 1 of this table lists these manufacturers in the order of their identification codes]

Code	Name of company	Office address
ABB	Abbott Laboratories-----	14th St. and Sheridan Rd., N. Chicago, Ill. 60664.
ACR	Acme Resin Corp-----	1401 Circle Ave., Forest Park, Ill. 60130.
ACO	Acralite Co., Inc-----	59 Kent St., Brooklyn, N.Y. 11222.
ADC	Ad-Co Color Corp-----	66 Lister Ave., Newark, N.J. 07105.
HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Co. Div.	Widener Bldg., 1339 Chestnut St., Philadelphia, Pa. 19107.
	Air Reduction Co., Inc.:	
AIR	Air Reduction Chemical & Carbide Co. Div-----	150 E. 42d St., New York, N.Y. 10017.
OH	Ohio Chemical & Surgical Equipment Co. Div-----	1400 E. Washington Ave., Madison, Wis. 53703.
NSP	Alabama Binder & Chemical Corp-----	P.O. Box 3179, Tuscaloosa, Ala. 35404.
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-----	2371 N. 30th St., Milwaukee, Wis. 53210.
ALL	Alliance Color & Chemical Co-----	33 Avenue P, Newark, N.J. 07015.
	Allied Chemical Corp.:	
ACB	Barrett Div-----	40 Rector St., New York, N.Y. 10006.
ALF	Fibers Div-----	40 Rector St., New York, N.Y. 10006.
ACG	General Chemical Div-----	P.O. Box 70, Morristown, N.J. 07960.
NAC	National Aniline Div-----	40 Rector St., New York, N.Y. 10006.
HAR	Harmon Color Works-----	40 Rector St., New York, N.Y. 10006.
ACN	Nitrogen Div-----	Drawer 61, Hopewell, Va. 23860.
ACP	Plastics Div-----	P.O. Box 365, Morristown, N.J. 07960.
ACS	Solvay Process Div-----	P.O. Box 271, Syracuse, N.Y. 13201.
ALX	Alox Corp-----	3943 Buffalo Ave., Niagara Falls, N.Y. 14302.
AML	Amalgamated Chemical Corp-----	Ontario and Rorer Sts., Philadelphia, Pa. 19134.
AMC	Amchem Products, Inc-----	Brookside Ave., Ambler, Pa. 19002.
AAI	American Alkyd Industries-----	Broad and 14th Sts., Carlstadt, N.J. 07072.
AAE	American Aniline & Extract Co., Inc-----	Venango and F Sts., Philadelphia, Pa. 19134.
AAP	American Aniline Products, Inc-----	P.O. Box 2086, Paterson, N.J. 07509.
AMB	American Bio-Synthetics Corp-----	710 W. National Ave., Milwaukee, Wis. 53204.
ABS	American Brake Shoe Co., American Brakeblok Div-----	P.O. Box 21, Birmingham, Mich. 48012.
MAR	American Can Co., Marathon Div-----	Menasha, Wis. 54957.
AME	American Chemical Corp-----	2112 E. 223d St., Long Beach, Calif. 90810.
ACY	American Cyanamid Co-----	Berdan Ave., Wayne, N.J. 07470.
NYC	American Dyewood Co., Inc., New York Color & Chemical Co. Div.	374 Main St., Belleville, N.J. 07109.
WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.	P.O. Box 8299, Philadelphia, Pa. 19101.
AMZ	American Maize Products Co-----	250 Park Ave., New York, N.Y. 10017.
SOI	American Oil Co. (Maryland)-----	910 S. Michigan Ave., Chicago, Ill. 60680.
AMO	American Oil Co. (Texas)-----	910 S. Michigan Ave., Chicago, Ill. 60680.
APT	American Petrochemical Corp-----	3134 California St., N.E., Minneapolis, Minn. 55418.
AMP	American Potash & Chemical Corp-----	3000 W. 6th St., Los Angeles, Calif. 90054.
ASY	American Synthetic Rubber Corp-----	P.O. Box 360, Louisville, Ky. 40201.
ALB	Ames Laboratories, Inc-----	200 Rock Lane, Milford, Conn. 06463.
ACC	Amoco Chemicals Corp-----	130 E. Randolph Dr., Chicago, Ill. 60601.
ANM	Ancon Chemical Co-----	P.O. Drawer 37, Westlake, La. 70669.
SNA	Ansbacher-Siegle Corp. Div. of Sun Chemical Corp	92 Chestnut Ave., Staten Island, N.Y. 10305.
ASL	Ansul Chemical Co-----	1 Stanton St., Marinette, Wis. 54143.
APX	Apex Chemical Co., Inc-----	200 S. 1st St., Elizabethport, N.J. 07206.
APC	Appleton Coated Paper Co-----	825 E. Wisconsin Ave., Appleton, Wis. 54910.
HAP	Applied Plastics Co., Inc-----	130 Penn St., El Segundo, Calif. 90245.
ARA	Arapahoe Chemicals, Inc-----	2855 Walnut St., Boulder, Colo. 80301.
ADM	Archer-Daniels-Midland Co-----	500 Investors Bldg., Minneapolis, Minn. 55440.
ARD	Ardmore Chemical Co-----	840 Valley Brook Ave., Lyndhurst, N.J. 07071.
ARG	Argus Chemical Corp-----	633 Court St., Brooklyn, N.Y. 11231.
ARM	Armour Agricultural Chemical Co-----	P.O. Box 1685, Atlanta, Ga. 30301.
	Armour & Co.:	
ARC	Armour Industrial Chemical Co. Div-----	110 N. Wacker Dr., Chicago, Ill. 60606.
KES	Kessler Chemical Div-----	State Rd. and Cottman Ave., Philadelphia, Pa. 19135.
ARP	Armour Pharmaceutical Co-----	P.O. Box 511, Kankakee, Ill. 60901.
REH	Reheis Co. Div-----	235 Snyder Ave., Berkeley Heights, N.J. 07922.
ARK	Armstrong Cork Co-----	W. Liberty St., Lancaster, Pa. 17604.
APV	Armstrong Paint & Varnish Works, Inc-----	1330 S. Kilbourn Ave., Chicago, Ill. 60623.
ARL	Arol Chemical Products Co-----	371 Wayne St., Jersey City, N.J. 07302.
ASH	Ashland Oil & Refining Co-----	1401 Winchester Ave., Ashland, Ky. 41101.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
AST	Astra Pharmaceutical Products, Inc-----	7 Neponset St., Worcester, Mass. 01606.
ATL	Atlantic Chemical Corp-----	P.O. Box 216, Nutley, N.J. 07110.
ATR	Atlantia Refining Co-----	260 S. Broad St., Philadelphia, Pa. 19101.
ATU	Atlantic Tubing & Rubber Co-----	Mill St., Cranston, R.I. 02905.
APD	Atlas Chemical Industries, Inc., Chemicals Div--	New Murphy Rd. and Concord Pike, Wilmington, Del. 19899.
APR	Atlas Processing Co-----	P.O. Box 1786, Shreveport, La. 71102.
AUG	Augusta Chemical Co-----	P.O. Box 660, Augusta, Ga. 30903.
AVS	Avisun Corp-----	P.O. Box 312, New Castle, Del. 19720.
BRD	Baird Chemical Industries, Inc-----	10 W. 33d St., New York, N.Y. 10001.
BAC	Baker Castor Oil Co-----	40 Avenue A, Bayonne, N.J. 07002.
BKC	J. T. Baker Chemical Co-----	600 N. Broad St., Phillipsburg, N.J. 08865.
BKT	Taylor Div-----	600 N. Broad St., Phillipsburg, N.J. 08865.
MTR	Baldwin-Montrose Chemical Co., Inc., Montrose Chemical Div.	100 Lister Ave., Newark, N.J. 07105.
BGC	Balfour Chemicals, Inc-----	501 Milwaukee Waterway, Tacoma, Wash. 98421.
BAL	Baltimore Paint & Chemical Corp-----	2325 Hollins Ferry Rd., Baltimore, Md. 21230.
BC	Barlow Chemical Corp-----	Barlow Lane, Ossining, N.Y. 10562.
BAT	Bates Chemical Co-----	Scottdale Rd., Lansdowne, Pa. 19050.
BAX	Baxter Laboratories, Inc-----	6301 N. Lincoln Ave., Morton Grove, Ill. 60053.
BXT	J. H. Baxter & Co-----	120 Montgomery St., San Francisco, Calif. 94104.
BAO	Bayoil Co., Inc-----	4 Union St., Peabody, Mass. 01960.
BCN	Beacon Chemical Industries, Inc-----	33 Richdale Ave., Cambridge, Mass. 02140.
BLS	Beech-Nut Life Savers, Inc-----	Canajoharie, N.Y. 13317.
BCM	Belding Chemical Industries-----	1407 Broadway, New York, N.Y. 10018.
BL	Belle Chemical Co., Inc-----	P.O. Box 848, Lowell, N.C. 28089.
BME	Bendix Corp., Marshall-Eclipse Div-----	P.O. Box 238, Troy, N.Y. 12180.
BEN	Bennett's-----	65 W. 1st S., Salt Lake City, Utah 84110.
BPC	Benzol Products Co-----	237 South St., Newark, N.J. 07114.
BCC	Bercoen Chemical Co., Inc-----	285 Valley St., Providence, R.I. 02908.
BKS	Berkshire Color & Chemical Co-----	12th and Bern Sts., Reading, Pa. 19604.
PDC	Berncolors-Poughkeepsie, Inc-----	45 Taylor Ave., Poughkeepsie, N.Y. 12602.
HRS	Bernz-O-Matic, Harris Paint Co. Div-----	1026 N. 19th St., Tampa, Fla. 33601.
BUC	Blackman-Uhler Chemical Co-----	P.O. Box 1869, Spartanburg, S.C. 29301.
BLA	Blue Arrow, Inc-----	P.O. Box B, Jacksonville, Fla. 32203.
BOR	Borden Co., Borden Chemical Co. Div-----	350 Madison Ave., New York, N.Y. 10017.
MCB	Borg-Warner Corp., Marbon Chemical Div-----	P.O. Box 68, Washington, W. Va. 26181.
BOY	Walter N. Boysen Co-----	1001 42d St., Oakland, Calif. 94608.
BFR	Branchflower Co-----	4501 Shilshole St. NW., Seattle, Wash. 98107.
BPL	Brand Plastics Co-----	8400 Willow Springs Rd., Willow Springs, Ill. 60480.
BRS	Bristol-Meyers Co., Bristol Laboratories Div-----	P.O. Box 657, Syracuse, N.Y. 13201.
BLN	Brooklyn Color Works, Inc-----	681 Morgan Ave., Brooklyn, N.Y. 11222.
ABR	Andrew Brown Co-----	5431 District Blvd., Los Angeles, Calif. 90022.
BRU	M. A. Bruder & Sons, Inc-----	52d St. and Grays Ave., Philadelphia, Pa. 19143.
BRY	Bryant Chemical Corp-----	6 North St., N. Quincy, Mass. 02171.
BUK	Buckeye Cellulose Corp-----	2899 Jackson Ave., Memphis, Tenn. 38108.
BKM	Buckman Laboratories, Inc-----	1256 N. McLean Blvd., Memphis, Tenn. 38108.
CD	Budd Co., Polyochem Div-----	70 S. Chapel St., Newark, Del. 19711.
BJL	Burdick & Jackson Laboratories, Inc-----	1953 S. Harvey St., Muskegon, Mich. 49442.
BSC	Burkart-Schier Chemical Co-----	1228 Chestnut St., Chattanooga, Tenn. 37402.
BUR	Burroughs-Wellcome & Co. (U.S.A.), Inc-----	1 Scarsdale Rd., Tuckahoe, N.Y. 10707.
BZ	Bzura Chemical Co., Inc-----	Clark St. and Broadway, Keyport, N.J. 07735.
CBT	Samuel Cabot, Inc-----	246 Summer St., Boston, Mass. 02210.
CAD	Cadet Chemical Corp-----	2153 Lockport-Olcott Rd., Burt, N.Y. 14028.
CAU	Calcasieu Chemical Corp-----	P.O. Box 1522, Lake Charles, La. 70604.
ORO	California Chemical Co.: Oronite Div-----	200 Bush St., San Francisco, Calif. 94120.
OTH	Ortho Div-----	Lucas and Ortho Way, Richmond, Calif. 94800.
CIK	California Ink Co., Inc-----	711 Camelia St., Berkeley, Calif. 94710.
CAL	Callery Chemical Co-----	Callery, Pa. 16024.
CAP	Cap-Roc, Inc., Capital Plastics Div-----	250 Mill St., Rochester, N.Y. 14614.
DRL	Caradco, Inc., Durel Div-----	1098 Jackson St., Dubuque, Iowa 52001.
CGL	Cargill, Inc-----	Room 2008, 3 Penn Center Plaza, Minneapolis, Minn. 19102.
CCW	Carlisle Chemical Works, Inc-----	West St., Reading, Ohio 45215.
CCA	Advance Div-----	500 Jersey Ave., New Brunswick, N.J. 08903.
CM	Carpenter-Morton Co-----	376 3d St., Everett, Mass. 02149.
CRS	Carus Chemical Co., Inc-----	1375 8th St., LaSalle, Ill. 61301.
CRY	Cary Chemicals, Inc-----	P.O. Box 38, E. Brunswick, N.J. 08816.
CAT	Catalin Corp. of America-----	1 Park Ave., New York, N.Y. 10016.
CEL	Celanese Corp. of America: Celanese Chemical Co. Div----- Celanese Plastics Co. Div----- Celanese Polymer Co. Div-----	522 5th Ave., New York, N.Y. 10036. 744 Broad St., Newark, N.J. 07102. 744 Broad St., Newark, N.J. 07102.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
CPR	Certified Proteins Corp-----	320 W. Ohio St., Chicago, Ill. 60610.
CHM	Chapman Chemical Co-----	P.O. Box 9158, Memphis, Tenn. 38109.
CCL	Charlotte Chemical Laboratories-----	5046 Old Pinesville Rd., Charlotte, N.C. 28201.
CCC	Chase Chemical Corp-----	3527 Smallman St., Pittsburgh, Pa. 15201.
CHG	Chemagro Corp-----	P.O. Box 4913, Station "F", Kansas City, Mo. 64120.
CTN	Chemetron Corp., Chemetron Chemicals, Organic Chemical Dept.	386 Park Ave. S., New York, N.Y. 10016.
CFX	Chemfax, Inc-----	P.O. Box 215, Gulfport, Miss. 39502.
VLV	Chem-Fleur, Inc-----	200 Pulaski St., Newark, N.J. 07105.
CIS	Chemical Insecticide Corp-----	30 Whitman Ave., Metuchen, N.J. 08840.
CMG	Chemical Manufacturing Co., Inc-----	Magunco Rd., Ashland, Mass. 01721.
CPD	Chemical Products Corp-----	P.O. Box 815, Cartersville, Ga. 30120.
CCO	Chemico, Inc-----	2508 E. Bailey Rd., Cuyahoga Falls, Ohio 44221.
CEM	Chemirad Corp-----	P.O. Box 187 (Ryders Lane), E. Brunswick, N.J. 08816.
CKL	Chemlek Laboratories, Inc-----	4040 W. 123d St., Alsip, Ill. 60658.
CHL	Chemol, Inc-----	P.O. Box 3227, Greensboro, N.C. 27402.
CS	Chemstrand Corp-----	350 5th Ave., New York, N.Y. 10001.
CPC	Childs Pulp Colors, Inc-----	42 Summit St., Brooklyn, N.Y. 11231.
CHC	Chipman Chemical Co., Inc-----	1801 Murchison Dr., Burlingame, Calif. 94011.
	Ciba Corp.:	
CBP	Ciba Pharmaceutical Co. Div-----	556 Morris Ave., Summit, N.J. 07901.
CBA	Ciba Products Co. Div-----	Route 208, Fair Lawn, N.J. 17410.
CIN	Cindet Chemicals, Inc-----	P.O. Box 907, Greensboro, N.C. 27402.
CSO	Cities Service Oil Co-----	P.O. Box 300, Tulsa, Okla. 74119.
CLY	W. A. Cleary Corp-----	P.O. Box 749, New Brunswick, N.J. 08903.
CLI	Clintwood Chemical Co-----	1 N. LaSalle St., Chicago, Ill. 60602.
CLV	Clover Chemical Co-----	P.O. Box 10865, Pittsburgh, Pa. 15236.
COS	Coastwise Petroleum Co-----	1127 Munsey Bldg., Baltimore, Md. 21202.
COK	Cockerville Chemicals, Inc-----	Greenwood, Va. 22943.
CBR	Colab Resin Corp-----	Main St., Tewksbury, Mass. 01876.
CP	Colgate-Palmolive Co-----	300 Park Ave., New York, N.Y. 10022.
CW	Collett-Week Corp-----	Quimby St., Ossining, N.Y. 10562.
COL	Collier Carbon & Chemical Corp-----	714 W. Olympic Blvd., Los Angeles, Calif. 90015.
CLD	Colloids, Inc-----	394 Frelinghuysen Ave., Newark, N.J. 07114.
SUG	Colonial Sugars Co., Sucro-Chemical Div-----	Drawer G, Gramercy, La. 70052.
CBN	Columbian Carbon Co., Pigments & Elastomers Div-----	380 Madison Ave., New York, N.Y. 10017.
CLB	Columbia Organic Chemicals Co., Inc-----	P.O. Box 5273, Columbia, S.C. 29205.
COM	Commercial Solvents Corp-----	260 Madison Ave., New York, N.Y. 10016.
COR	Commonwealth Oil Refining Co., Inc-----	P.O. Box 4423, San Juan, Puerto Rico 10017.
DAV	Conchemco, Inc., H. B. Davis Co. Div-----	Bayard and Severn Sts., Baltimore, Md. 21230.
CON	Concord Chemical Co., Inc-----	205 S. 2d St., Camden, N.J. 08103.
CTA	Conestoga Chemical Corp-----	Wilmington Industrial Park, Wilmington, Del. 19801.
CPT	Consolidated Paint Co-----	3101 E. 11th St., Los Angeles, Calif. 90023.
CWP	Consolidated Papers, Inc-----	Wisconsin Rapids, Wis. 54494.
CTL	Continental Chemical Co-----	270 Clifton Blvd., Clifton, N.J. 07015.
CO	Continental Oil Co-----	1300 Main, Houston, Tex. 77001.
CPV	Cook Paint & Varnish Co-----	1412 Knox, N. Kansas City, Mo. 64116.
CFA	Cooperative Farm Chemicals Association-----	P.O. Box 80, Lawrence, Kans. 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.
CRN	Corn Products Co-----	P.O. Box 345, Argo, Ill. 60502.
CSD	Cosden Oil & Chemical Co-----	P.O. Box 1311, Big Spring, Tex. 79721.
CWL	Cowles Chemical Co-----	12000 Shaker Blvd., Cleveland, Ohio 44120.
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.	P.O. Box 341, Reading, Pa. 19603.
CBY	Crosby Chemicals, Inc-----	P.O. Drawer 32, DeRidder, La. 70634.
CCP	Crown Central Petroleum Corp-----	P.O. Box 1168, Baltimore, Md. 21203.
CRC	Crown Chemical Corp-----	12 Dudley St., Providence, R.I. 02901.
CRZ	Crown Zellerbach Corp., Chemical Products Div-----	Camas, Wash. 98607.
CUC	Cumberland Chemical Corp-----	150 E. 42d St., New York, N.Y. 10017.
CUT	Cutter Laboratories, Inc-----	4th and Parker Sts., Berkeley, Calif. 94710.
DAN	Dan River Mills, Inc-----	Danville, Va. 24540.
PDJ	Joseph Davis Plastics Co-----	450 Schuyler Ave., Kearny, N.J. 07032.
DLI	Dawe's Laboratories, Inc-----	4800 S. Richmond St., Chicago, Ill. 60632.
DCH	Dearborn Chemical Co-----	Rm. 375, Merchandise Mart Plaza, Chicago, Ill. 60654.
JDC	John Deere Chemical Co-----	P.O. Box 1736, Tulsa, Okla. 74101.
DEG	Degen Oil & Chemical Co-----	200 Kellogg St., Jersey City, N.J. 07305.
DCI	Delaware Chemicals, Inc-----	726 King St., Wilmington, Del. 19801.
DEP	DePaul Chemical Co., Inc-----	44-27 Purvis St., Long Island City, N.Y. 11101.
DSO	DeSoto Chemical Coatings, Inc-----	1700 S. Mt. Prospect Ave., Des Plaines, Ill. 60018.
TTX	Detrex Chemical Industries, Inc-----	P.O. Box 501, Detroit, Mich. 48232.
JOD	Devoe & Reynolds Co., Inc., Jones-Dabney Div-----	P.O. Box 8248, Station "E", Louisville, Ky. 40208.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
DEX	Dexter Chemical Corp-----	845 Edgewater Rd., Bronx, N.Y. 10474.
DA	Diamond Alkali Co-----	300 Union Commerce Bldg., Cleveland, Ohio 44114.
	Western Div-----	300 Union Commerce Bldg., Cleveland, Ohio 44114.
FBC	Fiber Chemical Dept-----	300 Union Commerce Bldg., Cleveland, Ohio 44114.
TDC	Diversey Corp-----	212 W. Monroe St., Chicago, Ill. 60606.
DPP	Dixie Pine Products Co., Inc-----	P.O. Box 470, Hattiesburg, Miss. 39402.
DOD	Donald A. Dodd-----	8002 53d Ave. W., Everett, Wash. 98202.
DOM	Dominion Products, Inc-----	882 3d Ave., Brooklyn, N.Y. 11232.
DVC	Dover Chemical Co-----	15th and Davis Sts., Dover, Ohio 44244.
DBC	Dow Badische Chemical Co-----	P.O. Box 875, Freeport, Tex. 77541.
DOW	Dow Chemical Co-----	Main St., Midland, Mich. 48640.
DCC	Dow Corning Corp-----	P.O. Box 592, Midland, Mich. 48641.
DRW	Drew Chemical Corp-----	416 Division St., Boonton, N.J. 07005.
DUN	Frank W. Dunne Co-----	1007 41st St., Oakland, Calif. 94608.
DUP	E. I. duPont de Nemours & Co., Inc-----	1007 Market St., Wilmington, Del. 19898.
DUR	Duraphene Corp-----	Route 14, Sterling, Conn. 06377.
DSC	Dye Specialties, Inc-----	26 Journal Sq., Jersey City, N.J. 07306.
ORU	Eagle-Pitcher Co., Ohio Rubber Co. Div-----	Ben Hur Ave., Willoughby, Ohio 44094.
EAK	J. S. & W. R. Eakins, Inc-----	55 Berry St., Brooklyn, N.Y. 11211.
EK	Eastman Kodak Co-----	343 State St., Rochester, N.Y. 14650.
EKT	Tennessee Eastman Co. Div-----	P.O. Box 511, Kingsport, Tenn. 37662.
EKX	Texas Eastman Co. Div-----	P.O. Box 2068, Longview, Tex. 75603.
EDY	Eddystone Manufacturing Co-----	P.O. Box 471, Wilmington, Del. 19899.
TAE	Thomas A. Edison Industries, McGraw-Edison Co., Medical Gas Div.	Stuyvesant Falls, N.Y. 12174.
ELP	El Paso Natural Gas Products Co-----	P.O. Box 1161, El Paso, Tex. 79999.
EMR	Emery Industries, Inc-----	4300-Carew Tower, Cincinnati, Ohio 45202.
PCS	Western Div-----	8733 S. Dice Rd., Santa Fe Springs, Calif. 90670.
EMK	Enkay Chemical Co-----	319 2d St., Elizabeth, N.J. 07206.
EN	Endo Laboratories, Inc-----	1000 Stewart Ave., Garden City, N.Y. 11533.
ENJ	Enjay Chemical Co., Div. of Humble Oil & Refining Co.	60 W. 49th St., New York, N.Y. 10020.
EPC	EpoxyLite Corp-----	P.O. Box 3397, 1428 N. Tyler Ave., S. El Monte, Calif. 91733.
ERD	Erdmann Chemical Co., Inc-----	66 Lister Ave., Newark, N.J. 07105.
ESC	Escambia Chemical Corp-----	P.O. Box 467, Pensacola, Fla. 32502.
TNA	Ethyl Corp-----	100 Park Ave., New York, N.Y. 10017.
ETD	Ethyl-Dow Chemical Co-----	Midland, Mich. 48640.
EVN	Evans Chemetics, Inc-----	250 E. 43d St., New York, N.Y. 10017.
EVM	Everledge Manufacturing, Inc-----	P.O. Box 178, Harrison City, Pa. 15636.
FAB	Fabricolor Chemical Corp-----	24-1/2 Van Houten St., Paterson, N.J. 07505.
FMT	Fairmount Chemical Co., Inc-----	117 Blanchard St., Newark, N.J. 07105.
FOC	Farac Oil & Chemical Co-----	147th and Indiana Ave., Chicago, Ill. 60627.
KNG	Far-Best Corp., O. L. King Div-----	640 Gilman St., Berkeley, Calif. 94710.
FCA	Farmers Chemical Association, Inc-----	P.O. Box 67, Tyner, Tenn. 37392.
FRM	Farmers' Chemical Co-----	P.O. Box 591, Kalamazoo, Mich. 49005.
FAR	Farnow, Inc-----	77 Jacobus Ave., S. Kearny, N.J. 07032.
FRR	Estate of W. U. Farrington-----	P.O. Box 389, E. Greenwich, R.I. 02818.
FCL	Federal Color Laboratories, Inc-----	4526 Chickering Ave., Cincinnati, Ohio 45232.
FEL	Felton Chemical Co., Inc-----	599 Johnson Ave., Brooklyn, N.Y. 11237.
FMO	Fermco Laboratories, Inc-----	4941 S. Racine Ave., Chicago, Ill. 60609.
FER	Ferro Corp., Ferro Chemical Div-----	P.O. Box 349, Bedford, Ohio 44014.
FBF	Fiberfil, Inc-----	1701 N. Heidelberg Ave., Evansville, Ind. 47711.
FBR	Fibreboard Paper Products Corp-----	1550 Powell St., Emeryville, Calif. 94600.
FRP	Filtered Rosin Products Co-----	P.O. Box 349, Baxley, Ga. 31513.
FIN	Fine Organics, Inc-----	205 Main St., Lodi, N.J. 07644.
	Firestone Tire & Rubber Co.:	
FIR	Firestone Plastics Co. Div-----	P.O. Box 699, Pottstown, Pa. 19464.
FRS	Firestone Synthetic Rubber & Latex Co. Div---	381 W. Wilbeth Rd., Akron, Ohio 44301.
FLO	Florasynth Laboratories, Inc-----	900 Van Nest Ave., Bronx, N.Y. 10462.
	FMC Corp.:	
AV	American Viscose Div-----	1617 Pennsylvania Blvd., Philadelphia, Pa. 19103.
FMW	Chemical Div-----	633 3d Ave., New York, N.Y. 10017.
FMB	Inorganic Chemicals Div-----	Sawyer Ave. and River Rd., Tonawanda, N.Y. 14207.
FMN	Niagara Chemical Div-----	100 Niagara St., Middleport, N.Y. 14105.
FMP	Organic Chemicals Div-----	P.O. Box 1616, Baltimore, Md. 21203.
FTE	Foot Mineral Co-----	Route 100, Exton, Pa. 19341.
FOR	Foremost Chemical Products Co-----	P.O. Box 599, Oakland, Calif. 94604.
FOM	Formica Corp-----	4614 Spring Grove Ave., Cincinnati, Ohio 45232.
FG	Foster Grant Co., Inc-----	289 N. Main St., Leominster, Mass. 01453.
FH	Foster-Heaton Co-----	16 E. 5th St., Paterson, N.J. 07524.
FCD	France, Campbell & Darling, Inc-----	N. Michigan Ave., Kenilworth, N.J. 11234.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
FCP	J. P. Frank Chemical & Plastic Corp-----	5410 Avenue U, Brooklyn, N.Y. 11234.
FC	Franklin Chemical Co-----	2020 Bruck St., Columbus, Ohio 43207.
FRE	Freeman Chemical Corp-----	222 E. Main St., Port Washington, Wis. 53074.
FSH	Frisch & Co., Inc-----	88 E. 11th St., Paterson, N.J. 07509.
FB	Fritzsche Bros., Inc-----	76 9th Ave., New York, N.Y. 10011.
FLH	H. B. Fuller Co-----	4819 Industrial Ct., Cincinnati, Ohio 45217.
FLW	W. P. Fuller & Co-----	450 E. Grand Ave., S. San Francisco, Calif. 94080.
GAM	Gamma Chemical Corp-----	355 Lexington Ave., New York, N.Y. 10017.
GAN	Gane's Chemical Works, Inc-----	535 5th Ave., New York, N.Y. 10017.
GGY	Geigy Chemical Corp-----	P.O. Box 430, Yonkers, N.Y. 10702.
G	General Aniline & Film Corp-----	435 Hudson St., New York, N.Y. 10014.
	General Electric Co.:	
GE	Chemical Materials Dept-----	1 Plastics Ave., Pittsfield, Mass. 01203.
GEI	Insulating Materials Dept-----	1 Campbell Rd., Schenectady, N.Y. 12306.
SPD	Silicone Products Dept-----	Waterford, N.Y. 12188.
GNF	General Foods Corp., Maxwell House Div-----	1125 Hudson St., Hoboken, N.J. 07030.
GLC	General Latex & Chemical Corp-----	666 Main St., Cambridge, Mass. 02139.
GNM	General Mills, Inc-----	S. Kensington Rd., Kankakee, Ill. 60901.
GPM	General Plastics Manufacturing Co-----	3481 S. 35th St., Tacoma, Wash. 98409.
GNT	General Tire & Rubber Co., Chemical Div-----	1708 Englewood Ave., Akron, Ohio 44309.
GRG	P. D. George Co-----	5200 N. 2d St., St. Louis, Mo. 63147.
	Georgia-Pacific Corp.:	
CBC	Coos Bay Div-----	P.O. Box 869, Coos Bay, Ore. 97420.
PSP	Puget Sound Div-----	300 Laurel St., Bellingham, Wash. 98225.
GIL	Gilman Paint & Varnish Co-----	W. 8th and Pine Sts., Chattanooga, Tenn. 37401.
GIV	Givaudan Corp-----	109-201 Delawanna Ave., Delawanna, N.J. 07014.
GLX	Glasflex, Inc-----	Stirling, N.J. 07980.
GLD	Glidden Co-----	900 Union Commerce Bldg., Cleveland, Ohio 44114.
GLY	Glyco Chemicals, Inc-----	417 5th Ave., New York, N.Y. 10016.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	3135 Euclid Ave., Cleveland, Ohio 44115.
GGC	Goodrich-Gulf Chemicals, Inc-----	1717 E. 9th St., Cleveland, Ohio 44114.
GYR	Goodyear Tire & Rubber Co-----	1144 E. Market St., Akron, Ohio 44316.
GOR	Gordon Chemical Co., Inc-----	88 Webster St., Worcester, Mass. 01603.
GDN	Gordon Chemicals, Inc-----	500 A St., Wilmington, N.J. 19800.
GDL	Gordon-Lacey Chemical Products Co., Inc-----	57-02 48th St., Maspeth, N.Y. 11378.
	W. R. Grace & Co.:	
GRD	Dewey & Almy Chemical Div-----	62 Whittenmore Ave., Cambridge, Mass. 02140.
GRH	Hatco Chemical Div-----	King George Post Rd., P.O. Box 27, Fords, N.J. 08863.
GCC	Nitrogen Products Div-----	P.O. Box 277, Memphis, Tenn. 38101.
GRP	Polymer Chemicals Div-----	225 Allwood Rd., Clifton, N.J. 07015.
GPR	Grain Processing Corp-----	1600 Oregon St., Muscatine, Iowa 52761.
GRA	Great American Chemical Corp-----	650 Water St., Fitchburg, Mass. 21420.
GTL	Great Lakes Chemical Corp-----	P.O. Box 472, W. Lafayette, Ind. 47906.
GRW	Great Western Sugar Co-----	P.O. Box 5308, Terminal Annex, Denver, Colo. 80217.
GUA	Guard Chemical Co., Inc-----	N. Water St., Ossining, N.Y. 10563.
GRV	Guardman Chemical Coatings, Inc-----	1350 Steele Ave. SW., Grand Rapids, Mich. 49502.
GOC	Gulf Oil Corp-----	P.O. Drawer 2100, Houston, Tex. 77001.
GTH	Guth Chemical Co-----	1455 W. Congress Pkwy., Chicago, Ill. 60607.
HNC	H & N Chemical Co-----	Maltese Dr., Totowa, N.J. 07512.
HLI	Haag Laboratories, Inc-----	14010 S. Seeley, Blue Island, Ill. 60406.
HAB	Halby Products Co., Inc-----	P.O. Box 366, Wilmington, Del. 19899.
HAL	C. P. Hall Co. of Illinois-----	5245 W. 73d St., Chicago, Ill. 60638.
HCO	Hamilton Chemical Corp-----	45 Andrews St., Lowell, Mass. 01853.
HAM	Hampden Color & Chemical Co-----	5 Albany St., Springfield, Mass. 01101.
HMP	Hampshire Chemical Corp-----	Poisson Ave., Nashua, N.H. 03060.
HAN	Hanna Paint Manufacturing Co., Inc-----	1313 Windsor Ave., Columbus, Ohio 43211.
HSB	Harshaw Chemical Co-----	1945 E. 97th St., Cleveland, Ohio 44106.
HLC	Hartman-Leddon Co-----	60th and Woodland Ave., Philadelphia, Pa. 19143.
HRT	Hart Products Corp-----	1440 Broadway, New York, N.Y. 10018.
HVG	Haveg Industries, Inc., Resin & Compound Div-----	900 Greenbank Rd., Wilmington, Del. 19808.
HPC	Hercules Powder Co-----	Hercules Tower, 910 Market St., Wilmington, Del. 19899.
IMP	Imperial Color & Chemical Dept-----	P.O. Box 231, Glens Falls, N.Y. 12801.
HER	Heresite & Chemical Co-----	822 S. 14th St., Manitowoc, Wis. 54221.
DLH	Hess Oil & Chemical Corp-----	State St., Perth Amboy, N.J. 08861.
HET	Heterochemical Corp-----	111 E. Hawthorne Ave., Valley Stream, N.Y. 11582.
HEX	Hexagon Laboratories, Inc-----	3536 Peartree Ave., Bronx, N.Y. 10469.
HN	Heyden Newport Chemical Corp-----	300 E. 42d St., New York, N.Y. 10017.
HNW	Newport Industries Div-----	P.O. Box 911, Pensacola, Fla. 32501.
HNX	Nuodex Products Div-----	830 Magnolia Ave., Elizabeth, N.J. 07114.
HDG	Hodag Chemical Corp-----	7247 N. Central Park Ave., Skokie, Ill. 60076.
HST	Hoechst Chemical Corp-----	129 Quidnick St., W. Warwick, R.I. 02893.



TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
HOF	Hoffmann-LaRoche, Inc-----	324 Kingsland Rd., Nutley, N.J. 07110.
HFT	Hoffman-Taff, Inc-----	P.O. Box 1246 SSS, Springfield, Mo. 65805.
HCC	Holland Color & Chemical Co-----	471 Howard Ave., Holland, Mich. 49424.
HK	Hooker Chemical Corp-----	Buffalo Ave. and 47th St., Niagara Falls, N.Y. 14302.
HKD	Durez Plastics Div-----	Walck Rd., N. Tonawanda, N.Y. 14121.
EFH	E. F. Houghton & Co-----	303 W. Lehigh Ave., Philadelphia, Pa. 19133.
HCH	Houston Chemical Corp-----	200 Madison Ave., New York, N.Y. 10016.
HMY	Humphrey Chemical Co-----	Devine St., North Haven, Conn. 06473.
HUS	Husky-Dominion Briquets-----	P.O. Box 380, Cody, Wyo. 82414.
HYN	Hynson, Westcott & Dunning, Inc-----	Charles and Chase Sts., Baltimore, Md. 21201.
HYC	Hysol Corp-----	1100 Seneca Ave., Olean, N.Y. 14761.
ICI	I.C.I. (Organics), Inc-----	55 Canal St., Providence, R.I. 02901.
IMR	Imperial Chemical Co., Inc-----	W. 6th and Grass Sts., Shenandoah, Iowa 51601.
IMS	Importers Service Corp-----	233 Suydam Ave., Jersey City, N.J. 07304.
IBI	Industrial Biochemicals-----	Edison Industrial Center, Edison, N.J. 08817.
IDC	Industrial Dyestuff Co-----	Dexter Rd., E. Providence, R.I. 02914.
INL	Inland Steel Container Co-----	6532 S. Menard Ave., Chicago, Ill. 60638.
	Interchemical Corp.:	
ICC	Color & Chemicals Div-----	150 Wagaraw Rd., Hawthorne, N.J. 07507.
ICF	Finishes Div-----	1255 Broad St., Clifton, N.J. 07012.
ICO	Organic Chemicals Dept-----	P.O. Box 8, Route 17, Carlstadt, N.J. 07072.
IFF	International Flavors & Fragrances, Inc-----	521 W. 57th St., New York, N.Y. 10019.
ILC	International Latex Corp-----	Playtex Park, Dover, Del. 19901.
IMC	International Minerals & Chemical Corp-----	5401 Old Orchard Rd., Skokie, Ill. 60078.
INP	International Paper Co-----	220 E. 42d St., New York, N.Y. 10017.
IRC	International Resistance Co-----	401 N. Broad St., Philadelphia, Pa. 19104.
IPR	Inter-Pacific Resins, Inc-----	P.O. Box 445, Sweet Home, Oreg. 97386.
IPC	Interplastic Corp., Commercial Resins Div-----	102 W. Fairfield Ave., St. Paul, Minn. 55107.
IRI	Ironides Resins, Inc-----	270 W. Mound St., Columbus, Ohio 43216.
ISO	Isochem Resins Co-----	221 Oak St., Providence, R.I. 02909.
IPI	Isocyanate Products, Inc-----	900 Wilmington Rd., New Castle, Del. 19720.
JAM	Jamestown Paint & Varnish Co-----	108 Main St., Jamestown, Pa. 16134.
JCC	Jefferson Chemical Co., Inc-----	P.O. Box 53300, Houston, Tex. 77052.
MER	Jefferson Lake Sulphur Co., Chemical Div-----	1914 Haden Rd., Houston, Tex. 77015.
JEN	Jennison-Wright Corp-----	P.O. Box 4187, Station E, Toledo, Ohio 43609.
JRG	Andrew Jergens Co-----	2535 Spring Grove Ave., Cincinnati, Ohio 45214.
JSC	Jersey State Chemical Co-----	59 Lee Ave., Haledon, N.J. 07508.
JWL	Jewel Paint & Varnish Co-----	345 N. Western Ave., Chicago, Ill. 60612.
JOC	Joelin Manufacturing Co-----	Lufbery Ave., Wallingford, Conn. 06492.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, Wis. 53403.
JOB	Jones-Blair Paint Co-----	6969 Denton Dr., Dallas, Tex. 75235.
JOR	W. H. & F. Jordan, Jr. Manufacturing Co., Inc---	Barclay Bldg., 1 Belmont Ave., Bala Cynwyd, Pa. 19004.
JUL	Julian Laboratories, Inc-----	9352-58 W. Grand Ave., Franklin Park, Ill. 60131.
KAI	Kaiser Aluminum & Chemical Corp-----	P.O. Box 337, Gramercy, La. 70052.
KAL	Kali Manufacturing Co-----	427 E. Moyer St., Philadelphia, Pa. 19125.
KF	Kay-Fries Chemicals, Inc-----	360 Lexington Ave., New York, N.Y. 10017.
KEL	Kelly-Pickering Chemical Corp-----	956 Bransten Rd., San Carlos, Calif. 94070.
KEN	Kendall Refining Co-----	1177 Kendall Ave., Bradford, Pa. 16701.
	Kennecott Copper Corp.:	
KCC	Chino Mines Div-----	Hurley, N. Mex. 88043.
KCU	Utah Copper Div-----	P.O. Box 1650, Salt Lake City, Utah 84110.
KPI	Kenrich Petrochemicals, Inc-----	Foot of E. 22d St., Bayonne, N.J. 07002.
KYS	Keysor Chemical Co-----	26000 Bouquet Canyon Rd., Saugus, Calif. 91350.
KCH	Keystone Chemurgic Corp-----	R.D. #2, Bethlehem, Pa. 18017.
KCW	Keystone Color Works, Inc-----	151 W. Gay Ave., York, Pa. 17403.
KPV	Keystone Paint & Varnish Corp-----	71 Otsego St., Brooklyn, N.Y. 11231.
KLS	Kilsdonk Chemical Corp-----	101 Canal St., Lock Haven, Pa. 17745.
KNP	Knapp Products, Inc-----	180 Hamilton Ave., Lodi, N.J. 07644.
KND	Knoedler Chemical Co-----	651 High St., Lancaster, Pa. 17604.
KON	H. Kohnstamm & Co., Inc-----	161 Avenue of the Americas, New York, N.Y. 10013.
KLK	Kolker Chemical Corp., DBA Frontier Chemical Co-	600 Doremus Ave., Newark, N.J. 07105.
	Koppers Co., Inc.:	
KPP	Plastics Div-----	Koppers Bldg., 430 7th Ave., Pittsburgh, Pa. 15219.
KPT	Tar Products Div-----	Koppers Bldg., 430 7th Ave., Pittsburgh, Pa. 15219.
KPS	Koppers Pittsburgh Co-----	Koppers Bldg., 430 7th Ave., Pittsburgh, Pa. 15219.
KYN	Kyanize Paints, Inc-----	2d and Boston Sts., Everett, Mass. 02149.
LKL	Lakeside Laboratories, Inc-----	1707 E. North Ave., Milwaukee, Wis. 53201.
LAK	Lakeway Chemical Co-----	5025 Evanston Ave., Muskegon, Mich. 49443.
LAM	LaMotte Chemical Products Co-----	Chestertown, Md. 21620.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
LAS	Lasco Industries, Inc-----	1561 Chapin Rd., Montebello, Calif. 90640.
LUR	Laurel Soap Manufacturing Co-----	Thompson and Tioga Sts., Philadelphia, Pa. 19134.
IMI	Lawrence Mills, Inc-----	19 S. Canal St., Lawrence, Mass. 01843.
KRM	Lawter Chemicals, Inc., Krumbhaar Resin Div----	3550 Touhy Ave., Chicago, Ill. 60645.
LEA	Leatex Chemical Co-----	2722 N. Hancock St., Philadelphia, Pa. 19133.
LEB	Lebanon Chemical Corp-----	P.O. Box 693, Lebanon, Pa. 17042.
LEF	Leffingwell Chemical Co-----	P.O. Box 1187, Perry Annex, Whittier, Calif. 90604.
LEH	Lehigh Chemical Co-----	P.O. Box 120, Chestertown, Md. 21620.
LEM	B. L. Lemke & Co., Inc-----	199 Main St., Lodi, N.J. 07644.
LEN	Leonard Refineries, Inc-----	E. Superior St., Alma, Mich. 48801.
LEV	Lever Brothers Co-----	390 Park Ave., New York, N.Y. 10022.
LVR	C. Lever Co., Inc-----	Howard and Huntington Sts., Philadelphia, Pa. 19133.
LVI	Fred'k H. Levey Co., Inc-----	380 Madison Ave., New York, N.Y. 10017.
LPC	Lignin Products Co-----	P.O. Box 960, Erie, Pa. 16512.
LIL	Eli Lilly & Co-----	740 S. Alabama St., Indianapolis, Ind. 46206.
LUB	Lubrizol Corp-----	29400 Lakeland Blvd., Wickliffe, Ohio 44092.
LUE	George Lueders & Co-----	427 Washington St., New York, N.Y. 10013.
MET	M & T Chemicals, Inc-----	Woodbridge Rd. and Randolph Ave., Rahway, N.J. 07065.
MAK	Mackenzie Chemical Works, Inc-----	1 Cordello Ave., Central Islip, L.I., N.Y. 11722.
MGR	Magruder Color Co., Inc-----	2385 Richmond Terrace, Staten Island, N.Y. 10302.
MAH	Maier Color & Chemical Co-----	1700 N. Elston Ave., Chicago, Ill. 60622.
MAL	Mallinckrodt Chemical Works-----	P.O. Box 5439, St. Louis, Mo. 63160.
MOC	Marathon Oil Co., Texas Refining Div-----	P.O. Box 1191, Texas City, Tex. 77591.
MRB	Marblette Corp-----	37-31 30th St., Long Island City, N.Y. 11101.
MRO	Marco Chemical Corp-----	1711 W. Elizabeth Ave., Linden, N.J. 07036.
MRD	Marden-Wild Corp-----	500 Columbia St., Somerville, Mass. 02143.
MRV	Marlowe-Van Loan Corp-----	1511 Joshua Circle, High Point, N.C. 27261.
AMS	Martin-Marietta Corp.: Ridgway Color & Chemical Div-----	75 Front St., Ridgway, Pa. 15853.
SDC	Southern Dyestuff Co. Div-----	P.O. Box 10098, Charlotte, N.C. 28201.
MRX	Max Marx Color & Chemical Co-----	192 Coit St., Irvington, N.J. 07111.
MCA	Masonite Corp., Alpine Chemical Div-----	P.O. Box 2392, Gulfport, Miss. 39503.
MPL	Massachusetts Plastic Corp-----	West Ave., Ludlow, Mass. 01056.
MCO	Mathe Chemical Co-----	169 Millbank St., Lodi, N.J. 07644.
MEE	Maumee Chemical Co-----	1310 Expressway Dr., Toledo, Ohio 43608.
MAY	Otto B. May, Inc-----	52 Amsterdam St., Newark, N.J. 07105.
MCC	McCloskey Varnish Co-----	7600 State Rd., Philadelphia, Pa. 19136.
MED	Medical Chemicals Corp-----	4122 W. Grand Ave., Chicago, Ill. 60639.
MRK	Merck & Co., Inc-----	Lincoln Ave., Rahway, N.J. 07065.
MLD	Metalead Products Corp-----	P.O. Box 11005, 2901 Park Blvd., Palo Alto, Calif. 94306.
MHI	Metal Hydrides, Inc-----	12-24 Congress St., Beverly, Mass. 01915.
MTL	Metalsalts Corp-----	200 Wagaraw Rd., Hawthorne, N.J. 07507.
MRA	Metro-Atlantic, Inc-----	2072 Smith St., Centerdale, R.I. 02911.
JMS	J. Meyer & Sons, Inc-----	4321 N. 4th St., Philadelphia, Pa. 19140.
MCH	Michigan Chemical Corp-----	500 N. Bankson St., St. Louis, Mich. 48880.
MID	Midland Industrial Finishes Co-----	P.O. Box 620, E. Water St., Waukegan, Ill. 60086.
MPP	Midwest Plastic Products Co-----	3251 Chicago Rd., Steger, Ill. 60475.
MLS	Miles Laboratories, Inc-----	1127 Myrtle St., Elkhart, Ind. 46514.
BKL	Millmaster Chemical Corp., Berkeley Chemical Dept.	99 Park Ave., New York, N.Y. 10016.
MOR	Mineral Oil Refining Co-----	P.O. Drawer C, Dickinson, Tex. 77539.
MMM	Minnesota Mining & Manufacturing Co-----	2501 Hudson Rd., St. Paul, Minn. 55119.
MNP	Minnesota Paints, Inc-----	1101 S. 3d St., Minneapolis, Minn. 55415.
MIR	Miranol Chemical Co., Inc-----	277 Coit St., Irvington, N.J. 07111.
MSC	Mississippi Chemical Corp-----	P.O. Box 388, Yazoo City, Miss. 39194.
MOB	Mobay Chemical Co-----	Penn Lincoln Parkway, W. Pittsburgh, Pa. 15205.
LON	Mobil Finishes Co., Inc.: American-Marietta Paint Div-----	1630 West Hill St., Louisville, Ky. 40210.
ARO	Arco Div-----	7301 Bessemer Ave., Cleveland, Ohio 44127.
AMF	Ferbert-Schormdorfer Div-----	12815 Elmwood Ave., Cleveland, Ohio 44111.
MFG	Molded Fiber Glass Body Co., Resin Div-----	4601 Benefit Ave., Ashtabula, Ohio 44004.
MOA	Mona Industries, Inc-----	65 E. 23d St., Paterson, N.J. 07509.
MNO	Monochem, Inc-----	P.O. Box 488, Geismar, La. 70734.
MON	Monsanto Co.: Chocolate Bayou Plant----- Gering Plastics Dept----- Organic Chemical Div----- Plastics Div-----	P.O. Box 711, Alvin, Tex. 77511. N. 7th St. and Monroe Ave., Kenilworth, N.J. 07033. 800 N. Lindbergh Blvd., St. Louis, Mo. 63166. 812 Monsanto Ave., Springfield, Mass. 01102, and P.O. Box 1311, Texas City, Tex. 77591.
MTO	Western Div-----	9229 E. Marginal Way S., Seattle, Wash. 98108.
MR	Montrose Chemical Corp. of California-----	500 S. Virgil Ave., Los Angeles, Calif. 90005.
	Benjamin Moore & Co-----	548 5th Ave., New York, N.Y. 10036.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
MRN	Morningstar Paisley, Inc-----	1770 Canalport Ave., Chicago, Ill. 60616.
MRT	Morton Salt Co., Morton Chemical Co. Div-----	110 N. Wacker Dr., Chicago, Ill. 60606.
MRW	Morwear Paint Co-----	568 14th St., Oakland, Calif. 94612.
MOT	Motomco, Inc-----	89 Terminal Ave., Clark, N.J. 07066.
VIS	Nalco Chemical Co., Visco Div-----	P.O. Box 87, Sugar Land, Tex. 77478.
NTB	National Biochemical Co-----	3127 W. Lake St., Chicago, Ill. 60612.
NTC	National Casein Co-----	601 W. 80th St., Chicago, Ill. 60620.
	National Dairy Products Corp.:	
HUM	Hunko Products Chemical Div-----	P.O. Box 398, Memphis, Tenn. 38101.
SHF	Sheffield Chemical Co. Div-----	P.O. Box 630, Norwich, N.Y. 13815.
USI	National Distillers & Chemical Corp.:	
	A-B Chemical Corp-----	99 Park Ave., New York, N.Y. 10016.
	National Petro Chemical Corp-----	99 Park Ave., New York, N.Y. 10016.
	U.S. Industrial Chemicals Co. Div-----	99 Park Ave., New York, N.Y. 10016.
NTL	National Lead Co-----	111 Broadway, New York, N.Y. 10006.
NPP	National Plastic Products Co., Inc-----	Odenton, Md. 21113.
NPI	National Polychemicals, Inc-----	51 Eames St., Wilmington, Mass. 01887.
NSC	National Starch & Chemical Corp-----	1700 W. Front St., Plainfield, N.J. 07063.
NVF	National Vulcanized Fibre Co-----	Maryland Ave. and Beech St., Wilmington, Del. 19899.
USR	Naugatuck Chemical Div. of U.S. Rubber Co-----	Naugatuck, Conn. 06771.
NES	Nease Chemical Co., Inc-----	P.O. Box 221, State College, Pa. 16801.
NCI	Nelio Chemicals, Inc-----	2051 Lane Ave., Jacksonville, Fla. 32205.
NEP	Nepera Chemical Co., Inc-----	Route 17 and Averill Ave., Harriman, N.Y. 10926.
NEV	Neville Chemical Co-----	Neville Island, Pittsburgh, Pa. 15225.
WOI	Chlorinated Products Div-----	Neville Island, Pittsburgh, Pa. 15225.
NIL	Nilok Chemicals, Inc-----	Mill St. and N. Transit, Lockport, N.Y. 14094.
NIT	Nittrin, Inc-----	P.O. Box 233, Cordova, Ill. 61242.
NIX	Nixon-Baldwin Chemicals, Inc-----	Nixon, N.J. 08818.
NON	A. P. Nonweiler Co-----	P.O. Box 1007, Oshkosh, Wis. 54902.
NOP	Nopco Chemical Co., Inc-----	60 Park Pl., Newark, N.J. 07101.
NOC	Norac Co., Inc-----	405 S. Motor Ave., Azusa, Calif. 91703.
NEO	Norda Essential Oil & Chemical Co., Inc-----	601 W. 26th St., New York, N.Y. 10001.
NPV	Norris Paint & Varnish Co-----	1710 Front St. NE., Salem, Oreg. 97303.
NRS	Norse Chemical Corp-----	2121 Norse Ave., Cudahy, Wis. 53110.
NW	Northwestern Chemical Co-----	120 N. Aurora St., W. Chicago, Ill. 60185.
NOR	Norwich Pharmacal Co-----	17 Eaton Ave., Norwich, N.Y. 13815.
NCW	Nostrup Chemical Works, Inc-----	182 Liberty Ave., Jamaica, N.Y. 11412.
NVT	Novamont Corp-----	P.O. Box 189, Kenova, W. Va. 25530.
OLH	Old Hickory Chemical Co-----	P.O. Box 3408, Richmond, Va. 23234.
OMC	Olin Mathieson Chemical Corp-----	460 Park Ave., New York, N.Y. 10022, and 445 W. 59th St., New York, N.Y. 10019.
OMS	E. R. Squibb & Sons Div-----	460 Park Ave., New York, N.Y. 10022.
ONX	Onyx Chemical Corp-----	190 Warren St., Jersey City, N.J. 07302.
OPC	Orbis Products Corp-----	601 W. 26th St., New York, N.Y. 10001.
ORG	Organics, Inc-----	1724 Greenleaf Ave., Chicago, Ill. 60626.
BSW	Original Bradford Soap Works, Inc-----	200 Providence St., W. Warwick, R.I. 02893.
OSB	C. J. Osborn Co-----	1301 W. Blancke St., Linden, N.J. 07036.
OTA	Ottawa Chemical Co-----	700 N. Wheeling St., Toledo, Ohio 43605.
OTC	Ott Chemical Co-----	500 Agard Rd., Muskegon, Mich. 49945.
OTT	Ottol Oil Co., Inc-----	455 Cortlandt St., Belleville, N.J. 07109.
OCF	Owens-Corning Fiberglas Corp-----	National Bank Bldg., Toledo, Ohio 43601.
OXY	Oxy Chemical Co-----	P.O. Box 28, Hackettstown, N.J. 07840.
PBS	Pabst Brewing Co-----	917 W. Juneau Ave., Milwaukee, Wis. 53201.
AMR	Pacific Resins & Chemical Co-----	3400 13th Ave. SW., Seattle, Wash. 98134.
PAN	Pan American Petroleum Corp-----	P.O. Box 591, Tulsa, Okla. 74102.
PNT	Pantasote Co-----	26 Jefferson St., Passaic, N.J. 07056.
PRC	Paragon Chemicals-----	221 Oak St., Providence, R.I. 02909.
PD	Parke, Davis & Co-----	Foot of Jos. Campau, Detroit, Mich. 48232.
PAT	Patent Chemicals, Inc-----	335 McLean Blvd., Paterson, N.J. 07504.
CCH	Pearsall Chemical Co-----	P.O. Box 108, Phillipsburg, N.J. 08865.
PEK	Peck's Products Co-----	610 E. Clarence Ave., St. Louis, Mo. 63147.
PCH	Peerless Chemical Co-----	3850 Oakman Blvd., Detroit, Mich. 48204.
PEL	Pelron Corp-----	7847 W. 47th St., Lyons, Ill. 60534.
PEN	S. B. Penick & Co-----	100 Church St., New York, N.Y. 10008.
PRP	Parsons-Plymouth Div-----	100 Church St., New York, N.Y. 10008.
PAS	Pernsalt Chemicals Corp-----	3 Penn Center, Philadelphia, Pa. 19102.
PAI	Pennsylvania Industrial Chemical Corp-----	120 State St., P.O. Box 240, Clairton, Pa. 15025.
PAR	Pennsylvania Refining Co-----	Commonwealth Bank & Trust Co. Bldg., Butler, Pa. 16001.
PGU	Perkins Glue Co-----	632 Cannon Ave., Lansdale, Pa. 19446.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
PRR	L. Perrigo Co-----	Allegan, Mich. 49010.
PER	Perry & Derrick Co-----	2510 Highland Ave., Norwood, Ohio 45212.
PET	Petroleum Chemicals, Inc-----	P.O. Box 1522, Lake Charles, La. 70604.
PTT	Petro-Tex Chemical Corp-----	P.O. Box 2584, Houston, Tex. 77001.
PFN	Pfanstiehl Laboratories, Inc-----	1219 Glen Rock Ave., Waukegan, Ill. 60086.
IOC	Pfaudler Permutit, Inc., Ionac Chemical Co. Div-----	Birmingham, N.J. 08011.
PCW	Pfister Chemical Works-----	Linden Ave., Ridgefield, N.J. 07657.
PFZ	Chas. Pfizer & Co., Inc-----	235 E. 42d St., New York, N.Y. 10017.
PHR	Pharmachem Corp-----	Broad and Wood Sts., Bethlehem, Pa. 18015.
PFP	Phelan-Faust Paint Manufacturing Co-----	932 Loughborough Ave., St. Louis, Mo. 63111.
	Phelan's Resins & Plastics Div-----	P.O. Box 189, Burlington, Iowa 52602.
PLC	Phillips Petroleum Co-----	Bartlesville, Okla. 74004.
PLP	Chemical Dept-----	Bartlesville, Okla. 74004.
PNX	Phoenix Oil Co-----	9505 Cassius Ave., Cleveland, Ohio 44105.
PIC	Pierce Chemical Co-----	P.O. Box 117, Rockford, Ill. 61105.
PBY	Pillsbury Co-----	608 2d Ave. S., Minneapolis, Minn. 55402.
PIL	Pilot Chemical Co-----	11756 Burke St., Santa Fe Springs, Calif. 90670.
PCI	Pioneer Chemical Works, Inc-----	940 N. Delaware Ave., Philadelphia, Pa. 19123.
PIT	Pitt-Consol Chemical Co-----	191 Doremus Ave., Newark, N.J. 07105.
PCC	Pittsburgh Chemical Co-----	200 Grant Bldg., Pittsburgh, Pa. 15219.
PPG	Pittsburgh Plate Glass Co-----	1 Gateway Center, Pittsburgh, Pa. 15222.
PLS	Plastics Engineering Co-----	1607 Geele Ave., Sheboygan, Wis. 53082.
PMP	Plastics Material & Polymers, Inc-----	New South Rd., Hicksville, N.Y. 11801.
PLU	Plumb Chemical Corp-----	4837 James St., Philadelphia, Pa. 19137.
PYL	Polychemical Laboratories, Inc-----	490 Hunts Point Ave., New York, N.Y. 10474.
POL	Polymer Corp-----	2120 Fairmont Ave., Reading, Pa. 19603.
PII	Polymer Industries, Inc-----	Viaduct Rd., Springdale, Conn. 06879.
PYR	Poly Resins-----	11655 Wicks St., Sun Valley, Calif. 91352.
PYZ	Polyrez Co., Inc-----	S. Columbia St., Woodbury, N.J. 08096.
PVI	Polyvinyl Chemicals, Inc-----	26 Howley St., Peabody, Mass. 01961.
GRS	Pontiac Refining Corp-----	P.O. Box 1581, Corpus Christi, Tex. 78403.
PRT	Pratt & Lambert, Inc-----	75 Tonawanda St., Buffalo, N.Y. 14207.
PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co. Div-----	Ivorydale Technical Center, Cincinnati, Ohio 45217.
PC	Proctor Chemical Co., Inc-----	P.O. Box 399, Salisbury, N.C. 28144.
PRD	Productol Chemical Co-----	615 S. Flower St., Los Angeles, Calif. 90017.
PUB	Publicker Industries, Inc-----	1429 Walnut St., Philadelphia, Pa. 19102.
PRO	Pure Oil Co-----	200 E. Gulf Rd., Palatine, Ill. 60067.
PRX	Purex Corp., Ltd-----	5101 Clark Ave., Lakewood, Calif. 90712.
QCP	Quaker Chemical Products Corp-----	Elm, Lime, and Sandy Sts., Conshohocken, Pa. 19428.
QKO	Quaker Oats Co-----	Merchandise Mart Plaza, Chicago, Ill. 60654.
QUN	K. J. Quinn & Co., Inc-----	195 Canal St., Malden, Mass. 02148.
RSA	R. S. A. Corp-----	690 Saw Mill River Rd., Ardsley, N.Y. 10502.
RAB	Raybestos-Manhattan, Inc., Raybestos Div-----	P.O. Box 1021, Bridgeport, Conn. 06601.
RET	Rayette, Inc-----	261 E. 5th St., St. Paul, Minn. 55101.
BRR	Raymond Chemical Co-----	401 E. Broadway, Swanton, Ohio 43558.
RED	Red Spot Paint & Varnish Co., Inc-----	110 Main St., Evansville, Ind. 47708.
RPE	Refined Products Co-----	624 Schuyler Ave., Lyndhurst, N.J. 07071.
RCI	Reichhold Chemicals, Inc-----	525 N. Broadway, White Plains, N.Y. 10602.
VAR	Varcum Chemical Div-----	Niagara Falls, N.Y. 14302.
RIL	Reilly Tar & Chemical Corp-----	1615 Merchants Bank Bldg., Indianapolis, Ind. 46204.
REL	Reliance Varnish Co-----	4730 Crittenden Dr., Louisville, Ky. 40221.
CPL	Coast Paint & Lacquer Co. Div-----	6901 Cavalcade, Houston, Tex. 77001.
REM	Remington Arms Co., Inc-----	939 Barnum Ave., Bridgeport, Conn. 06602.
RTF	Retzlloff Chemical Co-----	P.O. Box 45296, Houston, Tex. 77045.
RCC	Rexall Chemical Co-----	8480 Beverly Blvd., Los Angeles, Calif. 90054.
CFC	Rexall Chemical Co. - Kearny-----	1106 Harrison Ave., Kearny, N.J. 07029.
REZ	Rezolin, Inc-----	1651 18th St., Santa Monica, Calif. 90404.
RDA	Rhodia, Inc-----	60 E. 56th St., New York, N.Y. 18901.
RCD	Richardson Co-----	27th Ave. and Lake St., Melrose Park, Ill. 60160.
	Krystall Chemical Corp. Div-----	27th Ave. and Lake St., Melrose Park, Ill. 60160.
PLA	Richardson Polymers Div-----	345 Morgan Lane, West Haven, Conn. 06516.
RIC	Richfield Oil Corp-----	555 S. Flower St., Los Angeles, Calif. 90054.
RIK	Riker Laboratories, Inc-----	19901 Nordhoff St., Northridge, Calif. 91326.
RMC	Rinshed-Mason Co-----	5935 Milford Ave., Detroit, Mich. 48210.
RT	F. Ritter & Co-----	4001 Goodwin Ave., Los Angeles, Calif. 90039.
RTC	Ritter Chemical Co., Inc-----	403 W. Main St., Amsterdam, N.Y. 12011.
RIV	Riverdale Chemical Co-----	220 E. 17th St., Chicago Heights, Ill. 60411.
RBC	Roberts Chemicals, Inc-----	P.O. Box 546, Nitro, W. Va. 25143.
ROC	Rock Hill Printing & Finishing Co-----	Rock Hill, S.C. 29731.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
RKD	Rockland Industries-----	Mayflower Dr., W. Hanover, Mass. 02380.
ORT	Roehr Chemicals, Inc-----	52-20 37th St., Long Island City, N.Y. 11101.
RGC	Rogers Corp-----	Mill St., Rogers, Conn. 06263.
RH	Rohm & Haas Co-----	222 W. Washington Sq., Philadelphia, Pa. 19105.
RQM	Roma Chemical Corp-----	900 Passaic Ave., E. Newark, N.J. 07029.
RSB	Rosenberg Bros. & Co-----	100 Landing Ave., Smithtown, N.Y. 11787.
ROS	Rosett Chemicals, Inc-----	649 Ferry St., Newark, N.J. 07105.
RPI	Rowland Products, Inc-----	Fairview Lane, Kensington, Conn. 06037.
ROY	Royce Chemical Co-----	Carlton Hill P.O., E. Rutherford, N.J. 07073.
RZL	Rozilda Laboratories, Inc-----	814 Madison St., Hoboken, N.J. 07030.
RUB	Rubber Corp. of America-----	New South Rd., Hicksville, N.Y. 11802.
RUR	Ruberoid Co-----	S. Bound Brook, N.J. 08880.
LKY	St. Regis Paper Co., Lake States Yeast & Chemical Div.	603 W. Davenport St., Rhinelander, Wis. 54501.
SAL	Dr. Salsbury's Laboratories-----	500 Gilbert St., Charles City, Iowa 50616.
S	Sandoz, Inc-----	P.O. Box 357, Fair Lawn, N.J. 07410.
	Dyestuff Div., Pigment Dept-----	61-63 Van Dam St., New York, N.Y. 10013.
SAR	Sartomer Resins, Inc-----	32d and Spring Garden Sts., Philadelphia, Pa. 19104.
SCF	Schaefer Varnish Co., Inc-----	15th and Magnolia Sts., Louisville, Ky. 40210.
SCN	Schenectady Chemicals, Inc-----	Congress St. and 10th Ave., Schenectady, N.Y. 12301.
SBC	Scher Bros-----	P.O. Box 538, Allwood Station, Clifton, N.J. 07012.
SCR	R. P. Scherer Corp-----	9425 Grinnell Ave., Detroit, Mich. 48213.
SCH	Schering Corp-----	1011 Morris Ave., Union, N.J. 07083.
SCO	Scholler Bros., Inc-----	Collins and Westmoreland Sts., Philadelphia, Pa. 19134.
SCL	Schuykill Chemical Co-----	2346 W. Sedgley Ave., Philadelphia, Pa. 19132.
SBR	Schwarz Bioresearch, Inc-----	Mountain View Ave., Orangeburg, N.Y. 10962.
SEA	Seaboard Chemicals, Inc-----	30 Foster St., Salem, Mass. 01971.
SRL	G. D. Searle & Co-----	P.O. Box 5110, Chicago, Ill. 60680.
SED	Seidlitz Paint & Varnish Co-----	18th and Garfield, Kansas City, Mo. 64141.
SEY	Seydel-Woolley & Co., Inc-----	P.O. Box 2345, Atlanta, Ga. 30318.
SHM	Shamrock Oil & Gas Corp-----	P.O. Box 631, Amarillo, Tex. 79105.
SRC	Shawinigan Resins Corp-----	644 Monsanto Ave., Springfield, Mass. 01101.
SHO	Shell Oil Co-----	50 W. 50th St., New York, N.Y. 10020.
SHC	Shell Chemical Co. Div-----	110 W. 51st St., New York, N.Y. 10020.
SHP	Shepherd Chemical Co-----	2803 Highland Ave., Cincinnati, Ohio 45212.
SW	Sherwin-Williams Co-----	101 Prospect Ave., NW., Cleveland, Ohio 44101.
SHL	Shulton, Inc., Fine Chemicals Div-----	697 Route 46, Clifton, N.J. 07015.
SID	George F. Siddall Co., Inc-----	P.O. Box 925, Spartanburg, S.C. 29301.
SOG	Signal Oil & Gas Co., Houston Div-----	P.O. Box 5008, Harrisburg Station, Houston, Tex. 77012.
SIC	Silmar Chemical Corp-----	12335 S. Van Ness Ave., Hawthorne, Calif. 90250.
SIM	Simpson Timber Co-----	2301 N. Columbia Blvd., Portland, Oreg. 97217.
SKC	Sinclair Koppers Chemical Co-----	P.O. Box 5536, Houston, Tex. 77012.
SPI	Sinclair Petrochemicals, Inc-----	600 5th Ave., New York, N.Y. 10020.
SIN	Sinclair Refining Co-----	600 5th Ave., New York, N.Y. 10020.
SIP	James B. Sipe & Co-----	P.O. Box 8010, Pittsburgh, Pa. 15216.
SKO	Skelly Oil Co-----	P.O. Box 1650, Tulsa, Okla. 74102.
GFS	G. Frederick Smith Chemical Co-----	867 McKinley Ave., Columbus, Ohio 43222.
SK	Smith, Kline & French Laboratories-----	1500 Spring Garden St., Philadelphia, Pa. 19101.
SM	Socony Mobil Oil Co., Inc.: Mobil Chemical Co. Div----- Mobil Oil Co. Div-----	150 E. 42d St., New York, N.Y. 10017. 612 S. Flower St., Los Angeles, Calif. 90054, and P.O. Box 3311, Beaumont, Tex. 77704.
VC	Virginia-Carolina Chemical Co. Div-----	401 E. Main St., Richmond, Va. 23208.
SPP	Socony Paint Products Co-----	Metuchen, N.J. 08840.
SOH	Sohio Chemical Co., Agent: Sohio Petroleum Co----- Solar Nitrogen Chemicals, Inc-----	621 Republic Bldg., Cleveland, Ohio 44115. 621 Republic Bldg., Cleveland, Ohio 44115. Solar Park, Leominster, Mass. 01453.
SOL	Solar Chemical Corp-----	Green Hill and Market Sts., W. Warwick, R.I. 02893.
SLC	Soluol Chemical Co., Inc-----	341 Commercial St., Malden, Mass. 02148.
SVT	Solvent Chemical Co., Inc-----	300 Park Ave. S., New York, N.Y. 10010.
SON	Sonneborn Chemical & Refining Corp-----	Hartsville, S.C. 29550.
SNC	Sonoco Products Co-----	E. Catawba Ave., Mount Holly, N.C. 28120.
STC	Sou-Tex Chemical Co., Inc-----	P.O. Box 246, Savannah, Ga. 31402.
SNI	Southern Nitrogen Co., Inc-----	P.O. Box 391, East Point, Ga. 30044.
SOS	Southern Sizing Co-----	P.O. Box 6966, Houston, Tex. 77005.
STH	South Hampton Co-----	310 Wheeler St., Tonawanda, N.Y. 14152.
SPL	Spaulding Fibre Co., Inc-----	610 Dwight Bldg., Kansas City, Mo. 64105.
SPN	Spencer Chemical Co-----	26 Howley St., Peabody, Mass. 01960.
SFC	Stahl Finish Co-----	N. 22d and Eldorado Sts., Decatur, Ill. 62525.
STA	A. E. Staley Manufacturing Co-----	491 Main St., Cambridge, Mass. 02142.
UBS	U B S Chemical Co. Div-----	45 Jefferson St., P.O. Box 1131, Stamford, Conn. 06940.
SMC	Stamford Chemical Co-----	

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	Clinton, Iowa 52733.
SCP	Standard Chemical Products, Inc-----	1301 Jefferson St., Hoboken, N.J. 07030.
SCC	Standard Chlorine Chemical Co., Inc-----	1015 Belleville Turnpike, S. Kearny, N.J. 07032.
STD	Standard Dyestuff Corp-----	19 E. 5th St., Paterson, N.J. 07524.
STN	Standard Naphthalene Products Co., Inc-----	1015 Belleville Turnpike, S. Kearny, N.J. 07032.
SOC	Standard Oil Co. of California, Western Operations, Inc.	P.O. Box 440, San Francisco, Calif. 94120.
SIO	Standard Oil Co. of Ohio-----	Midland Bldg., Cleveland, Ohio 44115.
SPY	Standard Pyroxoloid Corp-----	85 Pleasant St., Leominster, Mass. 01453.
SUC	Standard Ultramarine & Color Co-----	P.O. Box 2166, Huntington, W. Va. 25722.
STG	Wm. J. Stange Co-----	342 N. Western Ave., Chicago, Ill. 60612.
SF	Stauffer Chemical Co-----	380 Madison Ave., New York, N.Y. 10017.
SFA	Anderson Chemical Co. Div-----	380 Madison Ave., New York, N.Y. 10017.
CHO	Calbio Chemicals Div-----	380 Madison Ave., New York, N.Y. 10017.
VIC	Victor Chemical Works Div-----	380 Madison Ave., New York, N.Y. 10017.
SCI	Stecker Chemicals, Inc-----	50 North Franklin Turnpike, Ho-Ho-Kus, N.J. 07423.
SH	Stein, Hall & Co., Inc-----	605 3d Ave., New York, N.Y. 10016.
STP	Stepan Chemical Co-----	R.R. No. 1, Elwood, Ill. 60421.
MYW	Maywood Div-----	100 W. Hunter Ave., Maywood, N.J. 07607.
	Sterling Drug, Inc.:	
SDG	Glenbrook Laboratories Div-----	1450 Broadway, New York, N.Y. 10018.
SDH	Hilton-Davis Chemical Co. Div-----	2235 Langdon Farm Rd., Cincinnati, Ohio 45237.
SLV	Salvo Chemical Div-----	Military Rd., Rothschild, Wis. 54474.
TMS	Thomasset Colors Div-----	120 Lister Ave., Newark, N.J. 07105.
SDW	Winthrop Laboratories Div-----	1450 Broadway, New York, N.Y. 10018.
SRR	Fred'k A. Stresen-Reuter, Inc-----	400 W. Roosevelt Ave., Bensenville, Ill. 60106.
SUM	Summit Chemical Products Corp-----	11 William St., Belleville, N.J. 07109.
SNW	Sun Chemical Corp., Warwick Chemical Co. Div---	Wood River Junction, R.I. 02894.
SKG	Sunkist Growers, Inc-----	707 W. 5th St., Los Angeles, Calif. 90017.
SUN	Sun Oil Co-----	1608 Walnut St., Philadelphia, Pa. 19103.
SNO	SunOlin Chemical Co-----	1608 Walnut St., Philadelphia, Pa. 19103.
DXS	Sunray DX Oil Co-----	P.O. Box 2039, Tulsa, Okla. 74102.
SNT	Suntide Refining Co-----	P.O. Box 658, Corpus Christi, Tex. 78403.
SWT	Swift & Co-----	115 W. Jackson Blvd., Chicago, Ill. 60604.
SWR	Switzer Bros., Inc-----	4732 St. Clair Ave., Cleveland, Ohio 44103.
SYR	Synco Resins, Inc-----	30 Henry St., Bethel, Conn. 06801.
SYC	Synthetic Chemicals, Inc-----	335 McLean Blvd., Paterson, N.J. 07504.
SYP	Synthetic Products Co-----	1636 Wayside Rd., Cleveland, Ohio 44112.
SYN	Synthron, Inc-----	Ryan Ave., Ashton, R.I. 02805.
SYV	Synvar Corp-----	726 King St., Wilmington, Del. 19801.
TCC	Tanatex Chemical Corp-----	P.O. Box 388, Lyndhurst, N.J. 07071.
CST	Charles S. Tanner Co-----	250 S. Water St., Providence, R.I. 02901.
TAY	Taylor Corp-----	Valley Forge, Pa. 19481.
TNC	Tennant Development Corp., Chemical Div-----	100 Park Ave., New York, N.Y. 10017.
TOC	Tenneco Oil Co-----	P.O. Box 2511, Houston, Tex. 77001.
TN	Tennessee Corp-----	61 Broadway, New York, N.Y. 10006.
TX	Texaco, Inc-----	P.O. Box 52332, Houston, Tex. 77052.
TSA	Texas Alkyls, Inc-----	P.O. Box 988, Pasadena, Tex. 77501.
TUS	Texas-U.S. Chemical Co-----	P.O. Box 667, Port Neches, Tex. 77651.
TXC	Tex Chemical Co-----	20-21 Wagaraw Rd., Fair Lawn, N.J. 07412.
TCI	Texize Chemicals, Inc-----	P.O. Box 368, Greenville, S.C. 29602.
TKL	Thiokol Chemical Corp-----	P.O. Box 27, Bristol, Pa. 19007.
SOR	Thomason Industries, Inc., Southern Resin Div--	P.O. Box 352, Fayetteville, N.C. 28302.
THC	Thompson Chemical Co-----	90 Mendor Ave., Pawtucket, R.I. 02862.
TMH	Thompson-Hayward Chemical Co-----	P.O. Box 768, Kansas City, Mo. 64141.
TIC	Ticonderoga Chemical Corp-----	P.O. Box 11, Leominster, Mass. 01453.
TID	Tidewater Oil Co-----	Delaware City, Del. 19706.
TRC	Toms River Chemical Corp-----	P.O. Box 71, Toms River, N.J. 08753.
TV	Tousey Varnish Co-----	135 W. Lake St., North Lake, Ill. 60164.
ACT	Arthur C. Trask Co-----	327 S. LaSalle St., Chicago, Ill. 60604.
TGL	Triangle Chemical Co-----	206 Lower Elm St., Macon, Ga. 31202.
TRJ	Trojan Powder Co-----	17 N. 7th St., Allentown, Pa. 18105.
TRO	Troy Chemical Co-----	338 Wilson Ave., Newark, N.J. 07105.
TCH	Trylon Chemical Corp-----	P.O. Box 5101, Station B, Greenville, S.C. 29606.
JTC	Joseph Turner & Co-----	P.O. Box 88, Ridgefield, N.J. 07451.
UHL	Paul Uhlich & Co., Inc-----	90 West St., New York, N.Y. 10006.
UNG	Ungerer & Co-----	161 Avenue of the Americas, New York, N.Y. 10013.
	Union Carbide Corp.:	
UCC	Chemicals Div-----	270 Park Ave., New York, N.Y. 10017.
UCP	Plastics Div-----	270 Park Ave., New York, N.Y. 10017.
UCS	Silicones Div-----	270 Park Ave., New York, N.Y. 10017.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1963--Continued

Code	Name of company	Office address
UOC	Union Oil Co. of California-----	461 S. Boylston St., Los Angeles, Calif. 90017.
URC	United Carbon Co-----	P.O. Box 149, Baytown, Tex. 77520.
UNN	United Chemical Corp. of Norwood-----	P.O. Box 327, Endicott St., Norwood, Mass. 02062.
UNP	United Chemical Products Corp-----	York and Colgate Sts., Jersey City, N.J. 07302.
UNC	United Cork Companies-----	50 Central Ave., Kearny, N.J. 07032.
USB	U.S. Borax Research Corp-----	3075 Wilshire Blvd., Los Angeles, Calif. 90005.
USO	U.S. Oil Co-----	P.O. Box 4228, E. Providence, R.I. 02914.
UPR	U.S. Peroxygen Corp-----	850 Morton Ave., Richmond, Calif. 94804.
UPF	United States Pipe & Foundry Co-----	3300 1st Ave. N., Birmingham, Ala. 35202.
USP	U.S. Plastic & Chemical Corp-----	122 E. Railroad Ave., W. Haverstraw, N.Y. 10927.
UPL	United States Plywood Corp-----	P.O. Box 1688, Redding, Calif. 96002.
UVC	Universal Chemicals Corp-----	48 Hunt St., Central Falls, R.I. 02863.
UDI	Universal Detergents, Inc. & Petrochemicals Co-----	1825 E. Spring St., Long Beach, Calif. 90806.
UPM	Universal Oil Products Co-----	30 Algonquin Rd., Des Plaines, Ill. 60018.
TBK	Trubek Chemical Co. Div-----	State Highway 17, E. Rutherford, N.J. 07073.
UPJ	Upjohn Co-----	7000 Portage Rd., Kalamazoo, Mich. 49001.
CWN	Carwin Co. Div-----	Stiles Lane, North Haven, Conn. 06473.
UTR	Utah Resin Co., Inc-----	418 Kearns Bldg., Salt Lake City, Utah 84101.
VAL	Valchem-----	1407 Broadway, New York, N.Y. 10018.
VSV	Valentine Sugars, Inc., Valite Div-----	726 Whitney Bldg., New Orleans, La. 70130.
VNC	Vanderbilt Chemical Corp-----	230 Park Ave., New York, N.Y. 10017.
VND	Van Dyk & Co., Inc-----	11 William St., Belleville, N.J. 07109.
VAC	Varney Chemical Co-----	2001 Afton Rd., Janesville, Wis. 53545.
VEL	Velsicol Chemical Corp-----	330 E. Ohio St., Chicago, Ill. 60611.
TNP	Tensyn Div-----	4902 Central Ave., Chattanooga, Tenn. 37410.
VB	Vermilyle-Bell-----	21707 Bothell Way, Bothell, Wash. 98011.
VPC	Verona-Pharma Chemical Corp-----	P.O. Box 385, Union, N.J. 07083.
VPT	Vickers Refining Co., Inc-----	P.O. Box 2240, Wichita, Kans. 67201.
VIN	Vineland Chemical Co-----	W. Wheat Rd., Vineland, N.J. 08360.
VTM	Vitamins, Inc-----	809 W. 58th St., Chicago, Ill. 60621.
VTV	Vita-Var Corp., Div. of Textron Industries, Inc-----	177 Oakwood Ave., Orange, N.J. 07050.
PRO	Vulcan Materials Co., Frontier Chemical Co. Div-----	P.O. Box 545, Wichita, Kans. 67201.
WTM	Wallace & Tiernan, Inc-----	25 Main St., Belleville, N.J. 07109.
WTH	Harchem Div-----	25 Main St., Belleville, N.J. 07109.
WTL	Lucidol Div-----	1740 Military Rd., Buffalo, N.Y. 14240.
WJ	Warner-Jenkinson Manufacturing Co-----	2526 Baldwin St., St. Louis, Mo. 63106.
WPC	Warren Paint & Color Co-----	700 Wedgewood Ave., Nashville, Tenn. 37202.
WAS	Washburn-Purex Co-----	2244 Elston Ave., Chicago, Ill. 60614.
WSN	Washine Chemical Corp-----	165 Main St., Lodi, N.J. 07644.
WAY	Wayland Chemical Co-----	Industrial Circle, Lincoln, R.I. 02865.
WCA	West Coast Adhesives Co-----	11104 NW. Front Ave., Portland, Oreg. 97208.
WDC	Western Dry Color Co-----	600 W. 52d St., Chicago, Ill. 60609.
EW	Westinghouse Electric Corp., Micarta Div-----	Trafford, Pa. 15085.
WVA	West Virginia Pulp & Paper Co., Polychemicals Div-----	P.O. Box 5207, N. Charleston, S.C. 29406.
WRD	Weyerhaeuser Co., Wood Products Div-----	118 S. Palmetto St., Marshfield, Wis. 54449.
WBG	White & Bagley Co-----	P.O. Box 1171, Worcester, Mass. 01601.
WHI	White & Hodges, Inc-----	576 Lawrence St., Lowell, Mass. 01852.
WLI	White Laboratories, Inc-----	Galloping Hill Rd., Kenilworth, Pa. 07033.
WHL	Whitmoyer Laboratories, Inc-----	19 N. Railroad St., Myerstown, Pa. 17067.
WHW	Whittemore-Wright Co., Inc-----	62 Alford St., Boston, Mass. 02129.
WIC	Wica Chemicals, Inc-----	P.O. Box 506, Charlotte, N.C. 28201.
WIM	Wilmot & Cassidy, Inc-----	108 Provost St., Brooklyn, N.Y. 11222.
WIL	Wilson & Co., Inc.:-----	
WM	Wilson Laboratories Div-----	4221 S. Western Blvd., Chicago, Ill. 60609.
WTC	Wilson-Martin Div-----	Snyder Ave. and Swanson St., Philadelphia, Pa. 19148.
WAW	Witco Chemical Co., Inc-----	P.O. Box 305, Paramus, N.J. 07652.
WRC	W. A. Wood Co-----	108 Spring St., Everett, Mass. 02149.
WON	Wood Ridge Chemical Corp-----	Park Pl. E., Wood Ridge, N.J. 07075.
WYN	Woonsocket Color & Chemical Co-----	176 Sunnyside Ave., Woonsocket, R.I. 02895.
	Wyandotte Chemicals Corp-----	1609 Biddle Ave., Wyandotte, Mich. 48193.
YAW	Young Aniline Works, Inc-----	2731 Boston St., Baltimore, Md. 21224.





## APPENDIXES

### A. U.S. Imports of Coal-Tar Intermediates and Finished Coal-Tar Products

Table 23 summarizes, for the period 1961-63, U.S. imports of coal-tar products dutiable under paragraphs 27 and 28 of the Tariff Act of 1930.<sup>1</sup> The data, which were obtained by analyzing invoices covering imports through all U.S. customs districts, are given in detail in a separate report of the Tariff Commission.<sup>2</sup>

In 1963, general imports of coal-tar chemicals entered under paragraph 27 comprised 778 items with a total weight of 29.1 million pounds, and a foreign invoice value of \$16.7 million. In 1962, imports consisted of 806 items with a total weight of 21.3 million pounds, valued at \$14.2 million. About half of the coal-tar chemicals imported in 1963 were declared to be competitive (duty based on "American selling price"). In terms of quantity, about 34 percent of the total imports

**TABLE 23.--Coal-tar intermediates and finished coal-tar products: U.S. general imports, classified by use, 1961-63**

Product	1961		1962		1963	
	Quantity	Foreign invoice value	Quantity	Foreign invoice value	Quantity	Foreign invoice value
	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>
Intermediates <sup>1</sup> -----	19,029	12,339	21,300	14,193	29,131	16,686
Finished coal-tar products, total-----	12,393	25,950	12,823	24,908	16,227	26,923
Dyes, total-----	5,152	11,060	5,416	10,997	7,626	11,208
Acid-----	1,313	2,938	1,545	3,227	1,712	3,718
Azolic compositions-----	5	12	5	9	13	23
Basic-----	439	812	403	831	456	892
Direct-----	771	1,640	1,014	2,254	950	2,121
Disperse-----	177	403	183	426	454	904
Fiber-reactive-----	1,003	2,716	373	1,004	395	1,028
Fluorescent brightening agents-----	424	936	438	1,182	82	425
Ingrain-----	20	125	5	26	5	15
Mordant-----	112	238	241	489	232	459
Solvent-----	55	172	85	253	112	380
Sulfur-----	4	3	319	296	29	16
Vat-----	702	845	769	970	3,163	1,187
All other-----	127	220	36	30	23	40
Synthetic organic pigments (toners and lakes)-----	278	803	402	1,058	363	616
Medicinals and pharmaceuticals-----	2,579	10,885	2,988	8,839	2,961	10,150
Flavor and perfume materials-----	779	1,339	1,368	2,206	1,957	2,862
All other-----	3,605	1,863	2,649	1,808	3,320	2,087

<sup>1</sup> Includes small quantities of organic pesticides and agricultural chemicals, rubber-processing chemicals, and surface-active agents.

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

39

<sup>1</sup> To simplify the statistical discussion and statistical tables in this report, imports for the year 1963 are referred to as imports entered under par. 27 or par. 28, even though coal-tar products entered for consumption during the last 4 months of 1963 were entered under the provisions of the new Tariff Schedules of the United States, which became effective on Aug. 31, 1963. Import statistics for the last 4 months of 1963 are not strictly comparable with those for the first 8 months. The differences resulting from the above-mentioned change are small, however, so that comparisons between the data for 1963 and those for earlier years are meaningful.

<sup>2</sup> Imports of Coal-Tar Products, 1963, TC Publication 131, 1964 [processed].

of these products in 1963 came from West Germany; imports from that country amounted to 9.9 million pounds, compared with 11.5 million pounds in 1962. In 1963, imports from Canada amounted to 7.3 million pounds, compared with 432,000 pounds in 1962. Imports from Japan amounted to 3.1 million pounds, compared with 1.6 million pounds in 1962. Imports from the United Kingdom totaled 2.8 million pounds in 1963, compared with 3.0 million pounds in 1962; and imports from Italy amounted to 2.4 million pounds in 1963, compared with 1.2 million pounds in 1962. In 1963, sizable quantities of intermediates also were imported from Switzerland (1,248,000 pounds), France (592,000 pounds), Denmark (523,000 pounds), and the Netherlands (523,000 pounds). Smaller quantities came from Belgium (454,000 pounds), and Sweden (227,000 pounds).

The most important intermediates imported in 1963 were tridecylbenzene, adiponitrile, polyalkylbenzene, refined anthracene, maleic hydrazide, anthraquinone, acetoacetanilide, 2-naphthol, 3-hydroxy-2-naphthoic acid (BON), 8-amino-1-naphthol-3,6-disulfonic acid (H-acid), phthalic anhydride, methyl parathion, and refined naphthalene (see table 3). In 1963, imports of tridecylbenzene, which amounted to 5.1 million pounds, and of adiponitrile, which totaled 2.2 million pounds, all came from Canada; imports of polyalkylbenzene, which amounted to 1.4 million pounds, all came from Italy. Imports of refined anthracene, which came from West Germany and Switzerland, totaled 732,000 pounds in 1963; imports of maleic hydrazide, which came from Japan and West Germany, amounted to 701,000 pounds; imports of anthraquinone, which came from the United Kingdom, Japan, France, and West Germany, totaled 674,000 pounds; and imports of acetoacetanilide, which came from the United Kingdom, Switzerland, West Germany, and Japan, amounted to 508,000 pounds. Imports of 2-naphthol, which came from West Germany, Japan, and the United Kingdom, totaled 508,000 pounds; imports of BON, which came from Italy, West Germany, and Japan, amounted to 479,000 pounds; imports of H-acid, which came from West Germany and the Netherlands, amounted to 453,000 pounds; imports of phthalic anhydride, which came from Japan, Italy, and Belgium, totaled 441,000 pounds; and imports of methyl parathion, which all came from Denmark, totaled 436,000 pounds. Imports of refined naphthalene, which came from Belgium, the Netherlands, France, West Germany, the United Kingdom, and Canada, amounted to 420,000 pounds. Among the other important individual chemicals imported, p-toluenesulfonamide all came from Japan, and cyclohexylamine and adipic acid came principally from West Germany.

Imports in 1963 of all finished coal-tar products that are dutiable under paragraph 28 comprised 1,874 listed items, with a total weight of 16.2 million pounds and a foreign invoice value of \$26.9 million. In 1962, imports consisted of 1,903 items, with a total weight of 12.8 million pounds and a foreign invoice value of \$24.9 million. Imports of dyes amounted to \$11.2 million (foreign invoice value), or 41.6 percent of the value of all imports under paragraph 28. In 1962, imports of dyes (excluding synthetic organic pigments) amounted to \$11.0 million (foreign invoice value), or 44.2 percent of the value of all imports under paragraph 28.

Imports of medicinals and pharmaceuticals, the next most important group of products entered under paragraph 28 in 1963, were about the same in that year as in 1962 and 15 percent larger than in 1961. In 1963, imports of medicinals and pharmaceuticals were valued at \$10.2 million (foreign invoice value), or 38 percent of the total value of imports under paragraph 28. In 1962, imports of medicinals and pharmaceuticals were valued at \$8.8 million, or 35 percent of the total value of imports under paragraph 28. In 1963, imports of synthetic organic pigments (toners and lakes) were valued at \$616,000, compared with \$1,058,000 in 1962. Imports of flavor and perfume materials in 1963 (\$2.9 million) were 30 percent greater than in 1962 (\$2.2 million). In 1963, imports of other coal-tar products entered under paragraph 28 (chiefly synthetic resins) were valued at \$2.1 million, compared with \$1.8 million in 1962.

### B. Glossary of Synonymous Names of Cyclic Intermediates

Many cyclic intermediates are known in the chemical industry and trade by a variety of names. Individuals in the industry and trade frequently are not acquainted with all the synonymous names for a given product. To bring together the synonymous names for each product, the tables on intermediates in this report (table 7A in pt. II and table 7B in pt. III) show the standard name, in accordance with the system used by *Chemical Abstracts*; the standard name is frequently followed by the most common synonymous name in parentheses.

In this report, as in previous reports in this series, the Tariff Commission has included a glossary of synonymous names of cyclic intermediates. This glossary, which was originally compiled at the suggestion of the Industry Advisory Committee on Government Reports, is intended to serve principally as an index to the standard names used in the statistical tables on intermediates. The first column of the glossary lists alphabetically the common, or trivial, names usually encountered in the trade. The second column gives the corresponding standard (*Chemical Abstracts*) names, under which the data are presented in tables 7A and 7B.

*Cyclic intermediates: Glossary of synonymous names*

Common name	Standard (Chemical Abstracts) name
Acedianthrone-----	Aceanthra[2,1-a]aceanthrylene-5,13-dione.
1,2-Acenaphthenedione-----	Acenaphthenequinone.
4-Acetamido-2-aminophenol hydrochloride-----	3'-Amino-4'-hydroxyacetanilide hydrochloride.
p-Acetamidobenzenesulfonyl chloride-----	N-Acetylsulfanilyl chloride.
5-Acetamido-2-hydroxybenzoic acid-----	5-Acetamidosalicylic acid.
1-Acetamido-2-methoxynaphthalene-----	N-(2-Methoxy-1-naphthyl)acetamide.
1-Acetamido-2-naphthol-----	N-(2-Hydroxy-1-naphthyl)acetamide.
1-Acetamido-7-naphthol-----	N-(7-Hydroxy-1-naphthyl)acetamide.
2-Acetamido-4-nitrophenol-----	2'-Hydroxy-5'-nitroacetanilide.
5-Acetamido-orthanilic acid-----	5-Acetamido-2-aminobenzenesulfonic acid.
Acetanilide-p-sulfonic acid-----	N-Acetylsulfanilic acid.
Acetanilid sulfon chloride-----	N-Acetylsulfanilyl chloride.
Acetate leuco violet-----	1,4-Diamino-2,3-dihydroanthraquinone.
p-Acetoacetchloranilide-----	4'-Chloroacetoacetanilide.
Acetoacet-o-chloroanilide-----	2'-Chloroacetoacetanilide.
o-Acetoacetochloroanilide-----	2'-Chloroacetoacetanilide.
Acetoaceto-1-naphthylamide-----	N-1-Naphthylacetoacetamide.
N-Acetoaceto-1-naphthylamine-----	N-1-Naphthylacetoacetamide.
m-Acetoacetoxylidide-----	2,4'-Acetoacetoxylidide.
Acetoacet-o-toluidide-----	o-Acetoacetotoluidide.
Acetoacet-o-toluidine-----	o-Acetoacetotoluidide.
Acetoacetyl-o-anisidine-----	o-Acetoacetanisidide.
Acetoacetyl benzidine-----	4,4'-Biacetoacetanilide.
Acetyl-p-amino-o-aminophenol hydrochloride-----	3'-Amino-4'-hydroxyacetanilide hydrochloride.
1-Acetyl-3-(4-amino-m-anisyl)urea-----	1-Acetyl-3-(4-amino-3-methoxyphenyl)urea.
Acetyl amino Cleve's acid-----	8-Acetamido-5-amino-2(and 3)-naphthalenesulfonic acid.
N-Acetyl-1-amino-8-naphthol-3,6-disulfonic acid-----	8-Acetamido-1-naphthol-3,6-disulfonic acid.
Acetyl-o-anisidine-----	o-Acetanisidide.
Acetyl-p-anisidine-----	p-Acetanisidide.
Acetyldiaminoanthraquinone-----	1,5(or 1,8)-Diacetamidoanthraquinone.
Acetyl-2,4-diaminophenol hydrochloride-----	3'-Amino-4'-hydroxyacetanilide hydrochloride.
Acetyl H acid-----	8-Acetamido-1-naphthol-3,6-disulfonic acid.
Acetyl-1,4-naphthalenediamine-6(and 7)-sulfonic acids	8-Acetamido-5-amino-2(and 3)-naphthalenesulfonic acid.
Acetyl-p-nitro-o-aminophenol-----	2'-Hydroxy-5'-nitroacetanilide.
Acetyl-m-phenylenediamine-----	3'-Aminoacetanilide.
Acetyl-p-phenylenediamine-----	4'-Aminoacetanilide.
Acetyl-p-phenylenediamine sulfate-----	p-Aminoacetanilide sulfate.
N <sup>+</sup> -Acetyl-N <sup>1</sup> -2-pyrimidinylsulfanilamide-----	4'-(2-Pyrimidinylsulfamoyl)acetanilide.
Acetylsulfadiazine-----	4'-(2-Pyrimidinylsulfamoyl) acetanilide.
Acetylsulfamerazine-----	4'-(4-Methyl-2-pyrimidinylsulfamoyl)acetanilide.
Acetylsulfamethazine-----	4'-(4,6-Dimethyl-2-pyrimidinylsulfamoyl)acetanilide.
N <sup>1</sup> -Acetylsulfanilamide-----	N-Sulfanilylacetamide.
N <sup>+</sup> -Acetylsulfanilamide-----	4'-Sulfamoylacetanilide.
2-(N <sup>+</sup> -Acetylsulfanilamido)thiazole-----	4'-(2-Thiazolylsulfamoyl)acetanilide.
Acetylsulfathiazole-----	4'-(2-Thiazolylsulfamoyl)acetanilide.
N <sup>+</sup> -Acetyl-2-sulfo-p-phenylenediamine-----	5-Acetamido-2-aminobenzenesulfonic acid.
N-Acetyl-o-toluidine-----	o-Aceto-toluidide.
1,2,4-Acid-----	1-Amino-2-naphthol-4-sulfonic acid.
Amichin-----	8-Amino-6-methoxyquinoline.
m-Aminoacetanilide-----	3'-Aminoacetanilide.
p-Aminoacetanilide-----	4'-Aminoacetanilide.
p-Aminoacetanilide sulfate-----	4'-Aminoacetanilide sulfate.
m-Aminoacetophenone-----	3'-Aminoacetophenone.
6-(p-Aminoanilino)metanilic acid-----	5-Amino-2-(p-aminoanilino)benzenesulfonic acid.
p-Aminoazobenzene-----	p-Phenylazoaniline.
Aminoazobenzene disulfo acid-----	6-Amino-3,4'-azodi[benzenesulfonic acid].
Aminoazobenzene-3,4-disulfonic acid-----	6-Amino-3,4'-azodi[benzenesulfonic acid].
p-Aminoazobenzene hydrochloride-----	p-Phenylazoaniline hydrochloride.
Aminoazobenzene-m-sulfonic acid-----	m-(p-Aminophenylazo)benzenesulfonic acid.
Aminoazobenzene-p-sulfonic acid-----	p-(p-Aminophenylazo)benzenesulfonic acid.
o-Aminoazotoluene-----	4-(o-Tolylazo)-o-toluidine [NH <sub>2</sub> =1].
o-Aminoazotoluene sulfate-----	4-(o-Tolylazo)-o-toluidine sulfate.
4-Aminoazotoluene-4-sulfonic acid and salt-----	4-(4-Amino-m-tolylazo)-m-toluenesulfonic acid and salt.
o-Aminoazotoluenesulfonic acid and salt-----	4-(4-Amino-m-tolylazo)-m-toluenesulfonic acid and salt.

## Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts) name
Aminoazoxylenetoluidine-----	4-(2,4-Xylylazo)-o-toluidine [ $\text{NH}_2=1$ ].
p-Aminobenzenearsonic acid-----	Arsanilic acid [ $\text{AsO}_3\text{H}_2=1$ ].
3-Aminobenzenesulfonanilide-----	Metanilanilide.
4-Aminobenzenesulfonanilide-----	Sulfanilanilide.
m-Aminobenzenesulfonic acid-----	Metanilic acid [ $\text{SO}_3\text{H}=1$ ].
p-Aminobenzenesulfonic acid-----	Sulfanilic acid [ $\text{SO}_3\text{H}=1$ ].
o-Aminobenzoic acid-----	Anthranilic acid [ $\text{COOH}=1$ ].
m-Aminobenzoyl I(or J) acid-----	6-(m-Aminobenzamido)-1-naphthol-3-sulfonic acid.
p-Aminobenzoyl I(or J) acid-----	6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid.
p-Aminobenzoyl-m-phenylenediamine-----	2,4,4'-Triaminobenzophenone.
o-Aminobiphenyl-----	2-Biphenylamine.
2-Aminobiphenyl-----	2-Biphenylamine.
4-Aminobiphenyl-----	4-Biphenylamine.
1-Amino-4-bromoanthraquinone-2,5-disulfonic acid----	5-Amino-8-bromo-1,6-anthraquinonedisulfonic acid.
1-Amino-2-bromo-4-(p-toluidine)anthraquinone-----	1-Amino-2-bromo-4-(p-toluidino)anthraquinone.
3-Amino-N-butyl-p-anisolesulfonamide-----	N <sup>1</sup> -Butyl-4-methoxymetanilamide [ $\text{SO}_2\text{NH}_2=1$ ].
p-Amino-N-(n-butyl)phenol-----	p-Butylaminophenol.
2-Amino-4'-chloroacetanilide-----	4'-Chloroglycinanilide.
5-Amino-2-chlorobenzenesulfonic acid-----	6-Chlorometanilic acid [ $\text{SO}_3\text{H}=1$ ].
5-Amino-3-chlorobenzenesulfonic acid-----	5-Chlorometanilic acid [ $\text{SO}_3\text{H}=1$ ].
5-Amino-4-chlorobenzenesulfonic acid-----	4-Chlorometanilic acid [ $\text{SO}_3\text{H}=1$ ].
2-Amino-4-chlorobenzoic acid-----	4-Chloroanthranilic acid [ $\text{COOH}=1$ ].
3-Amino-6-chlorobenzoic acid-----	5-Amino-2-chlorobenzoic acid.
Aminochlorodiphenyl-----	Chloro-2-(or 3, or 4)-biphenylamine.
Aminochlorodiphenyl ether-----	5-Chloro-2-phenoxyaniline.
Aminochlorodiphenyl ether-----	p-(p-Chlorophenoxy)aniline
2-Amino-3-chlorotoluene [ $\text{CH}_3=1$ ]-----	6-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
2-Amino-4-chlorotoluene [ $\text{CH}_3=1$ ]-----	5-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
2-Amino-5-chlorotoluene [ $\text{CH}_3=1$ ]-----	4-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
2-Amino-6-chlorotoluene [ $\text{CH}_3=1$ ]-----	3-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
2-Amino-5-chlorotoluene hydrochloride-----	4-Chloro-o-toluidine hydrochloride.
m-Amino-p-cresol [ $\text{CH}_3=1$ ]-----	2-Amino-p-cresol [ $\text{OH}=1$ ].
3-Amino-p-cresol methyl ether [ $\text{CH}_3=1$ ]-----	5-Methyl-o-anisidine [ $\text{NH}_2=1$ ].
3-Amino-p-cresyl methyl ether-----	5-Methyl-o-anisidine [ $\text{NH}_2=1$ ].
omega-Amino-psi-cumene-----	2,4-Dimethylbenzylamine.
omega-Amino-psi-cumene-----	2,4-Dimethylbenzylamine.
Aminodichlorobenzenesulfonic acid-----	2,5-Dichlorosulfanilic acid.
2-Amino-1,4-diethoxybenzene-----	2,5-Diethoxyaniline.
2-Amino-5-diethylaminotoluene hydrochloride-----	N <sup>2</sup> ,N <sup>2</sup> -Diethyltoluene-2,5-diamine hydrochloride.
p-Aminoethylaniline-----	N,N-Diethyl-p-phenylenediamine.
4-Amino-1,3-dihydroxyanthraquinone-----	4-Aminoxanthopurpurin.
2-Amino-1,4-dimethoxybenzene-----	2,5-Dimethoxyaniline.
p-Aminodimethylaniline-----	N,N-Dimethyl-p-phenylenediamine.
p-Aminodimethylaniline sulfate-----	N,N-Dimethyl-p-phenylenediamine sulfate.
2-Amino-4,6-dinitrophenol and salt-----	Picramic acid and salt.
o-Aminodiphenyl-----	2-Biphenylamine.
p-Aminodiphenyl-----	4-Biphenylamine.
p-Aminodiphenylamine-----	N-Phenyl-p-phenylenediamine.
4-Aminodiphenylamine-2-sulfonic acid-----	5-Amino-2-anilinobenzenesulfonic acid.
Aminodiphenyl ether-----	p-Phenoxyaniline.
4-Aminoethoxyethylaniline-----	2-(p-Amino-N-ethylanilino)ethanol.
Amino G acid-----	7-Amino-1,3-naphthalenedisulfonic acid.
2-Amino-4-hydroxybenzenearsonic acid-----	4-Hydroxy-o-arsanilic acid [ $\text{AsO}_3\text{H}_2=1$ ].
Amino I(or J) acid-----	6-Amino-1,3-naphthalenedisulfonic acid.
p-Amino-N-isobutylphenol-----	(p-Isobutylamino)phenol.
4-Amino-2-methylanisole [ $\text{CH}_3\text{O}=1$ ]-----	3-Methyl-p-anisidine [ $\text{NH}_2=1$ ].
4-Amino-4'-(3-methyl-5-pyrazolone)-2,2'-stilbenedisulfonic acid-----	4'-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.
4-Amino-1-naphthalenesulfonic acid-----	Naphthionic acid.
2-Aminonaphthalene-3,6,8-trisulfonic acid-----	7-Amino-1,3,6-naphthalenetrisulfonic acid.
8-Amino-1-naphthoic lactam-----	Naphthostyryl.
1-Amino-7-naphthol-----	8-Amino-2-naphthol.
1-Amino-8-naphthol-2,4-disulfonic acid-----	8-Amino-1-naphthol-5,7-disulfonic acid.
1-Amino-8-naphthol-3,6-disulfonic acid-----	8-Amino-1-naphthol-3,6-disulfonic acid.
1-Amino-8-naphthol-4,6-disulfonic acid-----	8-Amino-1-naphthol-3,5-disulfonic acid.
2-Amino-8-naphthol-3,6-disulfonic acid-----	7-Amino-1-naphthol-3,6-disulfonic acid.
4-Amino-5-naphthol-1,3-disulfonic acid-----	8-Amino-1-naphthol-5,7-disulfonic acid.

## Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts) name
4-Amino-5-naphthol-1,7-disulfonic acid-----	8-Amino-1-naphthol-3,5-disulfonic acid.
5-Amino-4-naphthol-2,7-disulfonic acid-----	8-Amino-1-naphthol-3,6-disulfonic acid.
6-Amino-4-naphthol-2,7-disulfonic acid-----	7-Amino-1-naphthol-3,6-disulfonic acid.
1-Amino-8-naphthol-4-sulfonic acid-----	8-Amino-1-naphthol-5-sulfonic acid.
2-Amino-5-naphthol-7-sulfonic acid-----	6-Amino-1-naphthol-3-sulfonic acid.
2-Amino-6-naphthol-8-sulfonic acid-----	6-Amino-2-naphthol-4-sulfonic acid.
2-Amino-8-naphthol-6-sulfonic acid-----	7-Amino-1-naphthol-3-sulfonic acid.
4-Amino-3-naphthol-1-sulfonic acid-----	1-Amino-2-naphthol-4-sulfonic acid.
4-Amino-5-naphthol-1-sulfonic acid-----	8-Amino-1-naphthol-5-sulfonic acid.
6-Amino-4-naphthol-2-sulfonic acid-----	7-Amino-1-naphthol-3-sulfonic acid.
7-Amino-3-naphthol-1-sulfonic acid-----	6-Amino-2-naphthol-4-sulfonic acid.
7-Amino-4-naphthol-2-sulfonic acid-----	6-Amino-1-naphthol-3-sulfonic acid.
2-Amino-4-nitroanisole [CH <sub>3</sub> O=1]-----	5-Nitro-o-anisidine [NH <sub>2</sub> =1].
2-Amino-5-nitroanisole-----	4-Nitro-o-anisidine [NH <sub>2</sub> =1].
2-Amino-6-nitroanisole-----	3-Nitro-o-anisidine [NH <sub>2</sub> =1].
4-Amino-3-nitroanisole-----	2-Nitro-p-anisidine [NH <sub>2</sub> =1].
4-Amino-4-nitrodiphenylamine-2-sulfonic acid-----	2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid.
2-Amino-4-nitro-1-phenol-6-sulfonic acid-----	6-Amino-4-nitro-1-phenol-2-sulfonic acid.
2-Aminophenetole [C <sub>2</sub> H <sub>5</sub> O=1]-----	o-Phenetidine [NH <sub>2</sub> =1].
Aminophenol sulfamide-----	2-Amino-1-phenol-4-sulfonamide.
o-Aminophenol-p-sulfonamide-----	2-Amino-1-phenol-4-sulfonamide.
o-Aminophenol-p-sulfonic acid-----	2-Amino-1-phenol-4-sulfonic acid.
m-Aminophenylcarboxypyrazolone-----	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
1-(m-Aminophenyl)-3-methyl-5-pyrazolone-----	1-(m-Aminophenyl)-3-methyl-2-pyrazolin-5-one.
Aminophenylphenyl ether-----	p-Phenoxyaniline.
m-Aminophenylpyrazolonecarboxylic acid-----	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
1-(m-Aminophenyl)-5-pyrazolone-3-carboxylic acid----	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
p-Aminophenyl-p-tolylaminesulfonic acid-----	5-Amino-2-(p-toluidino)benzenesulfonic acid.
2-Amino-4(3H)-pyrimidone-----	Isocytosine.
Amino R acid-----	3-Amino-2,7-naphthalenedisulfonic acid.
5-Aminosalignen-2-methyl ether-----	5-Amino-2-methoxybenzyl alcohol.
6-Amino-3-(p-toluenesulfone)amino-4-methoxytoluene--	4'-Amino-5'-methyl-p-toluenesulfon-o-anisidide.
3'-Amino-(p-toluenesulfone)ethoxytoluene-----	3-Methyl-N-(p-toluenesulfono)-p-phenetidine.
2-Aminotoluene-5-sulfonic acid-----	4-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1].
N-(4-Amino-m-tolyl)-p-quinone imine-----	N-(4-Amino-m-tolyl)-p-benzoquinone imine.
ω-Amino-1,2,4-trimethylbenzene-----	2,4-Dimethylbenzylamine.
Aminoviolanthrene-----	16-Aminoviolanthrone.
Amylnaphthalenes-----	Pentyl-naphthalenes.
o-Amylphenol-----	o-Pentylphenol.
p-sec-Amylphenol-----	p-(1-Methylbutyl)phenol.
p-tert-Amylphenol-----	p-(1,1-Dimethylpropyl)phenol.
Aniline-2,4-disulfonic acid-----	4-Amino-m-benzenedisulfonic acid.
Aniline-2,5-disulfonic acid-----	2-Amino-p-benzenedisulfonic acid.
Aniline oil-----	Aniline.
Aniline salt-----	Aniline hydrochloride.
Aniline-m-sulfonic acid-----	Metanilic acid [SO <sub>3</sub> H=1].
Aniline-p-sulfonic acid-----	Sulfanilic acid [SO <sub>3</sub> H=1].
Aniline-omega-sulfonic acid-----	Anilinomethanesulfonic acid.
4-Anilino-4'-hydroxydiphenylamine-----	p-(p-Anilinoanilino)phenol.
6-Anilinometanilic acid-----	5-Amino-2-anilinobenzenesulfonic acid.
2-Aniside-4-acetylurea-----	1-Acetyl-3-(4-amino-3-methoxyphenyl)urea.
o-Anisidine nitrate-----	4(or 5)-Nitro-o-anisidine [NH <sub>2</sub> =1].
2-Anisidine-4-sulfo-butylamide-----	N <sup>4</sup> -Butyl-4-methoxymetanilamide.
o-Anisidine-p-sulfonic acid-----	4-Methoxymetanilic acid [SO <sub>3</sub> H=1].
2-(m-Anisyl)-4-chloroanthranilic acid-----	4-Chloro-N-(m-methoxyphenyl)anthranilic acid [COOH=1].
N-(p-Anisyl)-4-chloroanthranilic acid-----	4-Chloro-N-(p-methoxyphenyl)anthranilic acid [COOH=1].
N-(m-Anisyl)-4-chloroanthranilic acid-----	4-Chloro-N-(m-methoxyphenyl)anthranilic acid [COOH=1].
α-(p-Anisyl)-α-ethyl-p-methoxyacetophenone-----	2-Ethyl-4'-methoxy-2-(p-methoxyphenyl)acetophenone.
α-(p-Anisyl)-p-methoxyacetophenone-----	4'-Methoxy-2-(p-methoxyphenyl)acetophenone.
N-(p-Anisyl)-4-nitroanthranilic acid-----	N-(p-Methoxyphenyl)-4-nitroanthranilic acid.
N-(p-Anisyl)-p-phenylenediamine-----	N-(p-Methoxyphenyl)-p-phenylenediamine.
1,2-Anthrapiyridine-----	Naphtho[2,3-h]quinoline.
Anthraquinonylaminoanthraquinone-----	1,1'-Iminodianthraquinone.
1,4,9,10-Anthratetrol-----	Leucoquinizarin.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
4-Antipyrinecarboxylic acid-----	Antipyrinic acid.
p,p'-Azobis(N,N-dimethylaniline hydrochloride)-----	p-Dimethylaminobenzenediazonium chloride.
4,4'-Azobisdiphenylamine-----	p-Anilinobenzenediazonium chloride.
Azohydroxyaniline-----	p-(p-Aminophenylazo)phenol.
Azoxyaniline-----	3,3'-Azoxydianiline.
m,m'-Azoxybisaniiline-----	3,3'-Azoxydianiline.
Benzal chloride-----	α,α-Dichlorotoluene.
Benzaldehydedisulfonic acid-----	4-Formyl-m-benzenedisulfonic acid.
Benzaldehydemonosulfonic acid-----	o-Formylbenzenesulfonic acid.
1-(4-Benzamido-1-anthraquinonylimino)-5-benzamido-anthraquinone.	4,5'-Dibenzamido-1,1'-iminodianthraquinone.
2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyldiazo-amino]ethanesulfonic acid.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyl-triazen-3-yl]ethanesulfonic acid.
N-(4-Benzamido-2,5-diethoxyphenyl)-N-methyldiazo-taurine.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyl-triazen-3-yl]ethanesulfonic acid.
3-(4-Benzamido-2,5-diethoxyphenyl)-3-sulfoethyl-1-methyltriazene.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyl-triazen-3-yl]ethanesulfonic acid.
[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyldiazo-amino]acetic acid.	[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]acetic acid.
[3-(4-Benzamido-6-methoxy-m-tolyl)-N-methyldiazo]-glycine.	[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]acetic acid.
Benzanthrone-----	7H-Benz[de]anthracen-7-one.
Benzanthronedianthraquinonyldiimide-----	3,9-Bis[1-anthraquinonylamino]-7H-benz[de]anthracen-7-one.
Benzeneazobenzene-----	Azobenzene.
Benzene-1,3-dicarboxylic acid-----	Isophthalic acid.
p-Benzenedicarboxylic acid-----	Terephthalic acid.
1,3,5-Benzenetriol-----	Phloroglucinol.
Benzidine disulfonic acid-----	4,4'-Diamino-2,2'-biphenyldisulfonic acid.
2,2'-Benzidinedisulfonic acid-----	4,4'-Diamino-2,2'-biphenyldisulfonic acid.
Benzidine sulfonic acid-----	4,4'-Diamino-3-biphenylsulfonic acid.
Benz[cd]indol-2(1H)-one-----	Naphthostyryl.
Benzocaine (nonmedicinal grade)-----	p-Aminobenzoic acid, ethyl ester.
2-Benzofurylcyanomethyl ketone-----	2-Benzofuranacetoneitrile.
2H-1-Benzopyran-2-one-----	Coumarin.
1,2-Benzopyrone-----	Coumarin.
Benzotrichloride-----	α,α,α-Trichlorotoluene.
Benzoylacetanilide-----	2-Benzoylacetanilide.
α-Benzoylacetanilide-----	2-Benzoylacetanilide.
1-Benzoylamino-4-aminoanthraquinone-----	1-Amino-4-benzamidoanthraquinone.
2-Benzoylamino-1,4-diethoxybenzene-----	2',5'-Diethoxybenzanilide.
2-Benzoylamino-1,4-dimethoxybenzene-----	2',5'-Dimethoxybenzanilide.
5-Benzoylamino-2-nitrodimehoxybenzene-----	2',5'-Dimethoxy-4'-nitrobenzanilide.
5-Benzoylamino-2-nitrohydroquinone, diethyl ester----	2',5'-Diethoxy-4'-nitrobenzanilide.
Benzoyl J acid-----	6-Benzamido-1-naphthol-3-sulfonic acid.
2-Benzoylthiophene-----	Phenyl-2-thienyl ketone.
α-Benzylacetamide-----	Hydrocinnamamide.
m-Benzyl-p-aminophenol hydrochloride-----	4-Amino-α-phenyl-m-cresol hydrochloride.
Benzyl chloride-----	α-Chlorotoluene.
o-Benzyl-p-chlorophenol-----	4-Chloro-α-phenyl-o-cresol [OH=1].
Benzyl cyanide-----	Phenylacetoneitrile.
N-Benzyl-ethylaniline-----	N-Ethyl-N-phenylbenzylamine.
N-Benzyl-N-ethyl-p-nitrosoaniline-----	N-Ethyl-N-(p-nitrosophenyl)benzylamine.
3-Benzyl-7-hydroxy-4-methylcoumarin-----	3-Benzyl-4-methylumbelliferone.
Benzylideneacetophenone-----	Chalcone.
4-Benzylideneaminoantipyrine-----	4-Benzylideneiminoantipyrine.
Benzyl mercaptan-----	α-Toluenethiol.
p-Benzylphenylcarbamate-----	α-Phenyl-p-cresol carbamate.
p,p'-Biacetoacetanilide-----	4',4''-Biacetoacetanilide.
Bibenzal-----	Stilbene.
Bibenzoyl-----	Benzil.
Bibenzylidene-----	Stilbene.
o-Biphenylamine-----	2-Biphenylamine.
Biphenylene oxide-----	Dibenzofuran.
p,p'-Bis(acetoacetanilide)-----	4',4''-Biacetoacetanilide.

## Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts) name
N,N'-Bis(acetoacetyl)benzidine-----	4',4'''-Biacetoacetanilide.
1,3-Bis(4-biphenyl)-2-thiourea-----	4,4'-Diphenylthiocarbanilide.
N,N-Bis(2-hydroxyethyl)aniline-----	2,2'-(Phenylimino)diethanol.
N,N-Bis(2-hydroxyethyl-m-toluidine)-----	2,2'-(m-Tolylimino)diethanol.
2,2'-Bis(4-hydroxyphenyl)propane-----	4,4'-Isopropylidinediphenol.
N,N'-Bis-6-(1-naphthol-3-sulfonic acid)urea-----	6,6'-Ureylenebis[1-naphthol-3-sulfonic acid].
Bisphenol A-----	4,4'-Isopropylidinediphenol.
Bisphenol B-----	2,2'-Bis(4-hydroxyphenyl)butane.
Bisphenol C-----	4,4'-Isopropylidinedi-o-cresol.
Bisphenol G-----	4,4'-Isopropylidinedibis[2-isopropylphenol].
3,3'-Bitolylene-4,4'-diisocyanate-----	Isocyanic acid, (3,3'-dimethyl-4,4'-biphenylene ester.
B.O.N-----	3-Hydroxy-2-naphthoic acid.
Broenner's acid-----	6-Amino-2-naphthalenesulfonic acid.
Bromamine acid-----	1-Amino-4-bromo-2-anthraquinonesulfonic acid.
p-Bromoacetamidoanthraquinone-----	1-Acetamido-4-bromoanthraquinone.
Bromobenzanthrone-----	3-Bromo-7H-benz[de]anthracen-7-one.
2-Bromobiphenylene oxide-----	2-Bromodibenzofuran.
p-Bromomethylaminoanthraquinone-----	4-Bromo-1-methylaminoanthraquinone.
4-Bromo-N-methyl-1,9-anthrapyridone-----	6-Bromo-3-methyl-7H-dibenz[f,i]isoquinoline-2,7(3H)-dione.
α-Bromo-p-nitroacetophenone-----	2-Bromo-4'-nitroacetophenone.
Bromoquinizarin-----	2-Bromoquinizarin.
o-(3-Bromo-p-tolyl)benzoic acid-----	3'-Bromo-4'-methyl-2-biphenylcarboxylic acid.
6-tert-Butyl-2,4-dimethylacetophenone-----	2'-tert-Butyl-4',6'-dimethylacetophenone.
n-Butyl-p-nitrobenzoate-----	p-Nitrobenzoic acid, n-butyl ester.
p-Carboxybenzenesulfonamide-----	p-Sulfamoylbenzoic acid.
3-Carboxy-4-hydroxyacetanilide-----	5-Acetamidosalicylic acid.
3-(Carboxymethyl)-1-(5-chloro-2-methoxyphenyl)-3-methyltriazene.	N-(5-Chloro-2-methoxyphenylazo)-N-methylglycine.
(o-Carboxyphenyl)acetic acid-----	α-Carboxy-o-toluic acid.
Cassella acid-----	3-Amino-1,5-naphthalenedisulfonic acid.
Chicago acid-----	8-Amino-1-naphthol-5,7-disulfonic acid.
Chlorinated cresols-----	Cresols, chlorinated.
2-Chloro-3-acetamino-9,10-anthrahydroquinone acid ester.	2-Acetamido-3-chloro-9,10-dihydro-9,10-anthradiol-9,10-disulfonic acid, diethyl ester.
2-Chloro-3-acetaminoanthraquinone-----	2-Acetamido-3-chloroanthraquinone.
2-Chloro-3-acetamino-9,10-dihydroxyanthracene-9,10-disulfonic acid ester.	2-Acetamido-3-chloro-9,10-dihydro-9,10-anthradiol-9,10-disulfonic acid, diethyl ester.
o-Chloroacetoacetanilide-----	2'-Chloroacetoacetanilide.
Chloroacetylarsanilic acid-----	N-Acetyl-2-chloroarsanilic acid [AsO <sub>3</sub> H <sub>2</sub> =1].
5-Chloro-2-aminoanisole [CH <sub>3</sub> O=1]-----	4-Chloro-o-anisidine [NH <sub>2</sub> =1].
4-Chloro-2-amino-6-benzenesulfonic acid-----	5-Chlorometanilic acid [SO <sub>3</sub> H=1].
6-Chloro-3-aminobenzotrifluoride-----	6-Chloro-α,α,α-trifluoro-m-toluidine [NH <sub>2</sub> =1].
Chloroaminophenol-----	2-Amino-4-chlorophenol.
2-Chloro-4-aminotoluene [CH <sub>3</sub> =1]-----	3-Chloro-p-toluidine [NH <sub>2</sub> =1].
3-Chloro-2-aminotoluene [CH <sub>3</sub> =1]-----	6-Chloro-o-toluidine [NH <sub>2</sub> =1].
5-Chloro-2-aminotoluene [CH <sub>3</sub> =1]-----	4-Chloro-o-toluidine [NH <sub>2</sub> =1].
m-Chloroaniline-o-sulfonic acid-----	2-Amino-6-chlorobenzenesulfonic acid.
p-Chloroaniline-m-sulfonic acid-----	6-Chlorometanilic acid.
p-Chloroaniline-o-sulfonic acid-----	2-Amino-5-chlorobenzenesulfonic acid.
4-Chloro-o-anisidine [CH <sub>3</sub> O=1]-----	5-Chloro-o-anisidine [NH <sub>2</sub> =1].
5-Chloro-o-anisidine [CH <sub>3</sub> O=1]-----	4-Chloro-o-anisidine [NH <sub>2</sub> =1].
3-Chloro-2-anthracenecarboxylic acid-----	3-Chloro-2-anthroic acid.
2-Chloroanthraquinone-3-carboxylic acid-----	3-Chloro-2-anthraquinonecarboxylic acid.
Chloroarsacetin-----	N-Acetyl-2-chloroarsanilic acid [AsO <sub>3</sub> H <sub>2</sub> =1].
2-Chlorobenzaldehyde-5-sulfonic acid-----	4-Chloro-3-formylbenzenesulfonic acid.
4-Chlorobenzaldehyde-2-sulfonic acid-----	5-Chloro-2-formylbenzenesulfonic acid.
1-Chloro-5-benzamideanthraquinone-----	1-Benzamido-5-chloroanthraquinone.
Chlorobenzanthrone-----	Chloro-7H-benz[de]anthracen-7-one.
4-Chlorobenzotrifluoride-----	4-Chloro-α,α,α-trifluorotoluene.
Chlorobenzyl cyanide-----	(p-Chlorophenyl)acetoneitrile.
1-Chloro-2-carboxyanthraquinone-----	1-Chloro-2-anthraquinonecarboxylic acid.
p-Chloro-m-cresol [CH <sub>3</sub> =1]-----	6-Chloro-m-cresol [OH=1].
2-Chloro-1,4-dihydroxyanthraquinone-----	2-Chloroquinizarin.
Chloro H acid-----	8-Chloro-1-naphthol-3,6-disulfonic acid.
5-Chloro-8-hydroxyquinoline-----	5-Chloro-8-quinolinol.
3-Chloro-3'-methoxy-6-diphenylaminecarboxylic acid---	4-Chloro-N-(m-methoxyphenyl)anthranilic acid [COOH=1].

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
3-Chloro-4'-methoxy-6-diphenylaminocarboxylic acid---	4-Chloro-N-(p-methoxyphenyl)anthranilic acid.
$\alpha$ -Chloro-2-methoxy-5-nitrotoluene-----	2-(Chloromethyl)-4-nitroanisole [ $\text{CH}_3\text{O}=1$ ].
[3-(5-Chloro-2-methoxyphenyl)-1-methyldiazoamino]-	N-(5-Chloro-2-methoxyphenylazo)-N-methylglycine.
acetic acid.	
Chloromethylanthraquinone-----	1-Chloro-2-methylantraquinone.
o-Chloro-p-nitroaniline-----	2-Chloro-4-nitroaniline.
p-Chloro-c-nitroaniline-----	4-Chloro-2-nitroaniline.
Chloro-o-nitrobenzene-----	1-Chloro-2-nitrobenzene.
4-Chloro-3-nitrobenzotrifluoride-----	4-Chloro- $\alpha,\alpha,\alpha$ -trifluoro-3-nitrotoluene.
4-Chloro-2-nitro-1-phenol-6-sulfonic acid-----	4-Chloro-6-nitro-1-phenol-2-sulfonic acid.
4-Chloro-2-nitrophenyl ether-----	1-(4-Chloro-2-nitrophenoxy)benzene.
2-Chlorophenol-----	o-Chlorophenol.
4-Chlorophenol-----	p-Chlorophenol.
Chlorophenylhydrazine-p-sulfonic acid-----	4-Chloro-3-hydrazinobenzenesulfonic acid.
1-(m-Chlorophenyl)-3-methyl-5-pyrazolone-----	1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one.
2-Chloro-o-phenyl phenol-----	2-Chloro-6-phenylphenol.
1-(6-Chloro-4-sulfophenyl)-3-methyl-2-pyrazolin-5-one	5-Chloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-
	sulfonic acid.
1-(2-Chloro-4-sulfophenyl)-3-methyl-5-pyrazolone----	5-Chloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-
	sulfonic acid.
1-(6-Chloro-3-sulfophenyl)-3-methyl-5-pyrazolone----	4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-
	sulfonic acid.
o-Chloro-p-toluene sodium sulfonate-----	3-Chloro-p-toluenesulfonic acid, sodium salt [ $\text{SO}_3\text{H}=1$ ].
4-Chlorotoluene-2-sulfonic acid-----	5-Chloro-o-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
m-Chlorotoluenethioglycolic acid-----	(4-Chloro-o-tolylthio)acetic acid.
4-Chloro-o-toluidine [ $\text{CH}_3=1$ ]-----	5-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
5-Chloro-2-toluidine [ $\text{CH}_3=1$ ]-----	4-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
5-Chloro-o-toluidine [ $\text{CH}_3=1$ ]-----	4-Chloro-o-toluidine [ $\text{NH}_2=1$ ].
o-Chloro-m-toluidine-p-sulfonic acid-----	2-Amino-5-chloro-p-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
2-Chloro-p-toluidine-5-sulfonic acid-----	6-Amino-4-chloro-m-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
2-Chloro-5-toluidine-4-sulfonic acid-----	2-Amino-5-chloro-p-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
4-Chloro-o-tolylmercaptoacetic acid-----	(4-Chloro-o-tolylthio)acetic acid.
1-(5-Chloro-o-tolyl)-3-methyl-3-triazeneacetic acid--	N-(5-Chloro-o-tolyl)-N-methylglycine.
Chlorotolylthioglycolic acid-----	(4-Chloro-o-tolylthio)acetic acid.
Chloro-sym-xyleneol-----	4-Chloro-3,5-xyleneol.
Chloroxylidenesulfonic acid-----	6-Amino-3-chloro-2,5-xylenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
4-Chloro-2,5-xylylmercaptoacetic acid-----	(4-Chloro-2,5-xylylthio)acetic acid.
Chromotropic acid-----	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
Cinnamene-----	Styrene.
1,6-Cleve's acid-----	5-Amino-2-naphthalenesulfonic acid.
1,7-Cleve's acid-----	8-Amino-2-naphthalenesulfonic acid.
Cleve's acid, mixed-----	5(and 8)-Amino-2-naphthalenesulfonic acid.
m-Cresidine-----	2-Methyl-p-anisidine [ $\text{NH}_2=1$ ].
Cresidine or p-Cresidine-----	5-Methyl-o-anisidine [ $\text{NH}_2=1$ ].
m-Cresol methyl ether-----	m-Methylanisole [ $\text{CH}_3\text{O}=1$ ].
m-Cresolsulfonic acid-----	5-Hydroxy-m-toluenesulfonic acid [ $\text{SO}_3\text{H}=1$ ].
o-Cresotic acid-----	2,3-Cresotic acid.
Y-Cresotic acid-----	2,4-Cresotic acid.
o-Cresotinic acid-----	2,3-Cresotic acid.
Cresyldisulfide-----	p-Tolyl disulfide.
m-Cresyl methyl ether-----	m-Methylanisole [ $\text{CH}_3\text{O}=1$ ].
Cumaldehyde-----	p-Isopropylbenzaldehyde.
psi-Cumene-----	1,2,4-Trimethylbenzene.
psi-Cumidine-----	2,4,5-Trimethylaniline.
Cuminaldehyde-----	p-Isopropylbenzaldehyde.
2-Cyanopyridine-----	Picolinonitrile.
3-Cyanopyridine-----	Nicotinonitrile.
4-Cyanopyridine-----	Isonicotinonitrile.
Dahl's acid-----	6-Amino-1-naphthalenesulfonic acid.
Dehydrothio-p-toluidine-----	2-(p-Aminophenyl)-6-methylbenzothiazole.
Desoxyanisoin-----	4'-Methoxy-2-(p-methoxyphenyl)acetophenone.
Developer Z-----	3-Methyl-1-phenyl-2-pyrazolin-5-one.
3,6-Diaminoacridine-----	Proflavine base.



*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
m-Diaminoanisole-----	5-Methoxy-m-phenylenediamine.
3,3'-Diaminoazoxybenzene-----	3,3'-Azoxydianiline.
2,2'-Diamino-5,5'-bi-m-toluenesulfonic acid-----	2,2'-Diamino-5,5'-dimethyl-3,3'-biphenyldisulfonic acid.
4,4'-Diamino-1,1'-dianthraquinonylamine-----	1,1'-Iminobis[4-aminoanthraquinone].
4,4'-Diamino-1,1'-dianthrimide-----	1,1'-Iminobis[4-aminoanthraquinone].
Diamino-4,4'-dibenzoyl-1,1'-dianthraquinoneimine-----	1,1'-Iminobis[4-benzamidoanthraquinone].
Diamino-4,5'-dibenzoyl-1,1'-dianthraquinonylamine-----	4,5'-Dibenzamido-1,1'-iminodianthraquinone.
1,4-Diamino-2,3-dihydroxyanthraquinone-----	1,4-Diaminohystazarin.
3,6-Diamino-2,7-dimethylacridine hydrochloride-----	Acridine yellow.
4,4'-Diamino-2,2'-dimethylbiphenyl-----	m-Tolidine.
4,4'-Diamino-2,2'-dimethyldiphenylmethane-----	4,4'-Methylenedi(m-toluidine).
4,4'-Diaminodiphenyl-----	Benzidine.
4,4'-Diaminodiphenylamine-2-sulfonic acid-----	5-Amino-2-(p-aminoanilino)benzenesulfonic acid.
p,p'-Diaminodiphenylmethane-----	4,4'-Methylenedianiline.
p,p'-Diaminodiphenylsulfide-----	4,4'-Thiodianiline.
3,3'-Diaminodiphenyl urea-----	3,3'-Diaminocarbanilide.
Di(p-aminophenyl)sulfide-----	4,4'-Thiodianiline.
1,3-Di(m-aminophenyl)urea-----	3,3'-Diaminocarbanilide.
2,6-Diaminotoluene-4-sulfonic acid-----	3,5-Diamino-p-toluenesulfonic acid.
Diamylphenol-----	2,4-Dipentylphenol.
1,5-Dianilinoanthraquinone-o,o'-dicarboxylic acid-----	1,5-Dianilino-2,6-anthraquinonedicarboxylic acid.
o-Dianisidine-----	3,3'-Dimethoxybenzidine.
1,2-Di-p-anisyl-1,2-ethanediol-----	1,2-Di(p-methoxyphenyl)-1,2-ethanediol.
2,4-Di(p-anisyl)-3-ethylhexane-----	2,4-Di(p-methoxyphenyl)-3-ethylhexane.
2,4-Di(p-anisyl)-3-ethylhexene-----	2,4-Di(p-methoxyphenyl)-3-ethylhexene.
$\alpha,\beta$ -Dianisylglycol-----	1,2-Di(p-methoxyphenyl)-1,2-ethanediol.
3,4-Di(p-anisyl)hexane-----	3,4-Di(p-methoxyphenyl)hexane.
1,1'-Dianthraquinoneimine-----	1,1'-Iminodianthraquinone.
1,1'-Dianthraquinonylamine-----	1,1'-Iminodianthraquinone.
Dianthrimide-----	1,1'-Iminodianthraquinone.
Diazoaminobenzene-----	1,3-Diphenyltriazene.
Diazobenzene chloride-----	Benzenediazonium chloride.
4,5'-Dibenzamido-1,1'-aminodianthraquinone-----	4,5'-Dibenzamido-1,1'-iminodianthraquinone.
5,5'-Dibenzamido-1,1'-iminodianthraquinone-----	1,1'-Iminobis[5-benzamidoanthraquinone].
Dibenzanthrone-----	Violanthrone.
2,2'-Dibenzanthronyl-----	(4,4'-Bi-7H-benz[de]anthracen)-7,7'-dione.
13,13-Dibenzanthronyl-----	(3,3'-Bi-7H-benz[de]anthracen)-7,7'-dione.
Dibenzopyran-----	Xanthene.
Dibenzopyrrole-----	Carbazole.
Dibenzoyl-----	Benzil.
4,5-Dibenzoylamidodianthraquinonylamine-----	4,5'-Dibenzamido-1,1'-iminodianthraquinone.
4,4'-Dibenzoyldiamino-1,1'-dianthrimide-----	1,1'-Iminobis[4-benzamidoanthraquinone].
Dibenzyl-----	Bibenzyl.
Dibenzylaniline-----	N-Phenyldibenzylamine.
Dibenzyl disulphide-----	Benzyl disulfide.
Dibenzyl ether-----	Benzyl ether.
Dibenzyl sodium sulfanilate-----	N,N-Dibenzylsulfanilic acid, sodium salt.
Dibromoaminoanthraquinone-----	1-Amino-2,4-dibromoanthraquinone.
7,16-Dibromo-6,15-dihydro-5,9,14,18-anthrazinetetrone	7,16-Dibromoindanthrene.
p-Dibromodihydroxynaphthalene-----	4,5-Dibromo-1,8-naphthalenediol.
2,6-Dibromo-1,5-dihydroxynaphthalene-----	2,6-Dibromo-1,5-naphthalenediol.
4,5-Dibromo-1,8-dihydroxynaphthalene-----	4,5-Dibromo-1,8-naphthalenediol.
1,4-Dichloroaniline-----	2,5-Dichloroaniline.
2,5-Dichloroaniline-4-sulfonic acid-----	2,5-Dichlorosulfanilic acid [SO <sub>3</sub> =1].
1,5-Dichloro-4,8-anthraquinonedisulfonic acid-----	4,8-Dichloro-1,5-anthraquinonedisulfonic acid.
1,8-Dichloro-4,5-anthraquinonedisulfonic acid-----	4,5-Dichloro-1,8-anthraquinonedisulfonic acid.
2,6-Dichlorobenzalchloride-----	$\alpha,\alpha,2,6$ -Tetrachlorotoluene.
o,o'-Dichlorobenzidine-----	3,3'-Dichlorobenzidine.
3,3'-Dichlorobenzidine base-----	3,3'-Dichlorobenzidine.
m,m'-Dichlorobenzidine hydrochloride-----	2,2'-Dichlorobenzidine hydrochloride.
2,4-Dichlorobenzyl chloride-----	$\alpha,2,4$ -Trichlorotoluene.
2,4-Dichlorobenzylidene chloride-----	$\alpha,\alpha,2,4$ -Tetrachlorotoluene.
2,6-Dichlorobenzylidene chloride-----	$\alpha,\alpha,2,6$ -Tetrachlorotoluene.
2,5-Dichlorophenylhydrazinesulfonic acid-----	2,5-Dichloro-4-hydrazinobenzenesulfonic acid.
1-(2,5-Dichlorophenyl)-5-pyrazolone-3-carboxylic acid	1-(2,5-Dichlorophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
2,5-Dichloro-4-sulfobenzenediazohydroxide-----	2,6-Dichloro-4-hydroxydiazobenzenesulfonic acid.
1-(2,5-Dichloro-4-sulfophenyl)-3-methyl-5-pyrazolone-	2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
2,4-Dichloro-5-(p-toluenesulfonamido)-1-naphthol----	N-(6,8-Dichloro-5-hydroxy-1-naphthyl)-p-toluene-sulfonamide [ $\text{SO}_2\text{NH}_2=1$ ].
Dicresyldisulfide-----	p-Tolyl disulfide.
Dicyclohexyl-----	Bicyclohexyl.
Diethanolaniline-----	2,2'-(Phenylimino)diethanol.
Diethanol-m-toluidine-----	2,2'-(m-Tolylimino)diethanol.
1,4-Diethoxybenzene-----	p-Diethoxybenzene.
N-(2,5-Diethoxy-4-nitrophenyl)benzamide-----	2',5'-Diethoxy-4'-nitrobenzanilide.
N-(2,5-Diethoxyphenyl)benzamide-----	2',5'-Diethoxybenzanilide.
Diethylaniline-m-sulfonic acid-----	N,N-Diethylmetanilic acid [ $\text{SO}_3\text{H}=1$ ].
Di-formyl-m-tolylenediamine-----	N <sup>2</sup> ,N <sup>3</sup> -Di-formyltoluene-2,5-diamine [ $\text{CH}_3=1$ ].
1,2-Dihydroacenaphthylene-----	Acenaphthene.
9,10-Dihydroacridine-----	Acridan.
1,4-Dihydro-4-oxo-2,6-pyridinedicarboxylic acid-----	Chelidamic acid.
1,3-Dihydroxyanthraquinone-----	Xanthopurpurin.
1,4-Dihydroxyanthraquinone-----	Quinizarin.
1,5-Dihydroxyanthraquinone-----	Anthrurufin.
1,8-Dihydroxyanthraquinone-----	Chrysazin.
2,6-Dihydroxyanthraquinone-----	Anthraflavic acid.
2,4-Dihydroxybenzoic acid-----	p-Resorcylic acid.
Dihydroxybiphenyl-----	Biphenol.
2,3-Dihydroxy-1,4-diaminoanthraquinone-----	1,4-Diaminohystazarin.
Dihydroxydibenzanthrone-----	16,17-Dihydroxyviolanthrone.
5,5'-Dihydroxydi-2-naphthylamine-7,7'-disulfonic acid	6,6'-Iminobis[1-naphthol-3-sulfonic acid].
1,5-Dihydroxy-4,8-dinitroanthraquinone-----	4,8-Dinitroanthrarufin.
p,p'-Dihydroxydiphenyldimethylmethane-----	4,4'-Isopropylidenediphenol.
4,4'-Dihydroxydiphenylsulfone-----	4,4'-Sulfonyldiphenol.
5,5-Dihydroxy-7,7'-disulfonic-2,2'-dinaphthylamine--	6,6'-Iminobis[1-naphthol-3-sulfonic acid].
Dihydroxyethylaniline-----	2,2'-(Phenylimino)diethanol.
N,N-Di(β-hydroxyethyl)aniline-----	2,2'-(Phenylimino)diethanol.
Dihydroxyethyl-3-toluidine-----	2,2'-(m-Tolylimino)diethanol.
N,N-Di(β-hydroxyethyl)-m-toluidine-----	2,2'-(m-Tolylimino)diethanol.
3',4'-Dihydroxy-2-methylaminoacetophenone-----	Adrenalone.
1,5-Dihydroxynaphthalene-----	1,5-Naphthalenediol.
2,3-Dihydroxynaphthalene-----	2,3-Naphthalenediol.
1,8-Dihydroxynaphthalene-3,6-disulfonic acid-----	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
1,8-Dihydroxynaphthalene-4-sulfonic acid-----	4,5-Dihydroxy-1-naphthalenesulfonic acid.
2,3-Dihydroxynaphthalene-6-sulfonic acid-----	6,7-Dihydroxy-2-naphthalenesulfonic acid.
β-Di-p-hydroxyphenylpropane-----	4,4'-Isopropylidenediphenol.
7,8-Diketoacenaphthene-----	Acenaphthenequinone.
2,3-Dimethoxybenzaldehyde-----	o-Veratraldehyde.
3,4-Dimethoxybenzaldehyde-----	Veratraldehyde.
o-Dimethoxybenzene-----	Veratrole.
1,2-Dimethoxybenzene-----	Veratrole.
3,3'-Dimethoxybenzidine-4,4'-diisocyanate-----	Isocyanic acid, 3,3'-dimethoxy-4,4'-biphenylene ester.
4,4'-Dimethoxybenzoin-----	p-Anisoin.
p,p'-Dimethoxybenzoylphenylcarbinol-----	p-Anisoin.
3,4-Dimethoxybenzyl alcohol-----	Veratryl alcohol.
3,3'-Dimethoxy-4,4'-biphenylbis[3-methyl-3-triazeneethanesulfonic acid].	3,3'-Dimethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazene-1-yl]biphenyl.
N,N'-(3,3'-Dimethoxy-4,4'-biphenylenebisazo)bis(N-methyltaurine).	3,3'-Dimethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazene-1-yl]biphenyl.
2,2'-[3,3'-(3,3'-Dimethoxy-4,4'-biphenylene)bis(1-methylidiazooamino)]di(ethanesulfonic acid).	3,3'-Dimethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazene-1-yl]biphenyl.
1,1'-(3,3'-Dimethoxy-4,4'-biphenylene)bis(3-methyl-3-(sulfoethyl)triazene).	3,3'-Dimethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazene-1-yl]biphenyl.
Di-p-methoxyethylchalcone-----	α-Ethyl-4,4'-dimethoxychalcone.
4,4'-Dimethoxy-α-hydroxy-α-phenylacetone-----	p-Anisoin.
N-(2,5-Dimethoxy-4-nitrophenyl)benzamide-----	2',5'-Dimethoxy-4'-nitrobenzanilide.
N-(2,5-Dimethoxyphenyl)benzamide-----	2',5'-Dimethoxybenzanilide.
Dimethylacetanilide-----	Acetoxyllidide.
Dimethylaminoacetylcatechol-----	3',4'-Dihydroxy-2-dimethylaminoacetophenone.
4-Dimethylamino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one.	Aminopyrine.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
N,N-Dimethyl-3-aminophenol-----	m-(Dimethylamino)phenol.
Dimethylaniline-----	Xylidine.
Dimethylbenzene-----	Xylene.
2',4-Dimethylbenzenesulfonanilide-----	p-Toluenesulfono-o-toluidide.
2,2'-Dimethylbenzidine-----	m-Tolidine.
3,3'-Dimethylbenzidine-----	o-Tolidine.
2,4-Dimethyl-6-tert-butylacetophenone-----	2'-tert-Butyl-4',6'-dimethylacetophenone.
1,3-Dimethyl-5-tert-butylbenzene-----	5-tert-Butyl-m-xylene.
2,7-Dimethylceroxanol-----	2,8-Dimethyl-13b-hydroxy-9(13b)-ceroxene.
Dimethyldianthraquinonyl-----	2,2'-Dimethyl-1,1'-bianthraquinone.
2,2'-Dimethyl-1,1-dianthraquinonylamine-----	1,1'-Iminobis[2-methylantraquinone].
Dimethylhydroresorcinol-----	Dimethyl-1,3-cyclohexanedione.
3,3'-Dimethyl-4,4'-methylenediphenyl isocyanate-----	Isocyanic acid, 2,2'-dimethyl-4,4'-methylenedi-phenylene ester.
Dimethyl- $\alpha$ -naphthylamine-----	N,N-Dimethyl-1-naphthylamine.
2,3-Dimethyl-5-oxo-1-phenyl-3-pyrazoline-4-carboxylic acid.	Antipyrinic acid.
2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one-----	Antipyrine.
2,7-Dimethylquinoline-----	m-Toluinaldine.
Dinaphtho[1,2,3-cd,1',2',3'-lm]perylene-9,18-dione---	Isoviolanthrone.
Dinaphtho[1,2,3-cd,3',2',1'-lm]perylene-5,10-dione---	Violanthrone.
1,4-Dinitrobenzene-----	p-Dinitrobenzene.
2,4-Dinitrobenzene-----	m-Dinitrobenzene.
Dinitrochlorobenzene-----	1-Chloro-2,4-dinitrobenzene.
Dinitrochlorobenzenesulfonic acid-----	4-Chloro-3,5-dinitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
3,5-Dinitro-4-chlorobenzoic acid-----	4-Chloro-3,5-dinitrobenzoic acid [COOH=1].
2,6-Dinitro-4-chlorophenol-----	4-Chloro-2,6-dinitrophenol [OH=1].
Dinitro-o-cyclohexylphenol-----	2-Cyclohexyl-4,6-dinitrophenol [OH=1].
4,4'-Dinitro-1,1'-dianthraquinonylamine-----	1,1'-Iminobis[4-nitroanthraquinone].
Dinitrodi-benzanthronyl-----	Dinitro(3,3'-bi-7H-benz[de]anthracene)-7,7'-dione.
Dinitrohydroxydiphenylamine-----	p-(2,4-Dinitroanilino)phenol.
Dinitrotetramethyldiaminodiphenylmethane-----	4,4'-Methylenebis[N,N-dimethyl-2-nitroaniline].
2,4-Dinitrotoluenesulfonic acid-----	3,5-Dinitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
1,2-Dioxoacenaphthene-----	Acenaphthenequinone.
Dioxy S acid-----	4,5-Dihydroxy-1-naphthalenesulfonic acid.
Diphenol-----	Biphenol.
Diphenyl-----	Biphenyl.
2,4-Diphenylamine-1-hydroxyanthraquinone-----	2,4-Dianilino-1-hydroxyanthraquinone.
2,4-Diphenylamino-1-oxyanthraquinone-----	2,4-Dianilino-1-hydroxyanthraquinone.
Diphenylcarbazine-----	1,5-Diphenylcarbohydrazide.
Diphenyleneimine-----	Carbazole.
Diphenylene oxide-----	Dibenzofuran.
Diphenyl epsilon acid-----	8-Diphenylamino-1,6-naphthalenedisulfonic acid.
Diphenyl ether-----	Phenyl ether.
Diphenyl ketone-----	Benzophenone.
Diphenylmethanol-----	Benzhydrol.
Diphenyl oxide-----	Phenyl ether.
1,3-Diphenyl-2-propen-1-one-----	Chalcone.
Diphenyl silicon dichloride-----	Dichlorophenylsilane.
1,3-Diphenylurea-----	Carbanilide.
N,N-Diphenylurea-----	Carbanilide.
sym-Diphenylurea-----	Carbanilide.
Dipyrazoledianthrone-----	[3,3'-Bianthra[1,9]pyrazole]-6,6'(2H,2'H)-dione.
1,3-Di-p-toluidineanthraquinone-----	1,3-Di(p-toluidino)anthraquinone.
1,4-Di-p-toluidineanthraquinone-----	1,4-Di(p-toluidino)anthraquinone.
1,3-Di(p-tolylamino)anthraquinone-----	1,3-Di(p-toluidino)anthraquinone.
1,4-Di-p-tolylaminoanthraquinone-----	1,4-Di(p-toluidino)anthraquinone.
S-Dixenylthiourea-----	4,4'-Diphenylthiocarbanilide.
Durene-----	1,2,4,5-Tetramethylbenzene.
N-Ethanol-N-ethyl-4-nitrosoaniline-----	2-(N-Ethyl-4-nitrosoanilino)ethanol.
2-Ethanolpyridine-----	2-Pyridineethanol.
2-Ethoxyaniline-----	o-Phenetidine [NH <sub>2</sub> =1].
4-Ethoxyaniline-----	p-Phenetidine [NH <sub>2</sub> =1].
2-Ethoxy-6-sulfonaphthalene-----	6-Ethoxy-2-naphthalenesulfonic acid.
Ethyl-p-aminobenzoate-----	p-Aminobenzoic acid, ethyl ester.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
Ethyl-o-amino-p-cresol-----	3-Ethylamino-p-cresol [OH=1].
Ethylaniline (mono)-----	N-Ethylaniline.
N,N-Ethylbenzylaniline-----	N-Ethyl-N-phenylbenzylamine.
Ethylbenzylanilinesulfonic acid-----	$\alpha$ -(N-Ethylanilino)-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
Ethylbenzyl-m-toluidine-----	N-Benzyl-N-ethyl-m-toluidine [NH <sub>2</sub> =1].
Ethylbenzyl-m-toluidino-o-sulfonic acid-----	4-(N-Benzyl-N-ethylamino)-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
Ethyleneglycol monophenylether-----	2-Phenoxyethanol.
Ethyl hydrol-----	4,4'-Bis[diethylamino]benzhydrol.
N-Ethyl-N-( $\beta$ -hydroxyethyl)aniline-----	2-(N-Ethylanilino)ethanol.
Ethyl ketone base-----	4,4'-Bis[diethylamino]benzophenone.
2-[1-Ethyl-3-(2-methoxy-5-nitrophenyl)diazoamino]-5-sulfobenzoic acid.	2-[1-Ethyl-3-(2-methoxy-5-nitrophenyl)triazene-3-yl]-5-sulfobenzoic acid.
5-Ethyl-2-methylpyridine-----	5-Ethyl-2-picoline.
p-Ethylnitrobenzene-----	1-Ethyl-4-nitrobenzene.
Ethyl-p-nitrobenzoate-----	p-Nitrobenzoic acid, ethyl ester.
Ethyl-p-nitrobenzoylacetate-----	p-Nitrobenzoyl acetic acid, ethyl ester.
Ethyl phenyl ether-----	Phenetole.
Ethylsulfobenzylaniline-----	$\alpha$ -(N-Ethylanilino)-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
N-Ethyl-o-toluidine-p-sulfonic acid-----	3-Ethylamino-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
Fast red TR base-----	4-Chloro-o-toluidine [NH <sub>2</sub> =1].
p-Formylaniline-----	p-Aminobenzaldehyde.
p-Formyl-N,N-diethylaniline-----	p-(Diethylamino)benzaldehyde.
4-Formyl-3-pyrazolin-5-one-----	5-Oxo-3-pyrazoline-4-carboxaldehyde.
G acid-----	2-Naphthol-6,8-disulfonic acid.
Gamma acid-----	7-Amino-1-naphthol-3-sulfonic acid.
Gamma disulfo acid-----	7-Amino-1-naphthol-3,6-disulfonic acid.
Glycerolmonoethylaniline-----	3-(N-Ethylanilino)-1,2-propanediol.
H acid-----	8-Amino-1-naphthol-3,6-disulfonic acid.
Halocrin-----	6,9-Dichloro-2-methoxyacridine.
Hexahydrobenzoic acid-----	Cyclohexanecarboxylic acid.
Hexahydropyridine-----	Piperidine.
Homophthalic acid-----	$\alpha$ -Carboxy-o-toluic acid.
$\alpha$ -m-Homosalicyclic acid-----	2,4-Cresotic acid [COOH=1].
p-Homosalicyclic acid-----	2,5-Cresotic acid [COOH=1].
Homoveratric acid-----	(3,4-Dimethoxyphenyl)acetic acid.
o-Homoveratric acid-----	(2,3-Dimethoxyphenyl)acetic acid.
Homoveratronic acid-----	(3,4-Dimethoxyphenyl)acetonitrile.
Homoveratrylamine-----	3,4-Dimethoxyphenethylamine.
1,2,1,2-Hydrazinedibromoanthraquinone-----	7,16-Dibromoindanthrene.
Hydrol-----	4,4'-Bis(dimethylamino)benzhydrol.
Hydroquinone dimethyl ether-----	p-Dimethoxybenzene.
1-Hydroxy-4-aminoanthraquinone-----	1-Amino-4-hydroxyanthraquinone.
7-Hydroxycoumarin-----	Umbelliferone.
4-Hydroxydiphenol-----	p-Phenylphenol.
$\beta$ -Hydroxyethyl-o-chloroaniline-----	2-(o-Chloroanilino)ethanol.
Hydroxyethylethylaniline-----	2-(N-Ethylanilino)ethanol.
Hydroxyethylmethyl-aniline-----	2-(N-Methylanilino)ethanol.
N-( $\beta$ -Hydroxyethyl)-N-methylaniline-----	2-(N-Methylanilino)ethanol.
Hydroxyethyl-3-toluidine-----	2-(m-Toluidino)ethanol.
2-Hydroxymetanilic acid-----	6-Amino-1-phenol-2-sulfonic acid.
4-Hydroxymetanilic acid-----	2-Amino-1-phenol-4-sulfonic acid.
2-Hydroxy-3-methoxybenzaldehyde-----	o-Vanillin.
2-Hydroxy-3-methylbenzoic acid-----	2,3-Cresotic acid [COOH=1].
2-Hydroxy-4-methylbenzoic acid-----	2,4-Cresotic acid [COOH=1].
2-Hydroxy-5-methylbenzoic acid-----	2,5-Cresotic acid [COOH=1].
7-Hydroxy-4-methylcoumarin-----	4-Methylumbelliferone.
2-Hydroxy-5-nitrometanilic acid-----	6-Amino-4-nitro-1-phenol-2-sulfonic acid.
4-Hydroxy-5-nitrometanilic acid-----	2-Amino-6-nitro-1-phenol-4-sulfonic acid.
2-Hydroxyphenetole-----	o-Ethoxyphenol.
p-Hydroxyphenylarsonic acid-----	p-Hydroxybenzeneearsonic acid [AsO <sub>3</sub> H <sub>2</sub> =1].

## Cyclic intermediates: Glossary of synonymous names --Continued

Common name	Standard (Chemical Abstracts) name
p-Hydroxyphenyl-n-butylamine-----	p-Butylaminophenol.
3-(p-Hydroxyphenyl)hydratropic acid-----	$\alpha$ -Phenylphloretic acid.
N-(p-Hydroxyphenyl)-2-naphthylamine-----	p-2-Naphthylaminophenol.
$\beta$ -(p-Hydroxyphenyl)- $\alpha$ -phenylpropionic acid-----	$\alpha$ -Phenylphloretic acid.
3-(p-Hydroxyphenyl)-2-phenylpropionic acid-----	$\alpha$ -Phenylphloretic acid.
4-Hydroxypyridine-2,6-dicarboxylic acid-----	Chelidamic acid.
8-Hydroxyquinoline-----	8-Quinolinol.
m-Hydroxytoluene-----	m-Cresol [OH=1].
o-Hydroxytoluene-----	o-Cresol [OH=1].
p-Hydroxytoluene-----	p-Cresol [OH=1].
6-Hydroxy-m-toluidine [NH <sub>2</sub> =1]-----	2-Amino-p-cresol [OH=1].
2-Hydroxy-p-toluic acid-----	2,4-Cresotic acid [COOH=1].
I acid-----	6-Amino-1-naphthol-3-sulfonic acid.
I acid imide-----	6,6'-Iminobis[1-naphthol-3-sulfonic acid].
2,2'-(1,3-Indandione)quinoline-----	Quinophthalone.
Isobutyl p-nitrobenzoate-----	p-Nitrobenzoic acid, isobutyl ester.
Isodibenzanthrone-----	Isoviolanthrone.
p-Isopropylaniline-----	Cumidine.
Isopropylbenzene-----	Cumene.
Isopropyl p-toluenesulfonate-----	p-Toluenesulfonic acid, isopropyl ester [SO <sub>3</sub> H=1].
J acid-----	6-Amino-1-naphthol-3-sulfonic acid.
J acid imide-----	6,6'-Iminobis[1-naphthol-3-sulfonic acid].
J acid urea-----	6,6'-Ureylenebis[1-naphthol-3-sulfonic acid].
K acid-----	8-Amino-1-naphthol-3,5-disulfonic acid.
Koch's acid-----	8-Amino-1,3,6-naphthalenetrisulfonic acid.
Lake red C amine-----	2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
Laurent's acid-----	5-Amino-1-naphthalenesulfonic acid.
Lead styphnate-----	Styphnic acid, lead salt.
Lead trinitroresorcinate-----	Styphnic acid, lead salt.
Leuco-1,4-di(methylamino)anthraquinone-----	1,4-Dimethylamino-9,10-anthradiol.
Methandrone-----	3',4'-Dihydroxy-2-(dimethylamino)acetophenone.
Methane base-----	4,4'-Methylenebis[N,N-dimethylaniline].
Methane salt-----	4,4'-Methylenebis[3-hydroxy-2-naphthoic acid].
o-Methoxyacetanilide-----	o-Acetanisidide.
p-Methoxyacetanilide-----	p-Acetanisidide.
4-Methoxy-4'-aminodiphenylamine-----	N-(p-Methoxyphenyl)-p-phenylenediamine.
2-Methoxy-4-aminodiphenylamine-2'-sulfonic acid-----	o-(4-Amino-2-anisidino)benzenesulfonic acid [SO <sub>3</sub> H=1].
Methoxyaniline-----	Anisidine [NH <sub>2</sub> =1].
o-Methoxyanilinomethanesulfonic acid-----	o-Anisidinomethanesulfonic acid.
2-(o-Methoxyanilino)-5-nitrobenzenesulfonic acid-----	2-(o-Anisidino)-5-nitrobenzenesulfonic acid.
o-Methoxyanilino-p-sulfonic acid-----	4-Methoxymetanilic acid [SO <sub>3</sub> H=1].
Methoxybenzene-----	Anisole.
p-Methoxybenzoic acid-----	Anisic acid [COOH=1].
4-Methoxy-3'-chloro-6'-carboxydiphenylamine-----	4-Chloro-N-(p-methoxyphenyl)anthranilic acid [COOH=1].
2-Methoxy-6,9-dichloroacridine-----	6,9-Dichloro-2-methoxyacridine.
4'-Methoxy-4-nitrodiphenylamine-2'-sulfonic acid-----	2-(p-Anisidino)-5-nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
2-[3-(2-Methoxy-4-nitrophenyl)-1-methyltriazeno]-5-sulfobenzoic acid.	2-[3-(2-Methoxy-4-nitrophenyl)-1-methyltriazeno-3-yl]-5-sulfobenzoic acid.
4-Methoxy-m-toluidine [CH <sub>3</sub> =1]-----	5-Methyl-o-anisidine [NH <sub>2</sub> =1].
6-Methoxy-m-toluidine [NH <sub>2</sub> =1]-----	5-Methyl-o-anisidine [NH <sub>2</sub> =1].
[3-(6-Methoxy-m-tolyl)-1-methyltriazeno]acetic acid-----	[3-(6-Methoxy-m-tolyl)-1-methyltriazeno-3-yl]acetic acid.
4-Methyl-4-aminodiphenylamine-2-sulfonic acid-----	5-Amino-2-(p-toluidino)benzenesulfonic acid.
Methylaminosulfobenzoic acid-----	N-Methyl-5-sulfoanthranilic acid.
o-Methylaniline-----	o-Toluidine [NH <sub>2</sub> =1].
Methylaniline (mono)-----	N-Methylaniline.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
2-Methylbenzanthrone-----	2-Methyl-7H-benz[de]anthracen-7-one.
Methylbenzoic acid-----	p-Toluic acid [COOH=1].
Methylenebis(toluenediamine)-----	5,5'-Methylenebis[toluene-2,4-diamine].
4,4'-Methylenebis[o-tolylisocyanate]-----	Isocyanic acid, 3,3'-dimethyl-4,4'-methylenedi-phenylene ester.
Methylenedi-p-phenyleneisocyanate-----	Isocyanic acid, methylenedi-p-phenylene ester.
4,4'-Methylenediphenylisocyanate-----	Isocyanic acid, methylenedi-p-phenylene ester.
Methylenedi-o-tolylene isocyanate-----	Isocyanic acid, 3,3'-dimethyl-4,4'-methylenedi-phenylene ester.
2-Methyl-5-ethylpyridine (MEP)-----	5-Ethyl-2-picoline.
4-Methyl-7-hydroxycoumarin-----	4-Methylumbelliferone.
Methyl-p-hydroxy-m-nitrobenzoate-----	p-Hydroxy-m-nitrobenzoic acid, methyl ester.
1-Methyl-4-hydroxyquinolone-----	1-Methyl-4(1H)-quinolone.
3-Methyl-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluene-sulfonic acid [SO <sub>3</sub> H=1].
3-Methyl-1-(2-methyl-4-sulfophenyl)-5-pyrazolone----	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluene-sulfonic acid.
N-(5-Methyl-4-nitro-o-anisyl)-p-toluenesulfonamide---	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluene-sulfonamide.
2-Methyl-5-nitrodiphenylamine-----	5-Nitro-N-phenyl-o-toluidine [NH <sub>2</sub> =1].
3-Methyl-1-(m-nitrophenyl)-5-pyrazolone-----	3-Methyl-1-(m-nitrophenyl)-2-pyrazolin-5-one.
m-Methylphenol-----	m-Cresol [OH=1].
o-Methylphenol-----	o-Cresol [OH=1].
p-Methylphenol-----	p-Cresol [OH=1].
4-Methyl-m-phenylenediisocyanate-----	Isocyanic acid, 4-methyl-m-phenylene ester.
3-Methyl-1-phenyl-5-pyrazolone-----	3-Methyl-1-phenyl-2-pyrazolin-5-one.
Methylphenylpyrazolone-3-sulfonic acid-----	m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
Methylphenylpyrazolone-4-sulfonic acid-----	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
2-Methylpiperidine-----	2-Pipecoline.
4-(3-Methyl-5-pyrazolone)-m-toluenesulfonic acid----	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid.
Methylpyridine-----	Picoline.
2-Methylquinoline-----	Quinaldine.
3-Methyl-1-(m-sulfophenyl)-2-pyrazolin-5-one-----	m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
3-Methyl-1-(p-sulfophenyl)-2-pyrazolin-5-one-----	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
Methylsulfophenylpyrazolone, mixed-----	m(and p)-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
3-Methyl-1-(p-sulfophenyl)-5-pyrazolone-----	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
Methyl-p-toluenesulfonate-----	p-Toluenesulfonic acid, methyl ester [SO <sub>3</sub> H=1].
β-Methylumbelliferone-----	4-Methylumbelliferone.
2-Methyl-5-vinylpyridine (MVP)-----	5-Vinyl-2-picoline.
Michler's hydrol-----	4,4'-Bis[dimethylamino]benzhydrol.
Michler's ketone-----	4,4'-Bis[dimethylamino]benzophenone.
Monobromobenzene-----	Bromobenzene.
Monochlorobenzene-----	Chlorobenzene (mono).
Naphthalene sodium sulfonates-----	Naphthalenesulfonic acids, sodium salt (mixed).
Naphthalene-β-thioglycolic acid-----	(2-Naphthylthio)acetic acid.
2(1H)-peri-Naphthazolone-----	Naphthostyryl.
o-Naphthionic acid-----	1-Amino-2-naphthalenesulfonic acid.
α-Naphthol-----	1-Naphthol.
β-Naphthol-----	2-Naphthol.
1-Naphthol-8-chloro-3,6-disulfonic acid-----	8-Chloro-1-naphthol-3,6-disulfonic acid.
2-Naphthol ethyl ether-----	2-Ethoxynaphthalene.
Naphthosulfochloride-----	1-Naphthalenesulfonyl chloride.
1,8-Naphthosultone-----	1-Naphthol-8-sulfonic acid sultone.
Naphthylacetoneitrile-----	Naphthaleneacetoneitrile.
α-Naphthylamine-----	1-Naphthylamine.
β-Naphthylamine-----	2-Naphthylamine.
1-Naphthylamine-3,6-disulfonic acid-----	5-Amino-2,7-naphthalenedisulfonic acid.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
1-Naphthylamine-3,8-disulfonic acid-----	8-Amino-1,6-naphthalenedisulfonic acid.
1-Naphthylamine-4,7-disulfonic acid-----	4-Amino-1,6-naphthalenedisulfonic acid.
1-Naphthylamine-4,8-disulfonic acid-----	4-Amino-1,5-naphthalenedisulfonic acid.
2-Naphthylamine-1,5-disulfonic acid-----	2-Amino-1,5-naphthalenedisulfonic acid.
2-Naphthylamine-3,6-disulfonic acid-----	3-Amino-2,7-naphthalenedisulfonic acid.
2-Naphthylamine-4,8-disulfonic acid-----	3-Amino-1,5-naphthalenedisulfonic acid.
2-Naphthylamine-5,7-disulfonic acid-----	6-Amino-1,3-naphthalenedisulfonic acid.
2-Naphthylamine-6,8-disulfonic acid-----	7-Amino-1,3-naphthalenedisulfonic acid.
1-Naphthylamine-2-sulfonic acid-----	1-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-3-sulfonic acid-----	4-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-4-sulfonic acid-----	Naphthionic acid.
1-Naphthylamine-5-sulfonic acid-----	5-Amino-1-naphthalenesulfonic acid.
1-Naphthylamine-6-sulfonic acid-----	5-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-6(and 7)-sulfonic acid-----	5(and 8)-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-7-sulfonic acid-----	8-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-8-sulfonic acid-----	8-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-1-sulfonic acid-----	2-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-5-sulfonic acid-----	6-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-6-sulfonic acid-----	6-Amino-2-naphthalenesulfonic acid.
2-Naphthylamine-8-sulfonic acid-----	7-Amino-1-naphthalenesulfonic acid.
1-Naphthylamine-3,6,8-trisulfonic acid-----	8-Amino-1,3,6-naphthalenetrisulfonic acid.
2-Naphthylamine-3,6,8-trisulfonic acid-----	7-Amino-1,3,6-naphthalenetrisulfonic acid.
1-Naphthylamino-2-carboxylic acid anthraquinone-----	1-(1-Naphthylamino)-2-anthraquinonecarboxylic acid.
1-Naphthylisocyanate-----	Isocyanic acid, 1-naphthyl ester.
$\alpha$ -Naphthyl isocyanate-----	Isocyanic acid, 1-naphthyl ester.
2-Naphthylmercaptoacetic acid-----	(2-Naphthylthio)acetic acid.
Naphthylmethanesulfonic acid-----	1-Naphthalenemethanesulfonic acid.
$\beta$ -Naphthylthioglycolic acid-----	(2-Naphthylthio)acetic acid.
Neville & Winther's acid-----	1-Naphthol-4-sulfonic acid.
3-Nitro-4-aminoanisole [CH <sub>3</sub> O=1]-----	2-Nitro-p-anisidine [NH <sub>2</sub> =1].
4-Nitro-2-aminoanisole [CH <sub>3</sub> O=1]-----	5-Nitro-o-anisidine [NH <sub>2</sub> =1].
5-Nitro-2-aminoanisole [CH <sub>3</sub> O=1]-----	4-Nitro-o-anisidine [NH <sub>2</sub> =1].
6-Nitro-2-aminoanisole [CH <sub>3</sub> O=1]-----	3-Nitro-o-anisidine [NH <sub>2</sub> =1].
o-Nitro-p-aminophenol-----	4-Amino-2-nitrophenol.
p-Nitro-o-aminophenol-----	2-Amino-4-nitrophenol.
5-Nitro-o-aminophenol-----	2-Amino-5-nitrophenol.
4-Nitro-2-aminophenol-6-sulfonic acid-----	6-Amino-4-nitro-1-phenol-2-sulfonic acid.
6-Nitro-2-aminophenol-4-sulfonic acid-----	2-Amino-6-nitro-1-phenol-4-sulfonic acid.
4-Nitro-4'-amino-2-sulfodiphenylamine-----	2-(p-Aminocanilino)-5-nitrobenzenesulfonic acid.
5-Nitro-2-aminotoluene [CH <sub>3</sub> =1]-----	4-Nitro-o-toluidine [NH <sub>2</sub> =1].
p-Nitroaniline-o-sulfonic acid-----	2-Amino-5-nitrobenzenesulfonic acid.
m-Nitro-p-anisidine [CH <sub>3</sub> O=1]-----	2-Nitro-p-anisidine [NH <sub>2</sub> =1].
3-Nitro-p-anisidine [CH <sub>3</sub> O=1]-----	2-Nitro-p-anisidine [NH <sub>2</sub> =1].
4-Nitro-2-anisidine [CH <sub>3</sub> O=1]-----	5-Nitro-o-anisidine [NH <sub>2</sub> =1].
5-Nitro-2-anisidine [CH <sub>3</sub> O=1]-----	4-Nitro-o-anisidine [NH <sub>2</sub> =1].
2-Nitroanisole-4-sulfodiethylamide-----	N,N-Diethyl-3-nitro-p-methoxybenzenesulfonamide.
1-Nitroanthraquinone-2-carboxylic acid-----	1-Nitro-2-anthraquinonecarboxylic acid.
Nitrobenzene-2,5-disulfonic acid-----	2-Nitro-p-benzenedisulfonic acid.
1-Nitrobenzene-4-sulfonic acid-----	p-Nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
2-Nitrobenzenesulfonic acid-----	o-Nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
3-Nitrobenzenesulfonic acid-----	m-Nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
3-Nitrobenzenesulfonyl chloride-----	m-Nitrobenzenesulfonyl chloride [SO <sub>2</sub> Cl=1].
m-Nitrobenzoyl J acid-----	6-(m-Nitrobenzamido)-1-naphthol-3-sulfonic acid.
p-Nitrobenzoyl J acid-----	6-(p-Nitrobenzamido)-1-naphthol-3-sulfonic acid.
m-Nitrochlorobenzene-----	1-Chloro-3-nitrobenzene.
o-Nitrochlorobenzene-----	1-Chloro-2-nitrobenzene.
p-Nitrochlorobenzene-----	1-Chloro-4-nitrobenzene.
2-Nitro-1-chlorobenzene-4-sulfobutylamide-----	N-Butyl-4-chloro-3-nitrobenzenesulfonamide.
2-Nitro-1-chlorobenzene-4-sulfodiethylamide-----	4-Chloro-N,N-diethyl-3-nitrobenzenesulfonamide.
o-Nitrochlorobenzene-p-sulfonic acid-----	4-Chloro-3-nitrobenzenesulfonic acid.
p-Nitrochlorobenzene-o-sulfonic acid-----	2-Chloro-5-nitrobenzenesulfonic acid.
3-Nitro-4-chlorobenzoylbenzoic acid-----	o-(4-Chloro-3-nitrobenzoyl)benzoic acid.
4-Nitro-6-chloro-1,3-dimethoxybenzene-----	6-Chloro-1,3-dimethoxy-4-nitrobenzene.
2-Nitro-4-chlorophenol-----	4-Chloro-2-nitrophenol.
2-Nitro-4-chlorophenol-6-sulfonic acid-----	4-Chloro-6-nitro-1-phenol-2-sulfonic acid.
m-Nitro-p-chlorotoluene-----	4-Chloro-3-nitrotoluene.
o-Nitro-p-chlorotoluene-----	4-Chloro-2-nitrotoluene.

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
p-Nitro-o-chlorotoluene-----	2-Chloro-4-nitrotoluene.
2-Nitro-4-chlorotoluene-----	4-Chloro-2-nitrotoluene.
m-Nitro-p-cresol [CH <sub>3</sub> =1]-----	2-Nitro-p-cresol [OH=1].
Nitrocresyl methyl ether-----	4-Methyl-2-nitroanisole [CH <sub>3</sub> O=1].
Nitro-p-dichlorobenzene-----	1,4-Dichloro-2-nitrobenzene.
o-Nitrodiphenyl-----	2-Nitrobiphenyl.
p-Nitrodiphenyl-----	4-Nitrobiphenyl.
4-Nitro-2-diphenylaminesulfonic acid-----	2-Anilino-5-nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
4-Nitrodiphenylamino-2-sulfonic acid-----	2-Anilino-5-nitrobenzenesulfonic acid [SO <sub>3</sub> H=1].
2-Nitrohydroquinone, diethyl ether-----	1,4-Diethoxy-2-nitrobenzene.
2-Nitrohydroquinone, dimethyl ether-----	1,4-Dimethoxy-2-nitrobenzene.
3-Nitro-4-hydroxy-1-phenylarsonic acid-----	4-Hydroxy-3-nitrobenzenearsonic acid.
6-Nitro-4-methoxy-3-aminotoluene [CH <sub>3</sub> =1]-----	5-Methyl-4-nitro-o-anisidine [NH <sub>2</sub> =1].
2-Nitro-4-methoxy-5-(p-toluenesulfonamido)toluene----	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluenesulfonamide.
4-Nitro-1-methylaniline-----	5-Nitro-o-toluidine [NH <sub>2</sub> =1].
1-Nitro-2-methylantraquinone-----	2-Methyl-1-nitroanthraquinone.
2-Nitronaphthalene-4,8-disulfonic acid-----	3-Nitro-1,5-naphthalenedisulfonic acid.
7-Nitro-1,5-naphthalenedisulfonic acid-----	3-Nitro-1,5-naphthalenedisulfonic acid.
4-Nitronaphthalic acid tolylimide-----	4-Nitro-N-(p-tolyl)naphthalimide.
2-Nitro-1-phenol-4,6-disulfonic acid-----	6-Nitro-1-phenol-2,4-disulfonic acid.
3-Nitrophenylhydrazine-----	m-Nitrophenylhydrazine.
p-(p-Nitrophenylmercapto)aniline-----	p-(p-Nitrophenylthio)aniline.
1-(m-Nitrophenyl)-5-pyrazolone-3-carboxylic acid-----	1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
Nitropyrazolonecarboxylic acid-----	1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
p-Nitrosodiethylaniline-----	N,N-Diethyl-p-nitrosoaniline.
p-Nitrosodimethylaniline-----	N,N-Dimethyl-p-nitrosoaniline.
Nitroso-β-naphthol-----	1-Nitroso-2-naphthol.
3-Nitro-5-stearoylamino-p-toluenesulfonic acid-----	3-Nitro-5-stearoylamido-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
4-Nitrotolueneanilide-----	5-Nitro-n-phenyl-o-toluidine [NH <sub>2</sub> =1].
6-Nitro-3-(p-toluenesulfone)amino-4-methoxytoluene----	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluenesulfonamide.
4'-Nitro-p-toluenesulfone-o-toluide-----	4'-Nitro-p-toluenesulfono-o-toluidide.
o-Nitrotoluenesulfonic acid-----	3-Nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
p-Nitrotoluene-o-sulfonic acid-----	5-Nitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
m-Nitro-o-toluidine [CH <sub>3</sub> =1]-----	4-Nitro-o-toluidine [NH <sub>2</sub> =1].
m-Nitro-p-toluidine [CH <sub>3</sub> =1]-----	2-Nitro-p-toluidine [NH <sub>2</sub> =1].
p-Nitro-o-toluidine [CH <sub>3</sub> =1]-----	5-Nitro-o-toluidine [NH <sub>2</sub> =1].
3-Nitro-4-toluidine [CH <sub>3</sub> =1]-----	2-Nitro-p-toluidine [NH <sub>2</sub> =1].
4-Nitro-2-toluidine [CH <sub>3</sub> =1]-----	5-Nitro-o-toluidine [NH <sub>2</sub> =1].
5-Nitro-2-toluidine [CH <sub>3</sub> =1]-----	4-Nitro-o-toluidine [NH <sub>2</sub> =1].
Nitrotoluidine sulfone-----	4'-Nitro-p-toluenesulfono-o-toluidide.
6-Nitro-o-toluidine-4-sulfonic acid-----	4-Amino-5-nitro-m-toluenesulfonic acid [SO <sub>3</sub> H=1].
N-(4-Nitro-o-tolyl)-p-toluenesulfonamide-----	4'-Nitro-p-toluenesulfono-o-toluidide.
5-Nitro-1,2,4-trichlorobenzene-----	1,2,4-Trichloro-5-nitrobenzene.
Nitroviolanthrone-----	16-Nitroviolanthrone.
p-Nitro-o-xylene-----	4-Nitro-o-xylene.
4-Nitro-1,3-xylene-----	4-Nitro-m-xylene.
2-Nitro-1,4-xylol-----	2-Nitro-p-xylene.
4-Nitro-1,3-xylol-----	4-Nitro-m-xylene.
Orthanilic acid-----	o-Aminobenzenesulfonic acid [SO <sub>3</sub> H=1].
Oxalyl-p-nitroaniline-----	4'-Nitrooxanilic acid.
Oxalyl-p-nitrophenylamine-----	4'-Nitrooxanilic acid.
Oxalyl-m-phenyldiamine-----	3'-Aminooxanilide.
Oxalyl-p-phenyldiamine-----	4'-Aminooxanilide.
4-Oxo-4H-pyran-2,6-dicarboxylic acid-----	Chelidonic acid.
2-Oxycarbazole-----	2-Hydroxycarbazole.
α-Oxynaphthoic acid-----	1-Hydroxy-2-naphthoic acid.
β-Oxynaphthoic acid-----	3-Hydroxy-2-naphthoic acid.
Pentaanthramide-----	1,4,5,8-Tetrakis[1',1'',1''',1''''-anthraquinonyl-amino]anthraquinone.



*Cyclic intermediates: Glossary of synonymous names-- Continued*

Common name	Standard (Chemical Abstracts) name
Peri acid-----	8-Amino-1-naphthalenesulfonic acid.
Phenethylene-----	Styrene.
Phenol, sodium salt-----	Sodium phenoxide.
1-Phenylacetylcarbinol-----	1-Hydroxy-1-phenyl-2-propanone.
3-Phenylacrylophenone-----	Chalcone.
2-Phenylamine-5-naphthol-7-sulfonic acid-----	6-Anilino-1-naphthol-3-sulfonic acid.
2-Phenylamine-8-naphthol-6-sulfonic acid-----	7-Anilino-1-naphthol-3-sulfonic acid.
N-Phenylaniline-----	Diphenylamine.
Phenylarsonic acid-----	Benzenearsonic acid.
N-Phenylazoaniline-----	1,3-Diphenyltriazene.
Phenylbiphenyl-----	Terphenyl.
Phenyl bromide-----	Bromobenzene.
1-Phenyl-3-carboxy-5-pyrazolone-4-sulfonic acid-----	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Phenyldiethanolamine-----	2,2-(Phenylimino)diethanol.
N,N'-p-Phenylenebis[acetamide]-----	N,N'-(p-Phenylene)bis[acetamide].
m-Phenylenediaminedisulfonic acid-----	4,6-Diamino-m-benzenedisulfonic acid.
m-Phenylenediaminesulfonic acid-----	2,4-Diaminobenzenesulfonic acid.
p-Phenylenediaminesulfonic acid-----	2,5-Diaminobenzenesulfonic acid.
Phenylene nerol acid-----	5-Amino-2-(p-aminoanilino)benzenesulfonic acid.
Phenylethanolamine-----	2-Anilinoethanol.
Phenyl gamma acid-----	7-Anilino-1-naphthol-3-sulfonic acid.
Phenylhydrazine-p-sulfonic acid-----	p-Hydrazinobenzenesulfonic acid [SO <sub>3</sub> H=1].
Phenylhydrazine-2-sulfonic acid-----	o-Hydrazinobenzenesulfonic acid [SO <sub>3</sub> H=1].
Phenylhydrazine-3-sulfonic acid-----	m-Hydrazinobenzenesulfonic acid [SO <sub>3</sub> H=1].
N-Phenyl-N'-(β-hydroxyethyl)thiourea-----	1-(2-Hydroxyethyl)-3-phenyl-2-thiourea.
Phenyl isocyanate-----	Isocyanic acid, phenyl ester.
Phenyl J acid-----	6-Anilino-1-naphthol-3-sulfonic acid.
Phenylmalonic ester-----	Phenylmalonic acid, diethyl ester.
Phenylmethanesulfonic acid-----	α-Toluenesulfonic acid.
Phenyl-β-naphthylamine-----	N-Phenyl-2-naphthylamine.
N-Phenyl-1-naphthylamine-8-sulfonic acid-----	8-Anilino-1-naphthalenesulfonic acid.
α-Phenyl-β-(4-oxophenyl)propionic acid-----	α-Phenylphloretic acid.
Phenyl peri acid-----	8-Anilino-1-naphthalenesulfonic acid.
N-Phenyl-p-phenylenediaminesulfonic acid-----	5-Amino-2-anilinobenzenesulfonic acid [SO <sub>3</sub> H=1].
1-Phenyl-5-pyrazolone-3-carboxylic acid, ethyl ester-----	5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester.
Phenyl silicon chloride-----	Trichlorophenylsilane.
Phenylstyryl ketone-----	Chalone.
1-Phenyl-4'-sulfo-5-pyrazolone-3-carboxylic acid-----	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Phthalyl chloride-----	Phthaloyl chloride.
3-Piperidino-1-propanol-----	1-Piperidinepropanol.
Piperidinopropyl alcohol-----	1-Piperidinepropanol.
Potassium-3-chloro-6-carboxy-3'-methoxydiphenylamine-----	4-Chloro-N-(m-methoxyphenyl)anthranilic acid, potassium salt [COOH=1].
n-Propyl-p-nitrobenzoate-----	p-Nitrobenzoic acid, n-propyl ester.
Pseudocumene-----	1,2,4-Trimethylbenzene.
Pseudocumidine-----	2,4,5-Trimethylaniline.
Purpuroxanthin-----	Xanthopurpurin.
Pyrazoleanthrone-----	Anthra[1,9]pyrazol-6(2H)-one.
Pyrazoleanthrone yellow-----	[3,3'-Bianthra[1,9]pyrazole]-6,6'(2H,2'H)-dione.
3-Pyrazolin-4-ylacetic acid-----	3-Pyrazoline-4-acetic acid.
3-Pyrazolone-----	3-Pyrazolin-5-one.
5-Pyrazolone-----	2-Pyrazolin-5-one.
Pyrazolone G-----	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
Pyrazolone T-----	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
2-Pyridylethanol-----	2-Pyridineethanol.
R acid-----	2-Naphthol-3,6-disulfonic acid.
2R acid-----	7-Amino-1-naphthol-3,6-disulfonic acid.
Red KB base-----	5-Chloro-o-toluidine [NH <sub>2</sub> =1].
Rhoduline acid-----	6,6'-Iminobis[1-naphthol-3-sulfonic acid].

*Cyclic intermediates: Glossary of synonymous names--Continued*

Common name	Standard (Chemical Abstracts) name
S Acid-----	8-Amino-1-naphthol-5-sulfonic acid.
2S (SS) acid-----	8-Amino-1-naphthol-5,7-disulfonic acid.
Schaeffer's acid-----	2-Naphthol-6-sulfonic acid.
Silver salt-----	2-Anthraquinonesulfonic acid, sodium salt.
Sodium carbolate-----	Sodium phenoxide.
Sodium naphthionate-----	Naphthionic acid, sodium salt.
Sodium phenate-----	Sodium phenoxide.
Sodium phenolate-----	Sodium phenoxide.
Sodium-o-phenylphenolate-----	o-Phenylphenol, sodium salt.
Sodium tetrachlorophenolate-----	2,3,4,6-Tetrachlorophenol, sodium salt.
Sodium trichlorophenolate-----	2,4,5-Trichlorophenol, sodium salt.
Styrol-----	Styrene.
Sulfo BB acid-----	2-Benzoyl-4-sulfobenzoic acid [COOH=1].
o-Sulfobenzaldehyde-----	o-Formylbenzenesulfonic acid [SO <sub>3</sub> H=1].
4-Sulfo-o-benzoylbenzoic acid-----	2-Benzoyl-4-sulfobenzoic acid [COOH=1].
1-Sulfo-5-nitroanthraquinone-----	5-Nitro-1-anthraquinonesulfonic acid.
Sulfophenylmethylpyrazolone-----	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
1-Sulfophenyl-5-pyrazolone-3-carboxylic acid-----	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
Tetraaminoditolylmethane-----	5,5'-Methylenebis[toluene-2,4-diamine].
Tetrachloro-p-benzoquinone-----	Chloranil.
Tetrachloroquinone-----	Chloranil.
Tetraethyldiaminobenzhydrol-----	4,4'-Bis[diethylamino]benzhydrol.
Tetraethyldiaminobenzophenone-----	4,4'-Bis[diethylamino]benzophenone.
Tetraethyldiaminodiphenylmethane-----	4,4'-Methylenebis[N,N-diethylaniline].
Tetraethyldiaminotriphenylmethane-----	4,4'-Benzylidenebis[N,N-diethylaniline].
Tetrahydrophthalimide-----	4-Cyclohexene-1,2-dicarboximide.
Tetramethyldiaminoacridine hydrochloride-----	2,7-Bis[dimethylamino]acridine hydrochloride.
Tetramethyldiaminobenzophenone-----	4,4'-Bis[diethylamino]benzophenone.
Tetramethyldiaminobenzoylhydrol-----	4,4'-Bis[diethylamino]benzhydrol.
Tetramethyldiaminodiphenylmethane-----	4,4'-Methylenebis[N,N-dimethylaniline].
Tetramethyldiaminotriphenylmethane-----	4,4'-Benzylidenebis[N,N-dimethylaniline].
Thioaniline-----	4,4'-Thiodianiline.
Thioanilinedisulfonic acid-----	6,6'-Thiodimetanilic acid [SO <sub>3</sub> H=1].
p,p'-Thiobis(4-amino-o-benzenesulfonic acid)-----	6,6'-Thiodimetanilic acid [SO <sub>3</sub> H=1].
Thiosalicylic acid-----	o-Mercaptobenzoic acid [COOH=1].
Tobias acid-----	2-Amino-1-naphthalenesulfonic acid.
α-Toluamide-----	2-Phenylacetamide.
Toluene-2,4-diisocyanate-----	Isocyanic acid, 4 (and 2)-methyl-m-phenylene ester.
p-Toluenesulfochloride-----	p-Toluenesulfonyl chloride [SO <sub>2</sub> Cl=1].
4-Toluenesulfonamido-1-aminoanthraquinonesulfonic acid-----	1-Amino-4-(p-toluenesulfonamido)-2-anthraquinone-sulfonic acid.
β-Toluenesulfonic acid-----	p-Toluenesulfonic acid, methyl ester [SO <sub>3</sub> H=1].
Toluene-2,4,6-triol-----	2-Methylphloroglucinol.
4-Toluic acid-----	p-Toluic acid [COOH=1].
α-Toluic acid-----	Phenylacetic acid.
m-Toluidine-o-sulfonic acid-----	4-Amino-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
m-Toluidine-p-sulfonic acid-----	2-Amino-p-toluenesulfonic acid [SO <sub>3</sub> H=1].
o-Toluidine-m-sulfonic acid-----	4-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1].
o-Toluidine-omega-sulfonic acid-----	(o-Toluidino)methanesulfonic acid [SO <sub>3</sub> H=1].
p-Toluidine-m-sulfonic acid-----	6-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1].
p-Toluidine-o-sulfonic acid-----	5-Amino-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
p-Toluidine-o-sulfonic acid, isopropyl ester-----	5-Amino-o-toluenesulfonic acid, isopropyl ester [SO <sub>3</sub> H=1].
3-Toluidine-6-sulfonic acid-----	4-Amino-o-toluenesulfonic acid [SO <sub>3</sub> H=1].
6-(p-Toluidino)metanilic acid-----	5-Amino-2-(p-toluidino)benzenesulfonic acid.
α-Tolunitrile-----	Phenylacetoneitrile.
4-Tolunitrile-----	p-Tolunitrile.
1,3-(p-Tolylamino)anthraquinone-----	1,3-Di(p-toluidino)anthraquinone.
p-Tolyl-o-benzoic acid-----	o-(p-Tolyl)benzoic acid [COOH=1].
o-Tolylcarbinol-----	o-Methylbenzyl alcohol.
Tolylenediamine-----	Toluenediamine.
p-m-Tolylenediamine-----	Toluene-2,5-diamine.
4-m-Tolylenediamine-----	Toluene-2,4-diamine.

*Cyclic intermediates: Glossary of synonymous names-- Continued*

Common name	Standard (Chemical Abstracts) name
5-m-Tolylenediamine-----	Toluene-3,5-diamine.
m-Tolylenediaminesulfonic acid-----	4,6-Diamino-m-toluenesulfonic acid [SO <sub>3</sub> H=1].
m-Tolylene diisocyanates-----	Isocyanic acid, 4( and 2)-methyl-m-phenylene ester.
[3-(p-Tolyl)-1-methyltriazeno]acetic acid-----	[3-(p-Tolyl)-1-methyltriazene-3-yl]acetic acid.
Tolyl peri acid-----	8-(p-Toluidino)-1-naphthalenesulfonic acid.
2,4,6-Triaminobenzene trihydrochloride-----	1,3,5-Benzenetriamine trihydrochloride.
2,4,6-Triaminotoluene trihydrochloride-----	Toluene-2,4,6-triamine trihydrochloride.
Trianthraquinonyldi-imide-----	1,4-Bis[1-anthraquinonylamino]anthraquinone.
1,4-Trianthrimide-----	1,4-Bis[1-anthraquinonylamino]anthraquinone.
Trichlorophenylsilicane-----	Trichlorophenylsilane.
1,2,4-Trihydroxyanthraquinone-----	Purpurin.
1,2,6-Trihydroxyanthraquinone-----	Flavopurpurin.
2,4,6-Trihydroxytoluene-----	2-Methylphloroglucinol.
1,3,5-Trimethylbenzene-----	Mesitylene.
2,4,6-Trimethylpyridine-----	s-Collidine.
Trinitrophenol-----	Picric acid.
2,4,6-Trinitroresorcin-----	Styphnic acid.
1,2,4-Trioxanthraquinone-----	Purpurin.
1,3,5-Triphenylhexahydro-s-triazine-----	Hexahydro-1,3,5-triphenyl-s-triazine.
Triphenyl silicon chloride-----	Chlorotriphenylsilane.
3,3'-Ureyleneaniline-----	3,3'-Diaminocarbanilide.
Vinylbenzene-----	Styrene.
Vinyltoluene-----	Methylstyrene.
Violanthrene-----	Dinaphtho[1,2,3-cd,3',2',1'-lm]perylene.
Xenylamine-----	4-Biphenylamine.
m-Xylidine acetate-----	2,4-Xylidine acetate.
m-Xylidinesulfonic acid-----	2-Amino-3,5-xylenesulfonic acid [SO <sub>3</sub> H=1].
Xylol chloride-----	4-Chloro-m-xylene.

### C. List of *Colour Index* and Common Names for Synthetic Organic Pigments (Toners and Lakes)

In the Commission's reports for 1957 and earlier years, individual toners and lakes were identified by the names by which they were most commonly known in the literature and in the trade. Since 1958 they have been identified by the names used in the second edition of the *Colour Index*.

The following list of all *Colour Index* names which appear in tables 11A and 12 of this report is appended for quick reference. The list gives the common names (and coupling components, in the case of azo pigments) for each *Colour Index* pigment listed.

#### *Synthetic organic pigments: List of Colour Index and common names*

<i>Colour Index name</i>	<i>Common name</i>
Pigment Yellow 1-----	Hansa Yellow G (2-nitro-p-toluidine and acetoacetanilide).
Pigment Yellow 3-----	Hansa Yellow 10G (4-chloro-2-nitroaniline and o-chloroacetoacetanilide).
Pigment Yellow 12-----	Benzidine Yellow (3,3'-dichlorobenzidine and acetoacetanilide).
Pigment Yellow 13-----	Benzidine Yellow (3,3'-dichlorobenzidine and 2,4-acetoacetoxylidide).
Pigment Yellow 14-----	Benzidine Yellow (3,3'-dichlorobenzidine and o-acetoacetotoluidide).
Pigment Yellow 17-----	Benzidine Yellow (3,3'-dichlorobenzidine and o-acetoacetanilide).
Pigment Orange 5-----	Dinitroaniline Orange (2,4-dinitroaniline and 2-naphthol).
Pigment Orange 13-----	Benzidine Orange (3,3'-dichlorobenzidine and 3-methyl-1-phenyl-2-pyrazolin-5-one).
Pigment Orange 16-----	Dianisidine Orange (o-dianisidine and acetoacetanilide).
Pigment Red 1-----	Para Red (p-nitroaniline and 2-naphthol).
Pigment Red 2-----	Naphthol Red (2,5-dichloroaniline and Naphthol AS).
Pigment Red 3-----	Toluidine Red (2-nitro-p-toluidine and 2-naphthol).
Pigment Red 4-----	Chlorinated Para Red (2-chloro-4-nitroaniline and 2-naphthol).
Pigment Red 5-----	Naphthol Red (N <sup>1</sup> ,N <sup>1</sup> -diethyl-4-methoxymetanilamide and Naphthol AS-ITR).
Pigment Red 13-----	Naphthol Red (2-nitro-p-toluidine and Naphthol AS-D).
Pigment Red 17-----	Naphthol Red (5-nitro-o-toluidine and Naphthol AS-D).
Pigment Red 18-----	Toluidine Maroon (2-nitro-p-toluidine and Naphthol AS-BS).
Pigment Red 22-----	Naphthol Red (5-nitro-o-toluidine and Naphthol AS).
Pigment Red 23-----	Naphthol Red (5-nitro-o-anisidine and Naphthol AS-BS).
Pigment Red 38-----	Pyrazolone Red (3,3'-dichlorobenzidine and 5-oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester).
Pigment Red 48-----	Permanent Red 2B (6-amino-4-chloro-m-toluenesulfonic acid and 3-hydroxy-2-naphthoic acid).
Pigment Red 49-----	Lithol Red R (2-amino-1-naphthalenesulfonic acid and 2-naphthol).
Pigment Red 52-----	Lithol Red 2G <sup>1</sup> (2-amino-5-chloro-p-toluenesulfonic acid and 3-hydroxy-2-naphthoic acid).
Pigment Red 53-----	Red Lake C (2-amino-5-chloro-p-toluenesulfonic acid and 2-naphthol).
Pigment Red 54-----	Helio Bordeaux BL (1-naphthylamine and 1-naphthol-5-sulfonic acid).
Pigment Red 57-----	Lithol Rubine B (6-amino-m-toluenesulfonic acid and 3-hydroxy-2-naphthoic acid).
Pigment Red 60-----	Pigment Scarlet 3B (anthranilic acid and 2-naphthol-3,6-disulfonic acid).
Pigment Red 63-----	BON Maroon (2-amino-1-naphthalenesulfonic acid and 3-hydroxy-2-naphthoic acid).
Pigment Red 81-----	Rhodamine 6G.
Pigment Red 83-----	Alizarin Red B.
Pigment Red 90-----	Bromo Acid; Eosin.
(Acid Red 26)-----	Scarlet 2R (2,4-xylylidine and 2-naphthol-3,6-disulfonic acid).
Pigment Violet 1-----	Rhodamine B.
Pigment Violet 3-----	Methyl Violet B.
Pigment Violet 5-----	Helio Fast Rubine 4BL.
Pigment Blue 1-----	Victoria Pure Blue BO.
Pigment Blue 2-----	Victoria Blue B.
Pigment Blue 9-----	Setoglaurine.
Pigment Blue 14-----	Ethyl Violet.
Pigment Blue 15-----	Phthalocyanine Blue.
Pigment Blue 19-----	Alkali Blue.
Pigment Blue 24-----	Peacock Blue Lake.
Pigment Blue 25-----	Dianisidine Blue (o-dianisidine and Naphthol AS).
Pigment Green 1-----	Brilliant Green.
Pigment Green 2-----	Brilliant Green and Thioflavine.
Pigment Green 4-----	Malachite Green.
Pigment Green 7-----	Phthalocyanine Green.
Pigment Green 8-----	Pigment Green B.
Pigment Brown 3-----	Bismarck Brown R (toluene-2,4-diamine).
(Natural Black 3)-----	Logwood Black.

<sup>1</sup> Lithol Red 2G has become generally accepted as the name for Pigment Red 52, although the 2d edition of the *Colour Index* lists this name for Pigment Red 69.

Note.--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*.

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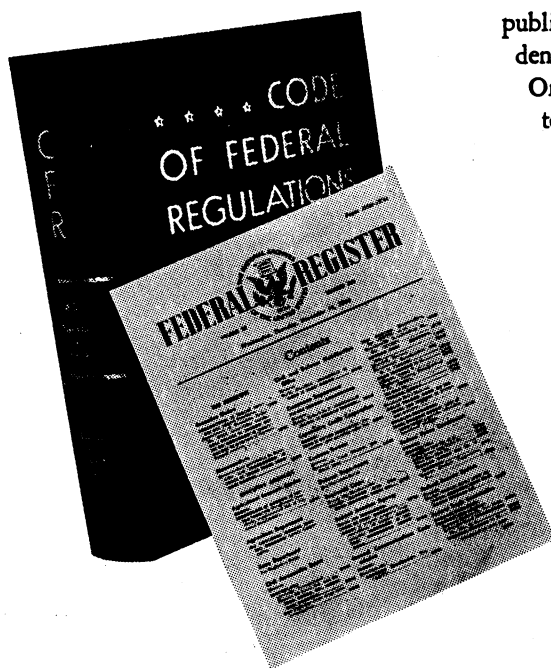
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