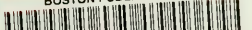


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UNITED STATES TARIFF COMMISSION

SYNTHETIC
ORGANIC CHEMICALS

United States Production
and Sales, 1959

[GPO Cl. No.
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Report No. 206
Second Series



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SYNTHETIC
ORGANIC CHEMICALS

United States Production
and Sales, 1959

UNDER THE GENERAL PROVISIONS
OF TITLE III, PART II, SECTIONS 332
AND 333 OF THE TARIFF ACT OF 1930

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1960

JAN 13 1961

DEPOSITORY

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CONTENTS

	Page
Introduction -----	v
Summary -----	vii
PART I. PRODUCTION AND SALES OF TARS, TAR CRUDES, AND CRUDES 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 -----	15
Toners and lakes -----	26
Medicinals -----	32
Flavor and perfume materials -----	36
Plastics and resin materials -----	38
Rubber-processing chemicals -----	42
Elastomers (synthetic rubbers) -----	44
Plasticizers -----	45
Surface-active agents -----	46
Pesticides and other organic agricultural chemicals -----	50
Miscellaneous synthetic organic chemicals -----	51
PART III. ALPHABETICAL LIST OF INDIVIDUAL PRODUCTS, BY GROUPS, AND NAMES OF MANUFACTURERS	
Tar crudes -----	59
Crude products from petroleum and natural gas for chemical conversion -----	60
Cyclic intermediates -----	62
Dyes -----	84
Toners and lakes -----	104
Medicinals -----	108
Flavor and perfume materials -----	121
Plastics and resin materials -----	125
Rubber-processing chemicals -----	127
Elastomers (synthetic rubbers) -----	130
Plasticizers -----	130
Surface-active agents -----	132
Pesticides and other organic agricultural chemicals -----	140
Miscellaneous synthetic organic chemicals -----	144
Directory of manufacturers -----	165
APPENDIXES	
A. U.S. imports of coal-tar intermediates and finished coal-tar products -----	183
B. Research workers and research expenditures in the synthetic organic chemical industry -----	185
C. Glossary of synonymous names of cyclic intermediates -----	185
D. Cross-reference list of <i>Colour Index</i> and common names of toners and lakes -----	203

Introduction

This is the forty-third annual report of the U. S. Tariff Commission on domestic production and sales of synthetic organic chemicals and the raw materials from which they are made. The report presents statistics for 1959 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, toners and lakes, medicinals, 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 presented in this report from information supplied by the 653 primary manufacturers listed in part III.

This report incorporates a number of changes based on suggestions made by the Committee on Chemicals of the Advisory Council on Federal Reports. The most important of the changes in this year's report is the replacement of the numerical identification code previously used to identify manufacturers, by an alphabetical code. Each producing 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. The identification symbols are permanent and, except for such changes as may be necessary, will be used in all future reports in this series. Important changes first incorporated in the Commission's 1958 report and continued in this report include the larger format, certain revisions of the basic definitions, and adoption of the new *Colour Index* classification and terminology for dyes and toners and lakes. This report, like the 1958 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.

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 medicinals, plastics and resin materials, and dyes. Intermediates usually are not sold directly to the ultimate consumer, but are used by the producing companies themselves--or by other industrial concerns--in their manufacturing processes.

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 agreements¹); and
- (4) Produced and held in stock.

¹ A toll agreement is an agreement between two firms, under which one firm furnishes the raw materials and pays the processing costs and the other firm prepares the finished product and returns it to the first firm.

Production excludes--

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

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

- (1) Shipments of commodities for domestic use and for export, or segregation in a warehouse when title has passed to the purchaser in a 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 that assay 95 percent pure or more 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 medicinals. 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.²

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

Statistics on U. S. imports in 1959 of coal-tar intermediates and finished coal-tar products that entered under paragraphs 27 and 28 of the Tariff Act of 1930 are given in appendix A. Appendix B includes a table that shows the number of technically trained research workers in the synthetic organic chemical industry and the cost of research in the industry. Appendix C is a glossary of the common, or trivial, names of coal-tar intermediates usually encountered in the trade, together with their equivalent standard (or *Chemical Abstracts*) names. Appendix D is a cross-reference list of the *Colour Index* and common names of toners and lakes.

²Sec. 4(a), Federal Reports Act of 1942 (56 Stat. 1079, 5 U.S.C. 139b) and sec. 1, Public Law 685, 80th Cong., 2d sess. (62 Stat. 791, 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 1959 was 89,874 million pounds--12.3 percent more than the output in 1958 (see table 1). Sales in 1959, which totaled 52,973 million pounds, valued at \$7,267 million, were 22.3 percent larger than in 1958 in terms of quantity and 22.1 percent larger in terms of value. Since these figures include data on production and sales of chemicals at several successive steps in the manufacturing process, they necessarily contain considerable duplication.

In 1959, production of all synthetic organic chemicals, including cyclic intermediates and finished products, totaled 50,315 million pounds, or 16.3 percent more than the output in 1958. The production of plastics and resin materials (5,865 million pounds) was 29.8 percent larger in 1959 than in 1958; that of elastomers (synthetic rubbers) (2,825 million pounds) was 28.3 percent larger; that of cyclic intermediates (8,459 million pounds) was 27.3 percent larger; and that of plasticizers (539 million pounds) was 28.9 percent larger.

Production of all other groups of synthetic organic chemicals was also larger in 1959 than in 1958. Output of rubber-processing chemicals (210 million pounds) was 24.4 percent larger; that of toners and lakes (43 million pounds) was 20.6 percent larger; that of coal-tar dyes (170 million pounds) was 21.1 percent larger; that of miscellaneous chemicals (29,958 million pounds) was 10.6 percent larger; that of surface-active agents (1,504 million pounds) was 11.0 percent larger; that of pesticides and other agricultural chemicals (585 million pounds) was 8.5 percent larger; that of flavor and perfume materials (50 million pounds) was 15.8 percent larger; and that of medicinal chemicals (107 million pounds) was 5.1 percent larger.

TABLE 1.--Synthetic organic chemicals and their raw materials: U.S. production and sales, 1958 and 1959

Chemical	Production			Sales					
			Increase or decrease (-), 1959 over 1958 ¹	Quantity			Value		
	1958	1959		1958	1959	Increase or decrease (-), 1959 over 1958 ¹	1958	1959	Increase or decrease (-), 1959 over 1958 ¹
	Million pounds	Million pounds	Percent	Million pounds	Million pounds	Percent	Million dollars	Million dollars	Percent
Grand total-----	80,007	89,874	12.3	43,309	52,973	22.3	5,953	7,267	22.1
Tar-----	6,979	6,690	-4.1	3,738	3,497	-6.4	50	44	-12.5
Tar crudes-----	2 8,879	8,447	-4.9	2 5,653	5,353	-5.3	2 157	142	-9.6
Crude products from petroleum and natural gas-----	20,903	24,422	16.8	11,904	16,599	39.4	380	583	53.5
Synthetic organic chemicals, total-----	43,246	50,315	16.3	22,014	27,524	25.0	5,366	6,498	21.1
Intermediates-----	6,643	8,459	27.3	2,646	3,511	32.7	439	556	26.6
Dyes-----	140	170	21.1	139	159	14.1	178	206	16.0
Toners and lakes-----	35	43	20.6	28	33	20.0	53	66	22.9
Medicinals-----	101	107	5.1	81	87	7.2	555	582	5.0
Flavor and perfume materials-----	44	50	15.8	40	45	14.4	52	57	8.4
Plastics and resin materials-----	4,518	5,865	29.8	4,057	5,170	27.4	1,275	1,640	28.6
Rubber-processing chemicals-----	169	210	24.4	123	159	29.6	80	102	27.6
Elastomers (synthetic rubbers)-----	2,202	2,825	28.3	2,008	2,601	29.5	544	693	27.5
Plasticizers-----	418	539	28.9	356	477	33.8	111	142	27.9
Surface-active agents-----	1,355	1,504	11.0	1,202	1,372	14.1	235	271	15.2
Pesticides and other organic agricultural chemicals-----	539	585	8.5	467	503	7.7	196	225	14.9
Miscellaneous chemicals-----	27,082	29,958	10.6	10,867	13,407	23.4	1,648	1,958	18.8

¹ Percentages calculated from figures rounded to thousands.

² Revised to eliminate duplication insofar as possible.

**PART I. PRODUCTION AND SALES OF TAR, 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 all sources in 1959 was 669 million gallons, or 4.1 percent less than the 698 million gallons produced in 1958. Of the total quantity produced in 1959, 654 million gallons was coal tar and 15 million gallons was water-gas and oil-gas tar (see table 2).

TABLE 2.--Tar: U.S. production and consumption, 1958 and 1959

[In thousands of gallons]

Product	1958	1959
PRODUCTION		
Total-----	697,856	669,018
Water-gas and oil-gas tar ¹ -----	28,540	15,290
Coal tar from coke-oven byproduct plants, ² total-----	669,316	653,728
Plants not owned by city gas companies-----	663,228	648,838
Plants owned by city gas companies (public utilities)-----	6,088	4,890
CONSUMPTION		
Total-----	683,689	670,585
Tar consumed by distillation, total-----	555,339	534,112
Water-gas and oil-gas tar distilled by producers and tar distillers ³ -----	18,561	10,400
Coal tar distilled or topped by coke-oven operators ² -----	228,044	205,797
Coal tar distilled by tar distillers ⁴ -----	308,734	317,915
Tar consumed chiefly as fuel, total-----	99,703	109,447
Water-gas and oil-gas tar consumed as fuel ⁵-----	...	...
Coal tar sold or consumed as fuel by coke-oven operators ² -----	99,703	109,447
Tar consumed otherwise than by distillation or as fuel, total-----	28,647	27,026
Coal tar consumed at coke-oven plants for roads and upkeep ² -----	3,786	1,537
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 ⁵ -----	24,861	25,489

¹ Reported to the American Gas Association.

² Reported to the U.S. Bureau of Mines.

³ Reported to the U.S. Tariff Commission.

⁴ Represents tar purchased from companies operating coke ovens and gas-retort plants and distilled by companies operating tar-distillation plants.

⁵ Reported to the American Gas Association and to the U.S. Tariff Commission.

Total consumption of tar in 1959 amounted to 671 million gallons, of which 534 million gallons was consumed by distillation, 110 million gallons as fuel, and 27 million gallons in miscellaneous uses.

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, for the most part, included in or with the statistics for materials derived from coal tar, which are shown in tables 3 and 4A.¹

Total domestic production of industrial and specification grades of benzene in 1959 amounted to 347 million gallons--20.9 percent more than the 287 million gallons reported for 1958. These totals include data for benzene produced from domestic tars, from imported and domestic crude light oil, from domestic petroleum, and from imported motor-grade benzene. Sales of benzene in 1959 amounted to 330 million gallons, valued at \$96 million, compared with 243 million gallons, valued at \$79 million, in 1958. The output of toluene from all sources (including material produced for use in blending in aviation fuel) amounted to 282 million gallons--17.5 percent more than the 240 million gallons reported for 1958. Sales of toluene in 1959 were 167 million gallons, valued at \$33 million, compared with 137 million gallons, valued at \$29 million, in 1958. The output of xylene in 1959 (including that produced for blending in motor fuels) was 241 million gallons, compared with 200 million gallons in 1958. More than 95 percent of the xylene produced in 1959 was obtained from petroleum sources.

TABLE 3.--Tar and tar crudes: Summary of U.S. production and sales of specified products, average 1954-58, annual 1958 and 1959²

Chemical	Unit of quantity	Average 1954-58	1958	1959	Increase, or decrease (-)	
					1959 over 1954-58	1959 over 1958
Tar: Production ² -----	1,000 gal--	834,936	697,856	669,018	Percent -19.9	Percent -4.1
Benzene:						
Production-----	1,000 gal--	304,585	287,170	347,118	14.0	20.9
Sales-----	1,000 gal--	254,849	243,308	330,450	29.7	35.8
Value of sales-----	1,000 dol--	92,234	79,322	96,191	4.3	21.3
Toluene:						
Production-----	1,000 gal--	191,087	³ 239,595	³ 281,614	47.4	17.5
Sales-----	1,000 gal--	133,244	136,570	166,809	25.2	22.1
Value of sales-----	1,000 dol--	34,737	29,085	32,921	-5.2	12.2
Xylene:						
Production-----	1,000 gal--	136,423	³ 200,498	³ 241,467	77.0	20.4
Sales-----	1,000 gal--	81,498	95,113	128,848	58.1	35.5
Value of sales-----	1,000 dol--	21,381	23,186	28,494	33.3	22.9
Naphthalene:						
Production-----	1,000 lb--	407,237	345,085	425,293	4.4	23.2
Sales-----	1,000 lb--	268,090	212,645	266,510	-6	25.3
Value of sales-----	1,000 dol--	15,907	13,528	12,670	-20.4	-6.4
Creosote oil: ⁴						
Production-----	1,000 gal--	⁵ 118,446	105,258	90,437	-23.6	-14.1
Sales-----	1,000 gal--	⁵ 114,161	103,987	84,313	-26.2	-18.9
Value of sales-----	1,000 dol--	⁵ 23,952	20,565	17,958	-25.0	-12.7

¹ For details concerning statistics on tar crudes shown in this table, see table 4A.

² Includes data for oil-gas, water-gas, and gas-retort tar reported to the American Gas Association, and for coal tar reported to the Division of Bituminous Coal, U.S. Bureau of Mines.

³ Includes data for material produced for use in blending motor fuels.

⁴ Quantity figures shown are on a 100-percent-creosote basis.

⁵ Average is for 4 years--1955-58, inclusive; data have been revised.

Production of crude naphthalene in 1959 amounted to 425 million pounds, compared with 345 million pounds in 1958. Sales of naphthalene in 1959 were 267 million pounds, valued at \$13 million, compared with 213 million pounds, valued at \$14 million, in 1958. In 1959 the output of creosote oil (100-percent creosote basis), used principally in wood preserving, was 90 million gallons, compared with 105 million gallons in 1958. Production of road tar in 1959 was 66 million gallons, compared with 69 million gallons in 1958.

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

TABLE 4A.--Organic chemicals: U.S. production and sales of tar crudes, 1959

[Listed below are all tar crudes for which any reported data on production or sales may be published, 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 ¹
Crude light oil: Coke-oven operators-----	1,000 gal--	213,036	19,515	1,000 dollars 2,993	\$0.15
Intermediate light oil: Coke-oven operators-----	1,000 gal--	2,986	3,026	535	.18
Light-oil distillates:					
Benzene, specification and industrial grades, total-----	1,000 gal--	347,118	330,450	96,191	.29
Tar distillers ² -----	1,000 gal--	18,498	9,055	2,694	.30
Coke-oven operators-----	1,000 gal--	119,831	123,489	35,708	.29
Petroleum operators-----	1,000 gal--	208,789	197,911	57,789	.29
Toluene, all grades, total ³ -----	1,000 gal--	281,614	166,809	32,921	.20
Tar distillers-----	1,000 gal--	3,670	3,366	882	.26
Coke-oven operators-----	1,000 gal--	26,964	26,506	5,466	.21
Petroleum operators-----	1,000 gal--	250,980	136,937	26,573	.19
Xylene, all grades, total ³ -----	1,000 gal--	241,467	128,848	28,494	.22
Tar distillers-----	1,000 gal--	484	447	152	.34
Coke-oven operators-----	1,000 gal--	7,524	7,641	2,114	.28
Petroleum operators-----	1,000 gal--	233,459	120,760	26,228	.22
Solvent naphtha, total-----	1,000 gal--	7,834	7,210	1,897	.26
Tar distillers-----	1,000 gal--	3,811	3,419	886	.26
Coke-oven operators-----	1,000 gal--	4,023	3,791	1,011	.27
All other light-oil distillates, total-----	1,000 gal--	6,370	5,065	892	.18
Tar distillers-----	1,000 gal--	2,723	2,656	547	.21
Coke-oven operators-----	1,000 gal--	3,647	2,409	345	.14
Pyridine crude bases (dry basis)-----	1,000 gal--	808	323	334	1.03
Naphthalene, crude (tar distillers and coke-oven operators), total ⁴ -----	1,000 lb--	425,293	266,510	12,670	.05
Solidifying at--					
Less than 74° C-----	1,000 lb--	26,079	26,673	729	.03
74° C. to less than 76° C-----	1,000 lb--	18,190	7,037	301	.04
76° C. to less than 79° C-----	1,000 lb--	381,024	232,800	11,640	.05
Crude tar-acid oils:					
Tar distillers-----	1,000 gal--	787	461	207	.45
Coke-oven operators-----	1,000 gal--	20,958	21,159	4,416	.21
Creosote oil (Dead oil) (tar distillers and coke-oven operators) (100% creosote basis), total ⁵ -----	1,000 gal--	90,437	84,313	17,958	.21
Distillate as such (100% creosote basis)-----	1,000 gal--	81,982	76,052	15,487	.20
Creosote content of coal-tar solution (100% creosote basis)-----	1,000 gal--	8,455	8,261	2,471	.30
All other distillate products ⁶ -----	1,000 gal--	20,213	12,152	2,546	.21
Tar, road-----	1,000 gal--	66,108	64,806	11,357	.18
Tar (crude and refined) for other uses ⁷ -----	1,000 gal--	28,798	21,468	4,419	.21
Pitch of tar:					
Soft and medium (water softening point less than 110° F., and 110° F. to 160° F. ASTM D61-24)-----	1,000 tons--	909	378	15,879	42.01
Hard (water softening point above 160° F.)-----	1,000 tons--	619	539	23,078	42.82
Pitch-of-tar coke and pitch emulsion-----	1,000 tons--	35	18	693	38.50

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

² Includes data for benzene produced from imported crude light oil.

³ Includes data for material produced for use in blending motor fuels.

⁴ Statistics represent combined data for the 3 commercial grades of naphthalene to avoid disclosure of individual company operations. Owing to conversion between grades, the figures may include some duplication.

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

⁶ Includes data for shingle-stain oil and neutral oils produced by tar distillers, and for crude sodium phenolate produced by coke-oven operators.

⁷ Includes data for tar used as paint, and for pipe covering, saturating, and other uses.

Note.--Statistics for materials produced in coke and gas-retort ovens are compiled by the Division of Bituminous Coal, U.S. Bureau of Mines. Statistics for materials produced in tar and petroleum refineries are compiled by the U.S. Tariff Commission.

Some of the products included in the statistics in table 4A are derived from other products, data for which 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 production of these products and of tar burned as fuel was \$360 million in 1959, compared with \$343 million in 1958 and \$403 million in 1957.

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 5A²). 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 fuels. However, data are included on toluene and xylene, which are not used directly as fuels but in blending aviation and motor-grade gasolines.

TABLE 5A. -- *Synthetic organic chemicals: U.S. production and sales of crude products from petroleum and natural gas for chemical conversion, 1959*

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	24,421,700	16,598,504	582,914	\$0.035
AROMATIC AND NAPHTHENES ²				
Total-----	6,749,827	4,913,739	132,880	.027
Alkyl aromatics, distillates, and solvents-----	1,629,831	1,543,895	19,350	.013
Benzene (1° and 2°), total-----	1,530,423	1,450,688	57,789	.040
Benzene, 1°-----	993,435	1,059,867	43,017	.041
Benzene, 2°-----	536,988	390,821	14,772	.038
Cresylic acid, crude-----	37,888	20,440	494	.024
Naphthenic acids, total-----	19,843	12,277	1,415	.115
Acid No. 225-249-----	4,486	4,368	491	.112
All other-----	15,357	7,909	924	.117
Toluene, all grades, total-----	1,817,095	991,424	26,573	.027
Nitration grade, 1°-----	779,878	721,567	19,076	.026
Pure commercial grade, 2°-----	499,915	241,838	6,488	.027
All other ³ -----	537,302	28,019	1,009	.036
Xylenes, mixed, total-----	1,683,239	870,680	26,228	.030
Three- and five-degree-----	440,906	265,364	8,108	.031
All other ³ -----	1,242,333	605,316	18,120	.030
All other aromatics and naphthenes ⁴ -----	31,508	24,335	1,031	.042

See footnotes at end of table.

² See also table 5B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 5A. -- Synthetic organic chemicals: U.S. production and sales of crude products from petroleum and natural gas for chemical conversion, 1959--Continued

Product	Production	Sales		
		Quantity	Value	Unit value ¹
ALIPHATIC HYDROCARBONS				
Total-----	1,000 pounds 17,671,873	1,000 pounds 11,684,765	1,000 dollars 450,034	Per pound \$0.004
Methane-----	..	45,450	616	.014
C ₂ hydrocarbons, total-----	5,789,638	3,143,601	149,851	.048
Ethane-----	690,582	202,373	1,678	.008
Ethylene-----	5,099,056	2,941,228	148,173	.050
C ₃ hydrocarbons, total-----	5,488,679	4,209,635	55,602	.013
Propane-----	2,971,630	2,790,253	32,567	.012
Propane-propylene mixture-----	364,268	364,974	4,320	.012
Propylene-----	2,152,781	1,055,408	18,715	.018
C ₄ hydrocarbons, total-----	4,698,230	3,128,646	201,334	.064
1,3-Butadiene, grade for rubbers (elastomers) ⁵ -----	1,816,122	1,095,564	146,891	.134
Butadiene and butylene fractions-----	559,782	152,598	3,672	.024
n-Butane-----	510,001	325,682	3,538	.011
1-Butene and 2-butene mixture ⁶ -----	1,054,433	887,242	29,574	.033
Isobutane-----	228,135	239,907	4,494	.019
Isobutylene-----	309,822	227,124	7,393	.033
All other ⁷ -----	219,935	200,529	5,772	.029
C ₅ hydrocarbons ⁸ -----	100,452	85,412	3,048	.036
All other aliphatic hydrocarbons and derivatives, total-----	1,594,874	1,072,021	39,583	.037
Di-isobutylene-----	25,899	21,951	1,515	.069
1-Dodecene (Tetrapropylene)-----	447,145	295,672	9,193	.031
Nonene (Tripropylene)-----	122,859	92,181	3,527	.038
Polybutene-----	43,358	43,375	4,473	.103
Hydrocarbon derivatives ⁹ -----	7,684	6,686	1,846	.276
All other ¹⁰ -----	947,929	612,156	19,029	.031

¹ Calculated from rounded figures.

² The chemical raw materials designated as aromatics are in some cases identical with those obtained from the distillation of coal tar. However, the statistics given in the above table 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.

³ Includes materials used as solvents and those blended in aviation and motor gasolines.

⁴ Includes data for 90-percent benzene, sodium cresylate, 1,4-methano-2,5-cyclopentadiene, mixed pyridines, sodium carbolate and phenate, and miscellaneous cyclic hydrocarbons.

⁵ In 1959 all butadiene was produced in privately owned plants. For some years prior to 1956, separate statistics are available on butadiene production for private account and for Government account.

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

⁷ Includes data for 1-butene, 2-butene, n-butylene, and mixed olefins.

⁸ Includes data for isoprene, pentanes, pentenes, and mixtures.

⁹ Includes data for di-tert-butyl disulfide, miscellaneous mercaptans, and aliphatic acids.

¹⁰ Includes data for acetylene, hexanes, heptanes and heptenes, octanes, eicosane, and hydrocarbon mixtures. The total production of acetylene for chemical processing from all sources in 1959, as reported by the U.S. Bureau of the Census, amounted to 707,908 thousand pounds (acetylene production figures converted from cubic feet to pounds as follows: 1 cu. ft. weighs 0.06897 lb. at 60° F. and 1 atmosphere pressure).

The output of crude products derived from petroleum and natural gas as a group amounted to 24,422 million pounds in 1959, or 16.8 percent more than the 20,903 million pounds reported for 1958. The larger output in 1959 is accounted for chiefly by the increase in the production of ethylene, benzene, propylene, and 1,3-butadiene. Sales of crude chemicals from petroleum in 1959 were 16,599 million pounds, valued at \$583 million, compared with 11,904 million pounds, valued at \$380 million, in 1958.

The output of all aromatic and naphthenic products amounted to 6,750 million pounds in 1959, compared with 5,285 million pounds in 1958. Sales in 1959, which amounted to 4,914 million pounds, valued at \$133 million, were 1,502 million pounds larger, and valued at \$35 million more, than those in 1958. Benzene, toluene, and xylene were produced from petroleum sources in substantially greater quantities in 1959 than in 1958, and production of naphthenic acids was 4.6 percent larger. The output of 1^o and 2^o benzene from petroleum amounted to 1,530 million pounds in 1959--46.9 percent more than the 1,042 million pounds produced in 1958. The output of toluene in 1959 was 1,817 million pounds--21.0 percent more than the 1,501 million pounds produced in 1958. Production of xylene was 1,683 million pounds in 1959, compared with 1,381 million pounds in 1958. These figures include toluene and xylene used in blends in aviation and motor-grade gasolines. The output of naphthenic acids amounted to 20 million pounds in 1959, compared with 19 million pounds in 1958. Production of cresylic acid in 1959--38 million pounds--was slightly smaller than production in 1958.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 17,672 million pounds in 1959, compared with 15,619 million pounds in 1958. Sales of these products were 11,685 million pounds, valued at \$450 million, in 1959, compared with 8,492 million pounds, valued at \$282 million, in 1958. The statistics on production and sales of acetylene (footnote 10, table 5A) include only acetylene produced from calcium carbide and from natural gas and used as a raw material in the production of other chemicals; they exclude acetylene used for welding and cutting. Total production of acetylene (principally from calcium carbide), as reported to the U.S. Bureau of the Census, amounted to 708 million pounds in 1959, compared with 589 million pounds in 1958 (see footnote 10, table 5A, for conversion factor). Production of ethylene was 5,099 million pounds in 1959, or 22.9 percent more than the 4,149 million pounds produced in 1958. The output of the C₃ hydrocarbons, propane, propylene, and propane-propylene mixture, was 5,489 million pounds in 1959--9.0 percent more than the 5,036 million pounds produced in 1958. Production of 1,3-butadiene, one of the principal ingredients of S-type synthetic rubber, was 1,816 million pounds in 1959, compared with 1,443 million pounds in 1958. The output of 1,3-butadiene in 1959 was not only 25.9 percent larger than that in 1958, but was the largest on record.

**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, toners and lakes, medicinals, 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 much duplication.

Total production of synthetic organic chemicals (intermediates and finished products combined) in 1959 was 50,315 million pounds, or 16.3 percent more than the output in 1958 (see table 6). Sales totaled 27,524 million pounds, valued at \$6,498 million, in 1959, compared with 22,014 million pounds, valued at \$5,366 million, in 1958. Production of all cyclic products (intermediates and finished cyclic products combined) in 1959 totaled 16,372 million pounds, or 23.9 percent more than the 13,212 million pounds produced in 1958. In 1959 the output of acyclic organic chemicals was 33,943 million pounds, or 13.0 percent more than the 30,034 million pounds produced in 1958.

TABLE 6. --Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1954-58, annual 1958 and 1959

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

Chemical	Average 1954-58	1958	1959	Increase, or decrease (-)	
				1959 over 1954-58	1959 over 1958
Organic chemicals, cyclic and acyclic, grand total:				<i>Percent</i>	<i>Percent</i>
Production-----	38,177,048	43,245,989	50,314,692	31.8	16.3
Sales-----	19,930,760	22,014,099	27,524,428	38.1	25.0
Sales value-----	4,932,136	5,366,116	6,498,314	31.8	21.1
Cyclic, total:					
Production-----	12,227,714	13,211,501	16,372,032	33.9	23.9
Sales-----	7,508,396	8,145,535	10,245,044	36.4	25.8
Sales value-----	2,453,399	2,594,467	3,111,095	26.8	19.9
Acyclic, total:					
Production-----	25,949,334	30,034,488	33,942,660	30.8	13.0
Sales-----	12,422,364	13,868,564	17,279,384	39.1	24.6
Sales value-----	2,478,737	2,771,649	3,387,219	36.7	22.2
<i>1. Intermediates, Cyclic</i>					
Production-----	6,160,060	6,643,003	8,459,308	37.3	27.3
Sales-----	2,376,065	2,646,482	3,511,311	47.8	32.7
Sales value-----	412,366	438,978	555,695	34.8	26.6
<i>2. Dyes, Cyclic</i>					
Production-----	149,110	139,936	169,503	13.7	21.1
Sales-----	142,848	139,290	158,939	11.3	14.1
Sales value-----	174,208	177,465	205,873	18.2	16.0
<i>3. Toners and Lakes, Cyclic</i>					
Production-----	39,717	35,377	42,675	7.4	20.6
Sales-----	32,659	27,758	33,309	2.0	20.0
Sales value-----	57,254	53,410	65,634	14.6	22.9

TABLE 6. --Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1954-58, annual 1958 and 1959--Continued

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

Chemical	Average 1954-58	1958	1959	Increase, or decrease (-)	
				1959 over 1954-58	1959 over 1958
4. Medicinals					
Cyclic:				<i>Percent</i>	<i>Percent</i>
Production-----	63,162	70,038	73,180	15.9	4.5
Sales-----	49,782	51,750	57,526	15.6	11.2
Sales value-----	473,501	518,438	548,234	15.8	5.7
Acyclic:					
Production-----	23,663	31,353	33,417	41.2	6.6
Sales-----	21,472	29,655	29,776	38.7	.4
Sales value-----	32,008	36,226	33,976	6.1	-6.2
5. Flavor and Perfume Materials					
Cyclic:					
Production-----	24,726	24,999	29,684	20.1	18.7
Sales-----	20,439	20,941	24,251	18.6	15.8
Sales value-----	31,574	31,498	34,489	9.2	9.5
Acyclic:					
Production-----	17,408	18,433	20,624	18.5	11.9
Sales-----	17,085	18,759	21,147	23.8	12.7
Sales value-----	21,490	20,748	22,147	3.1	6.7
6. Plastics and Resin Materials					
Cyclic:					
Production-----	1,963,619	2,102,506	2,646,178	34.8	25.8
Sales-----	1,627,060	1,767,464	2,200,013	35.2	24.5
Sales value-----	440,908	468,716	605,881	37.4	29.3
Acyclic:					
Production-----	1,916,826	2,415,122	3,218,709	67.9	33.3
Sales-----	1,778,329	2,289,318	2,970,389	67.0	29.7
Sales value-----	676,244	806,191	1,034,174	52.9	28.3
7. Rubber-Processing Chemicals					
Cyclic:					
Production-----	139,924	144,246	177,722	27.0	23.2
Sales-----	105,946	103,151	134,329	26.8	30.2
Sales value-----	65,177	67,260	85,815	31.7	27.6
Acyclic:					
Production-----	25,872	24,734	32,492	25.6	31.4
Sales-----	20,297	19,528	24,673	21.6	26.3
Sales value-----	13,472	12,596	16,063	19.2	27.5
8. Elastomers (Synthetic Rubbers)					
Cyclic:					
Production-----	1,605,412	1,752,541	2,212,757	37.8	26.2
Sales-----	1,505,188	1,553,744	2,006,179	33.3	29.1
Sales value-----	359,838	361,597	463,117	28.7	28.1
Acyclic:					
Production-----	472,169	449,409	612,582	29.7	36.3
Sales-----	460,564	454,273	594,450	29.1	30.8
Sales value-----	183,476	182,122	230,022	25.4	26.3
9. Plasticizers					
Cyclic:					
Production-----	296,154	312,225	403,114	36.1	29.1
Sales-----	242,560	265,102	361,742	49.1	36.4
Sales value-----	70,702	75,946	98,306	39.0	29.4
Acyclic:					
Production-----	98,580	105,719	135,720	37.7	28.4
Sales-----	84,571	90,817	114,687	35.6	26.3
Sales value-----	32,690	35,150	43,765	33.9	24.5

TABLE 6. --Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1954-58, annual 1958 and 1959--Continued

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

Chemical	Average 1954-58	1958	1959	Increase, or decrease (-)	
				1959 over 1954-58	1959 over 1958
<i>10. Surface-Active Agents</i>					
Cyclic:				<i>Percent</i>	<i>Percent</i>
Production-----	730,789	846,322	936,063	28.1	10.6
Sales-----	674,710	764,668	895,229	32.7	17.1
Sales value-----	122,229	125,123	139,348	14.0	11.4
Acyclic:					
Production-----	422,299	508,752	567,996	34.5	11.6
Sales-----	374,691	437,872	476,948	27.3	8.9
Sales value-----	94,941	110,249	131,774	38.8	19.5
<i>11. Pesticides and Other Organic Agricultural Chemicals</i>					
Cyclic:					
Production-----	422,637	444,870	468,833	10.9	5.4
Sales-----	338,674	377,745	409,580	20.9	8.4
Sales value-----	128,590	147,689	172,492	34.1	16.8
Acyclic:					
Production-----	86,668	94,526	116,613	34.6	23.4
Sales-----	71,437	88,941	93,272	30.6	4.9
Sales value-----	36,284	48,460	52,977	46.0	9.3
<i>12. Miscellaneous</i>					
Cyclic:					
Production-----	632,404	695,438	753,015	19.1	8.3
Sales-----	392,465	427,440	452,636	15.3	5.9
Sales value-----	117,052	128,347	136,211	16.4	6.1
Acyclic:					
Production-----	22,885,849	26,386,440	29,204,507	27.6	10.7
Sales-----	9,593,918	10,439,401	12,954,042	35.0	24.1
Sales value-----	1,388,132	1,519,907	1,822,321	31.3	19.9

The following tabulation shows, by chemical groups, the number of companies that reported production in 1959 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-----	157	Rubber-processing chemicals-----	31
Dyes-----	50	Elastomers (synthetic rubbers)-----	24
Toners and lakes-----	45	Plasticizers-----	53
Medicinals-----	110	Surface-active agents-----	152
Flavor and perfume materials-----	48	Pesticides and other organic agricultural chemicals-----	76
Plastics and resin materials-----	222	Miscellaneous chemicals-----	261

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, medicinals, 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 7A¹ gives statistics on production and sales of cyclic intermediates in 1959. 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 1959 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 1959--8,459 million pounds--was the largest on record, and was 27.3 percent larger than the 6,643 million pounds reported for 1958. The larger output of cyclic intermediates in 1959 was attributable to increased demand by a number of industries that consume large quantities of intermediates, particularly those industries that produce rubber-processing chemicals, elastomers, and plasticizers. Sales of cyclic intermediates in 1959 amounted to 3,511 million pounds, valued at \$556 million, compared with 2,646 million pounds, valued at \$439 million, in 1958. In terms of quantity, sales of cyclic intermediates in 1959 were 32.7 percent larger than those in 1958 and, in terms of value, 26.6 percent larger.

TABLE 7A. -- Synthetic organic chemicals: U.S. production and sales of cyclic intermediates, 1959

[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 C 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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	8,459,308	3,511,311	555,695	\$0.16
Chemicals for which separate statistics may not be shown-----	1,662,205	847,568	191,787	.23
Chemicals for which separate statistics are shown below-----	6,797,103	2,663,743	363,908	.14
Acetanilide, tech-----	4,187	4,198	1,259	.30
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	375	...	...	...
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	14	...	...	...
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	42	...	...	...
1-Aminoanthraquinone and salt-----	920	12	46	3.83
2-Aminoanthraquinone and salt-----	827	...	...	...
6-Amino-3,4'-azodi(benzenesulfonic acid)-----	47	...	...	...
1-Amino-4-benzamidoanthraquinone-----	43	...	...	...
1-Amino-5-benzamidoanthraquinone-----	121	...	...	...
6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid-----	41	...	...	...
2-Amino-p-benzenedisulfonic acid [SO ₂ H=1]-----	30	...	...	...
1-Amino-4-bromo-2-anthraquinonesulfonic acid and sodium salt-----	162	...	...	...
1-Amino-5-chloroanthraquinone-----	72	...	...	...
1-Amino-8-chloroanthraquinone-----	48	...	...	...
2-Amino-3-chloroanthraquinone-----	34	...	...	...
o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	89	...	...	...

See footnotes at end of table.

¹ 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 1957-59; and appendix C, which is a glossary of synonymous names of cyclic intermediates.

TABLE 7A. --Synthetic organic chemicals: U.S. production and sales of cyclic intermediates, 1959-- Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1] -----	990	363	338	\$0.93
1-Amino-2,4-dibromoanthraquinone-----	138	...	...	...
4'-Amino-2',5'-diethoxybenzamide-----	40	...	...	...
2-Amino-1,5-naphthalenedisulfonic acid-----	23	...	...	...
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	1,117	...	...	...
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	701	...	...	...
2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	3,238	...	...	...
5-Amino-1-naphthalenesulfonic acid (Laurent's acid)-----	136	...	...	...
5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	257	...	...	...
5 (and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed)---	368	...	...	...
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	103	...	...	...
8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	469	...	...	...
8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	253	17	36	2.12
8-Amino-2-naphthol-----	125	...	...	...
8-Amino-1-naphthol-3,6-disulfonic acid (H acid), monosodium salt---	2,999	...	...	...
8-Amino-1-naphthol-5,7-disulfonic acid (Chicago acid) (2S acid), monosodium salt-----	82	28	87	3.11
1-Amino-2-naphthol-4-sulfonic acid (1,2,4-acid)-----	2,038	...	...	...
6-Amino-1-naphthol-3-sulfonic acid (J acid) and sodium salt-----	667	42	102	2.43
7-Amino-1-naphthol-3-sulfonic acid (Gamma acid), sodium salt-----	566	244	220	.90
2-Amino-5-nitrobenzenesulfonic acid [SO ₃ H=1] -----	32	...	...	...
2-Amino-4-nitrophenol-----	109	...	...	...
3' and 4'-Aminooxalic acid-----	23	...	...	...
2-Amino-1-phenol-4-sulfonic acid-----	122	...	...	...
p-(p-Aminophenylazo)benzenesulfonic acid-----	199	...	...	...
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt---	56	...	...	...
4-Amino-m-toluenesulfonic acid [SO ₃ H=1] -----	261	40	37	.92
5-Amino-2-(p-toluidino)benzenesulfonic acid-----	28	...	...	...
Aniline (Aniline oil)-----	130,126	45,468	7,623	.17
Anilinomethanesulfonic acid and salt-----	234	...	...	...
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)-----	255	38	83	2.18
6-Anilino-1-naphthol-3-sulfonic acid (Phenyl J acid)-----	36	...	...	...
7-Anilino-1-naphthol-3-sulfonic acid (Phenyl gamma acid)-----	23	...	...	...
o-Anisidine-----	1,212	529	400	.76
o-Anisidinomethanesulfonic acid-----	161	...	...	...
Anthranilic acid (o-Aminobenzoic acid)-----	252	164	177	1.08
Anthraquinone, 100%-----	1,359	...	...	...
1,5-Anthraquinonedisulfonic acid and salt-----	581	...	...	...
2,6-Anthraquinonedisulfonic acid and salt-----	235	...	...	...
1-Anthraquinonesulfonic acid and salt-----	1,822	...	...	...
N,N'-(1,5-Anthraquinonylene)dianthranilic acid-----	29	...	...	...
Anthraurfin (1,5-Dihydroxyanthraquinone)-----	212	...	...	...
Benzaldehyde, tech-----	2,175	2,145	925	.43
1-Benzamido-5-chloroanthraquinone-----	56	...	...	...
7H-Benz[de]anthracen-7-one (Benzanthrone)-----	1,367	...	...	...
Benzenesulfonyl chloride-----	448	...	...	...
Benzidine hydrochloride and sulfate-----	1,157	...	...	...
o-Benzoylbenzoic acid-----	4,493	...	...	...
3,3'-Bianthra[1,9]pyrrole-6,6' (2H,2'H)-dione (Pyrazoleanthrone yellow)-----	16	...	...	...
[4,4'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	288	...	...	...
1,4-Bis[1-anthraquinonylamino]anthraquinone-----	99	...	...	...
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)-----	141	...	...	...
3-Bromo-7H-benz[de]anthracen-7-one (Bromobenzanthrone)-----	197	...	...	...
1-Bromo-4-methylaminoanthraquinone-----	27	...	...	...
6-Bromo-3-methyl-7H-dibenz[f,i]isquinoline-2,7(3H)-dione-----	12	...	...	...
m-Chloroaniline and hydrochloride-----	921	869	640	.74
o-Chloroaniline-----	...	256	129	.50
1-Chloroanthraquinone-----	228	...	...	...
2-Chloroanthraquinone-----	588	...	...	...
o-Chlorobenzaldehyde-----	274	...	...	...
Chlorobenzene, mono-----	562,070	88,858	6,162	.07
o-(p-Chlorobenzoyl)benzoic acid-----	1,404	...	...	...
5-Chloro-2,4-dimethoxyaniline-----	101	...	...	...
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	7,581	...	...	...
6-Chlorometanilic acid-----	23	...	...	...

See footnotes at end of table.

TABLE 7A. -- Synthetic organic chemicals: U.S. production and sales of cyclic intermediates, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1-Chloro-2-methylanthraquinone-----	136	...	...	...
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	412	...	...	...
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	448	279	217	\$0.78
1-Chloro-5-nitroanthraquinone-----	89	...	...	...
4-Chloro-2 (and 4)-nitrobenzene (Chloronitrobenzenes, o- and p)---	7,031	...	...	...
4-Chloro-3-nitrobenzenesulfonamide-----	89	...	...	...
2-Chloro-5-nitrobenzenesulfonic acid and sodium salt-----	270	...	...	...
4-Chloro-3-nitrobenzenesulfonic acid-----	102	...	...	...
4-Chloro-3-nitrobenzenesulfonyl chloride-----	76	...	...	...
o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	109	...	...	...
2-Chloroquinizarin-----	30	...	...	...
α-Chlorotoluene (Benzyl chloride)-----	20,106	6,478	1,490	.23
4-Chloro-o-toluidine [NH ₂ =1] and hydrochloride-----	37	...	...	...
5-Chloro-o-toluidine [NH ₂ =1] and hydrochloride-----	438	312	351	1.12
4-Chloro-2,5-xylenesulfonyl chloride-----	58	...	...	...
Cresols, total ² -----	55,775	44,271	8,130	.18
o- and p-Cresols-----	16,017	13,777	4,319	.31
(m,p)-Cresol, total-----	24,138	16,481	2,029	.12
From coal tar-----	10,986	7,382	937	.13
From petroleum-----	13,152	9,099	1,092	.12
(o,m,p)-Cresol ² -----	15,620	14,013	1,782	.13
Cresylic acid, refined, total ² -----	62,325	45,714	4,942	.11
From coal tar-----	33,714	27,810	3,220	.12
From petroleum-----	28,611	17,904	1,722	.10
Cumene-----	213,598	...	...	...
Cyclohexane-----	387,697	...	...	...
Cyclohexanol-----	...	4,895	1,217	.25
Cyclohexylamine-----	4,321	2,188	914	.42
p-Cymene-----	...	814	156	.19
1,4-Diaminoanthraquinone-----	109	...	...	...
2,6-Diaminoanthraquinone-----	126	...	...	...
4,8-Diaminoanthrarufin-----	7	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	1,209	...	...	...
4,6-Diamino-m-toluenesulfonic acid [SO ₃ H=1]-----	16	...	...	...
4,5'-Dibenzamido-1,1'-iminodianthraquinone-----	146	...	...	...
1,5-Dibenzoylnaphthalene-----	178	...	...	...
3,9-Dibromo-7H-benz[de]anthracen-7-one-----	122	...	...	...
2,5-Dichloroaniline and hydrochloride [NH ₂ =1]-----	262	...	...	...
1,5-Dichloroanthraquinone-----	55	...	...	...
1,5 (and 1,8)-Dichloroanthraquinone-----	36	...	...	...
1,8-Dichloroanthraquinone-----	67	...	...	...
o-Dichlorobenzene-----	27,449	20,615	2,050	.10
o (and p)-Dichlorobenzene-----	20,504	19,187	1,150	.06
p-Dichlorobenzene-----	58,146	45,867	4,626	.10
3,3'-Dichlorobenzidine base and salts-----	1,488	...	...	...
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	143	...	...	...
2,6-Dichloro-4-nitroaniline-----	19	...	...	...
2,5-Dichlorosulfanilic acid [SO ₃ H=1]-----	42	...	...	...
m-Diethylaminophenol (N,N-Diethyl-3-aminophenol)-----	213	...	...	...
N,N-Diethylamine-----	1,186	867	483	.56
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid)---	74	...	...	...
6,7-Dihydroxy-2-naphthalenesulfonic acid-----	416	383	1,020	2.66
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	224	...	...	...
3,3'-Dimethoxybenzidine-----	615	426	824	1.93
N,N-Dimethylaniline-----	8,105	5,174	1,393	.27
N,N-Dimethylbenzylamine-----	41	9	14	1.56
2,2'-Dimethyl-1,1'-bianthraquinone-----	84	...	...	...
p-(2,4-Dinitroanilino)phenol-----	81	...	...	...
2,4-Dinitrophenol, tech-----	598	...	...	...
4,4'-Dinitro-2,2'-stilbenedisulfonic acid-----	2,256	...	...	...

See footnotes at end of table.

TABLE 7A. -- Synthetic organic chemicals: U.S. production and sales of cyclic intermediates, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1,4-Di(p-toluidino)anthraquinone-----	75	...	...	...
Dodecylbenzene ⁴ -----	493,997	447,722	44,728	\$0.10
N-Ethylaniline, refined-----	402	...	...	...
2-(N-Ethylanilino)ethanol-----	70	...	...	...
α-(N-Ethylanilino)-p-toluenesulfonic acid-----	401	...	...	...
Ethylbenzene-----	1,422,556	...	...	...
o-Formylbenzenesulfonic acid (o-Sulfo benzaldehyde)-----	164	22	54	2.45
Hexachlorobenzene-----	724	965	233	.24
p-Hydrazinobenzenesulfonic acid-----	163	...	...	...
3-Hydroxy-2-naphthoic acid (B.O.N.)-----	3,752	1,989	2,039	1.03
1,1'-Iminobis[4-aminoanthraquinone]-----	121	...	...	...
1,1'-Iminobis[5-benzamidoanthraquinone]-----	62	...	...	...
6,6'-Iminobis[1-naphthol-3-sulfonic acid]-----	7	...	...	...
1,1'-Iminobis[4-nitroanthraquinone]-----	84	...	...	...
1,1'-Iminodianthraquinone (Dianthrimide)-----	108	...	...	...
Isocyanic acid, 4-methyl-m-phenylene ester-----	30,738	23,975	18,184	.76
4,4'-Isopropylidenediphenol (Bisphenol A)-----	43,792	23,346	6,366	.27
Isocyananthrone (Isodibenzanthrone)-----	66	...	...	...
Leuco-1,4-diaminoanthraquinone-----	214	...	...	...
Leuco quinizarin (1,4,9,10-anthraetrol)-----	106	...	...	...
Leuco tetrahydroxyanthraquinone-----	53	...	...	...
Metanilic acid (m-Aminobenzenesulfonic acid)-----	1,789	...	...	...
4-Methoxymetanilic acid-----	5	...	...	...
2-Methyl-1-nitroanthraquinone-----	112	...	...	...
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	102	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	378	...	...	...
a-Methylstyrene-----	20,610	7,029	517	.07
Naphthalene, solidifying at 79° C., or above (refined flake), total	72,400	38,253	4,699	.12
From domestic crude naphthalene-----	28,347	12,945	1,678	.13
From imported crude naphthalene-----	44,053	25,308	3,021	.12
1,5-Naphthalenedisulfonic acid-----	210	...	...	...
2,7-Naphthalenedisulfonic acid-----	50	...	...	...
2-Naphthol-3,6-disulfonic acid (R acid) and disodium salt-----	1,503	...	...	...
2-Naphthol-6,8-disulfonic acid (G acid) and disodium salt-----	1,708	28	21	.75
1-Naphthol-4-sulfonic acid (Neville & Winther's acid)-----	183	...	...	...
2-Naphthol-6-sulfonic acid (Schaeffer's acid)-----	473	...	...	...
1-Naphthol-8-sulfonic acid sulfone (1,8-Naphthosulfone)-----	17	...	...	...
Naphth[1,2]oxadiazole-5-sulfonic acid-----	1,177	...	...	...
2-(Naphthylthio)acetic acid-----	104	...	...	...
m-Nitroaniline-----	201	...	...	...
4-Nitro-o-anisidine [NH ₂ =1]-----	133	18	41	2.28
5-Nitro-o-anisidine [NH ₂ =1]-----	748	...	...	...
1-Nitro-2-anthraquinonecarboxylic acid-----	40	...	...	...
5-Nitro-1-anthraquinonesulfonic acid-----	86	...	...	...
Nitrobenzene-----	172,133	6,897	756	.11
m-Nitrobenzenesulfonic acid and salt-----	1,472	1,386	564	.41
m- and p-Nitrobenzoic acids-----	650	...	...	...
3-Nitro-p-toluenesulfonic acid [SO ₃ H=1]-----	276	...	...	...
5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]-----	3,730	...	...	...
5-Nitro-o-toluidine [NH ₂ =1]-----	337	86	118	1.37
2-Nitro-p-toluidine [NH ₂ =1]-----	1,573	706	872	1.24
16-Nitroviolanthrone-----	47	...	...	...
Nitroxylenes, mixed-----	545	...	...	...
Nonylphenol-----	35,917	11,424	2,314	.20
1-(7-Oxo-7H-benz[de]anthracen-3-ylamino)anthraquinone-----	257	...	...	...
1,1'-(7-Oxo-7H-benz[de]anthracen-3,9-ylenediimino)dianthraquinone-----	195	...	...	...
5-Oxo-1-(p-sulfo-phenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T)-----	22	...	...	...

See footnotes at end of table.

TABLE 7A. --Synthetic organic chemicals: U.S. production and sales of cyclic intermediates, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Phenol, total ² -----	691,987	434,264	59,860	\$0.14
Natural, total-----	40,005	40,594	5,639	.14
From coal tar, total-----	32,180	32,993	4,506	.14
82%-84%-----	3,692	4,446	609	.14
Other-----	28,488	28,547	3,897	.14
From petroleum-----	7,825	7,601	1,133	.15
Synthetic, total-----	651,982	373,670	54,221	.15
From cumene-----	137,658	114,293	16,235	.14
Other synthetic-----	514,324	259,377	37,986	.15
1-Phenol-4-sulfonic acid-----	3,968	3,156	585	.19
Phenylacetic acid (α-Toluic acid)-----	338	...	...	...
Phenylacetic acid, potassium salt-----	1,387	1,303	474	.36
Phenylacetoneitrile (α-Tolunitrile)-----	1,192	342	172	.50
p-Phenylazoaniline (p-Aminoazobenzene) and hydrochloride-----	176	...	...	...
m-Phenylenediamine-----	1,141	553	598	1.08
o-Phenylenediamine-----	491	95	145	1.53
p-Phenylenediamine-----	...	448	610	1.36
2,2'-(Phenylimino)diethanol (Phenyldiethanolamine)-----	515	...	...	...
Phthalic anhydride-----	357,871	261,829	42,085	.16
Phthalic anhydride residue-----	658	...	...	...
Phthalimide-----	1,940	...	...	...
Picolines, total ³ -----	2,234	2,419	1,365	.56
2-Picoline (α-Picoline)-----	891	996	350	.35
All other-----	1,343	1,423	1,015	.71
Piperidine-----	308	...	...	...
2 ^o Pyridine ³ -----	2,175	1,856	1,275	.69
Quinaldine-----	29	...	...	...
Quinizarin-----	1,115	26	39	1.50
Salicylic acid, tech-----	...	1,563	572	.37
Styrene, all grades-----	1,571,311	915,592	105,751	.12
4-Sulfoanthranilic acid-----	10	...	...	...
1,4,5,8-Tetrachloroanthraquinone-----	32	...	...	...
1,4,5,8-Tetrakis[1,1',1'',1'''-anthraquinonylamino]-anthraquinone (Pentanthramid)-----	66	...	...	...
3,3'-Thiobis[7H-benz[de]anthracen-7-one]-----	71	...	...	...
4-(o-Tolylazo)-o-toluidine (o-Aminoazotoluene)-----	545	...	...	...
2,2'-(m-Tolylimino)diethanol-----	36	...	...	...
6,6'-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea)-----	359	...	...	...
Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	...	8	22	2.75
Violanthrone (Dibenzanthrone)-----	430	...	...	...
o-Xylene-----	61,722	...	...	...
p-Xylene-----	157,966	155,540	21,589	.14
Xylenols (not classified as to b.p.)-----	153	153	19	.12
Xylidine (original mixture)-----	520	...	...	...

¹ Unit values calculated from rounded figures.

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

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

⁴ Includes keryl-type benzenes.

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

In 1959, production of two of the largest volume intermediates exceeded 1 billion pounds for the fourth successive year. The output of styrene totaled 1,571 million pounds (28.4 percent more than in 1958) and that of ethylbenzene, 1,423 million pounds (20.9 percent more than in 1958). 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. Other large-volume intermediates the output of which was substantially larger in 1959 than in 1958, were mono-chlorobenzene (44.9 percent larger), phenol (36.7 percent), cumene (20.4 percent), phthalic anhydride (18.8 percent), cyclohexane (17 percent), and naphthalene (17.1 percent). Production of dodecylbenzene in 1959 was only slightly smaller than that in 1958. Statistics on the production of ortho-xylene (62 million pounds in 1959) are given separately for the first time in this report.

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 is determined largely by the use for which it is intended.

Table 8A² shows U.S. production and sales of dyes in 1959, total and by individual dyes, using the new *Colour Index* classification and terminology, which was used for the first time in the 1958 report. Dyes for which individual statistics are given in the table represent 56 percent of the total quantity produced.

Total domestic production of dyes in 1959 amounted to 170 million pounds, or 21.1 percent more than the 140 million pounds produced in 1958 and 18.5 percent more than the 143 million pounds produced in 1957. Sales of dyes in 1959 amounted to 159 million pounds, valued at \$206 million, compared with 139 million pounds, valued at \$177 million, in 1958. In terms of quantity, sales of dyes in 1959 were thus 14.1 percent larger than those in 1958 and, in terms of value, 16.0 percent larger.

TABLE 8A. -- Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	169,503	158,939	205,873	\$1.30
ACID DYES				
Total-----	16,236	15,257	28,373	1.86
Acid yellow dyes, total-----	1,919	1,641	3,481	2.12
Acid yellow 3-----	...	49	172	3.55
Acid yellow 11-----	66	70	177	2.53
Acid yellow 17-----	213	186	387	2.08
Acid yellow 23-----	336	288	570	1.98
Acid yellow 36-----	311	305	388	1.27
Acid yellow 40-----	52	51	146	2.86
Acid yellow 42-----	...	30	57	1.90
Acid yellow 44-----	23	16	52	3.25
Acid yellow 54-----	73	54	119	2.20
Acid yellow 73-----	138	50	116	2.32
Acid yellow 99-----	69	75	154	2.05
All other-----	638	467	1,141	2.44
Acid orange dyes, total-----	2,528	2,460	3,150	1.28
Acid orange 7-----	827	872	665	.76
Acid orange 8-----	396	402	365	.91
Acid orange 10-----	331	323	420	1.30
Acid orange 24-----	457	439	604	1.38
Acid orange 74-----	88	...	...	...
All other-----	429	424	1,096	2.58
Acid red dyes, total-----	2,797	2,234	4,098	1.83
Acid red 1-----	398	308	334	1.08
Acid red 4-----	78	77	138	1.79
Acid red 12-----	25	...	...	...

See footnotes at end of table.

² See also table 8B, pt. III, which lists these products and identifies the manufacturers, and appendix A (table 24), which shows imports of dyes during 1957-59.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
ACID DYES--Continued				
Acid red dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Acid red 14-----	104	87	119	\$1.37
Acid red 17-----	...	60	75	1.25
Acid red 18-----	173	138	141	1.02
Acid red 26-----	165	150	176	1.17
Acid red 37-----	40	29	67	2.31
Acid red 73-----	362	333	670	2.01
Acid red 85-----	151	121	189	1.56
Acid red 87-----	254	...	...	...
Acid red 88-----	173	160	231	1.44
Acid red 89-----	42	38	61	1.61
Acid red 115-----	28	21	30	1.43
Acid red 137-----	177	138	422	3.06
Acid red 151-----	...	28	61	2.18
Acid red 167-----	...	23	46	2.00
Acid red 182-----	34	...	...	...
Acid red 183-----	...	15	65	4.33
Acid red 186-----	9	14	42	3.00
All other-----	584	494	1,231	2.49
Acid violet dyes, total-----	444	414	878	2.12
Acid violet 1-----	41	41	67	1.63
Acid violet 7-----	70	58	77	1.33
Acid violet 12-----	31	21	30	1.43
Acid violet 43-----	...	11	38	3.45
Acid violet 49-----	81	82	177	2.16
All other-----	221	201	489	2.43
Acid blue dyes, total-----	2,833	2,780	7,858	2.83
Acid blue 7-----	90	73	233	3.19
Acid blue 9-----	586	569	720	1.27
Acid blue 22-----	42	...	...	...
Acid blue 25-----	40	50	269	5.38
Acid blue 40-----	...	13	59	4.54
Acid blue 43-----	26	24	124	5.17
Acid blue 45-----	651	622	2,070	3.33
Acid blue 59-----	...	16	53	3.31
Acid blue 78-----	57	47	248	5.28
Acid blue 90-----	18	14	181	12.93
Acid blue 113-----	375	368	494	1.34
Acid blue 120-----	...	22	34	1.55
Acid blue 158 and 158A-----	...	221	732	3.31
All other-----	948	741	2,641	3.56
Acid green dyes, total-----	560	500	1,204	2.41
Acid green 3-----	164	139	171	1.23
Acid green 9-----	27	24	102	4.25
Acid green 16-----	51	41	162	3.95
Acid green 20-----	30	28	59	2.11
Acid green 25-----	165	164	431	2.63
Acid green 50-----	39	...	...	...
All other-----	84	104	279	2.68
Acid brown dyes, total-----	625	587	1,255	2.14
Acid brown 14-----	312	305	398	1.30
All other-----	313	282	857	3.04
Acid black dyes, total-----	4,530	4,641	6,449	1.39
Acid black 1-----	1,819	1,929	2,183	1.13
Acid black 24-----	117	128	193	1.51
Acid black 26, 26A, and 26B-----	...	223	349	1.56

See footnotes at end of table.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
ACID DYES--Continued				
Acid black dyes--Continued				
Acid black 48-----	35	40	206	\$5.15
All other-----	2,559	2,321	3,518	1.52
AZOIC DYES AND COMPONENTS				
<i>Azoic Compositions</i>				
Total-----	2,691	2,476	3,851	1.56
Azoic yellow 2-----	37	19	37	1.95
Azoic orange 3-----	37	47	72	1.53
Azoic red dyes, total-----	658	541	815	1.51
Azoic red 1-----	175	167	215	1.29
Azoic red 2-----	45	62	78	1.26
Azoic red 6-----	308	194	291	1.50
Azoic red 15-----	...	11	18	1.64
Azoic red 16-----	25	23	40	1.74
All other-----	105	84	173	2.06
Azoic violet 1-----	20	14	46	3.29
Azoic blue dyes, total-----	238	257	304	1.18
Azoic blue 2-----	44	60	63	1.05
Azoic blue 3-----	52	62	81	1.31
All other-----	142	135	160	1.19
Azoic brown dyes, total-----	305	247	605	2.45
Azoic brown 9-----	159	113	452	4.00
All other-----	146	134	153	1.14
Azoic black dyes-----	1,214	1,200	1,759	1.47
All other azoic compositions-----	182	151	213	1.41
<i>Azoic Diazo Components, Bases (Fast Color Bases)</i>				
Total-----	1,551	1,434	1,947	1.36
Azoic diazo component 4, base-----	...	38	46	1.21
Azoic diazo component 5, base-----	...	7	19	2.71
Azoic diazo component 13, base-----	620	598	588	.98
Azoic diazo component 20, base-----	...	21	112	5.33
Azoic diazo component 28, base-----	...	88	212	2.41
Azoic diazo component 32, base-----	166	175	268	1.53
All other azoic diazo components, bases-----	765	507	702	1.38
<i>Azoic Diazo Components, Salts (Fast Color Salts)</i>				
Total-----	2,444	2,466	2,667	1.08
Azoic diazo component 1, salt-----	24	20	25	1.25
Azoic diazo component 3, salt-----	307	301	231	.77
Azoic diazo component 5, salt-----	93	96	116	1.21
Azoic diazo component 8, salt-----	76	70	68	.97
Azoic diazo component 9, salt-----	282	267	171	.64
Azoic diazo component 11, salt-----	46	38	103	2.71
Azoic diazo component 12, salt-----	170	155	156	1.01
Azoic diazo component 13, salt-----	437	429	302	.70

See footnotes at end of table.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
AZOIC DYES AND COMPONENTS--Continued				
Azotic Diazo Components, Salts (Fast Color Salts)--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Azotic diazo component 20, salt-----	26	28	83	\$2.96
Azotic diazo component 28, salt-----	367	363	443	1.22
Azotic diazo component 36, salt-----	107	110	200	1.82
Azotic diazo component 42, salt-----	...	13	33	2.54
Azotic diazo component 48, salt-----	146	139	152	1.09
All other azotic diazo components, salts-----	363	437	584	1.34
Azotic Coupling Components (Naphthol AS and Derivatives)				
Total-----	2,441	2,464	4,850	1.97
Azotic coupling component 2-----	546	584	558	.96
Azotic coupling component 3-----	8	11	38	3.45
Azotic coupling component 4-----	10	18	34	1.89
Azotic coupling component 5-----	44	56	172	3.07
Azotic coupling component 7-----	614	644	1,143	1.77
Azotic coupling component 11-----	...	6	19	3.17
Azotic coupling component 13-----	...	35	167	4.77
Azotic coupling component 14-----	57	54	108	2.00
Azotic coupling component 17-----	170	110	206	1.87
Azotic coupling component 18-----	381	417	539	1.29
Azotic coupling component 20-----	56	61	127	2.08
Azotic coupling component 21-----	36	41	74	1.80
Azotic coupling component 29-----	17	21	47	2.24
Azotic coupling component 34-----	14	11	24	2.18
Azotic coupling component 35-----	31	48	188	3.92
All other azotic coupling components-----	457	347	1,406	4.05
BASIC DYES				
Total-----	8,054	6,579	15,006	2.28
Basic yellow 2-----	546	530	1,152	2.17
Basic orange dyes, total-----	865	819	1,049	1.28
Basic orange 1-----	221	205	214	1.04
Basic orange 2-----	549	527	514	.98
All other-----	95	87	321	3.69
Basic red 2-----	201	165	482	2.92
Basic violet 1-----	1,417	901	1,318	1.46
Basic violet 3-----	890	829	1,778	2.14
Basic violet 4-----	74	71	222	3.13
Basic violet 10-----	178	155	676	4.36
Basic blue dyes, total-----	929	797	2,351	2.95
Basic blue 1-----	24	24	103	4.29
Basic blue 5-----	...	8	54	6.75
Basic blue 7-----	179	135	488	3.61
Basic blue 9-----	419	350	721	2.06
Basic blue 26-----	77	78	229	2.94
All other-----	230	202	756	3.74
Basic green 1-----	74	71	235	3.31
Basic green 4-----	393	375	1,048	2.79

See footnotes at end of table.

TABLE 8A. -- Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959-- Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
BASIC DYES--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Basic brown 1-----	300	239	293	\$1.23
Basic brown 4-----	730	681	823	1.21
All other basic dyes-----	1,457	946	3,579	3.78
DIRECT DYES				
Total-----	26,711	25,903	37,981	1.47
Direct yellow dyes, total-----	4,418	3,833	6,996	1.83
Direct yellow 4-----	312	318	640	2.01
Direct yellow 5-----	131	119	517	4.34
Direct yellow 6-----	1,077	937	1,365	1.46
Direct yellow 11-----	808	674	756	1.12
Direct yellow 12-----	485	368	866	2.35
Direct yellow 28-----	197	183	310	1.69
Direct yellow 29-----	67	69	95	1.38
Direct yellow 44-----	302	275	485	1.76
Direct yellow 50-----	187	173	338	1.95
Direct yellow 59-----	106	71	93	1.31
All other-----	746	646	1,531	2.37
Direct orange dyes, total-----	1,557	1,531	3,440	2.25
Direct orange 1-----	11	9	26	2.89
Direct orange 8-----	132	131	152	1.16
Direct orange 15-----	228	221	242	1.10
Direct orange 26-----	41	30	65	2.17
Direct orange 29-----	56	76	174	2.29
Direct orange 34-----	80	72	159	2.21
Direct orange 37-----	72	58	147	2.53
Direct orange 72-----	82	...	...	...
Direct orange 73-----	90	116	387	3.34
Direct orange 81-----	83	71	221	3.11
All other-----	682	747	1,867	2.50
Direct red dyes, total-----	3,183	2,999	6,531	2.18
Direct red 1-----	112	101	140	1.39
Direct red 2-----	599	536	824	1.54
Direct red 10-----	24	19	27	1.42
Direct red 13-----	54	58	96	1.66
Direct red 16-----	27	23	40	1.74
Direct red 23-----	296	292	621	2.13
Direct red 24-----	242	210	428	2.04
Direct red 26-----	99	87	213	2.45
Direct red 28-----	155	158	169	1.07
Direct red 31-----	16	14	50	3.57
Direct red 37-----	103	97	239	2.46
Direct red 39-----	43	33	90	2.73
Direct red 75-----	26	23	84	3.65
Direct red 79-----	...	144	328	2.28
Direct red 80-----	265	273	583	2.14
Direct red 81-----	230	186	486	2.61
Direct red 83-----	...	44	83	1.89
Direct red 84-----	...	17	35	2.06
Direct red 122-----	55	42	301	7.17
Direct red 123-----	...	19	46	2.42
Direct red 127 and 127A-----	...	13	42	3.23
Direct red 149-----	14	11	39	3.55
Direct red 153-----	10	7	18	2.57
All other-----	813	592	1,549	2.62

See footnotes at end of table.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
DIRECT DYES--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Direct violet dyes, total-----	117	117	355	\$3.03
Direct violet 1-----	13	13	26	2.00
Direct violet 9-----	56	49	132	2.69
All other-----	48	55	197	3.58
Direct blue dyes, total-----	5,297	5,279	7,208	1.37
Direct blue 1-----	234	206	457	2.22
Direct blue 2-----	2,173	2,188	2,000	.91
Direct blue 6-----	395	440	235	.53
Direct blue 8-----	73	57	96	1.68
Direct blue 14-----	136	140	113	.81
Direct blue 15-----	46	32	35	1.09
Direct blue 22-----	35	28	50	1.79
Direct blue 24-----	...	24	32	1.33
Direct blue 25-----	36	44	128	2.91
Direct blue 26-----	...	21	33	1.57
Direct blue 67-----	34	25	103	4.12
Direct blue 71-----	59	57	164	2.88
Direct blue 76-----	83	79	98	1.24
Direct blue 78-----	77	74	213	2.88
Direct blue 80-----	50	66	95	1.44
Direct blue 86-----	523	470	912	1.94
Direct blue 98-----	146	141	226	1.60
Direct blue 120 and 120A-----	79	89	194	2.18
Direct blue 126-----	128	136	289	2.13
Direct blue 151-----	36	40	52	1.30
All other-----	954	922	1,683	1.83
Direct green dyes, total-----	1,159	1,085	2,055	1.89
Direct green 1-----	216	169	190	1.12
Direct green 6-----	533	538	586	1.09
Direct green 38-----	...	10	39	3.90
All other-----	410	368	1,240	3.37
Direct brown dyes, total-----	2,231	2,207	2,873	1.30
Direct brown 1-----	333	370	327	.88
Direct brown 2-----	328	312	432	1.38
Direct brown 6-----	51	48	51	1.06
Direct brown 31-----	101	94	242	2.57
Direct brown 74-----	61	57	80	1.40
Direct brown 95-----	647	627	431	.69
Direct brown 111-----	122	98	340	3.47
Direct brown 154-----	218	219	262	1.20
All other-----	370	382	708	1.85
Direct black dyes, total-----	8,749	8,852	8,523	.96
Direct black 4-----	300	309	285	.92
Direct black 22-----	543	478	383	.80
Direct black 37-----	19	19	23	1.21
Direct black 38-----	5,884	5,993	4,972	.83
Direct black 51-----	154	159	339	2.13
Direct black 78-----	139	...	...	...
Direct black 80-----	1,003	1,038	1,046	1.01
All other-----	707	856	1,475	1.72
DISPERSE DYES				
Total-----	6,901	6,647	13,810	2.08
Disperse yellow dyes, total-----	715	738	1,730	2.34
Disperse yellow 3-----	285	295	564	1.91

See footnotes at end of table.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
DISPERSE DYES--Continued				
Disperse yellow dyes--Continued				
Disperse yellow 33-----	67	51	91	\$1.78
All other-----	363	392	1,075	2.74
Disperse orange dyes, total-----	389	364	650	1.79
Disperse orange 3-----	47	52	89	1.71
Disperse orange 5-----	31	48	97	2.02
Disperse orange 17-----	169	133	146	1.10
All other-----	142	131	318	2.43
Disperse red dyes, total-----	1,087	1,068	2,540	2.38
Disperse red 1-----	146	154	236	1.53
Disperse red 5-----	64	57	66	1.16
Disperse red 13-----	17	26	39	1.50
Disperse red 15-----	113	98	218	2.22
Disperse red 17-----	74	63	90	1.43
All other-----	673	670	1,891	2.82
Disperse violet dyes, total-----	263	...	...	...
Disperse violet 1-----	42	32	101	3.16
Disperse violet 4-----	46	38	132	3.47
All other-----	175	...	...	...
Disperse blue dyes, total-----	2,786	2,587	6,537	2.53
Disperse blue 1-----	161	167	626	3.75
Disperse blue 3-----	783	667	1,111	1.67
Disperse blue 7-----	...	127	726	5.72
All other-----	1,842	1,626	4,074	2.51
Disperse black 9-----	1,090	1,175	1,013	.86
All other disperse dyes-----	571	2 645	2 1,107	2 1.72
FIBER-REACTIVE DYES				
Total-----	188	174	759	4.36
FLUORESCENT BRIGHTENING AGENTS				
Total-----	7,050	6,910	16,887	2.44
Fluorescent brightening agent 68-----	107	67	751	11.21
All other fluorescent brightening agents-----	6,943	6,843	16,136	2.36
FOOD, DRUG, AND COSMETIC DYES				
Total-----	2,112	2,028	9,341	4.61
Food, Drug, and Cosmetic Colors				
Total-----	1,836	1,779	7,360	4.14
Blue No. 1-----	35	36	459	12.75
Red No. 1-----	58	82	461	5.62
Red No. 2-----	389	392	1,268	3.23
Red No. 3-----	24	24	425	17.71
Yellow No. 5-----	348	321	1,040	3.24
Yellow No. 6-----	485	401	1,344	3.35
All other food, drug, and cosmetic colors-----	497	523	2,363	4.52
Drug and Cosmetic Colors				
Total-----	262	237	1,881	7.94
Orange No. 4-----	8	6	32	5.33

See footnotes at end of table.

TABLE 8A.--Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
FOOD, DRUG, AND COSMETIC DYES--Continued				
<i>Drug and Cosmetic Colors--Continued</i>				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Red No. 7-----	6	7	22	\$3.14
Red No. 11-----	6	...	...	...
Red No. 19-----	27	23	98	4.26
Red No. 21-----	48	45	158	3.51
All other drug and cosmetic colors except external-----	167	156	1,571	10.07
<i>Drug and Cosmetic Colors, External</i>				
Total-----	14	12	100	8.33
MORDANT DYES				
Total-----	6,655	6,250	8,641	1.38
Mordant yellow dyes, total-----	243	232	374	1.61
Mordant yellow 1-----	...	42	48	1.14
Mordant yellow 5-----	...	19	46	2.42
Mordant yellow 8-----	15	13	34	2.62
Mordant yellow 10-----	...	6	6	1.00
Mordant yellow 16-----	...	25	38	1.52
Mordant yellow 20-----	...	11	12	1.09
All other-----	228	116	190	1.64
Mordant orange dyes, total-----	136	131	253	1.93
Mordant orange 1-----	53	53	74	1.40
Mordant orange 6-----	33	28	28	1.00
All other-----	50	50	151	3.02
Mordant red dyes, total-----	148	200	486	2.43
Mordant red 3-----	11	15	44	2.93
Mordant red 7-----	60	65	128	1.97
Mordant red 9-----	27	23	32	1.39
All other-----	50	97	282	2.91
Mordant violet 5-----	...	9	14	1.56
Mordant blue 1-----	42	37	126	3.41
Mordant blue 9-----	...	8	15	1.88
Mordant green dyes, total-----	53	60	120	2.00
Mordant green 36-----	14	14	25	1.79
All other-----	39	46	95	2.07
Mordant brown dyes, total-----	452	436	969	2.22
Mordant brown 1-----	159	136	263	1.93
Mordant brown 19-----	...	12	32	2.67
Mordant brown 33-----	...	76	129	1.70
Mordant brown 40-----	28	26	75	2.88
All other-----	265	186	470	2.53
Mordant black dyes, total-----	5,563	5,126	6,248	1.22
Mordant black 1-----	53	43	64	1.49
Mordant black 5-----	107	92	205	2.23
Mordant black 9-----	...	85	148	1.74
Mordant black 11-----	3,786	3,549	4,272	1.20
Mordant black 13-----	112	80	221	2.76
Mordant black 17-----	1,275	1,133	1,080	.95
Mordant black 38-----	25	19	52	2.74
All other-----	205	125	206	1.65
All other mordant dyes-----	18	11	36	3.27

See footnotes at end of table.

TABLE 8A. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
SOLVENT DYES				
Total-----	1,000 pounds 7,228	1,000 pounds 6,402	1,000 dollars 9,468	Per pound \$1.48
Solvent yellow dyes, total-----	1,167	958	1,776	1.85
Solvent yellow 2-----	63	70	96	1.37
Solvent yellow 3-----	...	36	56	1.56
Solvent yellow 14-----	900	675	790	1.17
All other-----	204	177	834	4.71
Solvent orange dyes, total-----	346	329	643	1.95
Solvent orange 3-----	15	11	25	2.27
Solvent orange 7-----	132	147	250	1.70
All other-----	199	171	368	2.15
Solvent red dyes, total-----	1,145	863	1,783	2.07
Solvent red 24-----	716	484	848	1.75
Solvent red 26-----	278	238	392	1.65
Solvent red 49-----	...	20	130	6.50
All other-----	151	121	413	3.41
Solvent violet dyes-----	217	196	393	2.01
Solvent blue 4-----	73	54	208	3.85
Solvent green dyes, total-----	42	45	249	5.53
Solvent green 1-----	...	10	63	6.30
Solvent green 3-----	...	30	161	5.37
All other-----	42	5	25	5.00
Solvent brown dyes-----	33	36	121	3.36
All other solvent dyes-----	4,205	3,921	4,295	1.10
SULFUR DYES				
Total-----	31,776	30,941	8,653	.28
Sulfur red 1-----	63	49	41	.84
Sulfur red 6-----	57	65	122	1.88
Sulfur blue 5-----	...	20	28	1.40
Sulfur blue 7-----	335	234	203	.87
Sulfur green 2-----	25	23	39	1.70
Sulfur black 1-----	1,949	1,727	552	.32
All other sulfur dyes-----	29,347	28,823	7,668	.27
VAT DYES				
Total-----	47,395	42,959	43,416	1.01
Vat yellow dyes, total-----	3,049	2,676	3,872	1.45
Vat yellow 2, 8-1/2%-----	1,768	1,473	1,448	.98
Vat yellow 4, 12-1/2%-----	768	672	944	1.40
Solubilized vat yellow 4, 37-1/2%-----	14	11	87	7.91
All other-----	499	520	1,393	2.68
Vat orange 1, 20%-----	267	214	329	1.54
Solubilized vat orange 1, 26%-----	6	7	56	8.00
Vat orange 2, 12%-----	292	284	660	2.32
Vat orange 5, 10%-----	532	388	599	1.54
Vat orange 9, 12%-----	402	168	436	2.60
Vat orange 15, 10%-----	582	608	1,079	1.77
Vat red dyes, total-----	1,236	1,039	2,556	2.46
Vat red 1, 13%-----	762	638	1,139	1.79
Vat red 10, 18%-----	112	110	491	4.46
Vat red 13, 11%-----	39	66	194	2.94
Vat red 35, 12-1/2%-----	37	...	...	...
All other-----	286	225	732	3.25

See footnotes at end of table.

TABLE 8A.--Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, 1959--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value ¹
VAT DYES--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Vat violet dyes, total-----	1,236	1,076	2,390	\$2.22
Vat violet 1, 11%-----	482	330	779	2.36
Vat violet 2, 20%-----	70	65	154	2.37
Vat violet 3, 15%-----	...	53	88	1.66
Vat violet 9, 12%-----	82	75	244	3.25
Vat violet 13, 6-1/4%-----	507	507	936	1.85
Vat violet 17, 12-1/2%-----	...	30	98	3.27
All other-----	95	16	91	5.69
Vat blue dyes, total-----	22,551	...	...	...
Vat blue 1, 20%-----	8,852	8,027	2,058	.26
Vat blue 4, 10%-----	...	133	233	1.75
Vat blue 5, 16%-----	539	474	449	.95
Vat blue 6, 8-1/3%-----	3,226	2,916	3,206	1.10
Solubilized vat blue 6, 17-1/2%-----	39	47	310	6.60
Vat blue 14, 8-1/3%-----	479	376	428	1.14
Vat blue 18, 13%-----	762	729	1,166	1.60
Vat blue 20, 14%-----	720	674	1,038	1.54
All other-----	7,934	...	...	...
Vat green 1, 6%-----	3,069	2,982	2,069	.69
Solubilized vat green 1, 12-1/2%-----	49	55	208	3.78
Vat green 3, 10%-----	2,222	1,791	1,190	.66
Solubilized vat green 3, 26%-----	14	16	110	6.88
Vat green 8, 8-1/2%-----	896	826	687	.83
Vat green 9, 12-1/2%-----	851	1,036	880	.85
Vat brown dyes, total-----	4,326	4,029	6,607	1.64
Vat brown 1, 11%-----	855	785	1,117	1.42
Vat brown 3, 11%-----	1,110	1,088	1,471	1.35
Vat brown 5, 13%-----	638	566	904	1.60
Vat brown 20, 10-1/2%-----	177	205	393	1.92
All other-----	1,546	1,385	2,722	1.97
Vat black dyes, total-----	4,674	4,525	6,467	1.43
Vat black 9, 16%-----	199	...	...	...
Vat black 25, 12-1/2%-----	1,771	1,681	1,544	.92
Vat black 27, 12-1/2%-----	743	956	1,105	1.16
All other-----	1,961	1,888	3,818	2.02
All other vat dyes-----	1,141	7,863	4,333	.55
All other dyes ² -----	70	49	223	4.55

¹ Calculated from rounded figures.

² Includes sales of disperse violet dyes.

³ Includes oxidation bases and Ingrain and miscellaneous dyes.

For many important low- and medium-priced dyes for which statistics are given in this report, production was larger in 1959 than in 1958. The output of vat blue 1 (synthetic indigo) was 8.9 million pounds in 1959, or 13.7 percent more than the 7.8 million pounds reported for 1958; that of direct black 38 (direct black EW) was 5.9 million pounds, or 25.0 percent more than the 4.7 million pounds reported for 1958. Production of mordant black 11 in 1959 (3.8 million pounds) was almost double that in 1958 (1.9 million pounds). Other important dyes the output of which was substantially larger in 1959 than in 1958 were vat green 3 (77.2 percent larger), vat black 25 (54.0 percent larger), vat yellow 2 (51.1 percent larger), direct yellow 6 (37.2 percent), acid black 1 (28.1 percent), and mordant black 17 (26.2 percent).

On the other hand, the output of a few important dyes was smaller in 1959 than in 1958. Production of vat green 9 in 1959 was 0.9 million pounds, or 41.3 percent less than the 1.4 million pounds reported for 1958; that of direct black 80 was 23.7 percent smaller; that of vat blue 6 was 8.6 percent smaller; and that of vat green 1 was 10.2 percent smaller.

Although the revision of the *Colour Index* has resulted in a number of changes in the classification of dyes, the differences resulting from these changes are small in most instances, so that comparisons between the class totals for 1958 and 1959 and those for former years are still significant.

Table 9 summarizes production and sales of dyes in 1959, by class of application. Four classes of dyes accounted for more than 70 percent of the output of all dyes in 1959: Vat dyes accounted for 28 percent of the total output; sulfur dyes, for 18.7 percent; direct dyes, for 15.0 percent; and acid dyes, for 9.6 percent. In 1959 the output of each of these four major classes was larger than that in 1958. Production of acid dyes was 41.4 percent larger; sulfur dyes, 24.0 percent; direct dyes, 24.0 percent; and vat dyes, 13.8 percent. The total output of azoic dyes and components--the fifth ranking class of dyes--was 9.1 million pounds in 1959, or 3.6 percent more than the 8.8 million pounds reported for 1958. The output of two of the four groups of azoic dyes and components was larger in 1959 than in 1958: Production of fast color bases was 44.1 percent greater and that of azoic compositions was 26 percent greater. On the other hand, the output of fast color salts was 13.9 percent smaller in 1959 than in 1958, and that of the azoic coupling components, 11.7 percent smaller.

The output of all the remaining classes of dyes also was greater in 1959 than in 1958: That of mordant dyes was 65.7 percent larger; solvent dyes, 21.7 percent; disperse dyes, 22 percent; basic dyes, 21.3 percent; fluorescent brightening agents, 20.3 percent; and food, drug, and cosmetic dyes, 10.9 percent. In 1959 the fluorescent dyes were the fourth most important group of dyes in terms of value of sales; sales in that year amounted to \$16.9 million.

Table 10 shows production and sales of dyes in 1959 by chemical class. In 1959 five chemical classes of dyes accounted for more than 80 percent of all the dyes produced: Azo dyes accounted for 30.4 percent of the total; anthraquinone dyes, for 20.2 percent; sulfur dyes (not including vat sulfur dyes), for 18.7 percent; indigoid dyes, for 7 percent; and stilbene dyes, for 5.4 percent. The output of each of these five classes was larger in 1959 than in 1958; that of stilbene dyes was 32.3 percent larger; that of azo dyes, 27.8 percent; that of sulfur dyes, 24 percent; that of indigoid dyes, 16.6 percent; and that of anthraquinone dyes, 13.9 percent. Production of all but two of the remaining chemical classes--the phthalocyanine dyes and the ketone imine dyes--was greater in 1959 than in 1958; the output of the phthalocyanine dyes was 26.1 percent smaller and that of the ketone imine dyes, 4.9 percent smaller. In terms of value of sales, the most important classes of dyes in 1959 were the azo dyes (\$78.4 million), the anthraquinone dyes (\$51.5 million), the stilbene dyes (\$19.3 million), and the azoic dyes (\$13.3 million).

TABLE 9.--Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, by class of application, 1959

Class of application	Production	Sales		
		Quantity	Value	Unit value ¹
		1,000 pounds	1,000 dollars	Per pound
Total-----	169,503	158,939	205,873	\$1.30
Acid-----	16,236	15,257	28,373	1.86
Azoic dyes and components:				
Azoic compositions-----	2,691	2,476	3,851	1.56
Azoic diazo components, bases (Fast color bases)-----	1,551	1,434	1,947	1.36
Azoic diazo components, salts (Fast color salts)-----	2,444	2,466	2,667	1.08
Azoic coupling components (Naphthol AS and derivatives)-----	2,441	2,464	4,850	1.97
Basic-----	8,054	6,579	15,006	2.28
Direct-----	26,711	25,903	37,981	1.47
Disperse-----	6,901	6,647	13,810	2.08
Fiber-reactive-----	188	174	759	4.36
Fluorescent brightening agents-----	7,050	6,910	16,887	2.44
Food, drug, and cosmetic dyes-----	2,112	2,028	9,341	4.61
Mordant-----	6,655	6,250	8,641	1.38
Solvent-----	7,228	6,402	9,468	1.48
Sulfur-----	31,776	30,941	8,653	.28
Vat-----	47,395	42,959	43,416	1.01
All other ² -----	70	49	223	4.55

¹ Calculated from rounded figures.

² Includes oxidation bases and ingrain and miscellaneous dyes. Statistics for these groups cannot be published separately without disclosing information received in confidence.

TABLE 10. --Synthetic organic chemicals: U.S. production and sales of coal-tar dyes, by chemical class, 1959

Chemical class	Production	Sales		
		Quantity	Value	Unit value ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	169,503	158,939	205,873	\$1.30
Acridine-----	28	...	...	...
Antraquinone-----	34,311	30,443	51,483	1.69
Azo, total-----	51,479	49,619	78,351	1.58
Monoazo-----	17,298	16,249	27,824	1.71
Disazo-----	16,478	15,690	25,158	1.60
Trisazo-----	10,695	10,761	11,827	1.10
Polyazo-----	1,409	1,349	2,354	1.74
Not specified-----	5,999	5,570	11,188	2.01
Azoic-----	9,127	8,840	13,315	1.51
Indigoid-----	11,825	10,547	6,201	.59
Ketone imine-----	559	540	1,183	2.19
Nitro-----	311	288	676	2.35
Oxazine-----	65	50	175	3.50
Phthalocyanine-----	557	506	1,087	2.15
Quinoline-----	227	199	822	4.13
Stilbene-----	9,161	8,706	19,302	2.22
Sulfur ² -----	31,776	30,941	8,653	.28
Thiazine-----	421	351	726	2.07
Thiazole-----	414	367	737	2.01
Triarylmethane-----	5,606	4,373	10,537	2.41
Xanthene-----	862	505	2,472	4.90
All other ³ -----	12,774	12,664	10,153	.80

¹ Calculated from rounded figures.

² Does not include vat sulfur dyes.

³ Includes oxidation bases, aminoketone, azine, hydroxyketone, methine, nitroso, vat sulfur, and miscellaneous dyes and sales of acridine dyes. Statistics for these groups cannot be published separately without disclosing information received in confidence.

Toners and Lakes

As the terms are used in this report, toners and lakes are synthetic organic pigments. Synthetic organic pigments are used in paints and related products, in printing inks, and in plastics and resin materials. Toners are full-strength pigments; reduced toners and lakes are extended or diluted colors.

Statistics on production and sales of all toners and lakes are given in table 11A.³ Statistics on the commercial forms (dry, flushed, pulp, and dispersed) of a few selected pigments are given in table 12. In this report, individual toners and lakes are identified by the names used in the second edition of the *Colour Index*, rather than by their common names.⁴

Total production of full-strength toners, reduced toners, and lakes in 1959 was 42.7 million pounds, the largest output in any year since 1955. Total sales of toners, reduced toners, and lakes in 1959 amounted to 33.3 million pounds, valued at \$65.6 million, compared with 27.8 million pounds, valued at \$53.4 million, in 1958. In terms of quantity, sales of toners, reduced toners, and lakes in 1959 were 20.0 percent larger than those in 1958 and, in terms of value, 22.9 percent larger.

Production of full-strength toners in 1959 amounted to 32.3 million pounds, compared with 26.0 million pounds in 1958--representing an increase of 23.9 percent. Sales in 1959 were 24.6 million pounds, valued at \$54.4 million, compared with 19.5 million pounds, valued at \$43.2 million, in 1958--showing an increase of 26.4 percent in terms of quantity and 26.0 percent in terms of value. In 1959, red toners comprised 52.7 percent of the total output of full-strength toners (17 million pounds). The individual toners produced in the largest quantities in 1959 were Pigment Red 49 (C. I. 15 630), 4.8 million pounds; Pigment Blue 15 (C. I. 74 160), 3.7 million pounds; Pigment Green 7 (C. I. 74 260), 2.9 million pounds; Pigment Red 3 (C. I. 12 120), 2.6 million pounds; Pigment Yellow 12 (C. I. 21 090), 2.3 million pounds; Pigment Red 48 (C. I. 15 865), 1.8 million pounds; the barium toner of Pigment Red 53 (C. I. 15 585), 1.4 million pounds; and Pigment Red 90 (C. I. 45 380), 1.3 million pounds.

³ See also table 11B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 24 in appendix A, which shows imports of toners and lakes during the years 1957-58.

⁴ See appendix D, which is a cross-reference list of *Colour Index* and common names of toners and lakes.

Production of reduced or extended toners totaled 6.5 million pounds in 1959, compared with 5.4 million pounds in 1958--showing an increase of 21.2 percent. Sales in 1959 were 5.8 million pounds, valued at \$8.0 million, compared with 5.3 million pounds, valued at \$7.5 million, in 1958--representing an increase of 9.1 percent in terms of quantity and 6.4 percent in terms of value. Pigment Green 7 (C.I. 74 260), the output of which was 1.1 million pounds, was the reduced toner produced in largest quantity in 1959.

Production of lakes (laked colors) amounted to 3.9 million pounds in 1959, compared with 4.0 million pounds in 1958--showing a decrease of 1.6 percent. Sales of lakes in 1959 totaled 2.9 million pounds, showing a slight decrease from sales in 1958. However, the value of sales in 1959 was \$3.2 million, compared with \$2.7 million in 1958--representing an increase of 19.1 percent. Pigment Blue 24 (C.I. 42 090) was the lake produced in the largest quantity in 1959; the output amounted to 1.9 million pounds.

Statistics on the production and sales of the dry, flushed, pulp, and dispersed forms of 13 selected colors are given in table 12. Sales of these colors in the flushed form (including the value of the oil) were larger (value basis) than sales of any other form for Pigment Blue 19 (C.I. 42 750A), Pigment Blue 24 (C.I. 42 090), and Pigment Red 90 (C.I. 45 380); for each of the other 10 colors, sales (value basis) of the dry form were largest.

TABLE 11A. --Synthetic organic chemicals: U.S. production and sales of toners and lakes, 1959

[Listed below are all toners and lakes for which any reported data on production or sales may be published. 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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	42,675	33,309	65,634	\$1.97
TONERS OR FULL-STRENGTH COLORS				
Total-----	32,262	24,621	54,378	2.21
Products for which separate statistics may not be shown ² ----	286	211	1,113	5.27
Products for which separate statistics are shown below-----	31,976	24,410	53,265	2.18
Blue toners, total-----	5,784	4,240	12,891	3.04
Pigment Blue 1, C.I. 42 595, PMA-----	138	132	588	4.45
Pigment Blue 1, C.I. 42 595, PTA-----	47	35	187	5.34
Pigment Blue 9, C.I. 42 025, PMA-----	4	4	16	4.00
Pigment Blue 9, C.I. 42 025, PTA-----	8	8	45	5.62
Pigment Blue 15, C.I. 74 160, alpha modification-----	2,738	1,964	6,115	3.11
Pigment Blue 15, C.I. 74 160, beta modification-----	955	870	2,675	3.07
Pigment Blue 19, C.I. 42 750A-----	943	931	2,327	2.50
Pigment Blue 25, C.I. 21 180-----	57	19	65	3.42
All other-----	894	277	873	3.15
Brown toners-----	33	29	86	2.97
Green toners:				
Pigment Green 1, C.I. 42 040, PMA-----	11	6	27	4.50

See footnotes at end of table.

TABLE 11A. --Synthetic organic chemicals: U.S. production and sales of toners and lakes, 1959--Continued

Product	Production	Sales		
		Quantity	Value	Unit value ¹
TONERS OR FULL-STRENGTH COLORS--Continued				
Green toners--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Pigment Green 1, C.I. 42 040, PTA-----	8	7	37	\$5.29
Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA-----	48	44	183	4.16
Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA-----	55	53	351	6.62
Pigment Green 4, C.I. 42 000, PTA-----	9	7	40	5.71
Pigment Green 7, C.I. 74 260-----	2,851	2,138	6,476	3.03
Pigment Green 8, C.I. 10 006-----	397	315	415	1.32
Orange toners, total-----	546	435	1,231	2.83
Pigment Orange 2, C.I. 12 060-----	50	53	75	1.42
Pigment Orange 5, C.I. 12 075-----	194	163	251	1.54
Pigment Orange 13, C.I. 21 110-----	89	61	195	3.20
Pigment Orange 16, C.I. 21 160-----	137	123	292	2.37
All other-----	76	35	418	11.94
Red toners, total-----	16,991	13,810	23,100	1.67
Naphthol reds, total-----	704	563	1,516	2.69
Pigment Red 2, C.I. 12 310-----	33	33	106	3.21
Pigment Red 5, C.I. 12 490-----	134	71	180	2.54
Pigment Red 17, C.I. 12 390-----	103	69	225	3.26
Pigment Red 18, C.I. 12 350-----	19	15	52	3.47
Pigment Red 22, C.I. 12 315-----	90	92	277	3.01
Pigment Red 23, C.I. 12 355-----	108	87	323	3.71
Other naphthol reds-----	217	196	353	1.80
Pigment Red 1, C.I. 12 070, dark-----	349	331	395	1.19
Pigment Red 1, C.I. 12 070, light-----	568	470	559	1.19
Pigment Red 3, C.I. 12 120-----	2,636	1,713	2,987	1.74
Pigment Red 4, C.I. 12 085-----	471	321	434	1.35
Pigment Red 38, C.I. 21 120-----	128	118	541	4.58
Pigment Red 41, C.I. 21 200-----	116	103	347	3.37
Pigment Red 48, C.I. 15 865-----	1,786	1,632	2,984	1.83
Pigment Red 49, C.I. 15 630, total-----	4,841	4,536	4,799	1.06
Barium toner-----	3,019	2,723	2,841	1.04
Calcium toner-----	1,566	1,447	1,560	1.08
Other toners and sodium salt-----	256	366	398	1.09
Pigment Red 52, C.I. 15 860-----	660	468	689	1.47
Pigment Red 53, C.I. 15 585, barium toner-----	1,426	1,376	1,771	1.29
Pigment Red 57, C.I. 15 850, calcium toner-----	808	763	1,043	1.37
Pigment Red 63, C.I. 15 880-----	68	55	102	1.85
Pigment Red 81, C.I. 45 160, PMA-----	90	80	477	5.96
Pigment Red 81, C.I. 45 160, PTA-----	147	136	770	5.66
Pigment Red 90, C.I. 45 380-----	1,261	416	846	2.03
All other-----	932	729	2,840	3.90
Violet toners:				
Pigment Violet 1, C.I. 45 170, PMA-----	19	18	99	5.50
Pigment Violet 1, C.I. 45 170, PTA-----	26	25	168	6.72
Pigment Violet 3, C.I. 42 535, fugitive-----	436	396	625	1.58
Pigment Violet 3, C.I. 42 535, PMA-----	258	223	618	2.77
Pigment Violet 3, C.I. 42 535, PTA-----	49	42	181	4.31
Yellow toners, total-----	4,455	2,622	6,737	2.57
Benzidine yellows:				
Pigment Yellow 12, C.I. 21 090-----	2,276	1,068	2,556	2.39
Pigment Yellow 13, C.I. 21 100-----	37	44	204	4.64
Pigment Yellow 14, C.I. 21 095-----	897	618	1,619	2.62
Acetoacetanilide Yellow, deb --> saca-----	178	132	450	3.41
Hansa yellows:				
Pigment Yellow 1, C.I. 11 680-----	648	480	1,130	2.35
Pigment Yellow 3, C.I. 11 710-----	157	125	278	2.22
All other-----	262	155	500	3.23

See footnotes at end of table.

TABLE 11A. -- Synthetic organic chemicals: U.S. production and sales of toners and lakes, 1959-- Continued

Product	Production		Sales		
	Total	Toner content	Quantity	Value	Unit value ¹
REDUCED OR EXTENDED TONERS					
Total-----	1,000 pounds 6,510	1,000 pounds 1,628	1,000 pounds 5,832	1,000 dollars 8,006	Per pound \$1.37
Black toners, reduced-----	272	40	300	121	.40
Blue toners, reduced, total-----	2,544	552	2,040	3,087	1.51
Pigment Blue 1, C.I. 42 595, PMA-----	97	10	73	86	1.18
Pigment Blue 9, C.I. 42 025, PMA-----	7	2	7	16	2.29
Pigment Blue 14, C.I. 42 600, PMA-----	557	64	480	716	1.49
Pigment Blue 15, C.I. 74 160, alpha modification-----	1,125	360	923	1,259	1.36
Pigment Blue 15, C.I. 74 160, beta modification-----	81	21	73	66	.90
All other-----	677	95	484	944	1.95
Brown toners, reduced-----	8	2	6	7	1.17
Green toners, reduced, total-----	1,544	434	1,424	2,019	1.42
Pigment Green 1, C.I. 42 040, PMA-----	28	7	23	40	1.74
Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA-----	21	8	21	53	2.52
Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA-----	36	8	22	48	2.18
Pigment Green 7, C.I. 74 260-----	1,142	345	1,054	1,691	1.60
Pigment Green 8, C.I. 10 006-----	153	43	156	95	.61
All other-----	164	23	148	92	.62
Orange toners, reduced-----	94	19	83	284	3.42
Red toners, reduced, total-----	1,129	339	1,121	1,241	1.11
Naphthol reds, reduced: Pigment red 23, C.I. 12 355-----	134	26	136	118	.87
Pigment Red 1, C.I. 12 070, dark-----	37	5	42	14	.33
Pigment Red 3, C.I. 12 120-----	80	8	82	49	.60
Pigment Red 48, C.I. 15 865-----	325	148	306	381	1.24
Pigment Red 49, C.I. 15 630, barium toner-----	101	23	100	51	.51
Pigment Red 57, C.I. 15 850-----	16	11	23	31	1.35
Pigment Red 81, C.I. 45 160, PMA-----	127	20	126	179	1.42
Pigment Red 81, C.I. 45 160, PTA-----	29	4	29	24	.83
All other-----	280	94	277	394	1.42
Violet toners, reduced, total-----	346	95	325	545	1.68
Pigment Violet 1, C.I. 45 170, PMA-----	24	3	23	22	.96
Pigment Violet 3, C.I. 42 535, PMA-----	166	49	149	188	1.26
Pigment Violet 3, C.I. 42 535, fugitive-----	100	29	93	104	1.12
All other-----	56	14	60	231	3.85
Yellow toners, reduced, total-----	573	147	533	702	1.32
Benzidine yellows: Pigment Yellow 14, C.I. 21 095-----	187	47	197	136	.69
Hansa yellows: Pigment Yellow 1, C.I. 11 680-----	206	53	169	109	.64
(Basic Yellow 2), C.I. 41 000, fugitive-----	7	1	7	7	1.00
All other-----	173	46	160	450	2.81

Product	Production	Sales		
		Quantity	Value	Unit value ¹
LAKES OR LAKED COLORS				
Total-----	1,000 pounds 3,903	1,000 pounds 2,856	1,000 dollars 3,250	Per pound \$1.14
Products for which separate statistics may not be shown ³ ----	107	80	179	2.24
Products for which separate statistics are shown below-----	3,796	2,776	3,071	1.11
Black lakes: (Natural Black 3), C.I. 75 291-----	92	90	81	.90
Blue lakes: Pigment Blue 24, C.I. 42 090-----	1,852	996	1,325	1.33
Green lakes-----	27	28	57	2.04
Orange lakes-----	518	475	201	.42

See footnotes at end of table.

TABLE 11A. --Synthetic organic chemicals: U.S. production and sales of toners and lakes, 1959--Continued

Product	Production	Sales		
		Quantity	Value	Unit value ¹
LAKES OR LAKED COLORS--Continued				
Red lakes, total-----	1,001 <i>pounds</i>	894 <i>pounds</i>	989 <i>dollars</i>	1.11 <i>Per pound</i>
Pigment Red 60, C.I. 16 105-----	192	176	252	1.43
Pigment Red 83, C.I. 58 000-----	114	75	240	3.20
(Acid Red 26), C.I. 16 150-----	593	543	237	.44
All other-----	102	100	260	2.60
Violet lakes, total-----	126	116	241	2.08
Pigment Violet 3, C.I. 58 055-----	123	113	237	2.10
All other-----	3	3	4	1.33
Yellow lakes: (Acid Yellow 23), C.I. 19 140-----	180	177	177	1.00

¹ Calculated from rounded figures.

² Includes all black toners and unspecified green and violet toners.

³ Includes all brown lakes and unspecified black, blue, and yellow lakes.

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

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. The abbreviation dcb stands for dichlorobenzene, and the abbreviation aaca, for o-acetoacetanilide.

TABLE 12.--*Synthetic organic chemicals: U.S. production and sales of selected dry, flushed, pulp, and dispersed colors, 1959*¹

Dry, flushed, pulp, and dispersed forms	Production	Sales		
		Quantity	Value	Unit value ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Pigment Blue 15, C.I. 74 160:				
Dry form-----	2,753	2,491	6,228	\$2.50
Flushed form-----	1,042	559	646	1.16
Pulp form-----	2,578	2,082	2,001	.96
Dispersed form-----	886	857	638	.74
Pigment Blue 19, C.I. 42 750A: ³				
Dry form-----	120	114	267	2.34
Flushed form-----	3,441	2,888	3,570	1.24
Pigment Blue 24, C.I. 42 090: ⁴				
Dry form-----	465	135	148	1.10
Flushed form-----	3,435	2,559	1,575	.62
Pigment Green 7, C.I. 74 260:				
Dry form-----	2,082	1,769	4,545	2.57
Flushed form-----	387	281	312	1.11
Pulp form-----	1,872	1,405	2,212	1.57
Dispersed form-----	685	633	593	.94
Pigment Red 3, C.I. 12 120:				
Dry form-----	2,069	1,304	2,166	1.66
Flushed form-----	970	653	571	.87
Pulp form-----	281	158	70	.44
Dispersed form-----	129	78	48	.62
Pigment Red 49, C.I. 15 630, barium toner: ³				
Dry form-----	2,406	2,092	2,014	.96
Flushed form-----	2,256	2,106	1,062	.50
Pigment Red 49, C.I. 15 630, calcium toner: ⁴				
Dry form-----	1,387	1,232	1,194	.97
Flushed form-----	706	687	400	.58
Dispersed form-----	12	12	16	1.33
Pigment Red 49, C.I. 15 630, sodium salt: ⁴				
Dry form-----	320	284	287	1.01
Flushed form-----	317	288	165	.57
Pigment Red 53, C.I. 15 585, barium toner: ³				
Dry form-----	1,120	919	1,065	1.16
Flushed form-----	1,075	996	691	.69
Pigment Red 90, C.I. 45 380: ⁴				
Dry form-----	61	32	55	1.72
Flushed form-----	2,557	1,342	1,125	.84
Pigment Violet 3, C.I. 42 535, fugitive: ⁴				
Dry form-----	344	331	445	1.34
Flushed form-----	549	485	390	.80
Pigment Violet 3, C.I. 42 535, permanent: ⁵				
Dry form-----	295	246	568	2.31
Flushed form-----	259	223	267	1.20
Pulp form-----	34	22	13	.59
Pigment Yellow 12, C.I. 21 090; Pigment Yellow 13, C.I. 21 100; Pigment Yellow 14, C.I. 21 095; and other benzidine yellows:				
Dry form-----	1,621	1,192	2,729	2.29
Flushed form-----	4,261	3,581	2,391	.67
Pulp form-----	330	129	79	.61
Dispersed form-----	727	721	308	.43

¹ Statistics on production and sales of the organic pigments (toners and lakes) listed in this table are given in terms of the commercial (physical) forms in which they enter commercial channels. Data on the flushed, pulp, and dispersed forms, therefore, are in terms of total weight, including pigment and vehicle (water or oil).

² Calculated from rounded figures.

³ Data on the pulp and dispersed forms were accepted in confidence and may not be published, since publication would reveal the operations of individual companies.

⁴ Data on the pulp form were accepted in confidence and may not be published, since publication would reveal the operations of individual companies.

⁵ Data on the dispersed form were accepted in confidence and may not be published, since publication would reveal the operations of individual companies.

Medicinals

In this report, medicinal chemicals are divided into three major groups: (1) Benzenoid compounds, derived principally from coal tar; (2) alicyclic and heterocyclic compounds, usually derived from vegetable products and animal tissues, but sometimes also from coal tar; and (3) acyclic compounds, usually derived from petroleum and from natural gas, or from grain by fermentation.

Statistics on the production of medicinals are in terms of 100-percent content of the medicinal itself, exclusive of all diluents or other materials used in mixing or compounding tablets, solutions, and suspensions for consumer use. Except for the 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 forms--diluted or undiluted--in bulk or in packages.

In 1959 the output of all the medicinal chemicals covered in this report amounted to 106.6 million pounds (see table 13A⁵), or 5.1 percent more than the 101.4 million pounds reported for 1958. Sales totaled 87.3 million pounds, valued at \$582.2 million, in 1959, compared with sales of 81.4 million pounds, valued at \$554.7 million, in 1958.

The output of all cyclic medicinals in 1959 amounted to 73.2 million pounds. Of this quantity, 46.2 million pounds consisted of benzenoid medicinals and 27.0 million pounds, of alicyclic and heterocyclic medicinals. Production of acyclic medicinals was 33.4 million pounds in 1959, compared with 31.4 million pounds in 1958. In terms of quantity, acetylsalicylic acid (aspirin) was the most important medicinal produced in 1959. The output in that year was 18.1 million pounds, compared with 20.8 million pounds in 1958; sales amounted to 17.2 million pounds, valued at \$9.2 million, in 1959, compared with 16.3 million pounds, valued at \$8.8 million, in 1958. Production of sulfa drugs in 1959 was 5.8 million pounds, compared with the 3.7 million pounds produced in 1958. Production of barbituric acid and derivatives totaled 819,000 pounds in 1959--slightly more than the 790,000 pounds produced in 1958. Sales of barbituric acid and derivatives totaled 583,000 pounds, valued at \$2.9 million, in 1959, compared with 513,000 pounds, valued at \$2.4 million, in 1958.

In terms of value, the antibiotics--as a group--were the most important medicinals produced in 1959. Total production of antibiotics for human and veterinary use was 2.3 million pounds in 1959, or 317,000 pounds less than the output reported for 1958. Sales totaled 2.0 million pounds, valued at \$318.2 million, in 1959, compared with 1.9 million pounds, valued at \$304.7 million, in 1958. Production of penicillin salts totaled 430 trillion international units in 1959, compared with 392 trillion international units in 1958. Sales of penicillin salts totaled 371 trillion international units, valued at \$57.3 million, in 1959, compared with 372 trillion international units, valued at \$60.3 million, in 1958. The output of dihydrostreptomycin amounted to 470,000 pounds in 1959, compared with the 561,000 pounds reported for 1958; sales totaled 492,000 pounds, valued at \$13.7 million, in 1959, compared with 465,000 pounds, valued at \$17.9 million, in 1958. The output of streptomycin totaled 281,000 pounds in 1959, compared with 179,000 pounds in 1958. Production of neomycin base amounted to 38,000 pounds in 1959; sales were 28,000 pounds, valued at \$6.0 million. Production of tetracycline was 307,000 pounds in 1959; sales were 257,000 pounds, valued at \$89.4 million--\$32.1 million more than the value of sales of penicillin salts. Total production of antibiotics for animal feed supplements, food preservation, and crop spraying in 1959 was 1.4 million pounds, compared with the 903,000 pounds reported for 1958. Sales of these products in 1959 amounted to 1.1 million pounds, valued at \$39.2 million.

Among the other important groups of medicinal products in 1959 were the vitamins. In 1959 the combined output of vitamins--as a group--was 10.9 million pounds, compared with 9.8 million pounds in 1958. Sales of vitamins totaled 7.3 million pounds, valued at \$73.7 million, in 1959, compared with 6.9 million pounds, valued at \$78.1 million, in 1958. In terms of quantity, the 1959 output of some of the more important vitamins was as follows: Niacin, 2.5 million pounds; ascorbic acid and derivatives, 4.8 million pounds; pantothenic acid and derivatives, 1.2 million pounds; thiamine derivatives, 245,000 pounds; and vitamin A (alcohol and esters), 382,000 pounds (374,250 billion U.S. P. units). In terms of value of sales, vitamin A (alcohol and esters) was the most important product in the vitamin group. Sales of this medicinal in 1959 totaled 336,000 pounds, valued at \$25.9 million. Sales of vitamin B₁₂ were 729 pounds, valued at \$13.1 million, and those of ascorbic acid and derivatives, 3.1 million pounds, valued at \$10.8 million.

In 1959, sales of all hormones totaled 42,000 pounds, valued at \$23.3 million. The output of tranquilizers in 1959 amounted to 1.4 million pounds. By far the most important tranquilizer was 2-methyl-2-n-propyl-1,3-propanediol dicarbamate, production of which totaled 1.2 million pounds; sales amounted to 1.1 million pounds, valued at \$4.1 million.

⁵ See also table 13B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 24 in appendix A, which shows imports of medicinals and pharmaceuticals during the years 1957-59.

TABLE 13A. --Synthetic organic chemicals: U.S. production and sales of medicinals, 1959

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

Chemical	Production ¹	Sales ²		
		Quantity	Value	Unit value ³
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	106,597	87,302	582,210	\$6.67
MEDICINALS, CYCLIC				
Total-----	73,180	57,526	548,234	9.53
Chemicals for which separate statistics may not be shown-----	28,217	22,961	75,303	3.28
Chemicals for which separate statistics are shown below-----	44,963	34,565	472,931	13.68
<i>Benzenoid</i>				
Total-----	46,216	36,168	42,552	1.18
Acetylsalicylic acid (Aspirin)-----	18,097	17,155	9,235	.54
Amino acids-----	1	1	22	22.00
p-Aminobenzoic acid and derivatives, total-----	428	513	1,350	2.63
Procaine hydrochloride-----	323	419	979	2.34
All other-----	105	94	371	3.95
Antihistamines-----	87	...	...	...
Bismuth subgallate-----	23	25	82	3.28
Carbasone (p-Carbamidobenzeneearsonic acid)-----	3	2	17	8.50
N, α -Dimethylphenethylamine (Desoxyephedrine) hydrochloride	...	2	19	9.50
d-N, α -Dimethylphenethylamine hydrochloride-----	...	3	40	13.33
Dyes, medicinal-----	15	17	310	18.24
α-Methylphenethylamine (Amphetamine) base and salts-----	63	...	...	...
Norephedrine (Propadrine) hydrochloride-----	58	57	608	10.67
Phenylephrine hydrochloride-----	19	20	2,104	105.20
Salicylic acid-----	6,886	6,154	2,379	.39
Salicylic acid salts, total-----	656	585	486	.83
Sodium salicylate-----	616	519	381	.73
All other-----	40	67	105	1.57
Sulfa drugs-----	5,835	...	...	...
3-o-Toloxyl-1,2-propanediol (o-Cresyl α-glyceryl ether)-----	...	78	134	1.72
Vitamin K (Menadiione) (2-Methyl-1,4-naphthoquinone)-----	15	...	...	...
All other benzenoid medicinals-----	14,030	11,555	25,766	2.33
<i>Alicyclic and Heterocyclic</i>				
Total-----	26,964	21,358	505,682	23.68
Alkaloids and related products, total-----	19	10	2,122	212.20
Homatropine methyl bromide-----	2	2	67	33.50
All other-----	17	8	2,055	256.88
Antibiotics for human or veterinary use, total-----	2,295	2,042	318,188	155.82
Bacitracin-----	7	6	1,629	271.50
Dihydrostreptomycin-----	470	492	13,721	27.89
Neomycin, base-----	38	28	5,986	213.79
Penicillin salts, total ⁴ -----	567	489	57,343	(⁵)
Potassium penicillin-----	195	160	27,807	(⁵)
Procaine penicillin G-----	306	268	14,732	(⁵)
All other-----	66	61	14,804	(⁵)
Streptomycin-----	281	240	5,388	22.45
Tetracycline-----	307	257	89,429	347.97
All other-----	625	530	144,692	273.00

See footnotes at end of table.

TABLE 13A. --Synthetic organic chemicals: U.S. production and sales of medicinals, 1959--Continued

Chemical	Production ¹	Sales ²		
		Quantity	Value	Unit value ³
MEDICINALS, CYCLIC--Continued				
<i>Alicyclic and Heterocyclic--Continued</i>				
Antibiotics for animal feed supplements, food preservation, and crop spraying, total-----	1,000 pounds 1,351	1,000 pounds 1,108	1,000 dollars 39,164	Per pound \$35.35
Bacitracin-----	62	...	...	...
Procaine penicillin G-----	...	29	615	21.21
All other-----	1,289	1,079	38,549	35.73
Antihistamines, total-----	205	123	3,436	27.93
2-[1-(p-Chlorophenyl)-3-dimethylaminopropyl]pyridine maleate (Chlorophenylpyridamine maleate)-----	14	4	335	83.75
2-[3-(Dimethylamino)-1-phenylpropyl]pyridine maleate-----	13	12	468	39.00
All other-----	178	107	2,633	24.61
Barbituric acid and derivatives, total-----	819	583	2,853	4.89
5-Allyl-5-(1-methylbutyl)barbituric acid (Secobarbital) and salt-----	...	12	116	9.67
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid (Pentobarbital)-----	...	5	29	5.80
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid, sodium salt-----	73	37	222	6.00
5-Ethyl-5-phenylbarbituric acid (Phenobarbital) (Luminal)-----	297	274	895	3.27
5-Ethyl-5-phenylbarbituric acid, sodium salt-----	7	12	58	4.83
All other-----	442	243	1,533	6.31
Bile acids and salts, total-----	238	126	1,383	10.98
Dehydrocholic acid-----	70	...	...	...
Ketocholic acid-----	19	...	...	...
All other-----	149	126	1,383	10.98
Bromocamphor, mono-----	8	7	27	3.86
Caffeine, natural and synthetic-----	1,933	1,886	3,801	2.02
Caffeine citrate-----	...	2	9	4.50
5-Chloro-7-iodo-8-quinolinol (Iodochlorohydroxyquinoline)-----	11	...	...	...
Dihydrocodeine bitartrate-----	3	3	938	312.67
5,7-Diiodo-8-quinolinol-----	21	11	36	3.27
Hormones, total-----	...	42	23,326	555.38
Hydrocortisone alcohol and acetate-----	9	...	...	...
17-Hydroxy-11-dehydrocorticosterone (Cortisone) and acetate-----	2	...	...	...
Prednisolone-----	2	1	2,411	2,411.00
Prednisone-----	1	...	...	...
All other-----	...	41	20,915	510.12
Piperazine derivatives-----	474	439	468	1.07
8-Quinolinol base-----	93	...	...	...
8-Quinolinol sulfate (Quinosol)-----	10	...	...	...
Theophylline base and derivatives, total-----	117	106	317	2.99
Theophylline ethylenediamine (Aminophylline)-----	58	...	...	...
All other-----	59	106	317	2.99
Tranquilizers (including benzenoid)-----	242	21	621	29.57
Vitamins, total-----	4,924	3,443	59,456	17.27
A (Alcohol and esters), ⁶ from all sources-----	382	336	25,935	77.19
B ₁ (Thiamine derivatives)-----	245	...	...	...
B ₂ (Riboflavin for human consumption) (100%)-----	163	154	2,037	13.23
B ₂ (Riboflavin for animal and poultry consumption) (100%)-----	267	201	2,452	12.20
B ₆ (Pyridoxine)-----	60	...	...	...
B ₁₂ , all grades ⁷ -----	1	1	13,088	13,088.00
D ₂ (Irradiated ergosterol)-----	(⁸)	(⁸)	132	469.74
D ₃ (Irradiated animal sterol) ⁹ -----	2	1	255	255.00
Folic acid-----	6	...	...	...
Niacin (Nicotinic acid) including animal feed grade-----	2,548	1,490	2,730	1.83
Niacinamide-----	1,023	671	2,143	3.19
All other-----	227	589	10,684	18.14
All other alicyclic and heterocyclic medicinals-----	14,187	11,406	49,537	4.34

See footnotes at end of table.

TABLE 13A.--Synthetic organic chemicals: U.S. production and sales of medicinals, 1959--Continued

Chemical	Production ¹	Sales ²		
		Quantity	Value	Unit value ³
MEDICINALS, ACYCLIC				
Total-----	1,000 pounds 33,417	1,000 pounds 29,776	1,000 dollars 33,976	Per pound \$1.14
Chemicals for which separate statistics may not be shown---	8,788	8,057	5,344	.66
Chemicals for which separate statistics are shown below---	24,629	21,719	28,632	1.32
Amino acids, total-----	4,879	4,445	7,123	1.60
β-Alanine-----	668	435	874	2.01
1(+)-Glutamic acid hydrochloride-----	...	69	119	1.72
1(+)-Lysine hydrochloride-----	273	226	1,160	5.13
All other-----	3,938	3,715	4,970	1.34
Betaine hydrochloride-----	...	26	32	1.23
Chloretone (tert-Trichlorobutyl alcohol)-----	19	14	28	2.00
Choline compounds, total-----	12,612	12,268	3,035	.25
Choline chloride, for animal and poultry feed and for use as an intermediate-----	12,323	12,036	2,797	.23
All other-----	289	232	238	1.03
Gluconic acid salts-----	4	...	...	...
Hexamethylenebis [trimethylammonium chloride] (Hexamethonium chloride)-----	2	...	...	...
Tranquilizers: 2-Methyl-2-n-propyl-1,3-propanediol dicarbamate-----	1,192	1,138	4,129	3.63
Vitamins, total-----	5,921	3,828	14,285	3.73
Ascorbic acid and derivatives, total-----	4,764	3,148	10,808	3.43
Ascorbic acid-----	3,946	2,447	8,218	3.36
All other-----	818	701	2,590	3.69
Pantothenic acid and derivatives, total-----	1,157	680	3,477	5.11
Pantothenic acid, dl-calcium salt-----	913	532	1,416	2.66
All other-----	244	148	2,061	13.93

¹ Production of medicinals is in bulk only. The statistics do not include the production of finished preparations, such as tablets, capsules, and ampoules, which are manufactured from bulk medicinals.

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

³ Calculated from rounded figures.

⁴ Penicillin salts in terms of international units based on 1,667 units per milligram of the penicillin G standard of the Food and Drug Administration were reported as follows:

Chemical	Production	Sales		
		Quantity	Value	Unit value
	Billion international units	Billion international units	1,000 dollars	Per billion international units
Penicillin salts, total-----	429,781	370,668	57,343	\$154.70
Potassium penicillin-----	127,995	121,741	27,807	228.41
Procaine penicillin G-----	231,384	202,567	14,732	72.73
All other-----	50,402	46,360	14,804	319.33

⁵ Commercial sales are based on international units.

⁶ Quantities reported in units have been converted to pounds by using as a factor the average units per pound of the medicinal grade as determined by the Food and Drug Administration.

Production of vitamin A alcohol and esters from all sources totaled 374,250 billion U.S.P. units; sales totaled 330,352 billion U.S.P. units.

⁷ Production of vitamin B₁₂, all grades, totaled 938 pounds; sales totaled 729 pounds.

⁸ Production of vitamin D₂ totaled 8,401 billion U.S.P. units and sales totaled 5,104 billion U.S.P. units.

⁹ Calculated at the rate of 18.14 billion units per pound, production totaled 463 pounds and sales totaled 281 pounds.

Production of vitamin D₃ totaled 36,195 billion U.S.P. units and sales totaled 13,858 billion U.S.P. units.

Calculated at the rate of 18.14 billion units per pound, production totaled 1,995 pounds and sales totaled 764 pounds.

Flavor and Perfume Materials

Flavor and perfume materials are chemicals--with desirable flavors or odors--that are used in the manufacture of food, 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 the production and sales of flavor and perfume materials in 1959 are given in table 14A.⁶

Production of flavor and perfume materials as a group totaled 50,3 million pounds in 1959--15.8 percent more than the 43.4 million pounds produced in 1958. Sales were 45.4 million pounds, valued at \$56.6 million, in 1959, compared with 39.7 million pounds, valued at \$52.2 million, in 1958.

TABLE 14A.--*Synthetic organic chemicals: U.S. production and sales of flavor and perfume materials, 1959*

[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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	50,308	45,398	56,636	\$1.25
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total-----	29,684	24,251	34,489	1.42
Materials for which separate statistics may not be shown---	9,988	7,016	12,742	1.82
Materials for which separate statistics are shown below---	19,696	17,235	21,747	1.26
<i>Benzenoid and Naphthalenoid</i>				
Total-----	14,933	13,788	17,387	1.26
4-Allylveratrole (Eugenyl methyl ether)-----	8	...	...	...
p-Anisaldehyde (p-Methoxybenzaldehyde)-----	407	413	609	1.47
Benzophenone ² -----	157	163	178	1.10
Benzyl acetate-----	1,026	905	449	.50
Benzyl alcohol ^{2 3} -----	850	857	402	.47
Benzyl benzoate-----	263	235	134	.57
Benzyl cinnamate-----	3	2	8	3.17
Benzyl propionate-----	...	8	9	1.17
Cinnamaldehyde-----	611	...	...	...
Cinnamyl alcohol-----	155	122	159	1.30
Ethyl α,β-epoxy-β-methylhydrocinnamate-----	5	6	27	4.73
Eugenol-----	233	198	341	1.72
Isobutyl phenylacetate-----	31	27	24	.89
Isobutyl salicylate-----	25	...	...	...
Isoeugenol-----	80	83	254	3.08
Isopentyl salicylate (Amyl salicylate)-----	361	344	212	.62
p-Isopropyl-α-methylhydrocinnamaldehyde (Cyclamen aldehyde)-----	129	116	402	3.48
4'-Methoxyacetophenone-----	8	6	13	2.07
Methyl anthranilate-----	171	...	...	...
α-Methylbenzyl acetate-----	16	...	...	...
α-Methylcinnamaldehyde-----	8	...	...	...
Methyl salicylate (Synthetic wintergreen oil)-----	3,442	3,333	1,852	.56
α-Pentylcinnamaldehyde (α-Amylcinnamaldehyde)-----	264	203	333	1.64
Phenethyl acetate-----	47	43	48	1.13
Phenethyl alcohol-----	1,117	1,066	1,120	1.05
Phenethyl isobutyrate-----	3	4	11	2.90
Phenethyl phenylacetate (Phenethyl α-toluolate)-----	6	5	17	3.59
4-Propenylveratrole (Isoeugenyl methyl ether)-----	40	8	34	4.18
α-(Trichloromethyl)benzyl acetate (Rosetone)-----	8	...	...	...
All other benzenoid and naphthalenoid materials-----	5,459	5,641	10,751	1.91

See footnotes at end of table.

⁶ See also table 14B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 24 in appendix A, which shows imports of flavor and perfume materials during the years 1957-59.

TABLE 14A.--Synthetic organic chemicals: U.S. production and sales of flavor and perfume materials, 1959--Continued

Material	Production	Sales		
		Quantity	Value	Unit value ¹
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued				
<i>Terpenoid, Heterocyclic, and Alicyclic</i>				
Total-----	1,000 pounds 14,751	1,000 pounds 10,463	1,000 dollars 17,102	Per pound \$1.63
Cedryl acetate-----	62	50	91	1.82
Citral (Geranial)-----	86	78	209	2.68
Citronellol-----	370	298	499	1.67
Citronellyl acetate-----	14	10	22	2.21
Citronellyl formate-----	20	19	65	3.35
Coumarin-----	671	617	1,817	2.95
Ethyl oxyhydrate-----	35	32	28	.86
Geraniol-----	361	195	304	1.56
Geranyl acetate-----	35	24	45	1.90
Hydrocoumarin (3,4-Dihydrocoumarin)-----	18	17	79	4.54
Hydroxycitronellal-----	302	250	945	3.78
Hydroxycitronellal, dimethyl acetal-----	4	4	17	4.23
Ionones, total-----	311	314	924	2.95
α-Ionone-----	26	26	95	3.71
All other-----	285	288	829	2.88
Linalool-----	151	121	378	3.11
Linalyl acetate-----	179	156	434	2.79
Menthol, synthetic, total-----	300	358	1,744	4.89
Tech-----	44	36	75	2.08
U.S.P-----	256	322	1,669	5.19
Menthone-----	...	2	11	4.63
Methylionones-----	310	311	1,196	3.84
Nerol-----	4	4	41	11.28
Piperonal (Heliotropin)-----	238	244	579	2.37
Rhodinol-----	9	8	311	37.74
Safrole-----	77	70	43	.61
Sweeteners, synthetic-----	2,992	2,538	4,027	1.59
Terpineols-----	2,943	2,703	698	.26
Terpinyl acetate-----	714	652	302	.46
Vetiveryl acetate-----	16	13	302	23.59
All other terpenoid, heterocyclic, and alicyclic materials ⁴	4,529	1,375	1,991	1.45
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
Total-----	20,624	21,147	22,147	1.05
Materials for which separate statistics may not be shown---	442	411	843	2.05
Materials for which separate statistics are shown below---	20,182	20,736	21,304	1.03
Allyl hexanoate (Allyl caproate)-----	6	6	14	2.44
Ethyl butyrate-----	187	172	113	.66
Ethyl hexanoate (Ethyl caproate)-----	3	...	...	...
Glutamic acid, monosodium salt (Monosodium glutamate)-----	19,937	20,514	21,128	1.03
4-Hydroxyundecanoic acid, γ-lactone (γ-Undecalactone)-----	5	4	20	4.73
Isopentyl butyrate (Amyl butyrate)-----	34	33	23	.71
n-Octyl isobutyrate-----	10	7	6	.77

¹ Calculated from the unrounded figures.

² Includes some of technical grade.

³ Includes some of medicinal grade.

⁴ Includes chemically modified essential oils.

The output of benzenoid and naphthalenoid flavor and perfume materials in 1959 was 14.9 million pounds--11.6 percent more than the 13.4 million pounds reported for 1958. The individual chemical in the cyclic group that was produced in the greatest volume in 1959 was methyl salicylate (synthetic wintergreen oil, 3.4 million pounds). Sales of benzenoid and naphthalenoid flavor and perfume materials as a group totaled 13.8 million pounds, valued at \$17.4 million, in 1959, compared with 12.5 million pounds, valued at \$15.9 million, in 1958.

Production of terpenoid, heterocyclic, and alicyclic flavor and perfume materials in 1959 was 14.8 million pounds--26.9 percent more than the 11.6 million pounds reported for 1958. Production of synthetic sweeteners, which include derivatives of cyclohexanesulfamic acid and saccharin, totaled 3.0 million pounds. Sales of terpenoid, heterocyclic, and alicyclic materials as a group totaled 10.5 million pounds, valued at \$17.1 million, in 1959, compared with 8.5 million pounds, valued at \$15.6 million, in 1958.

The output of acyclic flavor and perfume materials in 1959 totaled 20.6 million pounds--11.9 percent more than the 18.4 million pounds reported for 1958. By far the most important product in this group was monosodium glutamate, production of which totaled 19.9 million pounds, or over 96.0 percent (by quantity) of the acyclic group. Sales of acyclic materials totaled 21.1 million pounds, valued at \$22.1 million, in 1959, compared with 18.8 million pounds, valued at \$20.7 million, in 1958.

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 on vinyl resins are given on the basis of resin content.

Statistics on the production and sales of plastics and resins are given in table 15A⁷ according to chemical composition, and in table 16 according to broad end uses. In 1959 the total production

TABLE 15A.--*Synthetic organic chemicals: U.S. production and sales of plastics and resin materials, grouped by chemical composition, 1959*

[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.]

[Dry basis¹]

Material	Production	Sales		
		Quantity	Value	Unit value ²
Grand total-----	1,000 pounds 5,864,887	1,000 pounds 5,170,402	1,000 dollars 1,640,055	Per pound \$.32
PLASTICS AND RESIN MATERIALS, BENZENOID				
Total-----	2,646,178	2,200,013	605,881	.28
Materials for which separate statistics may not be shown ³ -----	11,130	10,741	5,523	.51
Materials for which separate statistics are shown below---	2,635,048	2,189,272	600,358	.27
Coumarone-indene and petroleum polymer resins-----	318,330	299,062	31,322	.10
Epoxy resins:				
Unmodified (condensation products of phenol and derivatives with epoxy compounds)-----	49,152	43,201	26,647	.62
Modified (with hardening agents and esterified with fatty acids)-----	7,669	2,032	1,263	.62
Phenolic and other tar-acid resins, total-----	624,793	554,589	154,244	.28
Unmodified, total-----	570,041	510,550	141,651	.28
Cresols-formaldehyde-----	7,073	4,205	1,533	.36
Cresylic acid-formaldehyde-----	8,888	2,354	693	.29
Phenol-(and substituted phenol-)formaldehyde-----	502,219	463,162	126,964	.27
Resorcinol-formaldehyde-----	4,932	4,606	2,886	.63
All other-----	46,929	36,223	9,575	.26
Modified, total-----	54,752	44,039	12,593	.29
Phenol-(and substituted phenol-)formaldehyde with modifiers (except rosin)-----	25,112	17,750	5,029	.28
Rosin and rosin esters modified with phenolic and other tar-acid resins (hard resins)-----	24,332	21,363	4,913	.23
All other-----	5,308	4,926	2,651	.54

See footnotes at end of table.

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

TABLE 15A.--Synthetic organic chemicals: U.S. production and sales of plastics and resin materials, grouped by chemical composition, 1959--Continued

[Dry basis¹]

Material	Production	Sales		
		Quantity	Value	Unit value ²
PLASTICS AND RESIN MATERIALS, BENZENOID--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Phthalic alkyd resins, total-----	472,775	211,702	68,547	\$0.32
Unmodified-----	349,222	145,749	44,496	.31
Modified-----	123,553	65,953	24,051	.36
Polyester resins ⁴ -----	180,672	169,544	61,732	.36
Polyurethane and diisocyanate resins-----	4,720	3,621	1,887	.52
Styrene resins, total-----	976,937	905,521	254,716	.28
Polystyrene-----	626,630	603,497	144,685	.24
Styrene-acrylonitrile copolymer-----	32,178	30,750	10,909	.35
Styrene-alkyd polyesters (for protective coatings only)-----	25,148	19,449	8,410	.43
Styrene-butadiene copolymer (containing 50% or more styrene), total-----	224,126	186,990	65,746	.35
Latexes-----	130,485	118,775	33,800	.28
Other-----	93,641	68,215	31,946	.47
Styrene-divinylbenzene copolymer-----	21,347	20,619	12,759	.62
All other styrene resins-----	47,508	44,216	12,207	.28
PLASTICS AND RESIN MATERIALS, NONBENZENOID				
Total-----	3,218,709	2,970,389	1,034,174	.35
Materials for which separate statistics may not be shown ⁵ ---	229,814	196,036	142,903	.73
Materials for which separate statistics are shown below----	2,988,895	2,774,353	891,271	.32
Alkyd resins, except phthalic, total-----	87,186	66,639	21,617	.32
Unmodified-----	34,369	28,926	11,978	.41
Modified, total-----	52,817	37,713	9,639	.26
Rosin and rosin esters, modified with maleic and fumaric acids only (hard resins)-----	41,687	31,748	7,264	.23
All other-----	11,130	5,965	2,375	.40
Polyamide (Nylon) resins-----	38,105	29,592	31,987	1.08
Polyethylene resins, total-----	1,194,987	1,116,248	354,873	.32
High-pressure process-----	1,079,580	1,017,280	322,605	.32
Low-pressure process-----	115,407	98,968	32,268	.33
Rosin modifications, total-----	73,523	69,077	14,137	.20
Rosin and terpene adduct resins-----	8,132	7,268	2,432	.33
Rosin and rosin esters, unmodified (ester gums), total-----	60,478	57,879	10,952	.19
Esterified with glycerol-----	26,286	25,071	4,967	.20
Esterified with other alcohols (methanol, glycols, pentaerythritol, etc.)-----	34,192	32,808	5,985	.18
All other rosin modifications-----	4,913	3,930	753	.19
Silicone resins-----	5,027	4,302	12,784	2.97
Urea and melamine resins, total-----	423,602	386,897	115,680	.30
Melamine-formaldehyde type-----	143,122	127,475	56,407	.44
Urea-formaldehyde type-----	280,480	259,422	59,273	.23
Vinyl and vinyl copolymer resins (resin content), total----	1,166,465	1,101,598	340,193	.31
Polyvinyl acetate-----	139,363	125,106	42,996	.34
Polyvinyl chloride and copolymer resins (containing 50% or more polyvinyl chloride)-----	905,323	875,528	219,214	.25
All other vinyl resins ⁶ -----	121,779	100,964	77,983	.77

¹ "Dry basis," for the purpose of this report, 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.

² Calculated from rounded figures.

Footnotes continued on p. 40.

Footnotes for table 15A--Continued

³ Includes data for aniline-formaldehyde, toluenesulfonamide, and other benzenoid plastics and resin materials not specifically classified.

⁴ Polyester resins, for the purpose of this report, include unsaturated alkyls copolymerized with monomers such as styrene, and polyallyl resins such as diallyl phthalate or allyl diglycol carbonate. Styrene-alkyd polyesters for protective coatings are included under "Styrene resins".

⁵ Includes data for acrylic and other nonbenzenoid plastics and resin materials.

⁶ Includes data for polyvinyl alcohol, butyral, and formal, and for copolymers containing less than 50% polyvinyl chloride.

TABLE 16.--Synthetic organic chemicals: U.S. production and sales of plastics and resin materials, grouped by classes and uses, 1959

[In thousands of pounds, dry basis¹]

Material	Production	Sales
Cellulose plastics, total-----	158,088	151,993
Cellulose acetate and mixed esters:		
Sheets, continuous, under 0.003 gage-----	19,482	19,025
Sheets, continuous, 0.003 gage and over-----	22,581	20,630
All other sheets, rods, and tubes (including other cellulose plastics)-----	9,052	9,906
Molding and extrusion materials (including other cellulose plastics)-----	103,993	100,463
Nitrocellulose sheets, rods, and tubes-----	2,980	1,969
Phenolic and other tar-acid resins, total-----	624,793	554,589
Molding materials-----	229,022	213,462
Bonding and adhesive resins for--		
Laminating-----	75,597	51,137
Coated and bonded abrasives-----	16,208	14,416
Friction materials-----	16,872	14,824
Thermal insulation-----	51,716	51,572
Plywood-----	61,455	50,099
All other bonding and adhesive uses-----	63,415	62,043
Protective coatings:		
Unmodified-----	25,251	20,777
Modified, except by rosin-----	4,786	2,110
Rosin esters modified by phenolic and other tar-acid resins (hard resins)-----	29,112	26,056
Resins for all other uses-----	51,359	48,093
Urea and melamine resins, total-----	423,602	386,897
Textile-treating and textile-coating resins-----	46,094	39,881
Paper-treating and paper-coating resins-----	30,381	27,702
Bonding and adhesive resins for--		
Laminating-----	36,382	29,651
Plywood-----	106,468	104,290
All other bonding and adhesive uses-----	27,663	23,365
Protective-coating resins, straight and modified-----	38,566	26,965
Resins for all other uses, including molding-----	138,048	135,043
Styrene resins, total-----	976,937	905,521
Molding materials:		
Straight polystyrene-----	319,200	285,677
All other-----	348,589	310,246
Protective-coating resins, straight and modified ² -----	81,642	71,050
Textile and paper treating and coating resins-----	63,155	48,011
Resins for all other uses-----	164,351	190,537
Vinyl and vinyl copolymer resins (resin content), total-----	1,166,465	1,101,598
Polyvinyl chloride and copolymer resins (containing 50% or more polyvinyl chloride) for--		
Film (under 0.010 gage)-----	...	88,904
Sheeting (0.010 gage and over)-----	...	130,178
Molding and extrusion-----	...	305,947
Textile and paper treating and coating-----	...	68,449
Flooring-----	...	153,007
Protective coatings-----	...	31,367
All other uses-----	...	96,506
All other vinyl resins for--		
Adhesives-----	...	59,495
Protective coatings-----	...	25,275
All other uses-----	...	142,470

See footnotes at end of table.

TABLE 16. --*Synthetic organic chemicals: U.S. production and sales of plastics and resin materials, grouped by classes and uses, 1959--Continued*[In thousands of pounds, dry basis¹]

Material	Production	Sales
Alkyd resins, total-----	559,961	278,341
For protective coatings:		
Phthalic anhydride types:		
Unmodified-----	348,121	144,833
Modified-----	120,630	63,742
Polybasic acid types:		
Unmodified-----	15,224	10,101
Modified (except by rosin)-----	10,933	5,862
Rosin esters modified with maleic and fumaric acids only (hard resins)-----	40,099	29,973
For all other uses-----	24,954	23,830
Rosin esters:		
Unmodified (ester gums) for protective coatings-----	25,653	23,847
All other modifications for protective coatings and other uses-----	47,870	45,230
Coumarone-indene and petroleum polymer resins-----	318,330	299,062
Polyester resins, total-----	180,672	169,544
For reinforced plastics-----	129,472	123,297
For all other uses-----	51,200	46,247
Polyethylene resins, total-----	1,194,987	1,116,248
For film and sheeting-----	...	344,353
Molding materials-----	...	216,479
Extrusion materials-----	...	155,049
For all other uses-----	...	400,367
Epoxy resins, total-----	56,821	45,233
For protective coatings-----	...	20,672
For all other uses-----	...	24,561
Miscellaneous plastics and resin materials ³ -----	287,159	242,660

¹ "Dry basis," for the purpose of this report, is defined as the total weight of the material, including that of resin, plasticizers, fillers, extenders, stabilizers, colors, and solvents, and excluding that of water, solvents, and other liquid diluents.

² Includes data for styrene-alkyd polyester resins.

³ Includes data for acrylic, polyamide, toluenesulfonamide, and other plastics and resin materials.

Note.--The figures in the above table are based on the Tariff Commission's monthly reports on the production and sales of synthetic plastics and resin materials. While the group totals are in substantial agreement with those given in table 15A, they are partially estimated, and may not be correlated exactly with those given in that table. The data given in the above table are more nearly complete than those given in the Tariff Commission's release for January 1960, which gave a summation of the data reported by months for 1959. Changes in classification and an increase in coverage on some products result in some differences between the detail figures given in the above table and those given in the January 1960 release.

of all synthetic plastics and resin materials (except cellulose) amounted to 5,865 million pounds, or 29.8 percent more than the 4,518 million pounds reported for 1958. Sales amounted to 5,170 million pounds, valued at \$1,640 million, in 1959, compared with 4,057 million pounds, valued at \$1,275 million, in 1958.

Total production of benzenoid plastics and resins was 2,646 million pounds in 1959--25.8 percent more than the 2,103 million pounds reported for 1958. Sales in 1959 amounted to 2,200 million pounds, valued at \$606 million. Of the benzenoid group, styrene resins were produced in the largest volume, as in previous years. The output of styrene resins in 1959 was 977 million pounds; sales totaled 906 million pounds, valued at \$255 million. Second in volume of output in the benzenoid group in 1959 were the phenolic and other tar-acid resins. Production of these resins in 1959 was 625 million pounds--28.1 percent more than the 488 million pounds reported produced in 1958. Sales amounted to 555 million pounds, valued at \$154 million, compared with 440 million pounds, valued at \$117 million, in 1958. The phthalic alkyd resins, used principally in the manufacture of protective coatings, were third in volume of production in the benzenoid group; production in 1959 amounted to 473 million pounds. The output of epoxy resins in 1959 was 57 million pounds; that of polyester resins was 181 million pounds.

Production of nonbenzenoid plastics and resins in 1959 amounted to 3,219 million pounds, compared with the 2,415 million pounds reported for 1958. Sales of these resins in 1959 amounted to 2,970 million pounds, valued at \$1,034 million, compared with 2,289 million pounds, valued at \$806 million, in 1958. Of the nonbenzenoid group, polyethylene resins were produced in the largest volume in 1959, exceeding the output of vinyl resins for the first time. The output of polyethylene

resins amounted to 1,195 million pounds in 1959, compared with 865 million pounds in 1958. Sales of polyethylene resins in 1959 totaled 1,116 million pounds, valued at \$355 million, compared with 845 million pounds, valued at \$270 million, in 1958. In this report, statistics are given for production and sales of polyethylene resins produced by both the high-pressure and the low-pressure processes. The output of vinyl resins in 1959, which ranked next to that of polyethylene resins, amounted to 1,166 million pounds, compared with 869 million pounds in 1958. Sales of vinyl resins in 1959 totaled 1,102 million pounds, valued at \$340 million, compared with 829 million pounds, valued at \$266 million, in 1958.

The output of urea and melamine resins in 1959 was 424 million pounds--about 21 percent more than the 349 million pounds produced in 1958. Sales of these resins amounted to 387 million pounds, valued at \$116 million, in 1959, compared with 326 million pounds, valued at \$97 million, in 1958. Other important resins in the nonbenzenoid group are the acrylic, polyamide, silicone, and nonphthalic alkyd resins.

The statistics shown in table 16 on the production and sales of plastics and resins, by uses, were compiled principally from the Tariff Commission's monthly surveys on production and sales of synthetic plastics and resin materials. The largest single use reported for plastic materials in 1959--as in previous years--was for the molding and extrusion of finished and semi-finished articles. Other important uses for which statistics are shown are for adhesives, treatment of textiles and paper, protective coatings, and bonding materials.

Production of cellulose plastics as a group amounted to 158 million pounds in 1959--about 12 percent more than in 1958. Sales in 1959 were 152 million pounds, compared with 136 million pounds in 1958.

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 the production and sales of rubber-processing chemicals in 1959 are given in table 17A.⁸

Production of rubber-processing chemicals as a group in 1959 amounted to 210 million pounds, or 24.4 percent more than the 169 million pounds reported for 1958. The larger total output of

TABLE 17A.--Synthetic organic chemicals: U.S. production and sales of rubber-processing chemicals, 1959

[Listed below are all rubber-processing chemicals for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 17B 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 ¹
Grand total-----	1,000 pounds 210,214	1,000 pounds 159,002	1,000 dollars 101,878	Per pound \$.64
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total-----	177,722	134,329	85,815	.64
Accelerators, total-----	70,862	46,330	28,220	.61
Aldehyde-amines-----	2,138	1,593	1,365	.86
Dithiocarbamic acid derivatives-----	263	231	405	1.75
Thiazole derivatives, total-----	58,789	35,655	19,655	.55
N-Cyclohexyl-2-benzothiazolesulfenamide-----	6,422	5,748	4,001	.70
2,2'-Dithiobis(benzothiazole)-----	19,479	11,612	5,744	.49
2-Mercaptobenzothiazole-----	6,872	4,068	1,692	.42
All other ² -----	26,016	14,227	8,257	.58
All other accelerators-----	9,672	8,851	6,758	.76
Antioxidants, amino and hydroxy compounds, total ³ -----	58,892	44,110	32,224	.73
Amino compounds, total-----	41,674	34,434	23,401	.68
N,N'-Diphenyl-p-phenylenediamine-----	2,861	2,343	2,099	.90
All other-----	38,813	32,091	21,302	.66

See footnotes at end of table.

⁸ See also table 17B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 17A. --Synthetic organic chemicals: U.S. production and sales of rubber-processing chemicals, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued				
Antioxidants, amino and hydroxy compounds--Continued				
Hydroxy compounds, total-----	17,218	9,676	8,823	\$0.91
Phenol, alkylated-----	5,977	2,382	1,379	.58
All other-----	11,241	7,294	7,444	1.02
Peptizers-----	4,477	4,145	3,600	.87
All other cyclic rubber-processing chemicals ⁴ -----	43,491	39,744	21,771	.55
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total-----	32,492	24,673	16,063	.65
Accelerators, total-----	18,558	11,874	9,811	.83
Dithiocarbamic acid derivatives, total ² -----	11,011	6,605	4,973	.75
Dibutylthiocarbamic acid, zinc salt-----	1,415	1,182	1,189	1.01
Diethyldithiocarbamic acid, zinc salt-----	1,552	1,066	959	.90
Dimethyldithiocarbamic acid, potassium salt-----	388	...	...	...
Dimethyldithiocarbamic acid, sodium salt-----	3,891	2,525	1,010	.40
Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide-----	...	919	329	.36
All other-----	3,765	913	1,486	1.63
Thiurams, total ⁶ -----	7,276	5,164	4,758	.92
Bis(dimethylthiocarbamoyl)disulfide-----	5,538	3,640	3,120	.86
All other-----	1,738	1,524	1,638	1.07
All other accelerators-----	271	105	80	.76
Blowing agents-----	394	339	565	1.67
Peptizers, modifiers, and conditioning and lubricating agents, total-----	13,540	12,460	5,687	.46
Dodecyl mercaptans-----	10,148	9,262	4,448	.48
All other-----	3,392	3,198	1,239	.39

¹ Calculated from rounded figures.

² Includes small quantities produced and sold for uses other than rubber processing.

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

⁴ Includes aldehyde and acetone amines, inhibitors, modifiers, stabilizers, blowing agents, and tackifiers.

⁵ Data on dithiocarbamates included in this table are for material used chiefly in the processing of natural and synthetic rubbers. Data on dithiocarbamates which are used as fungicides are reported in the section "Pesticides and Other Organic Agricultural Chemicals."

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

rubber-processing chemicals in 1959 is attributable principally to increased production of cyclic accelerators and antioxidants. Sales of rubber-processing chemicals in 1959 amounted to 159 million pounds, valued at \$102 million, compared with 123 million pounds, valued at \$80 million, in 1958.

The output of cyclic rubber-processing chemicals in 1959 amounted to 178 million pounds, or 23.2 percent more than the 144 million pounds reported for 1958. Sales were 134 million pounds, valued at \$86 million, in 1959, compared with 103 million pounds, valued at \$67 million, in 1958. Of the total output of cyclic rubber-processing chemicals in 1959, accelerators accounted for 39.9 percent and antioxidants for 33.1 percent. Production of antioxidants, which amounted to 58.9 million pounds in 1959, included 41.7 million pounds of amino compounds and 17.2 million pounds of hydroxy compounds. In 1958 the output of amino antioxidants amounted to 32.6 million pounds and that of hydroxy antioxidants, to 11.9 million pounds. Sales of amino antioxidants in 1959 were 34.4 million pounds, valued at \$23.4 million; sales of hydroxy antioxidants were 9.7 million pounds, valued at \$8.8 million.

Production of acyclic rubber-processing chemicals in 1959 amounted to 32.5 million pounds, compared with the 24.7 million pounds reported for 1958. Sales in 1959 totaled 24.7 million pounds, valued at \$16.1 million, compared with 19.5 million pounds, valued at \$12.6 million, in 1958. Accelerators, principally dithiocarbamic acid derivatives and tetramethylthiuram sulfides, accounted for about 57.1 percent of the output of acyclic rubber-processing chemicals in 1959. Peptizers and modifiers--chiefly dodecyl mercaptans, together with lubricating and conditioning agents--accounted for approximately 41.7 percent of the output in the acyclic group.

Elastomers (Synthetic Rubbers)

The synthetic rubber industry in the United States developed largely as the result of shortages of natural rubber during World War II. During the war several types of elastomers were developed and produced on a large scale. The most important of these was the styrene-butadiene copolymer, or S-type elastomer, a general-purpose material used in the manufacture of automobile tires and other rubber goods. Other types of elastomers, which are more specialized as to uses, include the nitrile type, or N-type; neoprene; polyalkalene sulfide; and silicone elastomers.

The total output of all types of elastomers in 1959 amounted to 2,825 million pounds--representing an increase of 28.3 percent over the 2,202 million pounds reported for 1958. Sales of all types of elastomers in 1959 amounted to 2,601 million pounds, valued at \$693 million, compared with 2,008 million pounds, valued at \$544 million, in 1958. Statistics on the production and sales of elastomers are given in table 18A.⁹

Production in 1959 of cyclic elastomers, which consisted principally of the polybutadiene-styrene type, or S-type, amounted to 2,213 million pounds, compared with 1,753 million pounds

TABLE 18A.--Synthetic organic chemicals: U.S. production and sales of elastomers (synthetic rubbers), 1959¹

[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 18B 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 ²
Grand total-----	1,000 pounds ³ 2,825,339	1,000 pounds ³ 2,600,629	1,000 dollars 693,139	Per pound \$0.27
ELASTOMERS, CYCLIC				
Total-----	2,212,757	2,006,179	463,117	.23
Polybutadiene-styrene type (S-type)-----	2,210,380	2,004,000	460,836	.23
Polyurethane type-----	2,377	2,179	2,281	1.05
ELASTOMERS, ACYCLIC				
Total-----	612,582	594,450	230,022	.39
Polybutadiene-acrylonitrile type (N-type)-----	96,699	79,494	38,618	.49
Polychloroprene type (Neoprene)-----	279,586	...	...	...
Polyisobutylene-isoprene type (Butyl)-----	181,458	...	...	...
Silicone elastomers-----	5,215	4,828	19,008	3.94
All other acyclic elastomers ⁴ -----	49,624	510,128	172,396	.34

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

² Calculated from rounded figures.

³ Elastomer-content basis.

⁴ Includes data for the production and sales of polyalkalene sulfide, polybutadiene, and polyisobutylene elastomers; for natural rubber modifications; and for sales of neoprene and butyl elastomers.

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

⁹ See also table 18B, pt. III, which lists these products alphabetically and identifies the manufacturers.

in 1958. Sales of cyclic elastomers in 1959 were 2,006 million pounds, valued at \$463 million, compared with 1,554 million pounds, valued at \$362 million, in 1958. Production of polyurethane-type elastomers, shown separately for the first time in this report, amounted to 2.4 million pounds in 1959.

The output in 1959 of acyclic elastomers, which consisted of the special-purpose types mentioned above, amounted to 613 million pounds, about 36 percent more than the 449 million pounds produced in 1958. Sales of acyclic elastomers in 1959 were 594 million pounds, valued at \$230 million, compared with 454 million pounds, valued at \$182 million, in 1958. Production of silicone elastomers, shown separately for the first time in this report, amounted to 5.2 million pounds in 1959.

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 19A.¹⁰

TABLE 19A. --Synthetic organic chemicals: U.S. production and sales of plasticizers, 1959

[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 19B 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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	538,834	476,429	142,071	\$0.30
PLASTICIZERS, CYCLIC				
Total-----	403,114	361,742	98,306	.27
Chemicals for which separate statistics may not be shown ² -----	46,372	45,568	15,320	.34
Chemicals for which separate statistics are shown below----	356,742	316,174	82,986	.26
Phosphoric acid esters:				
Cresyl diphenyl phosphate ³ -----	10,525	9,509	2,644	.28
Tricresyl phosphate ³ -----	31,375	30,790	9,361	.30
Triphenyl phosphate-----	8,427	...	...	...
Phthalic anhydride esters, total-----	306,415	275,875	70,981	.26
Dibutyl phthalate-----	15,130	11,652	3,143	.27
Dicyclohexyl phthalate-----	6,683	3,461	1,449	.22
Didecanoyl phthalate (Dicapryl phthalate)-----	...	9,604	2,399	.25
Diethyl phthalate-----	16,128	10,615	2,492	.23
Diisodecyl phthalate-----	28,777	26,126	6,718	.26
Di(2-methoxyethyl) phthalate-----	2,991	2,805	960	.34
Dimethyl phthalate-----	3,318	3,582	850	.24
Dioctyl phthalates, total-----	152,702	132,215	32,757	.25
Di(2-ethylhexyl) phthalate-----	106,575	88,703	22,069	.25
Diiso-octyl and mixed octyl phthalates-----	46,127	43,512	10,688	.25
Octyl decyl phthalates, total-----	20,466	21,015	5,332	.25
Iso-octyl isodecyl phthalate-----	4,722	5,783	1,368	.24
n-Octyl n-decyl phthalate-----	10,291	10,136	2,705	.27
All other-----	5,453	5,096	1,259	.25
All other phthalic anhydride esters-----	60,220	54,800	14,881	.27
PLASTICIZERS, ACYCLIC				
Total-----	135,720	114,687	43,765	.38
Chemicals for which separate statistics may not be shown ⁴ -----	67,284	61,037	22,411	.37
Chemicals for which separate statistics are shown below----	68,436	53,650	21,354	.40
Adipic acid esters, total-----	14,035	11,274	4,736	.42
Di(2-ethylhexyl) adipate-----	1,850	1,826	724	.40

See footnotes at end of table.

TABLE 19A.--Synthetic organic chemicals: U.S. production and sales of plasticizers, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
PLASTICIZERS, ACYCLIC--Continued				
Adipic acid esters--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Diisodecyl adipate-----	2,989	3,055	1,209	\$0.40
Dioctyl adipate-----	3,561	1,952	742	.38
Octyl decyl adipate-----	1,770	1,506	569	.38
Complex adipic acid polyesters-----	3,068	2,310	1,181	.51
All other-----	797	625	311	.50
Azelaic acid esters, total-----	8,078	6,744	3,060	.45
Di(2-ethylhexyl) azelate-----	7,091	6,539	2,954	.45
All other-----	987	205	106	.52
Glycerol monoricinoleate-----	430	436	152	.35
Oleic acid esters, total-----	7,309	5,018	1,402	.28
Butyl oleate-----	2,101	686	154	.22
Methyl oleate-----	948	...	...	...
All other-----	4,260	4,332	1,248	.29
Palmitic acid esters-----	2,904	889	232	.26
Phosphoric acid esters-----	8,231	7,206	2,987	.41
Sebacic acid esters, total-----	9,969	6,593	3,908	.59
Dibutyl sebacate-----	3,993	1,251	807	.64
All other-----	5,976	5,342	3,101	.58
Stearic acid esters, total-----	14,792	12,949	3,966	.31
n-Butyl stearate-----	4,118	3,444	810	.24
All other-----	10,674	9,505	3,156	.33
Triethylene glycol di(caprylate-caprate)-----	2,688	2,541	911	.36

¹Calculated from rounded figures.

²Includes data for synthetic camphor, toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

³Includes material produced for use as motor-fuel additive.

⁴Includes data for citric and acetylcitric, tartaric, and ricinoleic acid esters; and for butyl myristate, glycerol and glycol esters of certain fatty acids, glycerol tripropionate, complex polymeric materials, epoxydized soya oil, and other acyclic plasticizers.

The total domestic output of all types of plasticizers in 1959 amounted to 539 million pounds--an all-time high--compared with the 418 million pounds produced in 1958. Part of the larger production in 1959 is accounted for by the output of companies that did not report in 1958. Sales of plasticizers in 1959 amounted to 477 million pounds, valued at \$142 million, compared with 356 million pounds, valued at \$111 million, in 1958.

Production of cyclic plasticizers in 1959 amounted to 403 million pounds, compared with the 312 million pounds reported for 1958; a part of the larger output in 1959 is accounted for by more complete statistical coverage. Sales of cyclic plasticizers in 1959 were 362 million pounds, valued at \$98 million, compared with 265 million pounds, valued at \$76 million, in 1958. The principal types of plasticizers included in the cyclic group are the esters of phthalic anhydride and phosphoric acid, and certain complex polymeric-type materials.

The output of acyclic plasticizers in 1959 amounted to 136 million pounds, compared with 106 million pounds in 1958. Sales of acyclic plasticizers in 1959 were 115 million pounds, valued at \$44 million, compared with 91 million pounds, valued at \$35 million, in 1958. The most important products included in this class are the esters of adipic, azelaic, oleic, phosphoric, 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. Soap, waxes, and plasticizers are not included. The data are reported in terms of 100-percent active material, and thus exclude all inorganic salts, water, and diluents. Active material is defined as the organic ingredient that provides the primary surface-active properties. For example, sodium alkyl aryl sulfonate activity is based on the content of the sodium salt, and potassium alkyl aryl sulfonate activity, on the content of the potassium salt.

Originally developed as soap substitutes for the textile industry, surface-active agents have proved valuable in many other applications because of their varied and specific properties. About 60 percent of the total output of surface-active agents is now consumed in the form of packaged household and industrial detergents. The remainder of the surface-active agents, used as wetting, dispersing, penetrating, and emulsifying agents, find many applications in the processing of textiles and leather, in ore flotation and in oil-drilling operations, and in the manufacture of paints, agricultural sprays, lubricants, cosmetics, foods, and many other products.

Statistics on production and sales of surface-active agents in 1959 are given in table 20A.¹¹ Production of surface-active agents as a group totaled 1,504 million pounds in 1959, or 11.0 percent more than the 1,355 million pounds reported for 1958. Sales were 1,372 million pounds, valued at \$271 million, in 1959, compared with 1,202 million pounds, valued at \$235 million, in 1958.

In 1959 the production of anionic surface-active agents (sulfated and sulfonated cyclic and acyclic compounds, phosphorus-containing acyclic compounds, acyclic salts of fatty acids, and certain acyclic nonsulfonated nitrogen-containing compounds) amounted to 1,068 million pounds -- 71.0 percent of the total output of surface-active agents in 1959, and 89 million pounds more than the output reported for 1958. Sales in 1959 totaled 1,024 million pounds, valued at \$167 million, compared with 901 million pounds, valued at \$148 million, in 1958. In volume of production in 1959, the principal items in the anionic group were the alkyl benzenoid type of surface-active agents (531 million pounds) and the sulfated and sulfonated acids, alcohols, and esters (203 million pounds).

TABLE 20A.--Synthetic organic chemicals: U.S. production and sales of surface-active agents, 1959¹

[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 20B 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	Sales		
		Quantity	Value	Unit value ²
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,504,059	1,372,177	271,122	\$0.20
Amphoteric and cationic-----	36,075	34,193	17,777	.52
Anionic-----	1,067,560	1,023,747	166,726	.16
Nonionic-----	400,424	314,237	86,619	.28
SURFACE-ACTIVE AGENTS, CYCLIC				
Total-----	936,063	895,229	139,348	.16
Esters and ethers, nonsulfonated (nonionic), total ³ -----	128,682	110,189	28,231	.26
Nonylphenoxy polyethoxyethanol-----	71,967	58,669	13,056	.22
All other-----	56,715	51,520	15,175	.29
Nitrogen-containing surface-active agents, nonsulfonated (cationic and amphoteric), total ⁴ -----	11,289	10,899	6,809	.62
Benzylododecyltrimethylammonium chloride-----	2,197	2,135	1,624	.76
All other-----	9,092	8,764	5,185	.59
Sulfated and sulfonated cyclic surface-active agents (anionic), total-----	796,092	774,141	104,308	.13
Alkyl benzenoid compounds, sulfated and sulfonated, total	531,239	526,784	84,329	.16
Dodecylbenzenesulfonic acid-----	1,825	1,854	448	.24
Dodecylbenzenesulfonic acid-----	54,486	51,075	11,951	.23
Dodecylbenzenesulfonic acid, calcium salt-----	2,272	...	...	...
Dodecylbenzenesulfonic acid, isopropylammonium salt-----	2,372	2,173	694	.32
Dodecylbenzenesulfonic acid, sodium salt ⁵ -----	462,120	461,905	68,087	.15
Dodecylbenzenesulfonic acid, triethanolamine salt-----	2,354	2,268	685	.30
All other-----	5,810	7,509	2,464	.33

See footnotes at end of table.

¹¹See also table 20B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 20A.--Synthetic organic chemicals: U.S. production and sales of surface-active agents, 1959¹--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ²
SURFACE-ACTIVE AGENTS, CYCLIC--Continued				
Sulfated and sulfonated cyclic surface-active agents (anionic)--Continued				
Lignin derivatives, sulfonated, total-----	206,543	195,558	9,409	\$0.05
Lignosulfonic acid, calcium salt-----	173,637	163,206	7,384	.05
All other-----	32,906	32,352	2,025	.06
Naphthalene derivatives, sulfonated, total-----	4,435	3,497	1,467	.42
Butylnaphthalenesulfonic acid, mono and di-----	1,524	1,250	653	.52
Di-isopropylnaphthalenesulfonic acid-----	425	339	128	.38
Isopropylnaphthalenesulfonic acid, mono-----	457	307	149	.49
All other-----	2,029	1,601	537	.34
All other sulfated and sulfonated surface-active agents, total ⁶ -----	53,875	48,302	9,103	.19
Petroleum sulfonate, water-soluble type, sodium salt ⁷ -----	1,106	...	...	...
Toluene sulfonic acid, sodium salt-----	8,989	8,995	891	.10
Xylene sulfonic acid, sodium salt-----	16,248	15,900	1,519	.10
All other-----	27,532	23,407	6,693	.29
SURFACE-ACTIVE AGENTS, ACYCLIC				
Total-----	567,996	476,948	131,774	.28
Esters and ethers, nonsulfonated (nonionic), total ⁸ -----				
Diethylene glycol monolaurate-----	687	652	205	.31
Diethylene glycol mono-oleate-----	509	160	48	.30
Diethylene glycol monostearate-----	1,938	1,047	357	.34
Ethylene glycol monostearate-----	437	434	162	.37
Glycerol mono-oleate-----	1,271	919	281	.31
Glycerol monostearate-----	24,589	22,018	5,421	.25
Methoxypolyethoxyethyl coconut oil ester-----	72	72	30	.42
Polyethoxyethyl castor oil ether-----	1,978	...	...	...
Polyethoxyethyl dilaurate-----	472	380	147	.39
Polyethoxyethyl dioleate-----	1,117	498	180	.36
Polyethoxyethyl distearate-----	392	390	147	.38
Polyethoxyethyl monolaurate-----	2,353	1,951	841	.43
Polyethoxyethyl mono-oleate-----	2,755	1,655	657	.40
Polyethoxyethyl monostearate-----	3,229	2,561	1,025	.40
Polyethoxyethyl oleyl ether-----	1,749	1,736	1,001	.58
Polyethoxyethyl tridecyl ether-----	6,244	6,099	1,763	.29
1,2-Propanediol monolaurate-----	314	315	135	.43
1,2-Propanediol monostearate-----	1,662	1,670	569	.34
All other-----	136,558	82,661	20,266	.25
Nitrogen-containing surface-active agents, nonsulfonated (amphoteric, anionic, cationic, and nonionic), total---				
N-(Aminoethyl)-N-(hydroxyethyl)octadecanamide (Stearamide of aminocethylethanolamine)-----	2,087	2,039	1,439	.71
N-(Aminoethyl)-N-(hydroxyethyl)oleamide-----	...	288	79	.27
N,N-Bis(2-hydroxyethyl)dodecanamide-----	4,009	3,346	1,582	.47
N,N-Bis(2-hydroxyethyl)octadecanamide-----	1,260	1,056	411	.39
N,N-Bis(2-hydroxyethyl)oleamide-----	722	717	271	.38
Coconut oil amide of bis(diethanolamine)-----	5,845	4,015	1,377	.34
Coconut oil amide of mono(diethanolamine)-----	16,363	16,233	6,204	.38
Coconut oil amide of diethanolamine, neither bis nor mono-----	4,597	4,413	1,315	.30
Triethanolamine oleate-----	154	137	49	.36
All other ⁹ -----	76,420	73,094	29,431	.40
Phosphorus-containing surface-active agents, nonsulfonated (anionic)-----				
1,976	1,489	645	.43	
Salts of fatty acids, nonsulfonated (anionic), total-----				
12,761	12,605	2,562	.20	
Coconut oil, potassium salt-----	65	56	22	.39
Potassium oleate-----	457	345	53	.15
Potassium tallate-----	3,637	3,611	652	.18

See footnotes at end of table.

TABLE 20A. -- Synthetic organic chemicals: U.S. production and sales of surface-active agents, 1959¹--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ²
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued				
Salts of fatty acids, nonsulfonated (anionic)--Continued				
Sodium stearate-----	1,683	1,688	834	\$0.49
Tallow, sodium salt-----	2,977	2,971	324	.11
All other-----	3,942	3,934	677	.17
Sulfated and sulfonated acyclic surface-active agents (anionic), total-----				
Acids, alcohols, and esters, sulfated and sulfonated, total-----	253,476	232,298	53,174	.23
Oleic acid, sulfonated (Sulfonated red oil)-----	203,384	196,165	43,098	.22
Decyl sulfate-----	3,305	1,784	729	.41
Di(2-ethylhexyl) sulfosuccinate-----	37	37	35	.95
Dodecyl sulfate, ammonium salt-----	2,210	2,051	1,110	.54
Dodecyl sulfate, diethanolamine salt-----	537	520	271	.52
Dodecyl sulfate, sodium salt-----	779	605	477	.79
Dodecyl sulfate, triethanolamine salt-----	16,291	11,557	6,152	.53
Isopropyl sulfo-oleate-----	4,780	4,537	1,274	.28
n-Propyl sulfo-oleate-----	949	880	287	.33
All other-----	1,299	968	226	.23
Nitrogen-containing surface-active agents, sulfated and sulfonated, total-----	173,197	173,226	32,537	.19
Coconut oil amide of monoethanolamine, sulfated, potassium salt-----	9,803	10,717	4,704	.44
N-Methyl-N-oleoyltaurine-----	116	111	89	.80
All other-----	3,001	...	...	...
Oils, fats, and waxes, sulfated and sulfonated, total---	6,686	10,606	4,615	.44
Animal fats and oils, sulfated and sulfonated:	40,289	25,416	5,372	.21
Neat's-foot oil, sulfonated-----	1,363	832	141	.17
Tallow, sulfonated-----	8,776	6,876	858	.12
Fish and marine-animal oils, sulfated and sulfonated:				
Cod oil, sulfonated-----	2,657	1,842	248	.13
Sperm oil, sulfonated-----	5,448	2,600	492	.19
Tall oil, sulfonated-----	355	329	94	.29
Vegetable oils, sulfated and sulfonated:				
Castor oil, sulfonated-----	8,606	4,257	1,135	.27
Coconut oil, sulfonated-----	744	400	107	.27
Peanut oil, sulfonated-----	1,543	1,481	353	.24
Rice-bran oil, sulfonated-----	488	105	27	.26
Soybean oil, sulfonated-----	224	203	76	.37
All other oils, fats, and waxes, sulfated and sulfonated ¹⁰ -----	10,085	6,491	1,841	.28

¹ Data are given in terms of bulk surface-active agents, that is, in terms of 100-percent content of surface-active agents, exclusive of all inorganic salts, water, or other ingredients.

² Calculated from rounded figures.

³ Includes polyhydric alcohol and phenyl ethers and esters.

⁴ Includes quaternary ammonium compounds.

⁵ Includes tridecylbenzenesulfonic acid, sodium salt.

⁶ Includes sulfated and sulfonated phenyl ethers and substituted biphenyls.

⁷ Oil-soluble-type petroleum sulfonates used chiefly as lubricating-oil additives were transferred to miscellaneous cyclic chemicals in 1956.

⁸ Includes certain lauric, oleic, and stearic acid esters reported as plasticizers prior to 1953.

⁹ Includes amine salts of fatty acids, esters of hydroxyamines, fatty acid amines, quaternary ammonium compounds, salts of nitrilo acids, and fatty acid derivatives of guanidine, glycine, polypeptides, and others.

¹⁰ Includes sodium salt of aliphatic petroleum sulfonate, and sulfonated animal, fish, and vegetable oils.

Production of amphoteric and cationic surface-active agents (all cyclic and certain acyclic nonsulfonated nitrogen-containing compounds) in 1959 was 36 million pounds; sales totaled 34 million pounds, valued at \$18 million.

In 1959 the output of all esters and ethers and those acyclic nonsulfonated nitrogen-containing compounds generally considered to be nonionic materials totaled 400 million pounds. Sales in 1959 totaled 314 million pounds, valued at \$87 million.

Pesticides and Other Organic Agricultural Chemicals

Pesticides (fungicides, herbicides, insecticides, and rodenticides) and other organic agricultural chemicals, such as plant hormones, seed disinfectants, soil conditioners, and soil fumigants, are covered in this section of the report. 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 1959 are given in table 21A.¹²

In 1959, production of all pesticides and other organic agricultural chemicals amounted to 585 million pounds, or 8.5 percent more than the 539 million pounds reported for 1958. Sales amounted to 503 million pounds, valued at \$225 million, in 1959, compared with 467 million pounds, valued at \$196 million, in 1958.

TABLE 21A. -- *Synthetic organic chemicals: U.S. production and sales of pesticides and other organic agricultural chemicals, 1959*

[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 21B 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 ¹
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	585,446	502,852	225,469	\$0.45
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC				
Total-----	468,833	409,580	172,492	.42
Fungicides, total-----	81,016	69,560	23,294	.33
Mercury fungicides, total-----	765	654	1,798	2.75
Phenylmercury oleate-----	407	374	503	1.34
All other-----	358	280	1,295	4.62
Naphthenic acid, copper salt-----	1,887	1,788	588	.33
Pentachlorophenol-----	38,814	30,848	5,198	.17
2,4,5-Trichlorophenol-----	5,152	...	...	...
All other-----	34,398	36,270	15,710	.43
Herbicides, total-----	82,195	46,188	38,672	.84
1-Naphthalenesacetic acid and derivatives-----	40	40	230	5.75
Phenoxyacetic acid derivatives:				
(2,4-Dichlorophenoxy)acetic acid (2,4-D)-----	29,282	15,961	5,750	.36
(2,4-Dichlorophenoxy)acetic acid, dimethylamine salt-----	2,749	2,473	1,401	.57
(2,4-Dichlorophenoxy)acetic acid esters, total-----	24,672	13,114	6,087	.46
(2,4-Dichlorophenoxy)acetic acid, n-butyl ester-----	7,895	5,412	2,596	.48
(2,4-Dichlorophenoxy)acetic acid, iso-octyl ester-----	2,934	1,521	652	.43
(2,4-Dichlorophenoxy)acetic acid, isopropyl ester-----	5,059	2,826	1,193	.42
All other-----	8,784	3,355	1,646	.49
(2,4,5-Trichlorophenoxy)acetic acid (2,4,5-T)-----	5,547	2,290	2,268	.99
(2,4,5-Trichlorophenoxy)acetic acid esters, total-----	8,033	4,063	4,489	1.10
(2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester-----	...	106	116	1.09
(2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester-----	1,677	1,394	1,489	1.07
All other 2,4,5-T esters-----	6,356	2,563	2,884	1.13
Phenylmercury acetate-----	943	865	2,729	3.15
All other-----	10,929	7,382	15,718	2.13
Insecticides and rodenticides, total-----	305,622	293,832	110,526	.38
Chlorinated insecticides, total-----	287,065	275,317	90,241	.33
Hexachlorocyclohexane (Benzene hexachloride) and lindane ² -----	27,574	30,036	4,580	.15
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)-----	156,741	148,725	29,627	.20
All other-----	102,750	96,556	56,034	.58

See footnotes at end of table.

¹² See also table 21B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 21A. -- Synthetic organic chemicals: U.S. production and sales of pesticides and other organic agricultural chemicals, 1959--Continued

Product	Production	Sales		
		Quantity	Value	Unit value ¹
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued				
Insecticides and rodenticides--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
O,O-Dimethyl O-(p-nitrophenyl)phosphorothioate (Methyl parathion)-----	5,987	7,814	6,006	\$0.77
Parathion (O,O-Diethyl O-(p-nitrophenyl)phosphorothioate)-----	9,180	7,924	5,763	.73
All other-----	3,390	2,777	8,516	3.07
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC				
Total-----	116,613	93,272	52,977	.57
Fungicides and soil fumigants, total-----	86,231	64,089	28,883	.45
Bromomethane (Methyl bromide)-----	11,193	11,094	5,027	.45
Dimethyldithiocarbamic acid, zinc salt (Ziram)-----	757	938	682	.73
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)-----	3,350	3,367	1,997	.59
All other-----	70,931	48,690	21,177	.43
Herbicides, rodenticides, and soil conditioners, total-----	17,844	15,361	9,099	.59
Methanearsonic acid, disodium salt-----	444	434	452	1.04
All other-----	17,400	14,927	8,647	.58
Insecticides-----	12,538	13,822	14,995	1.08

¹ Calculated from rounded figures.

² Production of the gamma isomer content in benzene hexachloride and lindane totaled 5.5 million pounds; sales amounted to 6.6 million pounds.

The output of cyclic pesticides and other cyclic chemicals in this group totaled 469 million pounds in 1959, or 5.4 percent more than the 445 million pounds produced in 1958. Sales were 410 million pounds, valued at \$172 million, in 1959, compared with 378 million pounds, valued at \$148 million, in 1958.

Production of cyclic insecticides and rodenticides in 1959 was 306 million pounds, or 52.2 percent of the total output of all organic pesticides and 65.2 percent of the total output of cyclic pesticides. Sales in 1959 totaled 294 million pounds, valued at \$111 million. The chemical in this subgroup that was produced in the greatest quantity in 1959 was the insecticide DDT, production of which amounted to 157 million pounds, a record high for this chemical.

The output of acyclic pesticides and other acyclic organic agricultural chemicals in 1959 amounted to 117 million pounds, or 23.4 percent more than the 95 million pounds produced in 1958. Sales were 93 million pounds, valued at \$53 million, in 1959, compared with 89 million pounds, valued at \$48 million, in 1958.

Miscellaneous Synthetic Organic Chemicals

As used in this report, the term "miscellaneous synthetic organic chemicals" refers to such products as halogenated hydrocarbons, paint driers, photographic chemicals, solvents, and tanning materials that are not included in the use groups covered in the other sections of the report. Production of these miscellaneous chemicals as a group totaled 29,958 million pounds in 1959--about 10.6 percent more than the 27,082 million pounds produced in 1958. Sales totaled 13,407 million pounds, valued at \$1,959 million, in 1959, compared with 10,867 million pounds, valued at \$1,648 million, in 1958. Statistics on production and sales of miscellaneous chemicals in 1959 are given in table 22A.¹³

¹³ See also table 22B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 22A.--Synthetic organic chemicals: U.S. production and sales of miscellaneous chemicals, 1959

[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 22B 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 ¹
Grand total-----	1,000 pounds 29,937,522	1,000 pounds 13,406,678	1,000 dollars 1,958,532	Per pound \$.015
MISCELLANEOUS CHEMICALS, CYCLIC				
Total-----	753,015	452,636	136,211	.30
Chemicals for which separate statistics may not be shown--- Chemicals for which separate statistics are shown below---	244,772 508,243	124,181 328,455	46,146 90,065	.37 .27
Benzoic acid salts: Sodium benzoate, tech. and U.S.P.----- Cyclopropane-----	5,173 177	5,100 144	1,749 2,419	.34 16.80
2,6-Di-tert-butyl-p-cresol, total----- Food grade----- Tech-----	13,617 3,219 10,398	13,018 3,181 9,837	8,343 2,142 6,201	.64 .67 .63
Flotation reagents-----	5,110	3,620	1,193	.33
Gasoline additives, total ² ----- N,N-Di-sec-butyl-p-phenylenediamine----- All other-----	8,604 6,006 2,598	7,379 5,336 2,043	8,151 5,437 2,714	1.10 1.02 1.33
Hexamethylenetetramine, tech-----	27,790	15,132	3,081	.20
Lubricating oil additives, total----- Oil-soluble petroleum sulfonate, barium salt----- Oil-soluble petroleum sulfonate, calcium salt----- Oil-soluble petroleum sulfonate, sodium salt----- All other-----	377,646 73,781 101,518 94,276 108,071	217,859 ... 64,946 69,036 83,877	38,448 ... 9,674 9,457 19,317	.18....15 .14 .23
Naphthenic acid salts, total ^{3 4} ----- Calcium naphthenate----- Cobalt naphthenate----- Iron naphthenate----- Lead naphthenate----- Manganese naphthenate----- Zinc naphthenate----- All other-----	17,275 1,544 3,213 137 9,405 1,608 980 388	14,880 1,249 2,646 134 8,364 1,321 813 353	6,270 598 1,950 52 2,595 552 332 191	.42 .48 .74 .39 .31 .42 .41 .54
Photographic chemicals, total----- Benzotriazole----- p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N- diethylaniline) - zinc chloride----- All other-----	5,928 ... 107 5,821	5,444 19 109 5,316	8,189 111 281 7,797	1.50 5.84 2.58 1.47
Propyl gallate-----	87	48	139	2.90
Rosin acid salts, total ³ ----- Lead resinolate----- All other-----	800 34 766	392 25 367	117 7 110	.30 .28 .30
Tall oil salts (Linoleic-rosin acid salts), total ³ ----- Cobalt tallate----- Lead tallate----- Manganese tallate----- All other-----	6,338 2,350 2,935 684 369	5,839 2,129 2,699 631 380	2,135 1,058 778 197 102	.37 .50 .29 .31 .27

See footnotes at end of table.

TABLE 22A. -- Synthetic organic chemicals: U.S. production and sales of miscellaneous chemicals, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, CYCLIC--Continued				
Tanning materials, synthetic, total-----	1,000 pounds 37,169	1,000 pounds 37,083	1,000 dollars 6,524	Per pound \$0.18
2-Naphthalenesulfonic acid, formaldehyde condensate and salts-----	33,426	33,329	5,063	.15
All other-----	3,743	3,754	1,461	.39
Textile chemicals-----	2,529	2,517	3,307	1.31
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total-----	29,204,507	12,954,042	1,822,321	.14
Chemicals for which separate statistics may not be shown-----	6,537,771	2,288,559	694,062	.30
Chemicals for which separate statistics are shown below-----	22,666,736	10,665,483	1,128,259	.11
Acetaldehyde-----	...	57,429	4,804	.08
Acetic acid, synthetic 100% ² -----	648,720	108,984	9,455	.09
Acetic acid salts, total-----	19,886	18,292	3,603	.20
Ammonium acetate-----	712	...	...	...
Copper acetate-----	...	75	48	.64
Potassium acetate-----	804	615	184	.30
Zinc acetate-----	558	606	190	.31
All other-----	17,812	16,996	3,181	.19
Acetic anhydride, 100%, from all sources-----	1,096,677	...	...	...
Acetone, total-----	736,209	441,744	31,699	.07
From isopropyl alcohol-----	622,139	341,610	24,872	.07
All other-----	114,070	100,134	6,827	.07
Acrylic acid-----	...	595	348	.58
Acrylonitrile-----	232,253	192,091	49,594	.26
Adipic acid-----	...	34,105	10,431	.31
Alcohols, monohydric, unsubstituted, total-----	5,601,536	2,890,505	203,295	.07
Alcohols C ₂ or lower, total-----	5,377,714	2,807,519	184,307	.07
Butyl alcohols-----	546,123	236,411	29,656	.13
Ethyl alcohol, synthetic only ⁶ -----	1,625,844	869,334	48,492	.06
Iso-octyl alcohols-----	53,115	53,791	10,139	.19
Isopropyl alcohol-----	1,126,389	428,092	25,569	.06
Methanol, synthetic only ⁷ -----	1,759,182	1,031,048	38,020	.04
1- and 2-Octanol-----	8,109	8,101	1,627	.20
All other-----	258,952	180,742	31,304	.17
Alcohols C ₁₀ and higher, total-----	223,272	82,986	18,488	.22
Decyl alcohols-----	46,749	...	...	...
1-Hexadecanol (Cetyl alcohol)-----	940	756	247	.33
All other-----	176,183	82,230	18,241	.22
Amines, total-----	345,486	85,527	33,235	.39
Butylamine-----	843	451	241	.53
Coconut oil amine-----	869	590	324	.55
Diethylamine-----	5,772	...	...	...
Dimethylamine-----	27,786	13,395	3,619	.27
Hexadecylamine-----	205	...	...	...
Methylamine, mono-----	5,325	4,670	1,027	.22
Tallow amine, hydrogenated-----	1,236	1,045	441	.42
Trimethylamine-----	6,966	1,693	383	.23
All other-----	296,484	63,683	27,200	.43
Amyl acetates, 90%-----	10,337	7,700	1,311	.17
Bis(2-chloroethyl) ether (Dichlorodiethyl ether)-----	12,265	7,820	530	.07
Butyl acetates, 90%, total-----	92,381	89,436	11,328	.13
Normal-----	64,135	63,440	8,656	.14
All other-----	28,246	25,996	2,672	.10

See footnotes at end of table.

TABLE 22A. --Synthetic organic chemicals: U.S. production and sales of miscellaneous chemicals, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Butyric acid-----	1,000 ...	1,000 620	1,000 166	Per pound \$.027
Carbon disulfide-----	563,138	522,248	26,194	.05
Cellulose esters and ethers, total-----	762,573	214,462	88,570	.41
Cellulose acetate-----	538,173	...	...	...
Sodium carboxymethylcellulose, 100%-----	40,514	39,809	17,784	.45
All other-----	183,886	174,653	70,786	.41
Chloral (Trichloroacetaldehyde)-----	55,792	...	...	...
Chloroacetic acid, mono-----	42,660	...	...	...
Chloroacetic acid, mono, derivatives: Ethyl chloroacetate-----	1,164	...	...	...
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride-----	150	78	127	1.63
Diethylene glycol-----	93,308	81,543	10,257	.13
Diethyl malonate (Malonic ester)-----	587	...	...	...
2-Dimethylaminoethanol-----	722	477	360	.75
Dodeceny succinic anhydride-----	883	...	...	...
Epichlorohydrin-----	...	25,185	6,909	.27
Ethanolamines, total-----	124,812	103,433	22,474	.22
2-Aminoethanol (Monoethanolamine)-----	43,177	37,866	7,873	.21
2,2'-Iminodiethanol (Diethanolamine)-----	52,178	37,705	8,571	.23
2,2',2''-Nitrioltriethanol (Triethanolamine)-----	29,457	27,862	6,030	.22
Ethyl acetate, 85%-----	101,027	85,417	9,954	.12
Ethyl acrylate-----	...	12,438	4,175	.34
Ethylene glycol-----	1,214,550	630,227	62,191	.10
Ethylene oxide-----	1,394,626	135,307	18,079	.13
Ethyl ether, all grades-----	86,682	77,209	5,653	.07
Ethyl formate-----	74	94	27	.29
2-Ethylhexanoic (α -Ethylcaproic) acid salts, total-----	2,600	1,481	1,138	.77
Calcium 2-ethylhexanoate-----	901	132	84	.64
Cobalt 2-ethylhexanoate-----	440	304	273	.90
Lead 2-ethylhexanoate-----	281	194	78	.40
Manganese 2-ethylhexanoate-----	35	30	16	.53
Zinc 2-ethylhexanoate-----	143	105	46	.44
All other-----	800	716	641	.90
Ethyl propionate-----	24	...	...	...
Fatty acid esters, not included with plasticizers or surface-active agents, total-----	2,858	2,104	815	.39
Isopropyl myristate-----	758	675	312	.46
Isopropyl oleate-----	632	...	...	...
All other-----	1,468	1,429	503	.35
Formaldehyde, 37% by weight-----	1,750,218	685,986	22,965	.03
Formic acid, 90%-----	19,786	17,909	2,590	.14
Formic acid salts-----	24,596	17,965	858	.05
Fumaric acid-----	16,258	13,844	3,997	.29
Halogenated hydrocarbons, total-----	5,062,926	2,418,958	301,975	.12
Carbon tetrachloride-----	367,847	311,935	25,082	.08
Chlorinated paraffins, total-----	32,607	30,052	4,002	.13
35%-64% Chlorine-----	15,791	14,550	1,828	.13
All other-----	16,816	15,502	2,174	.14
Chlorodifluoromethane-----	33,906	21,119	14,597	.69
Chloroethane (Ethyl chloride)-----	590,816	210,418	15,730	.07
Chloroform, total-----	70,717	48,724	5,553	.11
Tech-----	69,314	47,819	5,352	.11
U.S.P.-----	1,403	905	201	.22
Chloromethane (Methyl chloride)-----	67,067	31,931	3,779	.12

See footnotes at end of table.

TABLE 22A.--Synthetic organic chemicals: U.S. production and sales of miscellaneous chemicals, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Halogenated hydrocarbons--Continued				
Dichlorodifluoromethane-----	157,132	151,716	46,830	\$0.31
1,2-Dichloroethane (Ethylene dichloride)-----	1,140,112	354,771	17,423	.05
Dichloromethane (Methylene chloride)-----	112,740	98,688	10,997	.11
Dichlorotetrafluoroethane-----	8,198	7,967	4,895	.61
Tetrachloroethylene (Perchloroethylene)-----	202,992	185,990	19,604	.11
Trichloroethylene-----	360,223	302,215	34,950	.12
Trichlorofluoromethane-----	60,421	...	...	...
Vinyl chloride, monomer (Chloroethylene)-----	977,891	329,360	35,817	.11
All other-----	920,257	334,072	62,716	.19
Isoascorbic acid-----	212	...	...	...
Isopropyl acetate-----	31,300	29,311	3,146	.11
Isopropyl ether-----	4,171	2,573	165	.06
Lactic acid, 100%, total-----	5,660	5,435	2,250	.41
Edible-----	4,398	4,246	1,847	.43
Medicinal and tech-----	1,262	1,189	403	.34
Lactic acid salts-----	...	796	236	.30
Linoleic acid salts, total ³ -----	1,047	555	177	.32
Calcium linoleate-----	208	206	37	.18
Cobalt linoleate-----	124	...	...	...
Lead linoleate-----	22	24	8	.33
All other-----	693	325	132	.41
Lubricating oil additives, total-----	182,827	58,716	12,051	.21
Phosphorodithioates (Dithiophosphates)-----	52,780	...	...	...
Sulfurized sperm oil-----	14,147	2,104	395	.19
All other-----	115,900	56,612	11,656	.21
Maleic anhydride-----	60,607	49,231	12,853	.26
Mercaptoacetic (Thioglycolic) acid derivatives, total-----	2,528	1,975	1,961	.99
Ammonium mercaptoacetate (Ammonium thioglycolate)-----	1,780	1,307	1,338	1.02
All other-----	748	668	623	.93
Methyl acetate-----	8,669	...	...	...
Oleic acid salts, total ⁸ -----	255	250	78	.31
Copper oleate-----	21	30	10	.33
All other-----	234	220	68	.31
Oxalic acid-----	20,443	19,002	3,473	.18
Oxalic acid salts-----	5,342	5,241	1,260	.24
Palmitic acid salts: Zinc palmitate-----	375	...	...	...
Pentaerythritol-----	64,137	52,283	15,382	.29
Pentaerythritol tetranitrate-----	4,370	2,488	1,895	.76
Phosgene (Carbonyl chloride)-----	36,752	6,289	1,379	.22
Phosphorus acid esters, not elsewhere specified-----	7,963	7,388	4,074	.55
Polyacrylic acid salts-----	1,662	1,502	1,973	1.31
Polyethylene glycol-----	37,359	32,096	7,726	.24
Propionic acid-----	28,290	9,034	1,666	.18
Propionic acid salts:				
Calcium propionate-----	7,641	8,140	2,207	.27
Sodium propionate-----	4,710	4,928	1,388	.28
Propylene glycol (1,2-Propanediol)-----	151,510	...	...	...
Propylene oxide-----	288,359	...	...	...
Sequestering agents, total-----	19,584	15,338	6,269	.41
(Diethylenetrinitrilo)pentaacetic acid, sodium salt-----	268	222	85	.38

See footnotes at end of table.

TABLE 22A.--Synthetic organic chemicals: U.S. production and sales of miscellaneous chemicals, 1959--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value ¹
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Sequestering agents--Continued				
(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine-tetraacetic acid)-----	3,380	1,883	847	\$0.45
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt-----	444	523	370	.71
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt-----	8,851	6,735	2,915	.43
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt-----	4,064	3,895	1,039	.27
All other-----	2,577	2,080	1,013	.49
Sodium formaldehydesulfoxylate-----	7,248	6,848	1,304	.19
Sodium methoxide (Sodium methylate)-----	3,856	...	...	...
Stearic acid salts, total ⁹ -----	24,593	23,167	9,075	.39
Aluminum stearates, total-----	5,910	6,031	2,306	.38
Aluminum distearate-----	4,474	4,623	1,753	.38
Aluminum stearate, other-----	1,436	1,408	553	.39
Ammonium stearate-----	326	348	59	.17
Calcium stearate-----	6,441	5,462	2,010	.37
Lead stearate-----	388	305	110	.36
Lithium stearate-----	158	152	74	.49
Magnesium stearate-----	877	919	385	.42
Zinc stearate-----	7,823	7,441	2,908	.39
All other-----	2,670	2,509	1,223	.49
Triethylene glycol-----	30,979	27,102	4,639	.17
Urea in compounds or mixtures (100% basis), total ¹⁰ -----	1,261,264	1,153,126	56,392	.05
In feed compounds-----	...	161,896	8,196	.05
In liquid fertilizer-----	371,906	325,062	17,079	.05
In solid fertilizer-----	516,237	502,373	23,386	.05
All other-----	373,121	163,795	7,731	.05
Vinyl acetate, monomer-----	243,845	160,123	25,540	.16
Zinc formaldehydesulfoxylate-----	1,364	1,333	543	.41

¹ Calculated from rounded figures.

² Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given in the section "Plasticizers."

³ Quantities are given on the basis of solid naphthenate, resinates, tallate, or linoleate content.

⁴ Statistics exclude production and sales of copper naphthenate. Statistics on copper naphthenate are given in the section "Pesticides and Other Organic Agricultural Chemicals."

⁵ In addition, production of natural acetic acid totaled 23,504 thousand pounds.

⁶ Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Alcohol Tax Unit, U.S. Internal Revenue Service.

⁷ In addition, production of methanol from natural sources totaled 14,097 thousand pounds.

⁸ Statistics exclude production and sales of potassium and sodium oleate. Statistics on these oleates are included in the section "Surface-Active Agents."

⁹ Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."

¹⁰ Production of urea in primary solution totaled 1,262,365 thousand pounds.

The output of cyclic miscellaneous chemicals as a group totaled 753 million pounds in 1959--8.3 percent more than the 695 million pounds reported for 1958. Sales totaled 453 million pounds, valued at \$136 million, in 1959, compared with 427 million pounds, valued at \$128 million, in 1958. On the basis of use, the most important group was the lubricating oil additives, production of which amounted to 378 million pounds in 1959, compared with 387 million pounds in 1958.

In 1959 the output of acyclic miscellaneous chemicals as a group totaled 29,204 million pounds, or 10.7 percent more than the 26,386 million pounds reported for 1958. This miscellaneous group includes chemicals used as acyclic intermediates, solvents, flotation reagents,

aerosol propellants, refrigerants, and for other purposes. Sales of acyclic miscellaneous chemicals totaled 12,954 million pounds, valued at \$1,822 million, in 1959, compared with 10,439 million pounds, valued at \$1,520 million, in 1958. The large difference between production and sales of acyclic miscellaneous chemicals indicates that a substantial part of the output is consumed at the producing plants in the manufacture of more advanced products.¹⁴

Production of halogenated hydrocarbons (a group consisting of chlorine, bromine, fluorine, and iodine derivatives of hydrocarbons) totaled 5,063 million pounds in 1959, compared with 4,083 million pounds in 1958. This subgroup includes such chemicals as ethyl chloride, ethylene dichloride, and monomeric vinyl chloride.

Individual chemicals the output of which exceeded 1 billion pounds in 1959 were synthetic methanol (1.8 billion pounds, compared with 1.4 billion pounds in 1958); formaldehyde (1.8 billion pounds, compared with 1.4 billion pounds in 1958); ethyl alcohol (1.6 billion pounds, compared with 1.5 billion pounds); ethylene oxide (1.4 billion pounds, compared with 1.2 billion pounds); urea (1.3 billion pounds, compared with 1.1 billion pounds); ethylene glycol (1.2 billion pounds, compared with 1.1 billion pounds); acetic anhydride and isopropyl alcohol (each 1.1 billion pounds, compared with 1.0 billion pounds); and dichloroethane (1.1 billion pounds, compared with 0.8 billion pounds).

¹⁴Acyclic miscellaneous chemicals used in the manufacture of more advanced products are acyclic intermediates. Although acyclic intermediates correspond in function to cyclic intermediates, the chemical industry does not commonly recognize any special group of acyclic miscellaneous chemicals as intermediates.





**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 1959. The tables include only data on those chemicals for which the volume of production or sales in 1959 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 23). 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.--Organic chemicals: Tar crudes for which U.S. production or sales were reported, identified by manufacturer, 1959

[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 23. Table 23 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 23) ¹
*Crude light oil-----	CBT, RUR.
Light-oil distillates:	
*Benzene, specification and industrial grades-----	ACP, ACY, COS, KPP, OIL.
*Toluene, specification and other grades-----	ACP, ACY, COS, KPP, OIL.
*Xylene, all grades-----	ACP, ACY, KPP.
*Solvent naphtha-----	ACP, ACY, KPT, NEV, PAI.
All other light-oil distillates-----	ACP, KPP, NEV, PAI.
*Pyridine: Crude bases and semirefined-----	ACP, KPT.
*Naphthalene, crude, solidifying at--	
*Less than 74° C.-----	COP, CRT, NEV, PAI.
*74° C. to less than 76° C.-----	KPT, NEV, PAI, REP.
*76° C. to less than 79° C.-----	ACP, ACY, KPT, PRD, RIL, RUR, TAR.
Crude tar-acid oils having a tar-acid content of--	
5% to less than 24%-----	ACP, ACY, RIL.
24% to 52%-----	ACP, KPT, NEV, RIL, TAR.
Cresylic acid, crude-----	ACP, KPT, PRD.
*Creosote oil (Dead oil):	
*Distillate as such-----	ACP, ACY, CBT, COP, CRT, JEN, KPT, LEW, REP, RIL, RUR, TAR.
*Creosote in coal-tar solution-----	ACP, HUS, JEN, KPT, RIL, RUR, TAR.
*All other distillate products-----	ACP, JEN, KPT, LEW, NEV, PAI.
*Tar, road-----	ACP, JEN, KPT, LEW, OLC, REP, RIL, TAR.
*Tar for other uses:	
Crude-----	LEW, RIL, TAR.
Refined-----	ACP, KPT, LEW, REP, RIL, RUR, TAR.
Pitch of tar:	
*Soft and medium (water softening points less than 110° F., and 110° F. to 160° F.)-----	ACP, COP, JEN, KPT, LEW, REP, RIL, RUR, TAR.
*Hard (water softening point above 160° F.)-----	ACP, COP, KPT, REP, RIL.
*Pitch-of-tar coke and pitch emulsion-----	CRT, JEN, KPT, REP, RIL, TAR.

¹ 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 Information Circular No. 7996, *Coke Plants in the United States on December 31, 1959.*

Crude Products From Petroleum and Natural Gas for Chemical Conversion

TABLE 5B. -- *Synthetic organic chemicals: Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1959*

[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 23]

Product	Manufacturers' identification codes (according to list in table 23)
AROMATICS AND NAPHTHENES	
*Alkyl aromatics, distillates, and solvents-----	ACC, AMD, CSD, DOW, DUP, ESL, GOC, HUM, JCC, OMC, PET, PLC, SM, SNT, WYN.
*Benzene (except motor grade):	
*Benzene, 1°-----	APR, ASH, CSD, DLH, ESL, EST, GOC, GRS, HUM, RIC, SNT, SUN, VPT.
*Benzene, 2°-----	AMD, CO, DOW, EST, SHO, SOC, SOI, UCC, VEL.
*Cresylic acid, crude-----	ATR, PRD, PRO, RIC, SHO, SOI, UCC.
*Cyclopentadiene-----	SHO.
*Naphthenic acids:	
Acid number less than 150-----	SUN, TX.
Acid number 150-199-----	RIC, SM, SOC, SUN.
Acid number 200-224-----	RIC, SM, SOC.
*Acid number 225-249-----	ESO, RIC, SHO, SM, SOC.
Sodium carboxylate and phenate, crude-----	ATR, GOC.
*Toluene:	
*Nitration grade, 1°-----	ASH, CSD, DLH, EST, FG, GOC, GRS, LEN, RIC, SHO, SIN, SNT, SUN, VPT.
*Pure commercial grade, 2°-----	DOW, HUM, MTC, PRO, SHC, SHO.
Solvent grade-----	ASH, CO, SOI, UCC.
All other-----	DLH, EST, HUM, SOC, VEL.
*Xylenes, mixed:	
Aviation grade-----	CSD, PRO, SOC, VPT.
*Nitration grade, 3° and 5°-----	ASH, DLH, SIN, SNT.
All other-----	ACC, AMD, ASH, DLH, EST, GRS, HUM, SHO, SOC, SOI, SUN, VPT.
All other aromatics and naphthenes-----	ESL, LEN, PLC, SHC, SM.
ALIPHATIC HYDROCARBONS	
*C ₁ hydrocarbon: Methane-----	CCP, NPC, PAN, PLC, SOI.
*C ₂ hydrocarbons:	
Acetylene-----	ACY, DOW, MTC, J.
*Ethane-----	CCP, ESL, NPC, PAN, PLC, SOI, TX, UCC.
*Ethylene-----	CCP, DOW, DUP, EKX, ESL, ESO, GOC, HUM, JCC, KPP, MTC, NPC, OMC, PET, PLC, RIC, SHC, SOI, TX, UCC.
C ₂ and C ₃ hydrocarbons, mixed-----	ESL, JCC, SM.
*C ₃ hydrocarbons:	
*Propane-----	AMD, ASH, CCP, CSD, DLH, DOW, ESL, EST, JCC, NPC, OMC, PAN, PET, PLC, PIP, PRO, RIC, SHO, SIN, SM, SNT, SOI, UCC.
*Propane-propylene mixture-----	GOC, PLC, TX.
*Propylene-----	ACS, CCP, DOW, DUP, EKX, ESL, HUM, JCC, MTC, PET, PLC, SHC, SHO, SIN, SOI, UCC, WYN.
*C ₄ hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)-----	CYP, DOW, DUP, ESL, FRG, GGC, HUM, ODB, PET, PLC, PTT, SHC, SOC, TUS, TXB, UCC.
*Butadiene and butylene fractions-----	ACS, DOW, MTC, PLC, SHO, SIN, SOC.
*n-Butane-----	CSD, EST, NPC, OMC, PAN, PLC, PIP, PRO, SHO, SM, SNT, SOC, SOI.
1-Butene-----	PLC, PTT.
2-Butene-----	PLC, PTT.
*1-Butene and 2-butene mixture-----	AMD, CCP, ESL, GOC, PRO, PTT, SHO, SOC, TX, TXB.
*Isobutane (2-Methylpropane)-----	CCP, NPC, OMC, PAN, PLC, SHO, SOI.
*Isobutylene (2-Methylpropene)-----	CCP, ESL, ESO, HUM, PTT, SIN.
All other-----	HUM, JCC, NPC, PLC, SOI, UCC.
*C ₅ hydrocarbons:	
Isopentane (2-Methylbutane)-----	CCP, CSD, PLC, SOI.
Isoprene (2-Methyl-1,3-butadiene)-----	ESL, HUM, SHC, SOI.

TABLE 5B. --Synthetic organic chemicals: Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Product	Manufacturers' identification codes (according to list in table 23)
ALIPHATIC HYDROCARBONS--Continued	
*C ₅ hydrocarbons--Continued	
n-Pentane-----	PLC.
All other-----	ACS, HUM, NPC, PAS, PLC, SHC.
C ₆ hydrocarbons:	
Diisopropyl (2,3-Dimethylbutane)-----	PLC.
Hexane-----	EST, HUM, PLC.
Isohexane-----	PLC.
Neohexane (2,2-Dimethylbutane)-----	PLC.
All other-----	PLC.
C ₇ hydrocarbons:	
n-Heptane-----	EKX, EST, HUM, PLC.
Heptenes-----	ESL, GOC, HUM.
Isoheptane-----	PLC.
All other-----	PLC.
C ₈ hydrocarbons:	
*Diisobutylene (Diisobutene)-----	ATR, PTT, SHC, TX.
n-Octane-----	HUM, PLC.
2,2,4-Trimethylpentane (Iso-octane)-----	PLC.
All other-----	PLC.
Hydrocarbons, C ₉ and above:	
*1-Dodecene (Tetrapropylene)-----	ACC, AMD, CO, ESL, GOC, HUM, RIC, SNT, SOC, SUN, TX.
Eicosane-----	ATR.
*Nonene (Tripropylene)-----	AMD, ATR, ESL, GOC, HUM, SUN.
*Polybutene-----	CSD, SOC, SOI.
Triisobutylene-----	ATR.
All other-----	ACC, CO, EKX, GOC, KEN, PLC, PRO, PTT, SNT, SOC.
*Hydrocarbon derivatives:	
tert-Butyl mercaptan (2-Methyl-2-propanethiol)-----	PLC.
Di-tert-butyl disulfide-----	PLC.
Isopropyl mercaptan-----	SOC.
Methyl mercaptan (Methanethiol)-----	ACC, PAS.
tert-Octyl mercaptan-----	PLC.
All other-----	ACY, COP, DOW, EKX, MTC, NPC, PAN, PAS, PLC, SOC, SOI, UCC, UOC.

Cyclic Intermediates

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959

[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 23. An x signifies that the manufacturer did not consent to his identification with the designated product. Appendix C 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 23)
Aceanthra[2,1-a]aceanthrylene-5,13-dione-----	AHC.
5-Acetamido-2-aminobenzenesulfamic acid-----	GAF.
4-Acetamido-2-aminobenzenesulfonic acid-----	TRC.
2-Acetamido-3-chloroanthraquinone-----	AHC, GAF.
2-[5-Acetamido-6-hydroxy-3-methylphenylazo]-4-nitrophenol-----	TRC.
*Acetanilide, tech-----	DOW, EKT, MRK, SW.
Acetic acid, phenyl ester-----	KF.
Acetoacetanilide-----	FMP, UCC.
o-Acetoacetanilide-----	KFC.
p-Acetoacetophenetidide-----	KFC.
o-Acetoacetotoluidide-----	FMP, UCC.
Acetophenone, tech-----	ACP, UCC.
p-Acetotoluidide-----	ACY.
21-Acetoxy-4-bromo-17-hydroxy-3,11,20-triketopregnane-----	x.
21-Acetoxy-17-hydroxy-3,11,20-triketopregnane-----	x.
N-Acetylanthranilic acid-----	DUP.
N-Acetylsulfanilyl chloride-----	ACY, MRK.
Alkyl benzene-----	ATR.
dl-5-Allyl-6-imino-1-methyl-5-(1-methyl-2-pentyl)-barbituric acid.	LIL.
Amino-aceanthra[2,1-a]aceanthrylene-5,13-dione-----	AHC.
3'-Aminoacetanilide-----	TRC.
*4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	ACF, DUP, EKT, GAF, TRC.
3'-Aminoacetophenone-----	SDH, TBK.
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	CMG, DUP, KFC, TRC, VPC.
5(and 8)-Amino-8(and 5)-(p-aminophenylazo)-2-naphthalene-sulfonic acid.	TRC.
5-Amino-2-anilinobenzenesulfonic acid-----	ACF.
*2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	ACF, CMG, TRC, VFC.
3-Amino-p-anisilide-----	PCW.
5-Amino-2-o-anisidinobenzenesulfonic acid-----	TRC.
*1-Aminoanthraquinone and salt-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC, WOC.
*2-Aminoanthraquinone and salt-----	ACF, ACY, DUP, GAF, TRC.
4-Aminoanthraquinone-1(2H)-acridinone-----	GAF.
1-Amino-2-anthraquinonecarboxylic acid-----	DUP.
1-Amino-2-anthraquinonesulfonic acid-----	GAF.
N-(4-Amino-1-anthraquinonyl)anthranilic acid-----	GAF.
N-(5-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
N-(8-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
N-(2-Amino-1-anthraquinonyl)-p-toluenesulfonamide-----	DUP.
4-Aminoantipyrine-----	SDW.
*6-Amino-3,4'-azodi(benzenesulfonic acid)-----	ACF, CMG, KFC, TRC.
8-Aminobenz[a]acridin-7(12H)-one-----	ACF.
o-Aminobenzamide-----	MEE.
*1-Amino-4-benzamidoanthraquinone-----	ACY, DUP, GAF, MAY, TRC.
1-Amino-5-benzamidoanthraquinone-----	ACF, AHC, DUP, GAF, TRC.
6-(m-Aminobenzamido)-1-naphthol-3-sulfonic acid-----	VFC.
*6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid-----	ACF, DUP, GAF, KFC, VFC.
*2-Amino-p-benzenedisulfonic acid [30,H=1]-----	ACF, DUP, GAF, TRC, VFC.
o-Aminobenzenesulfonic acid-----	ACY.
o-Aminobenzenethiol-----	ACY.
p-Aminobenzoic acid, tech-----	ACF, DUP, GAF.
p-Aminobenzoic acid, diethylaminoethyl ester-----	SDW.
2-(m-Aminobenzoyl)-o-acetanilide-----	GAF.
5(and 8)-Amino-8(and 5)-bromo-1,6(and 1,7)-anthraquinonedisulfonic acid.	TRC.

TABLE 7B.-- Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*1-Amino-4-bromo-2-anthraquinonesulfonic acid and sodium salt.	ACF, AHC, DUP, GAF, KPC, TRC.
2-Amino-1-bromo-3-chloroanthraquinone-----	AHC, KPC.
1-Amino-2-bromo-4-hydroxyanthraquinone-----	DUP.
1-Amino-4-bromo-2-methylantraquinone-----	AHC.
1-Amino-2-bromo-4-(p-toluidino)anthraquinone-----	AHC, GAF.
*1-Amino-5-chloroanthraquinone-----	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
1-Amino-5(and 8)-chloroanthraquinone-----	ACF, ACY.
*1-Amino-8-chloroanthraquinone-----	ACF, DUP, MAY, TRC.
2-Amino-1-chloroanthraquinone-----	DUP, GAF.
*2-Amino-3-chloroanthraquinone-----	AHC, GAF, KPC.
4-Amino-6-chloro-m-benzenedisulfonamide-----	TRC.
2-Amino-6-chlorobenzothiazole hydrochloride-----	DUP.
*o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	AHC, GAF, KPC.
2-Amino-5-chloro-4-ethylbenzenesulfonic acid-----	ACY.
1-Amino-5-chloro-4-hydroxyanthraquinone-----	GAF.
2-Amino-4-chlorophenol-----	GAF, MEE, TRC.
6-Amino-4-chloro-1-phenol-2-sulfonic acid-----	CMG, DUP, GAF.
*2-Amino-5-chloro-p-toluenesulfonic acid [SO ₂ H=1]-----	ACY, HCC, SUG, SW.
6-Amino-4-chloro-m-toluenesulfonic acid [SO ₂ H=1]-----	DUP, SW.
*1-Amino-2,4-dibromoanthraquinone-----	ACF, AHC, DUP, GAF.
*4'-Amino-2',5'-diethoxybenzamide-----	ALL, GAF, SDH.
4-Aminodiphenylamine-----	USR.
5-Amino-6-ethoxy-2-naphthalenesulfonic acid-----	TRC.
5-Amino-6-ethoxy-2-naphthoic acid-----	GAF.
p-Amino-N-ethyl-N-1-naphthylbenzamide-----	GAF.
1-Amino-4-hydroxyanthraquinone-----	ACF, GAF.
3-Amino-2-hydroxyanthraquinone-----	ACF, GAF.
5-Amino-8-(p-hydroxyanilino)-2-naphthalenesulfonic acid----	DUP.
5(and 8)-Amino-8(and 5)-(p-hydroxyanilino)-2-naphthalene-sulfonic acid.	DUP.
2-Amino-4-hydroxybenzenearsonic acid-----	SDW.
1-(4-(8-Amino-1-hydroxy-3,6-disulfo-2-naphthylazo)-5-methoxy-o-tolylazo)-1-naphthol-3,6-disulfonic acid, benzenesulfonate.	TRC.
3-Amino-6-hydroxy-2-methylphenazine (Tolazine base)-----	ACF, TRC.
1-(2-Amino-5-hydroxy-7-sulfo-6-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
6-Amino-5-(2-hydroxy-4-nitrophenylazo)naphthalene-2-sulfonic acid.	TRC.
5-Aminoisophthalic acid-----	GAF.
5-Aminoisophthalic acid, dimethyl ester-----	GAF.
2-Amino-N-isopropyl-1-phenyl-4-sulfonamide-----	TRC.
4-(4-Amino-3-methoxy-6-methylphenylazo)acetanilide-----	TRC.
5-Amino-6-methoxy-2-naphthalenesulfonic acid-----	TRC, VPC.
m-(4-Amino-3-methoxyphenylazo)benzenesulfonic acid-----	DUP.
m-(4-Amino-3-methoxy-1-phenylazo)benzenesulfonic acid-----	TRC.
4-(4-Amino-3-methoxyphenyl)-m-toluenesulfonic acid [SO ₂ H=1]	TRC.
1-Amino-2-methoxy-4-(p-toluenesulfonamido)anthraquinone----	GAF.
7-(4-Amino-5-methoxy-o-tolylazo)-1,3-naphthalenedisulfonic acid.	TRC.
4'-Amino-N-methylacetanilide-----	ACF, GAF.
1-Amino-2-methylanthraquinone-----	AHC, DUP.
4'-Amino-6'-methyl-m-benzanilide-----	GAF.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
3-Amino-5-(3-methyl-5-oxo-2-pyrazolin-1-yl)-p-toluene-sulfonic acid.	GAF.
8-Amino-7-methyl-2-phenazino1-----	DUP.
2-Amino-N-methyl-1-phenyl-4-sulfonamide-----	TRC.
2-Amino-4-methylpyrimidine (2-Amino-4-methylidiazine)-----	ACY.
2-Amino-4-methylsulfonyl phenol-----	TRC.
2-Amino-5-methyl-1,3,4-thiadiazole-----	ACY.
1-Aminonaphth[2,3-c]acridan-5,8,14-trione-----	DUP.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione-----	DUP.
*2-Amino-1,5-naphthalenedisulfonic acid-----	ACY, SDH, SW, TRC.
3-Amino-1,5-naphthalenedisulfonic acid (Cassella acid)-----	ACF, DUP, GAF, TRC.
3-Amino-2,7-naphthalenedisulfonic acid-----	TRC.
4-Amino-1,5-naphthalenedisulfonic acid-----	ACF, TRC.
4-Amino-1,6-naphthalenedisulfonic acid-----	ACF, DUP.
4-Amino-1,7-naphthalenedisulfonic acid-----	TRC.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	ACF, ACY, BL, DUP, GAF, TRC.
*7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	ACF, DUP, GAF, TRC.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)-----	DUP.
*2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	ACY, SUC, SW, TRC, x.
(and 5)-Amino-1-naphthalenesulfonic acid-----	ACY.
*5-Amino-1-naphthalenesulfonic acid (Laurent's acid)-----	ACF, DUP, GAF, TRC.
*5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	ACF, DUP, GAF, TRC.
*5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed).	ACF, ALL, DUP, GAF, TRC.
*6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	ACF, KLS, SNA, TRC.
6(and 7)-Amino-1-naphthalenesulfonic acid-----	TRC.
*8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	ACF, DUP, GAF, TRC.
*8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	ACF, DUP, GAF, TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid-----	DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)---	ACF, DUP, TRC.
4-Amino-1,3,5-naphthalenetrisulfonic acid, 4,5-sultam, trisodium salt.	DUP.
8-Amino-1-naphthoic acid-----	GAF.
5-Amino-1-naphthol-----	ACF.
5(and 8)-Amino-2-naphthol-----	GAF.
7-Amino-2-naphthol-----	TRC.
*8-Amino-2-naphthol-----	DUP, GAF, POO, 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.	ACF, DUP.
*8-Amino-1-naphthol-3,6-disulfonic acid (H acid), monosodium salt.	ACF, DUP, MON.
*8-Amino-1-naphthol-5,7-disulfonic acid (Chicago acid) (2S acid), monosodium salt.	ACF, DUP, TRC.
*1-Amino-2-naphthol-4-sulfonic acid (1,2,4-acid)-----	ACF, ACY, DUP, GAF, TRC, VPC.
*6-Amino-1-naphthol-3-sulfonic acid (J acid)-----	BL.
*6-Amino-1-naphthol-3-sulfonic acid (J acid), sodium salt--	ACF, ACY, CMG, DUP, GAF, TRC, VPC.
*7-Amino-1-naphthol-3-sulfonic acid (Gamma acid), sodium salt	ACF, DUP, GAF, TRC.
8-Amino-1-naphthol-5-sulfonic acid (S acid), sodium salt--	ACF, TRC.
*2-Amino-5-nitrobenzenesulfonic acid [SO ₂ H=]-----	ACF, ACY, DUP, GAF, KFC.
*2-Amino-4-nitrophenol-----	ACF, CMG, DUP, GAF, TRC, VPC.
2-Amino-5-nitrophenol-----	ACF.
6-Amino-4-nitro-1-phenol-2-sulfonic acid-----	CMG, TRC.
1,2-Amino-1-(p-nitrophenyl)-1,3-propanediol-----	PD.
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	TRC.
2-Amino-5-nitrothiazole-----	EKT.
3-Amino-4-octadecylaminobenzenesulfonic acid, sodium salt--	x.
*3'-Aminooxanilic acid-----	CMG, TRC, VPC.
*4'-Aminooxanilic acid-----	DUP, GAF.
p-Aminophenethyl alcohol-----	EKT.
(2'-Aminophenethylthio)acetic acid-----	DUP.
5-Amino-2-o-phenetidinobenzenesulfonic acid-----	ACF.
m-Aminophenol-----	WOC.
o-Aminophenol-----	VPC.
p-Aminophenol-----	DUP, SDC, VPC, WOC.
6-Amino-1-phenol-2,4-disulfonic acid-----	TRC.
2-Amino-1-phenol-4-sulfonamide-----	ACF, DUP, TRC.
2-Amino-1-phenol-4-sulfonamide-----	TRC.
*2-Amino-1-phenol-4-sulfonic acid-----	ACF, CWN, DUP, KFC, TRC.
m-(p-Aminophenylazo)benzenesulfonic acid-----	TRC.
*p-(p-Aminophenylazo)benzenesulfonic acid-----	ACF, ACY, CMG, DUP, GAF, KFC, POO, TRC, VPC.
5-(p-Aminophenylazo)salicylic acid-----	TRC.
2-(p-Aminophenyl)-6-methylbenzothiazole-----	ACF, DUP.
*2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt.	DUP, POO, TRC.
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid----	DUP, TRC, VPC.
2-Aminopyridine-----	NEP, RIL.
2-Aminopyrimidine-----	ACY.
5-Aminosalicylic acid-----	KFC, TRC.
N-(4-Amino-3-sulfo-anthraquinonyl)anthranilic acid-----	GAF.
2-Amino-5-(p-sulphophenylazo)benzenesulfonic acid-----	DUP.
2-Aminothiazole-----	ACF.
1-Amino-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic acid.	GAF.
5-Amino-o-toluenesulfonamide-----	GAF.
*4-Amino-m-toluenesulfonic acid [SO ₂ H=]-----	ACF, ACY, DUP, GAF, SNA, SW, TRC.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
4-Amino-o-toluenesulfonic acid [SO ₃ H=1]	SDH.
5-Amino-o-toluenesulfonic acid	TRC.
6-Amino-m-toluenesulfonic acid [SO ₃ H=1]	DUP.
*5-Amino-2-(p-toluidino)benzenesulfonic acid	ACF, DUP, TRC.
7-(4-Amino-o-tolylazo)-1,5-naphthalenedisulfonic acid	TRC.
4-(4-Amino-m-tolylazo)-m-toluenesulfonic acid	DUP, VPC.
N-(4-Amino-m-tolyl)-p-benzoquinoneimine	DUP.
*4'-Amino-3'-(p-tolylsulfonyl)acetanilide	TRC.
16-Aminoviolanthrone	GAF, PCO.
2-Amino-3,5-xylenesulfonic acid [SO ₃ H=1]	GAM, STG, WRN.
*Aniline (Aniline oil)	ACF, ACY, DOW, DUP, EKT, MON.
Aniline hydrochloride	ACY, VPC.
1-Anilino-2-anthraquinonecarboxylic acid	ACF, DUP.
2-Anilinoethanol (Phenylethanolamine)	UCC.
8-Anilino-5-(p-hydroxyanilino)-1-naphthalenesulfonic acid	DUP.
*Anilinoethanesulfonic acid and salt	ACF, ACY, CMG, DUP, KPC, PCO, TRC, VPC.
*8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	ACF, CMG, DUP, GAF, TRC.
*6-Anilino-1-naphthol-3-sulfonic acid (Phenyl J acid)	ACF, CMG, DUP, GAF, TRC, VPC.
*7-Anilino-1-naphthol-3-sulfonic acid (Phenyl gamma acid)	ACF, CMG, DUP, TRC, VPC.
p-Anilinophenol	DUP.
o-Anisaldehyde	ASL.
Anisic acid	GAF, HN.
o-Anisic acid	ACY.
*o-Anisidine	DUP, KPC, MON.
p-Anisidine	DUP, MON.
o-Anisidine nitrate	GAF.
*o-Anisidinomethanesulfonic acid	ACF, DUP, GAF, TRC, VPC.
2-(o-Anisidino)-5-nitrobenzenesulfonic acid	TRC.
Anisole, tech	DUP, LIL.
Anisoyl chloride	TBK.
Anthracene, refined	ACP.
Anthraflavic acid (2,6-Dihydroxyanthraquinone)	DUP, GAF.
*Anthranilic acid (o-Aminobenzoic acid)	ACF, DOW, DUP, MEE.
Anthra[1,9]pyrazol-6(2H)-one (Pyrazolanthrone)	ACF, DUP.
*Anthraquinone, 100%	ACY, AHC, DUP, TRC.
2-Anthraquinonecarboxylic acid	ACY.
N,N'-(1,5-Anthraquinone)dioxamic acid	GAF, TRC.
*1,5-Anthraquinonedisulfonic acid	ACY, AHC, DUP, GAF, TRC.
*1,5-Anthraquinonedisulfonic acid, disodium salt	DUP.
1,5-(and 1,8)-Anthraquinonedisulfonic acid and salt	DUP, GAF, TRC.
1,8-Anthraquinonedisulfonic acid	DUP.
1,8-Anthraquinonedisulfonic acid, potassium salt	GAF, TRC.
*2,6-Anthraquinonedisulfonic acid and salt	ACF, ACY, AHC, DUP, GAF, KPC, TRC, VPC.
*1-Anthraquinonesulfonic acid and salt	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC.
2-Anthraquinonesulfonic acid and salt (Silver salt)	ACF, DUP, KPC, TRC.
*N,N'-(1,5-Anthraquinonylene)dianthranilic acid	AHC, DUP, TRC.
1-(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt	DUP.
*Anthraquin (1,5-Dihydroxyanthraquinone)	ACF, ACY, CMG, DUP, GAF, TRC.
Anthrone	AHC.
Arsanilic acid and salt, tech	ABB.
4',4''-Azobis[4-biphenylcarboxylic acid]	DUP, GAF.
*Benzaldehyde, tech	BPC, GAF, HN, TNP.
Benzamide	MAY.
4-(4-Benzamido-1-anthraquinonylamino)naphth[2,3-c]acridan-5,8,14-trione	DUP.
1-Benzamido-4-bromoanthraquinone	KPC.
1-Benzamido-4-chloroanthraquinone	DUP, GAF, TRC.
*1-Benzamido-5-chloroanthraquinone	ACF, ACY, AHC, DUP, MAY.
1-Benzamido-5-chloro-4-methoxyanthraquinone	GAF.
2-[3-(4-Benzamido-2,5-dimethoxyphenyl)-1-methyltriazene-3-yl]ethanesulfonic acid	GAF.
2-(3-(4-Benzamido-2,5-dimethoxyphenyl)-1-methyl diazoamid) ether sulfonic acid	GAF.
[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazene-3-yl]acetic acid	GAF.
8-Benzamido-1-naphthol-3,6-disulfonic acid	TRC.
3-Benzamido-1-naphthol-3-sulfonic acid	TRC.
1-Benzamido-5-p-toluenesulfonamidoanthraquinone	AHC.
Benzanilide	DUP.

TABLE 7B. -- Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*7H-Benz[de]anthracen-7-one (Benzanthrone)-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC, MAY, PCO, TRC.
Benzenearsenic acid-----	EK.
Benzenesulfonamide-----	DA, NES.
8-(4-Benzenesulfonamido-5-methoxy-o-tolylazo)-1-naphthol-3,6-disulfonic acid.	TRC.
Benzenesulfonic acid-----	UPF.
Benzenesulfonic acid, n-propyl ester-----	NES.
Benzenesulfonic acid, sodium salt-----	NES.
*Benzenesulfonyl chloride-----	DA, NES, TRC.
Benzhydrol (Diphenylmethanol)-----	OPC, TBK.
*Benzidine hydrochloride and sulfate-----	ACF, DUP, FIN, x.
Benzil (Bibenzoyl)-----	LEM.
Benzilic acid-----	BFC, LEM.
2-Benzofuranacetone nitrile-----	EK.
Benzoic acid, tech-----	BFC, HK, HN, MON, TNP.
Benzoic anhydride-----	EK.
Benzooin-----	BFC, LEM.
Benzonitrile-----	TNP, x.
Benzophenone-----	KF.
1,2,3-Benzotriazin-4(1H)-one (Benzazimid)-----	MEE.
1H-Benzotriazole-----	MEE, MRT.
Benzoylactic acid, ethyl ester-----	FMP.
*o-Benzoylbenzoic acid-----	ACF, ACY, DUP, GAF.
Benzoyl chloride-----	HK, TNP.
2-Benzoyl-4-sulfobenzoic acid-----	DUP.
2-Benzoyl-4'-(p-toluenesulfonamido)-----	EK.
Benzyl alcohol, tech-----	BFC.
Benzylamine-----	FBS, MLS.
Benzyl disulfide-----	CCW.
Benzyl ether (Dibenzyl ether)-----	BFC, TBK.
4-(N-Benzyl-N-ethylamino)-o-toluenesulfonic acid-----	ACF.
N-Benzyl-N-ethyl-m-toluidine-----	ACF, DUP.
2,2'-Benzylidenedi(N-benzyl-N-ethyl-p-toluidine)-----	TRC.
4-Benzylidenedi(monoantipyrine)-----	GAF, SDW.
Benzyl polysulfide-----	HK.
(Benzylthio)acetic acid-----	OPC.
4',4''-Bi-o-acetoacetotoluidide-----	SDH.
*3,3'-Bianthra[1,9]pyrrole-6,6'(2H, 2'H)-dione (Pyrzoleanthrone yellow).	ACF, DUP, GAF, TRC.
[3,3'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	ACF, DUP.
*[4,4'-Bi-7H-benz[de]anthracen]-7,7'-dione-----	ACY, AHC, DUP, GAF, MAY, TRC.
endo-cis-Bicyclo[2,2,1]hept-5-ene-2,3-dicarboxylic anhydride.	ACF.
[1,1'-Binaphthalene]-8,8'-dicarboxylic acid-----	DUP, GAF.
Biphenyl-----	DOW, MON.
4-Biphenylcarboxylic acid-----	DUP.
2,2'-Biquinoline-----	EK.
4,4'-Bi(8-acetamido-3,6-disulfo-1-hydroxy naphthylazo)- 3,3'-dimethoxybiphenyl.	TRC.
1,2-Bis(1-amino-2-anthraquinonylcarbonyl)hydrazine-----	DUP.
*1,4-Bis[1-anthraquinonylamino]anthraquinone-----	ACY, AHC, GAF, MAY, TRC.
1,5-Bis[1-anthraquinonylamino]anthraquinone-----	DUP.
α,α^6 -Bis(5-tert-butyl-6-hydroxy-m-tolyl)mesitol-----	ACY.
N,N'-Bis(1-chloro-2-anthraquinonyl)-4',4''-azobis- (4-biphenylcarboxamide).	GAF.
4,4'-Bis[diethylamino]benzhydrol-----	GAF, TRC.
4,4'-Bis[diethylamino]benzhydrol-2,6-naphthalenedisulfonic acid.	GAF.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)-----	DSC, DUP.
1,5-(and 1,8)-Bis[5,4-dihydro-5,8,14(13H)-trioxonaph- [2,3-c]acridin-1-ylamino]anthraquinone.	DUP.
2,7-Bis(dimethylamino)acridine hydrochloride-----	VPC.
4,4'-Bis(dimethylamino)benzhydrol (Michter's hydrol)-----	DSC, DUP.
*4,4'-Bis(dimethylamino)benzophenone (Michter's ketone)-----	ACF, DSC, DUP, GAF, SDH.
Bis(p-dimethylaminophenyl)methanesulfonic acid and salt-----	ACF.
4-[Bis(p-dimethylaminophenyl)methyl]-2,7-naphthalene- disulfonic acid.	TRC.
1,5-Bis[2,4-dinitrophenoxy]-4,8-dinitroanthraquinone-----	DUP.
1,5-(and 1,8)-Bis(2,4-dinitrophenoxy)-4,8-(and 4,5)- dinitroanthraquinone.	DUP.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
m-Bis[2,3-epoxypropoxy]benzene-----	EKT.
α,α-Bis[4'-(N-ethyl-3-sulfobenzylamino)-2-tolyl]- α-hydroxy-p-toluenesulfonic acid.	TRC.
α,α-Bis[4'-(N-ethyl-N-3-sulfobenzylamino)-2-tolyl]- p-toluenesulfonic acid.	TRC.
4,4'-Bis[p-hydroxyphenylszo]-2,2'-stilbenedisulfonic acid.	TRC.
4,4'-Bis(p-hydroxyphenyl)valeric acid-----	JNS.
p-Bis(2,2,2-trichloroethyl)benzene-----	HK.
1,4-Bis(2,4,6-trimethylamylino)anthraquinone-----	TRC.
2-Bromoacetophenone-----	EK.
m-Bromoaniline-----	EK.
o-Bromoaniline-----	EK.
p-Bromoaniline-----	EK.
4-Bromoanisole-----	FBS, OPC.
*3-Bromo-7H-benz[de]anthracen-7-one (Bromobenzanthrone)----	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
Bromobenzene, mono-----	DOW.
p-Bromobenzenesulfonyl chloride-----	EK.
o-Bromobenzoic acid-----	EK.
p-Bromobenzoic acid-----	EK.
4-Bromobenzophenone-----	FBS.
Bromochlorobenzene-----	EK.
2-Bromodibenzofuran-----	GAF.
(2-Bromoethyl)benzene-----	EK.
2-Bromo-3'-hydroxyacetophenone benzoate-----	SDH.
5-Bromoisatin-----	GAF.
1-Bromo-4-(N-methylacetamido)anthraquinone-----	GAF.
*1-Bromo-4-methylaminoanthraquinone-----	AHC, DUP, GAF, KPC.
2-Bromo-3-methylantraquinone-----	DUP.
*6-Bromo-3-methyl-7H-dibenz[f,1j]isoquinoline-2,7(3H)- dione.	AHC, GAF, KPC.
1-Bromonaphthalene-----	EK.
4-Bromonaphthalic anhydride-----	GAF.
2-Bromo-4'-nitroacetophenone-----	NES.
α-Bromo-p-nitrotoluene-----	EK.
1-(9-Bromo-7-oxo-7H-benz[de]anthracen-3-ylamino)- anthraquinone.	DUP.
m-Bromophenol-----	EK.
o-Bromophenol-----	EK.
p-Bromophenol-----	EK.
p-Bromophenyl phenyl ether-----	EK.
4-Bromophthalic anhydride-----	EKT.
Bromopicrin-----	EK.
2-Bromopyridine-----	FMT.
2-Bromoquinizarin-----	KPC.
α-Bromotoluene-----	EK.
o-Bromotoluene-----	EK.
p-Bromotoluene-----	EK.
α-(3-Bromo-p-toluoyl)benzoic acid-----	DUP.
1-Bromo-2,4,6-triethylbenzene-----	DUP.
p-n-Butylaminobenzoic acid, ethyl ester-----	FBS.
p-Butylaniline-----	DUP.
2-tert-Butylantraquinone-----	DUP.
n-Butylbenzene-----	PLC.
tert-Butylbenzene-----	PLC.
p-tert-Butylbenzoic acid-----	SHC.
6-Butyl-m-cresol [OH=1]-----	KPT.
2-tert-Butyl-p-cresol-----	ACY.
2'-tert-Butyl-4',6'-dimethylacetophenone-----	GIV.
2-tert-Butyl-4-ethylphenol-----	ACY.
N ⁺ -Butyl-4-methoxymetanilamide-----	ALL, GAF, VPC.
2-tert-Butyl-5-methylanisole-----	GIV.
o-sec-Butylphenol-----	DOW.
p-sec-Butylphenol-----	DOW.
p-tert-Butylphenol-----	DOW, KPT, UCP.
Butylphenols, mixed-----	UCP.
p-tert-Butyltoluene-----	SHC.
5-tert-Butyl-m-xylene-----	GIV.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
p-(3-Carbazolylamino)phenol-----	DUP.
N,N'-Carbonylbis(4-methoxymetanilic acid)-----	GAF.
N,N'-Carbonylbis(4-methoxy-6-nitrometanilic acid)-----	GAF.
6(and 2)-Carboxybenzene-2(and 4)-diazol-1-oxide-----	DUP.
5-(o-Carboxybenzoyl)-2-chlorooxanilic acid-----	GAF.
3-Carboxy-2(and 4)-hydroxybenzenediazonium sulfate-----	ACF, GAF.
3-Carboxymethyl-1-(5-chloro-o-tolyl)-3-methyltriazene-----	DUP, GAF.
3-(Carboxymethyl-3-methyl)-1-p-tolyltriazene-----	GAF.
5-(o-Carboxyphenylsulfamoyl)anthranilic acid-----	TRC.
3-(2-Carboxy-4-sulfophenyl)-1-(2,5-dichlorophenyl)- 3-ethyltriazene.	GAF.
3-(2-Carboxy-4-sulfophenyl)-3-methyl-1-(4-nitro-o-tolyl- triazene).	GAF.
Chelidamic acid-----	SDW.
Chlorendic acid-----	HK.
2'-Chloroacetoacetanilide-----	FMP, UCC.
4'-Chloroacetophenone-----	NES.
4-(Chloroacetyl)acetanilide-----	DUP.
*m-Chloroaniline-----	DUP, GAF, MDN.
*o-Chloroaniline-----	DUP, MDN, SDH, VFC.
p-Chloroaniline-----	DUP, MDN.
5-Chloroaniline-2,4-disulfamide-----	ABB.
5-Chloroaniline-2,4-disulfamide hydrochloride-----	ABB.
*m-Chloroaniline hydrochloride-----	ATL, KPC.
2-(Chloroanilino)ethanol-----	EKT.
3-(o-Chloroanilino)propionitrile-----	DUP.
5-Chloro-o-anisidine [NH ₂ =1] (4-Chloro-o-anisidine [OCH ₃ =1]).	ACF, DUP, SDH, VFC.
5-Chloro-o-anisidine hydrochloride-----	GAF.
4-Chloroanthranilic acid-----	DUP.
*1-Chloroanthraquinone-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC.
*2-Chloroanthraquinone-----	ACF, ACY, GAF, TRC.
1-Chloro-2-anthraquinonecarboxylic acid-----	DUP.
*o-Chlorobenzaldehyde-----	ACF, HN, SDH.
p-Chlorobenzaldehyde-----	HN.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)----	ACY.
*Chlorobenzene, mono-----	ACO, DOW, DUP, GGY, HK, HKD, MDN, MTO, OMC, PPG, WYN.
4-Chlorobenzenesulfonic acid-----	TRC.
p-Chlorobenzenesulfonamide-----	ACY, MEE.
p-Chlorobenzenesulfonic acid-----	GAF.
4-Chlorobenzenesulfonyl chloride-----	DA, TRC.
p-Chlorobenzenethiol-----	EVN.
o-Chlorobenzoic acid-----	HN, SDH.
p-Chlorobenzoic acid-----	HN.
5-Chloro-2-benzoxazolinone-----	GAF, x.
*o-(p-Chlorobenzoyl)benzoic acid-----	ACF, ACY, AHC, DUP, GAF, TRC.
o-Chlorobenzoyl chloride-----	EK.
p-Chlorobenzoyl chloride-----	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylylidene-----	GAF.
p-Chlorobenzylpyridine-----	RLL.
5-Chloro-2-(p-chlorophenoxy)aniline-----	GAF.
Chloro-(p-chlorophenyl, phenyl)methane-----	OPC, TBK.
2-Chloro-5-(chlorosulfonyl)benzoic acid-----	TRC.
4-Chloro-o-cresol-----	OPC.
2-Chloro-N,N-diethyl-4-nitroaniline-----	DUP.
N-(3-Chloro-9,10-dihydroxy-2-anthryl)acetamide bis [acid sulfate].	GAF.
*5-Chloro-2,4-dimethoxyaniline-----	ALL, GAF, KLS, PCW.
1-Chloro-2,4-dimethoxy-5-nitrobenzene-----	GAF.
4-Chloro-6-N,N-dimethyl-3-nitrobenzenesulfonamide-----	GAF.
5-Chloro-4,7-dimethyl-3(2H)-thianaphthene-----	ACF.
*1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	GAF, DUP, GAF, KPC, SDC.
4-Chloro-3,5-dinitrobenzoic acid-----	ACF.
3-Chlorodiphenylamine-----	DUP, SK.
Chlorodiphenylmethane-----	TBK.
α-Chloro-o(and/or p)-dodecyltoluene [CH ₃ =1]-----	CRO.
2-Chloroethanol-p-toluenesulfonate-----	GAF.
N-(2-Chloroethyl)-N-ethylamine-----	DUP.
α-Chloro-p-ethyltoluene-----	BPC.
5-Chloro-2-formylbenzenesulfonic acid-----	GAF.
N-Chloroformylidiphenylamine-----	FBS.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
4-Chloro-3-hydrazinobenzenesulfonic acid-----	GAF.
1-Chloro-4-hydroxyanthraquinone-----	AHC.
4'-Chloro-2-hydroxy-4-methoxybenzophenone-----	ACY.
5'-Chloro-3-hydroxy-2-naphtho-o-toluidide-----	ATL.
5-Chloro-4-isopropylmetanilic acid-----	SW.
4-Chloro-N-isopropyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chlorometanilic acid-----	DUP, GAF.
5-Chlorometanilic acid-----	ACF, DUP.
*6-Chlorometanilic acid-----	ACF, DUP, TRC.
5-Chloro-2-methoxybenzediazonium chloride-----	GAF.
N-(5-Chloro-2-methoxyphenylazo)sarcosine-----	DUP.
*1-Chloro-2-methylanthraquinone-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC.
6-Chloro-4-methylbenzo-1,3-thiaza-2-thionum chloride-----	DUP.
5-Chloro-2-methylbenzothiazole-----	EK.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.	DUP, GAF.
Chloronaphthalenes-----	KPT, UCP.
8-Chloro-1-naphthalenesulfonic acid, sodium salt-----	GAF.
8-Chloro-1-naphthalenesulfonyl chloride-----	GAF.
9-Chloronaphtho[1,2-b]thiophen-3(2H)-one-----	GAF.
(8-Chloro-1-naphthylthio)acetic acid-----	GAF.
2-Chloro-3'-nitroacetophenone-----	MEE.
*2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	ACY, DOW, DUP, SUC.
*4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	DOW, DUP, KPC, SDH, VPC.
4-Chloro-2-nitroanisole-----	DUP, VPC.
*1-Chloro-5-nitroanthraquinone-----	ACF, ACY, DUP, GAF, MAY, TRC.
1-Chloro-8-nitroanthraquinone-----	ACF, DUP.
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	DUP, KPC, MON.
*1-Chloro-2(and 4)-nitrobenzene (Chloronitrobenzenes, o- and p-).	DUP, GAF, KPC.
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)-----	DUP, MON.
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)-----	DUP, KPC, MON.
*4-Chloro-3-nitrobenzenesulfonamide-----	DUP, EKT, ICC.
4-Chloro-3-nitrobenzenesulfonanilide-----	TRC.
*2-Chloro-5-nitrobenzenesulfonic acid-----	ACF, CMG, KPC, TRC.
*2-Chloro-5-nitrobenzenesulfonic acid, sodium salt-----	DUP, GAF.
*4-Chloro-3-nitrobenzenesulfonic acid-----	ACF, GAF, KPC, TRC.
*4-Chloro-3-nitrobenzenesulfonyl chloride-----	DUP, EKT, TRC.
5-Chloro-6-nitro-2-benzoxazolinone-----	GAF.
*o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	ACF, AHC, GAF, KPC.
4-Chloro-2-nitrophenol-----	DUP.
4-Chloro-2-nitrophenyl-p-chlorophenyl ether-----	GAF.
4-Chloro-3-nitrophenyl methyl sulfone-----	TRC.
2-Chloro-4-nitrotoluene-----	DUP, GAF.
2-Chloro-6-nitrotoluene-----	DUP.
4-Chloro-2-nitrotoluene-----	ACF, DUP, KPC.
4-Chloro-3-nitrotoluene-----	KPC.
o-Chlorophenol-----	DOW, MON.
p-Chlorophenol-----	DOW, MON.
p-Chlorophenylacetoneitrile-----	TBK.
1-(p-Chlorophenyl)biguanide, hydrochloride-----	DUP.
4-Chloro- α -phenyl-o-cresol-----	MON.
4-Chloro-o-phenylenediamine-----	FMT.
2,2'-(3-Chlorophenylimino)diethanol-----	KPC.
p-Chlorophenylmagnesium bromide-----	SFA.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
4-Chlorophenyl methyl sulfone-----	TRC.
Chlorophenylsilanes-----	SFD.
4-Chlorophthalic acid-----	DUP, SW.
Chlorophthalic anhydride-----	HK, MON.
N ¹ -(6-Chloro-3-pyridazinyl)sulfanilamide-----	ACY.
2-Chloropyridine-----	FMT, NEP.
6-Chloroquinaldine-----	DUP.
*2-Chloroquinizarin-----	ACF, HAR, TRC.
7-Chloro-4-quinolinol-----	SDW.
6-Chloroquinophthalone-----	DUP.
4-Chlororesorcinol-----	GAF, KPC.
2-Chloro-5-sulfamoylbenzoic acid-----	TRC.
2-Chloro-4-(2'-sulfophenylamino)-6-(4-sulfo-3-aminophenyl-amino)triazine.	TRC.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
2-Chloro-4-(4'-sulfophenylamino)-6-(4-sulfo-3-amino-phenylamino) triazine.	TRC.
8-Chlorotheophylline-----	MAL.
m-Chlorotoluene-----	HK.
o-Chlorotoluene-----	HN.
p-Chlorotoluene-----	p-HN.
*o-Chlorotoluene (Benzyl chloride)-----	BPC, GAF, HK, HN, MON, TNP.
1-Chloro-5-p-toluensulfonamidoanthraquinone-----	AHC
3-Chloro-o-toluidine [NH ₂ =1]-----	ACF, DUP.
3-Chloro-p-toluidine [NH ₂ =1]-----	DUP.
*4-Chloro-o-toluidine [NH ₂ =1] (5-Chloro-o-toluidine [CH ₃ =1])	ACF, ACY, KPC, PCW.
*5-Chloro-o-toluidine [NH ₂ =1] (4-Chloro-o-toluidine [CH ₃ =1])	ACF, DUP, KPC, SDH.
*4-Chloro-o-toluidine hydrochloride [NH ₂ =1]-----	DUP.
*5-Chloro-o-toluidine hydrochloride [NH ₂ =1]-----	ATL, AUG, DUP, GAF, KLS, SDH.
5-Chloro-o-toluidine sulfate [NH ₂ =1]-----	ACF.
1-(5-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
(4-Chloro-o-tolylthio)acetic acid-----	ACF, ACY.
Chlorotriphenylmethane-----	EK.
4-Chloro- <i>a,a,a</i> -trifluoro-3-nitrotoluene-----	KPC, MEE.
3-Chloro- <i>a,a,a</i> -trifluoro-6-nitrotoluene-----	MEE.
p-Chloro- <i>a,a,a</i> -trifluorotoluene-----	HK.
6-Chloro- <i>a,a,a</i> -trifluoro-m-toluidine-----	KPC.
2-Chloro-p-xylene-----	DUP.
*4-Chloro-2,5-xylenesulfonyl chloride-----	ACF, GAF, ICC.
4-Chloro-2,5-xylylthioacetic acid-----	ACF, GAF, ICC.
Chrysanthemummonocarboxylic acid, ethyl ester-----	BPC.
Chrysazin (1,8-Dihydroxyanthraquinone)-----	DUP, GAF.
Cinnamic acid-----	FBS.
Cinnamoyl chloride-----	TBK.
s-Collidine (2,4,6-Trimethylpyridine)-----	KPT, RIL.
*Cresols: ¹	
m-Cresol-----	KPT.
o-Cresols:	
From coal tar-----	KPT, PRD, RIL.
From petroleum-----	MER, PRD.
p-Cresol-----	HPC, SW.
*Cresols, mixed: ¹	
*(m,p)-Cresol:	
*From coal tar-----	ACP, KPT, PRD, REP, RIL.
*From petroleum-----	MER, PIT, PRD.
*(o,m,p)-Cresol:	
From coal tar-----	ACP, KPT, RIL.
From petroleum-----	MER, PIT, PRD.
Other-----	RIL, SW.
2,3-Cresotic acid-----	DOW.
*Cresylic acid, refined: ¹	
*From coal tar-----	ACP, ACY, KPT, PRD, RIL.
*From petroleum-----	MER, PIT, PRD, SHO, SM, SOC.
*Cumene-----	ACP, DOW, HPC, SOC.
8-Cyano-1-naphthalenesulfonic acid-----	DUP, GAF.
Cyanuric chloride-----	ACY, NIL.
*Cyclohexane-----	DUP, HUM, PLC, PLP, SHO.
1,2-Cyclohexanedicarboxylic anhydride-----	ACF.
Cyclohexanol-----	ACF, GS, DOW, DUP, MON.
Cyclohexanone-----	ACF, GS, DUP.
Cyclohexanone oxime-----	ACF.
Cyclohexene-----	KF, PLC.
4-Cyclohexene-1,2-dicarboximide-----	CHO.
4-Cyclohexene-1,2-dicarboxylic anhydride-----	ACF.
*Cyclohexylamine-----	ABB, EKT, JCC, MON.
p-(Cyclohexyloxy)benzoic acid-----	LLL.
1-Cyclohexyl-2-propanone-----	GIV, TBK.
1,5-Cyclooctadiene-----	PLC.
Cyclopentene-----	PLC.
*p-Cymene-----	GLD, HNW, HPC.
Decylbenzene-----	WYN.
1,5 (and 1,8)-Diacetamidoanthraquinone-----	KPC.
N,N-Diallylcamphoric acid-----	WYT.
N ² ,N ² -Diallylamine-----	ACY.

See footnote at end of table.

TABLE 7B.--*Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued*

Chemical	Manufacturers' identification codes (according to list in table 23)
1,2-Diaminoanthraquinone-----	DUP.
*1,4-Diaminoanthraquinone-----	ACF, DUP, GAF, JTC, KPC, TRC.
1,5-Diaminoanthraquinone-----	DUP, GAF, TRC.
1,5 (and 1,8)-Diaminoanthraquinone-----	TRC.
*2,6-Diaminoanthraquinone-----	ACF, ACY, AHC, DUP, GAF, KPC, TRC, VFC.
1,4-Diamino-2,3-anthraquinonedicarbonitrile-----	DUP.
1,4-Diamino-2,3-anthraquinonedicarboximide-----	DUP.
1,4-Diamino-2,3-anthraquinonedisulfonic acid-----	DUP.
4,5-Diamino-2,7-anthraquinonedisulfonic acid-----	TRC.
*4,8-Diaminoanthrarufin-----	ACF, DUP, KPC.
3,4-Diaminobenzanilide-----	DUP.
2,4-Diaminobenzenesulfonic acid [SO ₂ H=1]-----	ACF, DUP, GAF, TRC.
2,5-Diaminobenzenesulfonic acid [SO ₂ H=1]-----	TRC.
4,4'-Diamino-2,2'-biphenyldisulfonic acid-----	ACY, TRC.
4,4'-Diamino-3,3'-biphenyldisulfonic acid-----	ACF.
3,7-Diaminodibenzothiofenedisulfonic acid, 5,5-dioxide, disodium salt.	ACY.
1,4-Diamino-2,3-dichloroanthraquinone-----	DUP.
1,5 (and 1,8)-Diamino-4,8 (and 4,5)-dihydroxyanthraquinone-----	DUP.
4,8-Diamino-1,5-dihydroxy-2,6-anthraquinonedisulfonic acid	TRC.
3,6-Diamino-2,7-dimethylacridine-----	ACF, DUP.
3,6-Diamino-2,7-dimethylacridine sulfate-----	DUP.
4,4'-Diamino-5,5'-dimethyl-2,2'-biphenyldisulfonic acid-----	TRC.
4,4'-Diamino-3,3'-dimethyltriphenylmethane-----	ACY.
4,4'-Diaminodiphenylamine-2-sulfonic acid-----	YAW.
4,4'-Diaminodiphenylsulfone-----	MRK.
5,6-Diamino-1-naphthalenesulfonic acid-----	GAF.
1,4-Diamino-5-nitroanthraquinone-----	GAF.
2,4-Diamino-6-phenyltriazine-----	TNP.
2,4-Diamino-6-phenyl-s-triazine-----	RH.
2,6-Diaminopyridine-----	NEP, RIL.
*4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	ACF, ACF, DUP, GAF, SDH, TRC.
6-Diamino-m-toluenesulfonic acid [SO ₂ H=1]-----	ACF, DUP, KPC.
*1,5-Diamino-2,6-anthraquinonedicarboxylic acid-----	ACF, GAF.
2,4-Diamino-1-hydroxyanthraquinone-----	AHC, GAF, TRC.
6,8-Diamino-1-naphthalenesulfonic acid-----	GAF.
1,2-Dianthronyl-1,2-ethanediol-----	AHC.
Diarylguanidine-----	DUP.
1,5-Dibenzamidoanthraquinone-----	DUP, GAF, TRC.
4,9-Dibenzamido-3',4',6,7'-diphthaloylcarbazole-----	AHC.
*4,5'-Dibenzamido-1,1'-iminodianthraquinone-----	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
5,5'-Dibenzamido-1,1'-iminodianthraquinone-----	ACY.
4,5'-Dibenzamido-4'-methoxy-1,1'-iminodianthraquinone-----	GAF.
5',5'-Dibenzamido-1,1',4,1'-trianthrimide-----	AHC.
2-Dibenzofuranol-----	GAF.
1',2',6',7'-Dibenzopyrene-7,14-quinone-----	AHC.
*1,5-Dibenzoylnaphthalene-----	ACY, AHC, DUP, GAF, HST, TRC.
N,N'-Dibenzylethylenediamine-----	WYT.
N,N'-Dibenzylethylenediamine diacetate-----	OPC, WYT.
2,4'-Dibromoacetophenone-----	EK.
*3,9-Dibromo-7H-benz[de]anthracen-7-one-----	ACY, AHC, DUP, GAF, KPC, MAY.
m-Dibromobenzene-----	EK.
p-Dibromobenzene-----	DOW.
Dibromo-diamino-di-p-toluidinoanthraquinone-----	AHC.
5,5'-Dibromoindigotin-----	GAF.
2,6-Dibromo-1,5-naphthalenediol-----	EK.
Dibromo-8,16-pyranthrene-dione-----	DUP.
Dibromoviolanthrone-----	GAF.
1,4-Dibutoxy-2-nitrobenzene-----	EKT.
*2,5-Dichloroaniline and hydrochloride [NH ₂ =1]-----	ACF, DUP, VPC.
3,4-Dichloroaniline-----	DUP, MON.
*1,5-Dichloroanthraquinone-----	ACF, AHC, DUP, GAF, TRC.
*1,5 (and 1,8)-Dichloroanthraquinone-----	ACF, DUP, GAF.
*1,8-Dichloroanthraquinone-----	AHC, DUP, GAF, TRC.
4,8 (and 4,5)-Dichloro-1,5 (and 1,8)-anthraquinonedisulfonic acid.	GAF.
3-(3,4-Dichlorobenzamido)-1-phenyl-2-pyrazolin-5-one-----	EK.
m-Dichlorobenzene-----	EK.
o-Dichlorobenzene-----	ACO, CPD, DOW, DUP, HK, MON, GAC, PPG, SCC, SVT, UWS.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*o (and p)-Dichlorobenzene-----	GGY, HKD, PFG, MTO.
*p-Dichlorobenzene-----	ACC, CPD, DOW, DUP, HK, MON, SCC, SVT, UWS.
Dichlorobenzenesulfonic acid-----	SDH.
*3,3'-Dichlorobenzidine base and salts-----	ACF, ALL, TRC, x, x.
2,4-Dichlorobenzoic acid-----	HN.
Dichlorobenzoquinone, barium salt-----	EK.
2,4-Dichlorobenzoyl chloride-----	HN.
2,5-Dichloro-3,6-dihydroxy-p-benzoquinone-----	EK.
Dichlorodiphenylsilane-----	DCC, UCS.
2',7'-Dichlorofluorescein-----	EK.
2,5-Dichloro-4-hydrazinobenzenesulfonic acid-----	GAF.
7,16-Dichloroindanthrone-----	AHC.
Dichloroisoviolanthrone-----	AHC.
*2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)-benzenesulfonic acid.	ACY, CMG, DUP, GAF, TRC, VPC.
Dichloromethylphenylsilane-----	DCC.
*2,6-Dichloro-4-nitroaniline-----	DUP, EKT, GAF, KPC.
4,5-Dichloro-1-nitroanthraquinone-----	GAF.
1,2-Dichloro-4-nitrobenzene-----	DUP, MON.
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	ACF, DUP, GAF, KPC, VPC.
2,4-Dichlorophenol-----	DA, DOW, MON.
2,5-Dichlorophenylhydrazine-----	VPC.
3,6-Dichloropyridazine-----	ACY.
4,7-Dichloroquinoline-----	PD, SDW.
*2,5-Dichlorosulfanilic acid [SO ₂ H=1]-----	DUP, GAF, VPC.
2,5-Dichloro-4-sulfobenzenediazonium chloride-----	TRC.
p-x-Dichlorotoluene-----	HN.
2,6-Dichlorotoluene-----	GAF.
2,4-Dichloro-5-(p-toluenesulfonamide)-1-naphthol-----	EK.
Dicyclohexylamine-----	MON.
Dicyclopentadiene-----	ESL, UCC.
4-Diethylamino-o-tolualdehyde-----	DUP.
2,4-Di(1,1-dimethylpropyl)phenol (Di-tert-amylphenol)-----	PAS.
2,4-Diethoxyaniline-----	KPC.
2,5-Diethoxyaniline-----	GAF.
2',5'-Diethoxybenzamide-----	GAF, KPC.
p-Diethoxybenzene-----	GAF.
2',5'-Diethoxy-4'-nitrobenzamide-----	GAF.
1,4-Diethoxy-2-nitrobenzene-----	GAF.
p-Diethylaminobenzaldehyde-----	ACF, GAF.
α-(2-Diethylaminoethyl)-2-phenylcyclohexane methanol, hydrochloride.	ACY.
α-Diethylamino-4'-hydroxy-m-acetotoluidide-----	PD.
*m-Diethylaminophenol (N,N-Diethyl-3-aminophenol)-----	ACY, DUP, GAF.
3-Diethylaminopropiophenone-----	ACY.
*N,N-Diethylaniline-----	ACF, ACY, DUP, SDH.
N,N-Diethyl-m-anisidine-----	DUP.
Diethylbenzene-----	DOW, KPP.
Diethylcyclohexane-----	UCC.
N,N-Diethylcyclohexylamine-----	DUP.
N,N-Diethylmetanilic acid-----	DUP, GAF.
N ¹ , N ¹ -Diethyl-4-methoxymetanilamide-----	GAF, PCW, VPC.
N ¹ , N ¹ -Diethyl-5-methoxysulfanilamide-----	ICC.
N,N-Diethyl-p-nitrosoaniline-----	GAF.
N,N-Diethyl-4-nitroso-m-anisidine hydrochloride-----	DUP.
Diethyl terephthaloyldiacetate-----	GAF.
N,N-Diethyl-m-toluidine-----	DUP.
3,3'-Diformamidocarbonyl diacetate-----	GAF.
3,4-Dihydro-3,4-dioxo-1-naphthalenesulfonic acid, sodium salt.	EK.
2,3-Dihydro-4H-pyran-----	DUP, QKO.
1,5 (and 1,8)-Dihydroxyanthraquinone-----	DUP.
Dihydroxydinitroanthraquinone-----	DUP.
1,5-Dihydroxy-4,8-dimethoxyanthraquinone-----	AHC.
1,8-Dihydroxy-4,5-dinitro-2,6-anthraquinonedisulfonic acid-----	DUP.
2,2'-Dihydroxy-4-methoxybenzophenone-----	ACT.
2,6-Dihydroxymethyl-p-cresol-----	ACT.
*4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid).	ACF, HAR, TRC.
*6,7-Dihydroxy-2-naphthalenesulfonic acid-----	ACF, FMT, GAF, IDC, WOC.

TABLE 7B.-- Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
3,5-Dihydroxy-2-naphthoic acid-----	GAF, PCW.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	ACF, ACY, AHC, DUF, GAF, MAY, TRC.
2,4'-Dimethoxyacetophenone-----	DUF.
2,5-Dimethoxyaniline-----	GAF.
2,5-Dimethoxybenzaldehyde-----	CWN.
m-Dimethoxybenzene-----	ACY, DUF, GAF.
p-Dimethoxybenzene-----	ASL, GAF.
3,3'-Dimethoxybenzidine-----	ACF, ALL, DUF, SDH, X.
2,4-Dimethoxybenzoic acid-----	ACY, DUF.
1,1-(3,3'-Dimethoxy-4,4'-biphenylene)bis[3-methyl-3-(2-sulfoethyl)] triazene.	GAF.
3,3'-Dimethoxy-4,4'-bis(3-methyl-3-sulfoethyltriazen-1-yl)biphenyl.	DUF.
1,4-Dimethoxy-2-nitrobenzene-----	EKT, GAF.
3,4-Dimethoxyphenethylamine (Homoveratrylamine)-----	LIL.
(3,4-Dimethoxyphenyl)acetic acid-----	LIL.
(3,4-Dimethoxyphenyl)acetone trile-----	LIL.
16,17-Dimethoxyviolanthrone-----	AHC, MAY.
p-Dimethylaminobenzaldehyde-----	FIN.
o-(Dimethylaminoethyl)-p-butylphenol-----	RH.
α-dl-4-Dimethylamino-3-methyl-1,2-diphenylbutanol hydrochloride.	LIL.
α-d-4-Dimethylamino-3-methyl-1,2-diphenyl-2-butanol, camphor sulfonate.	LIL.
α-d-4-Dimethylamino-3-methyl-1,2-diphenyl-2-butanol hydrochloride.	LIL.
o-Dimethylaminomethylphenol-----	RH.
3-Dimethylamino-2-methylpropiofenone-----	LIL.
m-Dimethylaminophenol-----	ACF.
N-(p-Dimethylaminophenyl)-1,4-naphthoquinone imine-----	ACF.
*N,N-Dimethylaniline-----	ACF, ACY, DSC, DUF.
2,5-Dimethyl-p-benzoquinone-----	EK.
*N,N-Dimethylbenzylamine-----	FBS, MLS, SFA, X.
3,4-Dimethylbenzyl chloride-----	BPC.
*2,2'-(Dimethyl-1,1'-bisanthraquinone-----	ACF, ACY, AHC, CMG, DUF, GAF, KPC.
2,4-Di(1-methylbutyl)phenol-----	PAS.
5,5-Dimethyl-1,3-cyclohexanedione-----	EKT.
2',7'-Dimethylfluoran-----	WLM.
Dimethylhydantoin-----	GLY.
2,8-Dimethyl-13β-hydroxy-9(13β)-ceroxonone-----	WLM.
2,3-Dimethylindole-----	DUF.
N,N-Dimethyl-p-nitrosoaniline-----	ACF, ACY, FMT.
N,N-Dimethyl-p-phenylenediamine-----	ACF.
N,N-Dimethyl-p-phenylenediamine monohydrochloride-----	EK.
1,4-Dimethylpiperazine-----	JCC.
p-(1,1-Dimethylpropyl)phenol-----	PAS.
4'-(4,6-Dimethyl-2-pyrimidinylsulfamoyl)acetanilide-----	ACY.
N,N-Dimethylsulfanilic acid-----	GAF.
2,4-Dinitroaniline-----	ACY, KPC.
*p-(2,4-Dinitroanilino)phenol-----	ACF, DUF, GAF.
2,4-Dinitroanisole-----	ALL.
1,5 (and 1,8)-Dinitroanthraquinone-----	CMG, KPC, TRC.
2,4-Dinitro-N,N'-(1,5-anthraquinone)dioxamic acid-----	TRC.
3,4'-Dinitrobenzanilide-----	DUF.
m-Dinitrobenzene-----	ACF, DUF, GAF.
2,4-Dinitrobenzenesulfonic acid-----	GAF, TRC.
3,5-Dinitrobenzoic acid-----	DUF, GAM, KPC.
-3,5-Dinitrobenzoyl chloride-----	EK.
Dinitro(3,3'-bi-7H-benz[de]anthracen)-7,7'-dione-----	DUF, MAY.
4,5-Dinitrochrysazin-----	DUF, EKT, GAF.
4,4'-Dinitrodiethyl-2,2'-disulfonic acid, disodium salt-----	DUF.
*2,4-Dinitrophenol, tech-----	ACF, DUF, KPC.
2,4-Dinitrophenylhydrazine-----	EK.
*4,4'-Dinitro-2,2'-stilbenedisulfonic acid-----	ACF, ACY, DUF, GAF, SDH, TRC.
2,4-Dinitrotoluene-----	ACF, DUF.
2,4 (and 2,6)-Dinitrotoluene-----	DUF.
Dinitrotoluene, mixed-----	ACF.
3,4-Dinitro-p-toluenesulfonic acid-----	GAF.
Dipentene-----	GLD, HNW.
(2,4-Di(tert-pentyl)phenoxy)acetyl chloride-----	GAF.
1,5-Diphenoxyanthraquinone-----	DUF, KPC.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
1,5 (and 1,8)-Diphenoxyanthraquinone-----	DUP.
1,8-Diphenoxyanthraquinone-----	EKT.
m-Diphenoxybenzene-----	x.
Diphenylacetic acid-----	BPC.
Diphenylacetoni trile-----	FBS, KF.
Diphenylamine-----	ACY, DOW, DUP.
6,8-Diphenylamino-1-naphthalenesulfonic acid-----	ACF, TRC.
Diphenylanthraquinone-1'(S)-2',5'(S)-6'-dithiazole-----	AHC.
1,1-Diphenylethylene-----	CWN.
N,N'-Diphenylethylenediamine-----	TEK.
1,1-Diphenylhydrazine hydrochloride-----	EK.
2,5-Diphenyloxazole-----	EK.
Diphenylphenylphosphonite-----	VIC.
1,3-Diphenyl-1,3-propanedione-----	EK.
N,N-Diphenyl-N'-(m-propyl)urea-----	FBS.
Diphenyl-4-pyridylcarbinol-----	RIL.
1,3-Diphenyltriazene-----	ACF.
2,5-Dithiobiurea-----	ACY.
Dithiodibenzic acid-----	MEE.
*1,4-Di(p-toluidino)anthraquinone-----	ACF, AHC, GAF, TRC.
1,8-Di(p-toluidino)anthraquinone-----	AHC.
Divinylbenzene-----	DOW, KPP.
Dodecylaniline-----	MON.
*Dodecylbenzene (includes keryl-type benzenes)-----	ACF, ATR, CO, MON, SOC, SOI.
Dodecylnitrobenzene-----	MON.
Dodecylphenol-----	RH, UCP, x.
p-Dodecylphenol-----	GAF.
o-Ethoxybenzoic acid-----	ACY.
(o-Ethoxybenzoyl)acetoni trile-----	ACY.
6-Ethoxy-2-mercaptobenzothiazole-----	DUP.
2-Ethoxynaphthalene-----	ACF.
N-(2-Ethoxy-1-naphthyl)acetamide-----	TRC.
o-Ethoxyphenol (2-Hydroxyphenetole)-----	MON.
3-Ethylamino-p-cresol-----	DUP.
3-Ethylamino-p-toluenesulfonic acid [SO ₃ H=1]-----	DUP.
*N-Ethylaniline, refined-----	ACF, ACY, DUP, UCC.
[2-(N-Ethylanilino)ethanol]-----	DUP, EKT, TRC.
*2-(N-Ethylanilino)ethyl]trimethylammonium chloride-----	DUP.
(N-Ethylanilino)propioni trile-----	EKT.
α-(N-Ethylanilino)-m-toluenesulfonic acid-----	DUP.
*α-(N-Ethylanilino)-p-toluenesulfonic acid-----	ACF, ACY, GAF, ICC, SDH, TRC, VPC, WRN.
N-Ethyl-p-anisidine-----	EKT.
N-Ethylantranilic acid-----	GAF.
2-Ethylantraquinone-----	ACF.
*Ethylbenzene-----	ACP, DOW, KPP, MIT, UCC.
9-Ethylcarbazole-----	GAF.
N-Ethylcyclohexen-1-ylamine-----	GAF.
3-(N-Ethyl-4-formyl-m-toluidino)propioni trile-----	MLS.
2-[1-Ethyl-3-(2-methoxy-5-nitrophenyl)triazen-3-yl]-5-sulfobenzic acid-----	DUP.
N-Ethyl-1-naphthylamine-----	DUP.
9-Ethyl-3-nitrocarbazole-----	DSC, DUP.
p-Ethylphenol-----	GAF.
N-Ethyl-N-phenylbenzylamine-----	ACY.
2-Ethyl-2-phenylmalonic acid, diethyl ester-----	ACF, DUP, SDH.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)-----	BPC, MAL.
2-Ethylpyridine-----	UCC.
N-Ethyl-5-sulfantranilic acid-----	RIL.
6-Ethyl-1,2,3,4-tetrahydro-1,1,4,4-tetramethylnaphthalene-----	GAF.
N-Ethyl-m-toluidine-----	GIV.
N-Ethyl-o-toluidine-----	DUP.
3-(N-Ethyl-m-toluidino)-1,2-propanediol-----	ACF, DUP.
3-(N-Ethyl-m-toluidino)propioni trile-----	EKT.
(N-Ethyl-m-toluidino)-m-toluenesulfonic acid-----	DUP, EKT.
1-Ethylcyclohexanol-----	DUP.
Fluorobenzene-----	AIR.
1-Fluoro-2,4-dinitrobenzene-----	EK.
o-Fluorotoluene-----	EK.
4-Formyl-m-benzenedisulfonic acid-----	EK.
m'-Formylbenzenesulfonic acid-----	GAF.
*o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)-----	GAF.
	ACF, GAF, ICC, SDH, VPC.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
3-(4-Formyl-N-methylanilino)propionitrile-----	DUP.
Furan-----	DUP.
Furfuryl alcohol-----	QKO.
*Hexachlorobenzene-----	DA, DOW, SCC, UCP.
Hexachlorocyclopentadiene-----	HK.
Hexachlorophenyl ether-----	DOW.
Hexamethylbenzene-----	EK.
2,2',4,4',6,6'-Hexamitrodiphenylamine-----	EK.
Homophthalic acid-----	DUP.
p-Hydrazinobenzenesulfonic acid-----	ACY, DUP, GAF, STG, VPC.
3-Hydrazino-5-nitro-p-toluenesulfonic acid [SO ₃ H=1]-----	WRN.
4-Hydrazino-m-toluenesulfonic acid-----	GAF.
Hydroquinone, tech-----	CRS, EKT.
2'-Hydroxyacetophenone-----	KF.
4'-Hydroxyacetophenone-----	KF.
1-Hydroxyanthraquinone-----	TRC.
N-(3-Hydroxy-2-anthraquinonyl)-1-nitro-2-anthraquinone carboxamide-----	GAF.
3-Hydroxy-2-anthric acid-----	GAF.
2-Hydroxy-11H-benzo[a]carbazole-3-carboxylic acid-----	GAF.
p-Hydroxybenzoic acid-----	HN.
p-Hydroxybenzoic acid, butyl ester-----	FBS, HN.
p-Hydroxybenzoic acid, ethyl ester-----	HN.
p-Hydroxybenzoic acid, methyl ester-----	FBS, HN.
p-Hydroxybenzoic acid, propyl ester-----	FBS, HN.
4-Hydroxycoumarin-----	ABB.
3-(N-2-Hydroxyethyl-anilino)propionitrile-----	DUP, ICC.
[3-(N-2-Hydroxyethyl-anilino)propionitrile]acetate-----	EKT.
N-2-Hydroxyethyl-β-resorcylamide-----	FM.T.
N-(4-Hydroxymet-anilyl)anthranilic acid-----	TRC.
2-Hydroxy-4-methoxybenzophenone-----	ACY.
4-Hydroxy-4'-methoxybenzophenone-----	BKC.
3-Hydroxy-2-methylisochinonic acid-----	DUP.
2-Hydroxymethyl-4-isooctylphenoxy-3,6,9,12-tetraoxo-1- tetradecanol-----	USR.
N-Hydroxymethylphthalamide-----	ACY.
7-Hydroxy-1-naphthalenecarbamic acid, methyl ester-----	TRC.
3-Hydroxy-2-naphtho-o-anisidine-----	ATL.
3-Hydroxy-2-naphtho-o-toluidide-----	KPC.
1-Hydroxy-2-naphthoic acid-----	ACF, GAF.
2-Hydroxy-1-naphthoic acid-----	BL.
*3-Hydroxy-2-naphthoic acid (B.O.N.)-----	ACF, AUG, DUP, HN, PCW, SW.
1-Hydroxy-2-naphthoic acid, phenyl ester-----	EK.
3-Hydroxy-2-naphtho-o-phenetidide-----	ATL.
3-Hydroxy-2-naphtho-o-toluidide-----	ATL.
N-(2-Hydroxy-1-naphthyl)acetamide-----	TRC.
N-(7-Hydroxy-1-naphthyl)acetamide-----	GAF, TRC.
1-Hydroxy-4-nitroanthraquinone-----	TRC.
Hydroxynitroviolanthrone-----	ACY.
1-[4'-(p-Hydroxyphenylazo)-1,1'-biphenyl-4-azo]-2- naphthol-6,8-disulfonic acid-----	TRC.
1-[4'-(p-Hydroxyphenylazo)-3,3-dimethyl-1'-biphenyl- 4-azo]-2-naphthol-6,8-disulfonic acid-----	TRC.
2-Hydroxy-4-sulfo-1-naphthalenediazonium hydroxide, inner salt-----	ACY.
p-(5-Hydroxy-7-sulfo-2-naphthyl)amino]benzoic acid-----	GAF.
Imidazole-----	EK.
2-Imidazolidinone-----	MRA.
*1,1'-Iminobis [4-aminoanthraquinone]-----	ACF, ACY, AHC, CMG, DUP, GAF, MAY, TRC.
1,1'-Iminobis [4-benzamidoanthraquinone]-----	ACY, AHC, MAR.
*1,1'-Iminobis [5-benzamidoanthraquinone]-----	AHC, DUP, GAF, MAY, TRC.
*6,6'-Iminobis [1-naphthol-3-sulfonic acid]-----	DUP, GAF, TRC.
*1,1'-Iminobis [4-nitroanthraquinone]-----	ACF, DUP, MAY, TRC.
*1,1'-Iminodianthraquinone (Dianthrimide)-----	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
Indanthrene-----	TRC.
o-Iodobenzoic acid-----	MAL.
Isatin-----	ACF.
Isatoic anhydride-----	MEE.
Isocyanic acid, m-chlorophenyl ester-----	GAF.
Isocyanic acid, 3,3'-dimethoxy-4,4'-biphenylene ester-----	CWN.
Isocyanic acid, 3,3'-dimethyl-4,4'-biphenylene ester-----	ACF, CWN.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
Isoocyanic acid, 4-(p-isocyanatophenoxy)-m-phenylene ester--	DUP.
Isoocyanic acid, methylenebis(2-methyl-p-phenylene) ester--	DUP.
Isoocyanic acid, methylenedi-(m-methyl-p-phenylene) ester--	ACF.
Isoocyanic acid, methylenedi-p-phenylene ester-----	ACF, MOB.
*Isoocyanic acid, 4-methyl-m-phenylene ester-----	ACF, DUP, MOB.
Isoocyanic acid, 1-naphthyl ester-----	EK.
Isoocyanic acid, 1,4-phenylene ester-----	CWN.
Isoocyanic acid, polymethylene-polyphenylene ester-----	CWN.
Isonicotinic acid, methyl ester-----	RIL.
Isonitrosopropiophenone-----	FBS.
Isophorone-----	UCC.
Isophthalic acid (1,3-Benzenedicarboxylic acid)-----	SOC.
Isophthaloyl chloride-----	HK.
Isopropylbenzene-----	PLC.
4,4'-Isopropylidenediphenol (Bisphenol A)-----	DOW, MON, SHC.
N-Isopropyl-2-nitro-1-phenol-4-sulfonamide-----	TRC.
1,3-Isoquinolinediol-----	DUP.
Isothiocyanic acid, phenyl ester-----	EK.
*Isoviolanthrone (Isodibenzanthrone)-----	ACY, AHC, DUP, GAF, MAY, TRC.
Leuco-1,4-bis(methylamino)anthraquinone-----	DUP.
*Leuco-1,4-diaminoanthraquinone-----	ACY, AHC, DUP, GAF, ICC, MAY, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)-----	ACF, DUP, HAR, XPC, TRC.
*Leuco tetrahydroxyanthraquinone-----	AHC, GAF, ICC, TRC.
2,4-Dutidine-----	ACP, KPT.
2,6-Dutidine-----	RIL.
Melamine-----	ACY.
o-Mercaptobenzoic acid-----	MED, MEE.
Metanilamide-----	TRC.
Metanilamide-----	GAF.
*Metanilic acid (m-Aminobenzenesulfonic acid)-----	ACF, ACY, CMG, DUP, GAF, TRC, WOC.
Methacrylonitrile-----	EKT.
Methapyrilene-----	ABB.
1-Methoxyanthraquinone-----	GAF.
*4-Methoxymetanilic acid-----	CMG, GAF, VPC.
N-(2-Methoxy-1-naphthyl)acetamide-----	TRC.
4-Methoxy-6-nitrometanilic acid-----	DUP.
p-Methoxyphenylacetic acid-----	TBK.
4'-Methoxypropiofenone-----	LIL.
N ¹ -(6-Methoxy-3-pyridazinyl)sulfanilamide-----	ACY.
1-(6-Methoxy-m-tolyl)-3-methyl-3-(D-glucos-2,3,4,5,6-pentahydroxyphenyl)triazene.	DUP.
1-Methylaminoanthraquinone-----	ACY, AHC, DUP, GAF.
1-Methylamino-4-(p-toluidino)anthraquinone-----	GAF.
N-Methylaniline-----	ACY, DUP.
2-(N-Methylanilino)ethanol-----	GAF.
3-(N-Methylanilino)propionitrile-----	DUP, EKT.
5-Methyl-o-anisidine [NH ₂ =1]-----	DUP, TRC.
N-Methylantranilic acid-----	GAF.
2-Methylantraquinone-----	ACF, ACY.
1-(3-Methyl-2-antraquinonylamino)-5-(7-oxo-7H-benz[de]-anthracen-3-ylamino)anthraquinone.	DUP.
3-Methylbenzo[f]quinoline-----	ACY, GAF.
2-Methylbenzo[h]quinoline-----	ACY.
2-Methylbenzothiazole-----	GAF.
N-Methylbenzylamine-----	MLS.
Methylcyclohexane-----	DOW, PLC.
N-Methylcyclohexylamine-----	DUP.
N-Methyleneaniline-----	DUP.
4,4'-Methylenebis[2-chloroaniline]-----	DUP.
4,4'-Methylenebis[N,N-diethylaniline] (Methane base)-----	ACY, GAF, TRC.
4,4'-Methylenebis[N,N-dimethylaniline]-----	ACF, DUP.
4,4'-Methylenebis[N,N-dimethyl-2-nitroaniline]-----	GAF.
5,5'-Methylenebis[toluene-2,4-diamine]-----	ACF, DUP.
Methylenedianiline-----	ACY.
Methylenedisalicylic acid-----	HN.
2-Methylfuran-----	QKO.
2-Methylindole-----	GAF.
Methylnaphthalene, crude-----	KPT, VEL.
N-Methyl-4'-nitroacetanilide-----	ACF, GAF.
N-Methyl-p-nitroaniline-----	EK, GAF.
4-Methyl-2-nitroanisole-----	DUP.

TABLE 7B.--*Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued*

Chemical	Manufacturers' identification codes (according to list in table 23)
*2-Methyl-1-nitroanthraquinone-----	ACF, AHC, DUP, GAF.
N-Methyl-2-nitro-1-phenol-4-sulfonamide-----	TRC.
N-Methyl-N-nitroso-p-toluenesulfonamide-----	EK.
N-Methyl-5-norbornene-2,3-dicarboxylic anhydride-----	ACF.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide-----	TRC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	GAF.
*p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	ACY, CMG, DUP, GAF, TRC, VFC.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-5-nitro-p-toluene- sulfonic acid [SO ₃ H=1].	GAF.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO ₃ H=1].	GAF.
N-Methyl-N-phenylbenzylamine-----	EK.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	ACF, DOW, DUP, SDW, TRC, VFC.
Methyl phenyl sulfide-----	EYN.
Methylpropylcarbonylbarbituric acid-----	LIL.
1-Methylpyrrole-----	ASL, X.
*o-Methylstyrene-----	ACP, ACY, DOW, HFC, SOC.
N-Methyl-5-sulfanthranilic acid-----	GAF.
2-Methylsulfonyl-4-nitroaniline-----	EKT.
4-(Methylsulfonyl)-2-nitrophenol-----	TRC.
Methyl-6-(p-toluidino)-7H-dibenz[f,i]isoquinoline- 2,7(3H)-dione.	AHC.
Methyl-6-(p-toluidino)-7H-dibenz[f,i]isoquinoline- 2,7(3H)-dione.	GAF.
3-Methyl-1-p-tolyl-2-pyrazolin-5-one-----	ICC, VFC.
6'-Methyl-4'-p-tolylsulfonamido-m-benzanilide-----	GAF.
*Naphthalene, solidifying at 79° C. or above (refined flake):	
*From domestic crude naphthalene-----	ACP, ACY, DUP, KPT, RIL, SW.
*From imported crude naphthalene-----	ACP, ACY, KPT, STN, SW.
1,5-Naphthalenediol (1,5-Dihydroxynaphthalene)-----	ACF.
2,3-Naphthalenediol-----	GAF.
2,7-Naphthalenediol-----	EK.
*1,5-Naphthalenedisulfonic acid-----	ACF, DUP, GAF, TRC.
*2,7-Naphthalenedisulfonic acid-----	ACF, DUP, TRC.
1-Naphthalenesulfonic acid, sodium salt-----	TRC.
2-Naphthalenesulfonic acid-----	ACF, ACY.
2-Naphthalenesulfonic acid, sodium salt-----	ACY.
2-Naphthalenesulfonyl chloride-----	DUP, EK, GAF.
1,4,5,8-Naphthalenetetracarboxylic acid-----	TRC.
1,4,5,8-Naphthalenetetracarboxylic dianhydride-----	GAF.
1,3,6-Naphthalenetrisulfonic acid-----	GAF.
Naphthalic anhydride-----	ACF, DUP, GAF.
Naphthalimide-----	ACF, DUP, GAF.
Naphthionic acid (4-Amino-1-naphthalenesulfonic acid)-----	ACY, DUP.
Naphthionic acid, sodium salt-----	ACF, ACY, DUP, TRC.
1-Naphthol (α-Naphthol)-----	ACF, DUP.
2-Naphthol, tech. (β-Naphthol)-----	ACF, ACY, SW.
p-Naphtholbenzein-----	EK.
1-Naphthol-3-benzenesulfonic acid, sodium salt-----	GAF.
1-Naphthol-3,6-disulfonic acid, monosodium salt-----	ACF.
1-Naphthol-3,8-disulfonic acid-----	ACF.
*2-Naphthol-3,6-disulfonic acid (R acid)-----	ACF, TRC.
*2-Naphthol-3,6-disulfonic acid, disodium salt-----	ACY, GAF, WRN.
*2-Naphthol-6,8-disulfonic acid (G acid)-----	ACF, DUP, TRC.
2-Naphthol-6,8-disulfonic acid, dipotassium salt-----	GAF.
*2-Naphthol-6,8-disulfonic acid, disodium salt-----	ACY.
1-Naphthol-3-sulfonamide-----	GAF.
*1-Naphthol-4-sulfonic acid (Neville & Winther's acid)-----	ACF, DUP, TRC.
1-Naphthol-5-sulfonic acid-----	ACF, GAF, TRC.
1-Naphthol-8-sulfonic acid-----	VFC.
*2-Naphthol-6-sulfonic acid (Schaeffer's acid)-----	ACF, ACY, TRC.
2-Naphthol-6-sulfonic acid, sodium salt-----	TMS, WRN.
2-Naphthol-6-sulfonic acid, sodium salt, p-toluene sulfonate.	DUP.
2-Naphthol-7-sulfonic acid-----	DUP.
2-Naphthol-8-sulfonic acid-----	TRC.
*1-Naphthol-8-sulfonic acid sultone (1,8-Naphthosultone)-----	ACY, CMG, DUP, TRC.
1,4-Naphthoquinone-----	ACF, ACY.
Naphthostyryl-----	ACF, DUP.
Naphth[1,2-d][1,2,3]oxadiazole-5,9-disulfonic acid-----	TRC.
*Naphth[1,2]oxadiazole-5-sulfonic acid-----	ACF, CMG, DUP, GAF, TRC.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
1-Naphthylamine (α -Naphthylamine)-----	ACF, DUP, GAF.
2-Naphthylamine (β -Naphthylamine)-----	KLS.
1-(2-Naphthylamino)-2-anthraquinonecarboxylic acid-----	ACF.
p-2-Naphthylaminophenol (N-(p-Hydroxyphenyl)-2-naphthylamine).	GAF.
*2-(Naphthylthio)acetic acid-----	ACY, DUP, GAF, KPC, VPC.
Nicotinic acid, n-butyl ester-----	ABB.
Nicotinonitrile (3-Cyanopyridine)-----	NEP, RIL.
Nitro-acenantha[2,1-a]aceanthrylene-5,13-dione-----	AHC.
3'-Nitroacetanilide-----	TRC.
4'-Nitroacetanilide-----	ACY, EKT, GAF, TRC.
2-Nitro-p-acetaniside-----	DUP, GAF.
4, (and 5')-Nitro-o-acetaniside-----	GAF.
3'-Nitroacetophenone-----	ACY.
4'-Nitroacetophenone-----	NES.
*m-Nitroaniline-----	ACY, DUP, TRC.
o-Nitroaniline-----	KPC, MON, SDH.
p-Nitroaniline-----	KPC, MON.
3-Nitro-p-anisic acid-----	GAF.
2-Nitro-p-anisidine (NH ₂ =)-----	DUP, SDH.
*4-Nitro-o-anisidine (NH ₂ =)-----	DUP, GAF, KPC, SDH.
*5-Nitro-o-anisidine (NH ₂ =)-----	ACY, ALL, AUG, DUP, GAF, KLS, KPC, SDH.
o-Nitroanisole-----	DUP, MON.
p-Nitroanisole-----	DUP.
1-Nitroanthraquinone-----	KPC.
1'-Nitroanthraquinone-2'-carboxyaminoacenantha[2,1-a]-aceanthrylene-5,13-dione.	AHC.
*1-Nitro-2-anthraquinonecarboxylic acid-----	ACF, AHC, DUP, GAF, TRC.
*5-Nitro-1-anthraquinonesulfonic acid-----	ACF, DUP, GAF, MAY, TRC.
5(and 8)-Nitro-1-anthraquinonesulfonic acid-----	ACF, DUP.
8-Nitro-1-anthraquinonesulfonic acid-----	TRC.
8-Nitro-1-anthraquinonesulfonic acid, sodium salt-----	DUP.
2-(1-Nitro-2-anthraquinonyl)anthra[2,3]oxazole-5,10-dione-----	GAF.
m-Nitrobenzaldehyde-----	ACF, SDH.
6-[p-(m-Nitrobenzamido)benzamido]-1-naphthol-3-sulfonic acid	DUP.
6-(p-Nitrobenzamido)-1-naphthol-3-sulfonic acid-----	DUP, GAF.
*NItrobenzene-----	ACF, ACY, DUP, GAF, MON.
2-Nitro-p-benzenedisulfonic acid-----	TRC.
m-Nitrobenzenesulfonamide-----	TRC.
3'-Nitrobenzenesulfonamide-----	GAF, TRC.
*m-Nitrobenzenesulfonic acid-----	ACF, CMG, DUP, GAF, KPC, MAY, TRC.
*m-Nitrobenzenesulfonic acid, sodium salt-----	MON.
p-Nitrobenzenesulfonic acid-----	ACY.
5'-Nitro-o-benzenesulfonotoluidide-----	DUP.
m-Nitrobenzenesulfonyl chloride-----	GAF.
p-Nitrobenzenesulfonyl chloride-----	EK.
*m-Nitrobenzoic acid-----	HK.
*p-Nitrobenzoic acid-----	CWL, DUP.
p-Nitrobenzoic acid, ethyl ester-----	FBS.
p-Nitrobenzoic acid, isobutyl ester-----	FBS.
p-Nitrobenzoic acid, propyl ester-----	FBS.
m-Nitrobenzoyl chloride-----	GAF, HK.
p-Nitrobenzoyl chloride-----	DUP, HK.
4'-Nitro-4-biphenylcarboxylic acid, sodium salt-----	DUP, GAF.
2-Nitro-p-cresol-----	DUP, TRC.
Nitrodiphenylamine-----	ACY.
1-Nitronaphthalene-----	ACF, DUP, GAF.
3-Nitro-1,5-naphthalenedisulfonic acid-----	GAF, TRC.
8-Nitro-1-naphthalenesulfonic acid-----	GAF.
7(and 5)-Nitro-1(and 2)-naphthalenesulfonic acid-----	GAF.
8(and 8)-Nitronaphth[1,2]oxadiazole-5-sulfonic acid-----	ACF, GAF, TRC.
4'-Nitrooxanilic acid-----	DUP.
p-Nitrophenethyl acetate-----	EKT.
Nitrophenethyl alcohol-----	EKT.
p-Nitrophenetole-----	DUP.
o-Nitrophenol-----	DUP, VPC.
p-Nitrophenol-----	DUP, GAF, MON.
p-Nitrophenol, sodium salt-----	MON.
2-Nitro-1-phenol-4-sulfonanilide-----	TRC.
o-Nitrophenylacetic acid-----	EK.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
p-Nitrophenylacetic acid-----	EK.
N,N'-(4-Nitro-m-phenylene)bisacetamide-----	GAF.
p-Nitrophenylhydrazine-----	EK.
2-(o-Nitrophenyl)-2H-naphtho[1,2]triazole-6,8-disulfonic acid.	TRC.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	DUP.
4-Nitrophthalic acid-----	EK.
4-Nitrophthalimide-----	DUP.
3(and 5)-Nitrosalicylic acid-----	EK, GAF.
4-Nitrosodiphenylamine-----	MON, USR.
1-Nitroso-2-naphthol-----	EK.
2-Nitroso-1-naphthol-----	EK.
p-Nitrosophenol-----	ACF, ACY, DUP.
p-Nitrostyrene-----	CWN.
2-[4-(4-Nitro-2-sulfostyryl)-5-sulfophenyl]-2H-naphtho- [1,2]triazole-5-sulfonic acid.	TRC.
m-Nitrotoluene-----	DUP.
o-Nitrotoluene-----	ACF, DUP.
p-Nitrotoluene-----	ACF, DUP.
Nitrotoluene mixtures-----	ACF, DUP.
5-Nitro-o-toluenesulfonamide-----	GAF.
*3-Nitro-p-toluenesulfonic acid [SO ₃ H=1]-----	ACY, CMG, GAF, TRC.
*5-Nitro-o-toluenesulfonic acid [SO ₃ H=1]-----	ACF, ACY, DUP, GAF, KPC, TRC.
4'-Nitro-p-toluenesulfono-o-toluidide-----	GAF.
5-Nitro-o-toluenesulfonylchloride-----	GAF.
4-Nitro-o-toluidine [NH ₂ =1]-----	DUP, GAF.
*5-Nitro-o-toluidine [NH ₂ =1]-----	DUP, GAF, KLS, KPC, SDH.
*2-Nitro-p-toluidine [NH ₂ =1]-----	ACF, ACY, DUP, SDH, SW.
*16-Nitroviolanthrone-----	ACY, GAF, MAY, PCO.
2-Nitro-p-xylene-----	DUP.
4-Nitro-m-xylene-----	DUP.
*Nitroxylenes, mixed-----	ACF, ACY, DUP.
2-tert-Nonyl-p-cresol-----	USR.
Nonyl-dinonylphenol, mixture-----	JCC.
Nonyl- and dodecylbenzenes, mixed-----	ATR.
*Nonylphenol-----	GAF, JCC, RH, UCC, UCP, USR.
2-(p-Nonylphenoxy)ethanol-----	GAF.
Octylphenol-----	RH.
Oxalacetic acid, diethyl ester, p-sulfophenylhydrazone-----	TRC.
6-Oxo-6H-anthra[9,1]isothiazole-3-carbonyl chloride-----	DUP.
6-Oxo-6H-anthra[9,1]isothiazole-3-carboxylic acid-----	DUP.
*1-(7-Oxo-7H-benz[de]anthracen-3-ylamino)anthraquinone-----	ACY, AHC, DUP, GAF, TRC.
*1,1'-(7-Oxo-7H-benz[de]anthracen-3,9-ylenediimino)- dianthraquinone.	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid-----	VPC.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid ester-----	SDW.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester-----	GAF.
*5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid (Pyrazolone T).	GAF, KPC, VPC.
4,4-Oxydianiline-----	EK.
3-[2-(m-Pentadecylphenoxy)butyramido]-1-(2,4,6-trichloro- phenyl)-2-pyrazolin-5-one.	GAF.
Pentadecyltoluene-----	CO.
1,1,3,3,5-Pentamethylindan-----	GIV.
Pentyl-naphthalenes (Amylnaphthalenes)-----	PAS.
o-Pentylphenol (o-Amylphenol)-----	PAS.
3,4,9,10-Perylene-tetracarboxylic acid-----	GAF.
3,4,9,10-Perylene-tetracarboxylic diimide-----	GAF.
Phenethylamine-----	MIS.
Phenethylamine sulfate-----	MIS.
4-Phenethylresorcinol-----	KPC.
o-Phenetidine-----	DUP, MON.
p-Phenetidine-----	DUP, MON.
*Phenol:	
*Natural:	
*From coal tar: ¹	
39° C., m.p.-----	ACP, KPT, RIL.
*82% 84%-----	ACP, KPT, RIL.
All other-----	ACP, ACY, KPT, PRD, REP, RIL.
*From petroleum-----	MER, PIT, PRD.

TABLE 7B. -- Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*Phenol--Continued	
*Synthetic:	
By caustic fusion:	
U.S.P.-----	MAL, MDN, 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, SHC, SOC.
*1-Phenol-4-sulfonic acid-----	DOW, MDN, UPF.
Phenoxyacetic acid-----	DA, DOW.
α -Phenoxypropionyl chloride-----	FES, NES.
*Phenylacetic acid (α -Toluic acid)-----	BPC, GIV, TBK.
Phenylacetic acid, ethyl ester, tech-----	BPC, MAL, TBK.
Phenylacetic acid, methyl ester, tech-----	BPC.
*Phenylacetic acid, potassium salt-----	BPC, MDN, OPC, TBK.
Phenylacetic acid, sodium salt-----	BPC.
*Phenylacetoneitrile (α -Tolunitrile)-----	BPC, KF, OPC, SDW, TBK.
4'-Phenylacetophenone-----	GAF.
2-Phenylanthr[2,3]oxazole-5,10-dione-----	GAF.
*p-Phenylazoaniline (p-Aminoazobenzene) and hydrochloride---	ACP, ACY, DUP, GAF, KPC, TRC.
p-Phenylazobenzoyl chloride-----	EK.
4-Phenylazo-1-naphthylamine-----	DUP.
4-Phenylazo-2,5-xylidine hydrochloride-----	DUP.
2-Phenylbutyric acid-----	BPC.
trans-2-Phenylcyclopropanecarboxylic acid-----	BPC.
N,N'-p-Phenylenebis[acetamide]-----	ACY.
2,2-p-Phenylenebis[5-(1-nitro-2-anthraquinonyl)-1,3,4-oxadiazole].	DUP.
*m-Phenylenediamine-----	ACF, ACY, DUP, GAF, PDC.
*o-Phenylenediamine-----	FMT, MEE, MRT, TRC.
*p-Phenylenediamine-----	ACP, ACY, SW.
1,1'-(p-Phenylenedicarbonyl)bis[2-(1-nitro-2-anthraquinonylcarbonyl)hydrazine].	DUP.
Phenyl ether (Diphenyl oxide)-----	DOW.
Phenylglycine, sodium salt-----	ACP, DUP.
Phenylhydrazine-----	DOW.
Phenylhydrazine dihydrogen sulfate-----	NEP.
Phenylhydrazine hydrochloride-----	DUP, EK, FIN, GAF.
*2,2'-(Phenylimino)diethanol (Phenyldiethanolamine)---	DUP, EKT, GAF, KPC, TRC, UCC.
Phenylmalonic acid, diethyl ester-----	BPC.
o-Phenylphenol-----	DOW, RCI.
o-Phenylphenol, chlorinated-----	DOW.
o-Phenylphenol, sodium salt-----	DOW.
p-Phenylphenol-----	DOW.
N-Phenyl-p-phenylenediamine-----	DUP.
Phenylphosphonous acid-----	VIC.
Phenylphosphonous acid, sodium salt-----	VIC.
Phenyl-2-propanone-----	ORT, SK.
Phenyl-2-pyridyl ketone-----	RIL.
Phenyltetramer-----	SPD.
Phloroglucinol-----	MRT.
Phthalic acid-----	KF, MEE.
*Phthalic anhydride-----	ACP, ACP, ACY, KPT, MDN, PCC, RCI, SOC, SW, WTC.
*Phthalic anhydride residue-----	ACP, SOC, SW.
Phthalide-----	ACP.
*Phthalimide-----	ACP, DOW, DUP, MEE, SFA.
Phthalimide, potassium salt-----	EK.
Phthalocyanine, iron derivative-----	DUP.
Phthalocyaninedisulfonic acid, copper derivative-----	TRC.
Phthalonitrile-----	ACP.
Phthaloyl chloride (Phthalyl chloride)-----	MDN.
*Picolines: ¹	
*2-Picoline (α -Picoline)-----	ACP, KPT, UCC.
3-Picoline (β -Picoline)-----	RIL.
4-Picoline (γ -Picoline)-----	RIL, UCC.
Picoline (3,4-mixture)-----	ACP, KPT.
Picramic acid and salt-----	ACP, DUP.
Picric acid (Trinitrophenol)-----	ACP, DUP, SDC.
Picryl chloride-----	EK.
1-Piperazineethanol-----	JCC.
Piperazine mixture, crude-----	JCC.

See footnote at end of table.

TABLE 7B. --Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
*Piperidine-----	DUP, HK, RIL.
Polychlorobiphenyl-----	MON.
Polydodecylbenzene-----	CO.
Polypentadecyltoluene-----	CO.
Potassium phenoxide-----	DUP.
Primuline base-----	ACF, DUP.
Primulinesulfonic acid-----	PCO.
Propiophenone-----	KPC, LIL, TBK.
Purpurin (1,2,4-Trihydroxyanthraquinone)-----	GAF.
Pyranthrone-----	AHC.
Pyrene-----	GAF.
Pyridine, refined: ¹	
*2° Pyridine-----	ACP, KPT, RIL.
Other grades-----	KPT.
2,5-Pyridinedicarboxylic acid, di-n-propyl ester-----	ASL.
2-Pyridineethanol-----	RIL.
Pyridine hydrochloride-----	EK.
3-Pyridinol-----	NEP.
2(1H)-Pyridone-----	FMT.
2-Pyrimidinol-----	GGY.
4-(Pyrimidinylsulfamoyl)acetanilide-----	ACY.
Pyrrrole-----	ASL.
Pyrrolidine-----	ASL.
2-Pyrrolidinone-----	GAF.
*Quinaldine-----	ACF, ACY, DUP, KPT.
*Quinizarin-----	ACF, ACY, AHC, CMG, CWN, DUP, EKT, GAF, HAR, ICC, KPC, MAY, TRC.
2-Quinizarinsulfonic acid-----	ACF, PAT.
Quinoline:	
1° and 2° Quinoline-----	ACP, KPT.
Other grades-----	ACF, EK.
2,4-Quinolinediol-----	DUP.
Quinoline yellow, base-----	ACF.
Quinophthalone-----	DUP.
Resorcinol, tech-----	KPC, LEM.
Resorcinol, monoacetate-----	KPC.
β-Resorcyaldehyde-----	GAF.
β-Resorcylic acid-----	ACY, KPC, MEE.
Salicylaldehyde-----	HN.
Salicylanilide-----	MEE.
*Salicylic acid, tech-----	DOW, DUP, HN, MON.
Salicylic acid, ammonium chromium complex-----	TRC.
Salicylic acid, ethyl ester-----	FBS.
Salicylideneaminoguanidine oleate-----	DUP.
Sodium phenoxide-----	DUP, FIN.
Styphnic acid, lead salt-----	REM.
*Styrene, all grades-----	ACD, DOW, FG, KPP, MTC, ODS, SHC, UCC.
4'-Sulfamoylacetanilide-----	CSD.
5-Sulfamoylanthranilic acid-----	TRC.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt-----	ACF, ACY.
4-Sulfoanthranilic acid-----	CMG, GAF, TRC.
o-Sulfobenzoic anhydride-----	EK.
5-Sulfoisophthalic acid, dimethyl ester-----	DUP.
p,p'-Sulfonyldianiline-----	DUP.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)-----	GAF, MON, UPF.
4-Sulphophthalic acid-----	CWN.
Terephthalic acid-----	DUP, SOC.
Terephthalic acid dihydrazide-----	DUP.
Terephthalic acid, dimethyl ester-----	ACC, DUP, HPC.
1,1'-Terephthaloylbis [2-(1-amino-2-anthraquinone-carbonyl)hydrazine].-----	DUP.
Terephthaloyl chloride-----	HK.
Terphenyl (Phenylbiphenyl)-----	ARA, MON.
Tetrabromo-8,16-pyranthrene-dione-----	ACF, GAF.
1,3,6,8-Tetrabromopyrene-----	GAF.
*1,4,5,8-Tetrachloroanthraquinone-----	ACF, AHC, DUP, GAF.
Tetrachloro-7H-benz-[de]-anthracen-7-one-----	AHC.
1,2,4,5-Tetrachlorobenzene-----	DOW, HK.
Tetrachloro- and trichlorobenzene, mixed-----	UCP.
2,2',6,6'-Tetrachloro-4,4'-isopropylidenediphenol-----	MON.

See footnote at end of table.

TABLE 7B.--Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
1,3,6,8-Tetrachloropyrene-----	TRC.
$\alpha,\alpha,2,6$ -Tetrachlorotoluene-----	DUP.
Tetrahydrofuran-----	DUP.
Tetrahydro-2-methylfuran-----	KGO.
Tetrakisaminophthalocyanine, copper salt-----	DUP.
*1,4,5,8-Tetrakis [1',1'',1''',1''''-anthraquinonylamino]- anthraquinone (Pentanthramide).	ACF, AHC, DUP, TRC.
1,2,4,5-Tetramethylbenzene (Durene)-----	SHC.
p-(1,1,3,3-Tetramethylbutyl)phenol-----	GAF.
N,N,N',N'-Tetramethyl-p-phenylenediamine dihydrochloride-----	EK.
Tetrani trophthalocyanine, copper salt-----	DUP.
2-(2-Thenylideneamino)pyridene-----	ABB.
Thianthrenedicarboxylic acid-----	TRC.
Thianthrenedinitrile-----	TRC.
*3,3'-Thiobis [7H-benz[de]anthracen-7-one]-----	ACY, AHC, DUP, GAF, TRC.
4,4'-Thiodianiline-----	ACY, DUP.
6,6'-Thiodimetanilic acid-----	ACF.
2-Thiophene carboxaldehyde-----	ABB.
o-Tolidine-----	ACF, CWN, DUP.
o-Tolidine hydrochloride-----	DUP, EK.
Toluene-2,4-diamine (4-m-Tolylenediamine)-----	ACF, ACY, BL, DUP, GAF, SDC, TRC.
Toluene-2,4-disulfonic acid-----	GAF, KPC.
o-Toluenesulfonamide-----	MON.
p-Toluenesulfonamide-----	ACY, MON.
o (and p)-Toluenesulfonic acid-----	GAF, MON, SW, UPF.
o (and p)-Toluenesulfonic acid, potassium salt-----	NES.
p-Toluenesulfonic acid, anhydrous-----	TN.
p-Toluenesulfonic acid, ethyl ester-----	ACY, VPC.
p-Toluenesulfonic acid, methyl ester-----	AHC, MON, VPC.
p-Toluenesulfonic acid monohydrate-----	UPF.
p-Toluenesulfono-o-toluidide-----	DUP, GAF.
o-Toluenesulfonyl chloride-----	MON.
p-Toluenesulfonyl chloride-----	MON.
o-Toluenethiol-----	RBC.
p-Tolhydroquinone (Methylhydroquinone)-----	EKT.
m-Toluic acid-----	CWL.
o-Toluic acid-----	CWL.
p-Toluic acid-----	CWL, EK.
m-Toluidine-----	ACF, DUP.
o-Toluidine-----	ACF, DUP, KPC.
o-Toluidine hydrochloride-----	ACY.
p-Toluidine-----	ACF, DUP.
p-Toluidine hydrochloride-----	EK.
Toluidines, mixed-----	ACY, KPT.
m-Toluidinmethanesulfonic acid-----	TRC, VPC.
o-Toluidinmethanesulfonic acid-----	DUP.
8-(p-Toluidino)-1-naphthalenesulfonic acid-----	ACF, GAF.
2-(p-Toluidino)-5-nitrobenzenesulfonic acid-----	TRC.
1-(o-Toluidino)-2-propanol-----	EKT.
o-(p-Toluoyl)benzoic acid-----	DUP.
4-(o-Tolylazo)-o-ansidine hydrochloride-----	GAF.
*4-(o-Tolylazo)-o-toluidine (o-Aminoazotoluene)-----	ACF, ACY, DUP, GAF, KPC, SDH, TRC.
o-(p-Tolyl)benzoic acid-----	ACF, ACY.
*2,2'-(m-Tolylimino)diethanol-----	EKT, GAF, KPC.
3,4',5-Tribromosalicylanilide-----	x.
1,2,4-Trichlorobenzene-----	DOW, HK.
N,2,6-Trichloro-p-benzoquinone imine-----	EK.
1,2,4-Trichloro-5-nitrobenzene-----	GAF, KPC.
Trichlorophenylsilane (Benzotrichloride)-----	UCS.
α,α,α -Trichlorotoluene (Benzotrichloride)-----	HK, HN, TNP.
$\alpha,2,4$ -Trichlorotoluene-----	HN.
$\alpha,2,4$ (and $\alpha,2,6$)-Trichlorotoluene-----	BFC.
$\alpha,3,4$ -Trichlorotoluene-----	HN.
1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)-trione-----	MON.
1,3,5-Triethylbenzene-----	DUP.
α,α,α -Trifluoro-5-chloro-1-nitrotoluene-----	HST.
α,α,α -Trifluoro-4-nitro-m-cresol-----	MEE.
α,α,α -Trifluoro-m-nitrotoluene-----	MEE.
α,α,α -Trifluorotoluene-----	HK.
α,α,α -Trifluoro-m-toluidine-----	MEE, NES.
3,4,5-Trimethoxybenzoic acid-----	KF.

TABLE 7B. -- Synthetic organic chemicals: Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
2,4,5-Trimethylaniline (Pseudocumidine)-----	ACF, BAT.
Trimethylbenzene-----	PLC.
1,2,4-Trimethylbenzene (Pseudocumene)-----	HUM.
1,3,3-Trimethyl- $\Delta^2,^6$ -indolineacetaldehyde-----	DUP.
1,3,3-Trimethyl-2-methyleneindoline-----	DUP, x.
Trimethylphenylammonium iodide-----	EK.
2,3,3-Trimethyl-3H-pseudoindole-----	x.
1,3,5-Trinitrobenzene-----	EK.
2,4,6-Trinitrobenzoic acid-----	MRT.
Triphenylamine-----	EK.
Triphenylmethanol-----	EK.
2,4,6-Tris(dimethylaminomethyl)phenol-----	RH.
3,3'-Ureylenebis(4-methoxybenzenesulfonic acid)-----	DUP.
*6,6'-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea)-	ACF, ACY, BL, CMG, DUP, GAF, PCO, TRC, VPC, WCC.
*Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	GIV, MON, SLV.
4-Vinylcyclohexene-----	PLC.
2,2'-Vinylenebis[benzimidazole]-----	TRC.
5-Vinyl-2-picoline (MVP)-----	PLC.
2-Vinylpyridine-----	RIL.
4-Vinylpyridine-----	RIL.
*Violanthrone (Dibenzanthrone)-----	ACY, AHC, DUP, GAF, KPC, MAY, PCO, TRC.
9-Xanthene-carboxylic acid-----	MAL.
m-Xylene-----	SOC.
*o-Xylene-----	GSD, SNT, SOC.
o- (and p) -Xylene-----	HUM.
*p-Xylene-----	GSD, HUM, SIN, SOC.
2,4-Xylenol-----	EK.
Xylenol crystals-----	ACP, KPT.
Xylenols:	
Low b.p.-----	PIT, PRD.
Medium b.p.-----	PCC, PIT, PRD.
*Not classified as to b.p.-----	ACP, PRD, RIL.
Xylidines:	
2,4-Xylidine (m-4-Xylidine)-----	DUP.
2,5-Xylidine (p-Xylidine)-----	ACF, DUP.
*Original mixture-----	ACF, ACY, DUP.
2,4-Xylidine acetate-----	ACY.
4-(2,4-Xylylazo)-o-toluidine-----	ACF.
4-(2,5-Xylylazo)-o-toluidine-----	ACY.
4-(Xylylazo)xylidine, mixed-----	GAF.
4-(2,4-Xylylazo)-2,5-xylidine-----	ACF.
All other intermediates-----	ICC, KF, UCP, WYT.

¹ 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 Information Circular No. 7996, *Coke Plants in the United States on December 31, 1959*.

Dyes

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959

[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 23. 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 23)
ACID DYES	
*Acid yellow dyes:	
Acid yellow 1-----	ACF, ACY.
Acid yellow 2-----	DUP.
*Acid yellow 3-----	ACF, ACY, DUP, GAF.
Acid yellow 7-----	ACF.
Acid yellow 9-----	ACY.
*Acid yellow 11-----	CMG, DUP, GAF, VPC.
Acid yellow 14-----	TRC.
*Acid yellow 17-----	ACF, ACY, CMG, DUP, GAF, TRC, VPC.
*Acid yellow 23-----	ACF, ACY, GAF, KPC, TRC, VPC.
Acid yellow 25-----	GAF, VPC.
Acid yellow 29-----	GAF.
Acid yellow 34-----	ACF.
*Acid yellow 36-----	ACF, DUP, GAF, TRC.
Acid yellow 38-----	ACF, GAF.
*Acid yellow 40-----	ACF, GAF, TRC, VPC.
*Acid yellow 42-----	ACY, GAF, KPC, TRC, VPC.
*Acid yellow 44-----	ACF, GAF, KPC, TRC, VPC.
Acid yellow 48-----	TRC.
*Acid yellow 54-----	ACF, ACY, CMG, GAF, TRC, VPC.
Acid yellow 60-----	ACF.
Acid yellow 63-----	ACF, KPC.
Acid yellow 65-----	TRC.
*Acid yellow 73-----	ACF, NYC, SDH, SNA.
Acid yellow 76-----	TRC.
Acid yellow 77-----	ACY.
Acid yellow 90-----	ACF.
Acid yellow 95-----	CMG.
*Acid yellow 99-----	ACF, CMG, GAF, TRC, VPC.
Acid yellow 114-----	TRC.
Other acid yellow dyes: Acid yellow, FGL, G, 3GG, GW, NR, NW, R, RN.	ACY, ALT, DUP, GAF, TRC, VPC.
*Acid orange dyes:	
Acid orange 1-----	ACF, GAF.
Acid orange 2-----	ACF.
Acid orange 6-----	ACF.
*Acid orange 7-----	ACF, ACY, ATL, GAF, KPC, TRC, YAW.
*Acid orange 8-----	ACF, ACY, DUP, GAF, TRC.
*Acid orange 10-----	ACF, ACY, DUP, GAF, SDH, TRC.
Acid orange 12-----	ACF.
Acid orange 19-----	GAF.
Acid orange 20-----	ACF.
*Acid orange 24-----	ACF, ACY, DUP, GAF, KPC, TRC, YAW.
Acid orange 28-----	ACF.
Acid orange 31-----	KPC.
Acid orange 32-----	VPC.
Acid orange 34-----	ACY.
Acid orange 45-----	ACF, TRC.
Acid orange 49-----	TRC.
Acid orange 50-----	KPC.
Acid orange 51-----	ACF, CMG, TRC, VPC.
Acid orange 56-----	GAF.
Acid orange 60-----	DUP, GAF.
Acid orange 62-----	TRC.
Acid orange 63-----	GAF.
Acid orange 64-----	ACF, DUP.
Acid orange 69-----	ACY.
Acid orange 72-----	GAF.
*Acid orange 74-----	ACF, CMG, GAF, TRC, VPC.
Acid orange 76-----	ACF, TRC.
Acid orange 86-----	TRC.
Other acid orange dyes: Acid orange, G, 2G, NST, RW-----	ACF, ACY, ALT, DUP, TRC, VPC.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES--Continued	
*Acid red dyes:	
*Acid red 1-----	ACF, ACY, DUP, GAF, KPC, TRC, VPC, YAW.
*Acid red 4-----	ATL, CMG, DUP, GAF, TRC, VPC, YAW.
*Acid red 12-----	ACF, GAF, TRC.
*Acid red 14-----	ACF, ATL, DUP, GAF, TRC.
*Acid red 17-----	ACF, ATL, GAF, TRC.
*Acid red 18-----	ACF, ACY, DUP, GAF, TRC.
*Acid red 25-----	TRC.
*Acid red 26-----	ACF, ACY, ATL, GAF.
*Acid red 27-----	ACF, TRC.
*Acid red 29-----	ACF.
*Acid red 32-----	ACF, GAF.
*Acid red 33-----	ACF, YAW.
*Acid red 34-----	ACF, DUP.
*Acid red 35-----	GAF, KPC.
*Acid red 37-----	ACF, CMG, DUP, GAF, TRC.
*Acid red 51-----	GAF, NYC.
*Acid red 52-----	GAF.
*Acid red 64-----	ACF.
*Acid red 66-----	ACF, KPC.
*Acid red 73-----	ACF, ACY, ATL, DUP, GAF, TRC.
*Acid red 76-----	ACF.
*Acid red 80-----	GAF.
*Acid red 85-----	ACF, ACY, ATL, CMG, DUP, GAF, TRC, VPC, YAW.
*Acid red 87-----	ACF, AMS, NYC, SDH.
*Acid red 88-----	ACF, ACY, DUP, GAF, SDH, TRC.
*Acid red 89-----	GAF, KPC, TRC, VPC.
*Acid red 92-----	ACF, NYC, SDH.
*Acid red 94-----	NYC, TRC.
*Acid red 97-----	GAF, TRC.
*Acid red 99-----	ACF, CMG, VPC.
*Acid red 100-----	VPC.
*Acid red 106-----	YAW.
*Acid red 109-----	VPC.
*Acid red 113-----	DUP.
*Acid red 114-----	DUP.
*Acid red 115-----	ACF, GAF, TRC.
*Acid red 119-----	ACF.
*Acid red 133-----	GAF.
*Acid red 137-----	ACF, ACY, DUP, GAF, TRC.
*Acid red 150-----	ACF.
*Acid red 151-----	ACY, KPC, TRC, YAW.
*Acid red 155-----	VPC.
*Acid red 162-----	VPC.
*Acid red 167-----	ACF, ATL, GAF.
*Acid red 175-----	DUP.
*Acid red 178-----	DUP.
*Acid red 179-----	CMG, TRC.
*Acid red 182-----	ACF, ACY, DUP, GAF.
*Acid red 183-----	CMG, TRC, VPC.
*Acid red 184-----	TRC.
*Acid red 186-----	ACY, CMG, DUP, GAF, TRC, VPC.
*Acid red 190-----	ACY.
*Acid red 191-----	ACF, TRC.
*Acid red 192-----	TRC.
*Acid red 194-----	TRC.
*Acid red 197-----	DUP.
*Acid red 207-----	ACF.
*Acid red 212-----	TRC.
*Acid red 213-----	TRC.
Other acid red dyes: Acid red, B, 3B, Y-----	ACF, ALT, DUP, HSH, TRC, VPC.
*Acid violet dyes:	
*Acid violet 1-----	ACF, GAF, TRC.
*Acid violet 3-----	ACF, DUP, TRC.
*Acid violet 6-----	ACF.
*Acid violet 7-----	ACF, CMG, DUP, GAF, KPC, TRC, VPC.
*Acid violet 9-----	GUY.
*Acid violet 11-----	GAF, TRC.
*Acid violet 12-----	DUP, GAF, TRC.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES--Continued	
*Acid violet dyes--Continued	
Acid violet 13-----	DUP.
Acid violet 14-----	TRC.
Acid violet 17-----	DUP, GAF, SDH.
Acid violet 21-----	DUP.
Acid violet 29-----	HSH.
Acid violet 34-----	ACF, AHC.
*Acid violet 43-----	ACF, AHC, DUP, HSH.
*Acid violet 49-----	ACF, ACY, TRC.
Acid violet 56-----	GAF.
Acid violet 58-----	GAF.
Acid violet 76-----	ACF.
Other acid violet dyes: Acid violet BD-----	DUP.
*Acid blue dyes:	
Acid blue 1-----	ACF, GAF.
*Acid blue 7-----	ACF, ACY, GAF.
*Acid blue 9-----	ACF, ACY, GAF, SDH, VPC.
Acid blue 10-----	ACF, KPC.
Acid blue 13-----	DUP.
Acid blue 15-----	DUP, GAF.
Acid blue 18-----	ACF, GAF.
Acid blue 20-----	ACF, ACY.
*Acid blue 22-----	ACY, GAF, NYC.
Acid blue 23-----	ACF, TRC.
*Acid blue 25-----	ACF, CMG, DUP, GAF, TRC.
Acid blue 26-----	ACF.
Acid blue 27-----	GAF.
Acid blue 34-----	ACF.
Acid blue 35-----	ACF.
*Acid blue 40-----	ACF, ACY, GAF, TRC.
Acid blue 41-----	ACF, GAF.
*Acid blue 43-----	ACF, ACY, GAF, TRC.
*Acid blue 45-----	ACF, ACY, CMG, DUP, GAF, TRC.
Acid blue 47-----	AHC, DUP.
Acid blue 48-----	SUC.
Acid blue 58-----	DUP.
*Acid blue 59-----	ACF, GAF, TRC.
Acid blue 62-----	VPC.
Acid blue 63-----	ACF.
Acid blue 67-----	ACF, GAF.
Acid blue 69-----	DUP, GAF.
Acid blue 74-----	ACF, DUP.
*Acid blue 78-----	ACF, AHC, DUP, GAF, ICC.
Acid blue 79-----	DUP.
Acid blue 80-----	ACF, TRC.
Acid blue 81-----	AHC.
Acid blue 83-----	GAF.
Acid blue 89-----	ACF.
*Acid blue 90-----	ACF, GAF, TRC.
Acid blue 92-----	ACF.
Acid blue 93-----	SUC.
Acid blue 99-----	ACF.
Acid blue 102-----	ACF, GAF, TRC.
Acid blue 104-----	ACF, DUP, GAF.
Acid blue 109-----	ACF.
*Acid blue 113-----	ACF, CMG, DUP, GAF.
Acid blue 118-----	ACF, GAF.
*Acid blue 120-----	ACF, GAF, KPC.
Acid blue 122-----	DUP.
Acid blue 137-----	ACF.
Acid blue 145-----	DUP.
Acid blue 154-----	ACF, TRC.
*Acid blue 158 and 158A-----	ACF, ACY, CMG, DUP, GAF, TRC, VPC.
Acid blue 159-----	GAF.
Acid blue 161-----	VPC.
Acid blue 165-----	DUP.
Other acid blue dyes: Acid blue, ASB-----	ALT, GAF, VPC, YAW.
*Acid green dyes:	
Acid green 1-----	ACF, ACY.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES--Continued	
*Acid green dyes--Continued	
*Acid green 3-----	ACF, ACY, DUP, GAF, TRC, VPC.
Acid green 5-----	GAF.
*Acid green 9-----	ACF, ACY, DUP, GAF, VPC.
Acid green 12-----	GAF, TRC.
*Acid green 16-----	ACF, DUP, GAF, TRC.
*Acid green 20-----	ACF, ATL, DUP, TRC.
Acid green 22-----	ACF, GAF.
*Acid green 25-----	ACF, ACY, AHC, CMG, GAF, HSH, KPC, TRC, VPC.
Acid green 35-----	TRC.
Acid green 41-----	AHC.
*Acid green 50-----	ACY, GAF, VPC.
Other acid green dyes: Acid green, 2Y-----	ALT, DUP, VPC.
*Acid brown dyes:	
Acid brown 1-----	GAF.
Acid brown 2-----	KPC.
Acid brown 6-----	GAF.
Acid brown 9-----	GAF.
*Acid brown 14-----	ACF, ACY, DUP, GAF, KPC, TRC.
Acid brown 19-----	TRC.
Acid brown 22-----	DUP.
Acid brown 29-----	DUP.
Acid brown 31-----	GAF.
Acid brown 45-----	TRC.
Acid brown 93-----	TRC.
Acid brown 94-----	ACY.
Acid brown 96-----	ACY.
Acid brown 97-----	ACY.
Acid brown 98-----	ACY.
Acid brown 127-----	TRC.
Acid brown 129-----	TRC.
Acid brown 152-----	GAF.
Acid brown 158-----	GAF.
Other acid brown dyes: Acid brown, B, HR, NY, PRMA, 5R-----	ACY, DUP, GAF, VPC.
*Acid black dyes:	
*Acid black 1-----	ACF, ACY, ATL, CMG, DUP, GAF, KPC, TRC, YAW.
Acid black 2-----	ACF, ACY.
Acid black 12-----	ACF.
Acid black 15-----	ACF.
Acid black 16-----	ACF.
Acid black 18-----	ACF.
*Acid black 24-----	ACF, CMG, DUP, GAF.
*Acid black 26, 26A, and 26B-----	ACF, DUP, TRC.
Acid black 31-----	GAF.
Acid black 41-----	ACF.
*Acid black 48-----	ACF, ACY, AHC, CMG, DUP, GAF, TRC.
Acid black 52-----	ACF, GAF, TRC.
Acid black 53-----	ACF.
Acid black 58-----	TRC.
Acid black 60-----	TRC.
Acid black 92-----	ACY.
Other acid black dyes: Acid black, 8B, BAW, BRLS, J, N, NB, RYAW.	ACF, ALT, DUP, GAF, TRC, VPC, YAW.
AZOIC DYES AND COMPONENTS	
Azotic Compositions	
Azotic yellow dyes:	
Azotic yellow 1-----	ATL, HST, VPC.
*Azotic yellow 2-----	ACY, GAF, HST, x.
Azotic yellow 3-----	GAF.
Azotic yellow 10-----	DUP.
Azotic orange dyes:	
*Azotic orange 3-----	ATL, GAF, HST, SNA, VPC.
Azotic orange 4-----	GAF.
Azotic orange 8-----	ACY.
*Azotic red dyes:	
*Azotic red 1-----	ACF, ACY, ATL, AUG, DUP, GAF, SNA, VPC, x.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
AZOIC DYES AND COMPONENTS--Continued	
Azotic Compositions--Continued	
*Azotic red dyes--Continued	
*Azotic red 2-----	ACY, ATL, AUG, DUP, GAF, ICC, VPC.
*Azotic red 6-----	ACY, ATL, DUP, GAF, HST, VPC, x.
Azotic red 12-----	GAF.
Azotic red 13-----	GAF.
Azotic red 14-----	GAF.
*Azotic red 15-----	ATL, GAF, VPC.
*Azotic red 16-----	ATL, AUG, GAF, VPC.
Other azotic red dyes: Azotic red, AF, 2B, EN, GFC, GP, IS, LBB.	ACY, ATL, GAF, VPC.
Azotic violet dyes:	
*Azotic violet 1-----	ATL, GAF, HST, VPC, x.
Other azotic violet dyes: Azotic violet B-----	GAF.
*Azotic blue dyes:	
*Azotic blue 2-----	ATL, GAF, VPC.
*Azotic blue 3-----	ACY, DUP, GAF, VPC.
Azotic blue 4-----	GAF.
Azotic blue 5-----	GAF, HST.
Azotic blue 6-----	ATL, GAF.
Azotic blue 7-----	GAF.
Other azotic blue dyes: Azotic blue RH-----	VPC.
Azotic green dyes:	
Azotic green 1-----	ATL, GAF.
Other azotic green dyes: Azotic green, GL-----	VPC.
*Azotic brown dyes:	
Azotic brown 1-----	DUP.
Azotic brown 7-----	ATL.
*Azotic brown 9-----	ATL, GAF, HST, VPC, x.
Azotic brown 10-----	ATL, GAF.
Other azotic brown dyes: Azotic brown, #828, D, 2GA, GGN, LL, R, RA.	ATL, GAF, VPC.
*Azotic black dyes:	
Azotic black 1-----	GAF, HST.
Azotic black 2-----	DUP.
Azotic black 3-----	ATL, GAF.
Azotic black 4-----	ATL, GAF.
Other azotic black dyes: Azotic black, #1, 2B, FOR, GF-167, GRW, J, JA, JN, MR, N-2GF, PGF, PJNS, PN, PNF, PRF, R.	ALL, ATL, GAF, VPC.
Azotic Diazo Components, Bases (Fast Color Bases)	
Azotic diazo component 1, base-----	GAF, SDH.
Azotic diazo component 2, base-----	ATL, KPC.
Azotic diazo component 3, base-----	DUP.
*Azotic diazo component 4, base-----	ALL, GAF, KPC, SDH.
*Azotic diazo component 5, base-----	DUP, GAF, SDH.
Azotic diazo component 8, base-----	DUP, KPC, SDH.
Azotic diazo component 9, base-----	DUP, KPC, VPC.
Azotic diazo component 10, base-----	GAF, KPC, SNA.
Azotic diazo component 11, base-----	ACF, KPC, MAY.
Azotic diazo component 12, base-----	DUP, KPC, SDH.
*Azotic diazo component 13, base-----	ACF, ALL, AUG, DUP, GAF, KPC, SDH.
*Azotic diazo component 20, base-----	ALL, GAF, KPC, SDH.
*Azotic diazo component 28, base-----	ALL, GAF, KPC, VPC.
*Azotic diazo component 32, base-----	ACF, ALL, ATL, AUG, DUP, GAF, KPC, MAY, SDH.
Azotic diazo component 34, base-----	GAF.
Azotic diazo component 38, base-----	VPC.
Azotic diazo component 41, base-----	GAF.
Azotic diazo component 42, base-----	ALL, PCW.
Azotic diazo component 46, base-----	GAF.
Azotic diazo component 48, base-----	CWN, DUP, GAF.
Other azotic diazo components: Azotic diazo component KBO, base.	DUP.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
AZOIC DYES AND COMPONENTS--Continued	
<i>Azoic Diazo Components, Salts</i> (Fast Color Salts)	
*Azoic diazo component 1, salt-----	AUG, GAF, KPC.
Azoic diazo component 2, salt-----	ALL, GAF.
*Azoic diazo component 3, salt-----	ACF, ALL, AUG, GAF, KPC, SDH, VPC.
Azoic diazo component 4, salt-----	ALL, DUP, KPC.
*Azoic diazo component 5, salt-----	ACF, AUG, GAF, KPC, VPC.
Azoic diazo component 6, salt-----	GAF, KPC.
*Azoic diazo component 8, salt-----	ACF, ALL, AUG, GAF, KPC, VPC.
*Azoic diazo component 9, salt-----	ACF, ALL, AUG, GAF, SDH, VPC.
Azoic diazo component 10, salt-----	GAF, SDH.
*Azoic diazo component 11, salt-----	ALL, GAF, KPC, VPC.
*Azoic diazo component 12, salt-----	AUG, GAF, KPC, SDH, VPC.
*Azoic diazo component 13, salt-----	ACF, ALL, GAF, SDH, VPC.
*Azoic diazo component 20, salt-----	ALL, GAF, SDH, VPC.
Azoic diazo component 22, salt-----	GAF.
*Azoic diazo component 28, salt-----	ALL, AUG, GAF, KPC, VPC.
Azoic diazo component 32, salt-----	ALL, KPC, SDH, SNA.
Azoic diazo component 33, salt-----	GAF.
Azoic diazo component 34, salt-----	GAF.
Azoic diazo component 35, salt-----	ALL, GAF.
*Azoic diazo component 36, salt-----	ACF, ALL, GAF, KPC.
Azoic diazo component 37, salt-----	GAF.
Azoic diazo component 40, salt-----	GAF.
Azoic diazo component 41, salt-----	ALL, GAF.
*Azoic diazo component 42, salt-----	ALL, GAF, VPC.
Azoic diazo component 44, salt-----	GAF, SDH.
Azoic diazo component 47, salt-----	GAF.
*Azoic diazo component 48, salt-----	ALL, GAF, KPC, SDH, SNA, VPC.
*Azoic diazo component 49, salt-----	GAF, KPC, SDH.
Other azoic diazo components: Azoic diazo component KL, RM, salt.	GAF.
<i>Azoic Coupling Components</i> (Naphthol AS and Derivatives)	
Azoic coupling component 1-----	AUG.
*Azoic coupling component 2-----	ACF, ACY, AUG, DUP, GAF, KPC, PCW.
*Azoic coupling component 3-----	AUG, GAF, KPC, PCW.
*Azoic coupling component 4-----	ACF, AUG, GAF, KPC, PCW, SDH.
*Azoic coupling component 5-----	GAF, KPC, PCW, SDH.
*Azoic coupling component 7-----	ACF, AUG, GAF, KPC, PCW.
Azoic coupling component 8-----	ACF, ATL, GAF, PCW.
Azoic coupling component 10-----	ATL, PCW.
*Azoic coupling component 11-----	DUP, GAF, KPC, PCW.
Azoic coupling component 12-----	ALL, AUG, GAF, KPC, PCW.
*Azoic coupling component 13-----	GAF, KPC, PCW, SDH.
*Azoic coupling component 14-----	ACY, ATL, AUG, GAF, KPC, PCW, SDH.
Azoic coupling component 15-----	GAF.
Azoic coupling component 16-----	GAF, SDH.
*Azoic coupling component 17-----	ACF, ACY, ALL, ATL, AUG, DUP, GAF, KPC, PCW, SDH.
*Azoic coupling component 18-----	ACF, ACY, ATL, AUG, DUP, GAF, KPC, PCW, SDH.
Azoic coupling component 19-----	GAF, KPC, PCW, SDH.
*Azoic coupling component 20-----	ACF, ACY, ATL, AUG, DUP, GAF, KPC, PCW, SDH.
*Azoic coupling component 21-----	AUG, KPC, PCW, SDH.
Azoic coupling component 23-----	GAF.
Azoic coupling component 24-----	GAF, PCW.
*Azoic coupling component 29-----	ATL, AUG, GAF, PCW.
Azoic coupling component 33-----	GAF.
*Azoic coupling component 34-----	ATL, GAF, PCW, SDH.
*Azoic coupling component 35-----	ALL, GAF, KPC, PCW.
Azoic coupling component 36-----	GAF.
Azoic coupling component 43-----	GAF.
Other azoic coupling components: Naphthol, AS-BB, AS-BC, AS-RR.	ATL, GAF, PCO, x.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
BASIC DYES	
Basic yellow dyes:	
Basic yellow 1-----	DUP.
*Basic yellow 2-----	ACF, ACY, DUP.
Basic yellow 5-----	ACF.
Basic yellow 9-----	VPC.
Basic yellow 10-----	GAF.
Basic yellow 11-----	DUP.
Basic yellow 13-----	DUP, GAF.
Other basic yellow dyes: Basic yellow, 4G, GL, 3GL, 3RL--	DUP, GAF.
*Basic orange dyes:	
*Basic orange 1-----	ACF, ACY, GAF.
*Basic orange 2-----	ACF, ACY, DUP, GAF, TRC.
Basic orange 10-----	VPC.
Basic orange 14-----	GAF, VPC.
Basic orange 17-----	ACF.
Basic orange 21-----	DUP, GAF.
Other basic orange dyes: Basic orange CL, L-----	DUP.
Basic red dyes:	
Basic red 1-----	DUP, GAF.
*Basic red 2-----	ACF, DUP, GAF.
Basic red 9-----	NYC, SUC.
Basic red 14-----	DUP, GAF.
Other basic red dyes: Basic red B, 3B, 6B, G, GL, L-----	DUP, GAF.
Basic violet dyes:	
*Basic violet 1-----	ACF, ACY, DSC, GAF, SUC.
Basic violet 2-----	ACY.
*Basic violet 3-----	ACF, DSC, DUP, GAF, SDH.
*Basic violet 4-----	ACF, DSC, DUP, GAF.
Basic violet 5-----	ACF.
*Basic violet 10-----	ACF, ACY, DUP, GAF.
Basic violet 13-----	DSC.
Basic violet 14-----	ACY, NYC, SW.
*Basic blue dyes:	
*Basic blue 1-----	ACF, DSC, GAF, SDH.
Basic blue 4-----	DUP.
*Basic blue 5-----	ACF, DSC, SDH.
Basic blue 6-----	ACF, ACY.
*Basic blue 7-----	DSC, DUP, GAF, SDH.
*Basic blue 9-----	ACF, ACY, GAF, SDH.
Basic blue 11-----	DSC, DUP.
Basic blue 12-----	GAF.
Basic blue 21-----	DUP.
Basic blue 22-----	DUP.
*Basic blue 26-----	ACF, DSC, DUP, GAF, SDH.
Other basic blue dyes: Basic blue BGL, ER, 7G-----	DUP, x.
Basic green dyes:	
*Basic green 1-----	ACF, ACY, DSC, DUP, GAF, SDH.
Basic green 3-----	DUP.
*Basic green 4-----	ACF, ACY, DSC, GAF, SDH.
Basic green 5-----	ACY.
Basic brown dyes:	
*Basic brown 1-----	ACF, ACY, DUP, GAF, TRC.
Basic brown 2-----	ACF, GAF.
*Basic brown 4-----	ACF, ACY, DUP, GAF, TRC.
Other basic brown dyes: Basic brown YL-----	DUP.
Basic black dyes: Basic black 3-----	GAF.
DIRECT DYES	
*Direct yellow dyes:	
*Direct yellow 4-----	ACF, ACY, DUP, GAF, TRC.
*Direct yellow 5-----	ACF, ACY, GAF.
*Direct yellow 6-----	ACF, ACY, DUP, GAF, TRC.
Direct yellow 7-----	PCO.
Direct yellow 8-----	ACF, GAF, TRC.
Direct yellow 9-----	DUP.
*Direct yellow 11-----	ACF, ACY, DUP, GAF, TRC.
*Direct yellow 12-----	ACF, DUP, GAF, TRC.
Direct yellow 19-----	TRC.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
*Direct yellow dyes--Continued	
Direct yellow 20-----	TRC.
Direct yellow 23-----	DUP.
Direct yellow 26-----	DUP, GAF.
Direct yellow 27-----	ACF, GAF.
*Direct yellow 28-----	ACF, DUP, GAF, PCO, TRC.
*Direct yellow 29-----	DUP, GAF, PCO.
Direct yellow 39-----	TRC.
Direct yellow 42-----	TRC.
*Direct yellow 44-----	ACF, CMG, DUP, GAF, PCO, TRC, VPC.
*Direct yellow 50-----	ACF, ATL, BL, DUP, GAF, TRC, VPC.
*Direct yellow 59-----	ACF, DUP, PCO.
Direct yellow 61-----	GAF.
Direct yellow 62-----	ACF, GAF.
Direct yellow 63-----	DUP.
Direct yellow 64-----	TRC.
Direct yellow 81-----	TRC.
Other direct yellow dyes: Direct yellow, CD, CS, EFC, G, 3G, 5G, 8G, RG, RGL, RP.	ACY, ALT, DUP, GAF, PCO, TRC, VPC.
*Direct orange dyes:	
*Direct orange 1-----	ACF, CMG, KPC, TRC, VPC.
Direct orange 6-----	ACF, KPC.
*Direct orange 8-----	ACF, DUP, GAF, TRC.
Direct orange 10-----	ACF, KPC.
Direct orange 11-----	GAF.
*Direct orange 15-----	ACF, ACY, DUP, GAF, TRC.
*Direct orange 26-----	ACY, DUP, GAF, TRC, VPC.
*Direct orange 29-----	ACF, GAF, PCO, WOC.
*Direct orange 34-----	ACF, ACY, CMG, DUP, GAF, TRC.
*Direct orange 37-----	ACY, CMG, DUP, GAF, TRC.
Direct orange 38-----	ACF.
Direct orange 39-----	CMG, DUP, GAF.
Direct orange 40-----	DUP.
Direct orange 41-----	GAF.
Direct orange 42-----	TRC.
Direct orange 48-----	DUP.
Direct orange 49-----	TRC.
Direct orange 55-----	ACF, DUP.
Direct orange 59-----	DUP.
Direct orange 61-----	TRC.
Direct orange 62-----	ACF.
Direct orange 64-----	VPC.
Direct orange 67-----	ACF, VPC.
Direct orange 70-----	TRC.
*Direct orange 72-----	ACF, ACY, BL, PCO, VPC.
*Direct orange 73-----	ACF, DUP, GAF, TRC, VPC.
Direct orange 74-----	DUP, GAF.
Direct orange 76-----	DUP, TRC.
Direct orange 78-----	DUP, VPC.
Direct orange 79-----	DUP.
Direct orange 80-----	DUP, VPC.
*Direct orange 81-----	ACF, ATL, DUP, GAF.
Direct orange 83-----	ACF, GAF.
Direct orange 88-----	DUP.
Direct orange 102-----	ACY, DUP.
Other direct orange dyes: Direct orange, DL, G, 2GLL, 3GU, L8GL, 3LWF, NAR, SCW, S4G.	ALT, ATL, BL, DUP, GAF, PCO, TRC, VPC.
*Direct red dyes:	
*Direct red 1-----	ACF, ATL, BL, DUP, GAF, KPC, TRC, YAW.
*Direct red 2-----	ACF, DUP, PCO, TRC.
Direct red 4-----	ACF, GAF, TRC, VPC.
Direct red 5-----	ACF.
Direct red 7-----	DUP, YAW.
*Direct red 10-----	ACF, ACY, KPC, TRC.
*Direct red 13-----	ACF, ATL, DUP, GAF, KPC, TRC, YAW.
Direct red 14-----	TRC.
*Direct red 16-----	ACF, ATL, GAF, KPC, TRC.
Direct red 17-----	TRC.
Direct red 20-----	ACF, GAF.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
*Direct red dyes--Continued	
*Direct red 23-----	ACY, CMG, DUP, GAF, KPC, TRC, VPC.
*Direct red 24-----	ACF, ACY, ATL, GAF, PCO, VPC.
*Direct red 26-----	ACF, ACY, DUP, GAF, PCO, TRC, VPC.
*Direct red 28-----	ACF, ATL, DUP, PCO, TRC.
Direct red 30-----	VPC.
*Direct red 31-----	ACF, ATL, DUP, GAF, TRC.
Direct red 32-----	ACF, DUP.
*Direct red 37-----	ACF, ACY, GAF, KPC, TRC, YAW.
*Direct red 39-----	ACF, ACY, GAF, TRC, YAW.
Direct red 46-----	ATL, TRC.
Direct red 53-----	ACF.
Direct red 62-----	TRC.
Direct red 72-----	TRC.
Direct red 73-----	DUP, TRC.
*Direct red 75-----	ACF, ACY, CMG, DUP, GAF, VPC.
Direct red 76-----	ACF.
*Direct red 79-----	ACF, CMG, GAF, KPC, PCO, TRC, VPC.
*Direct red 80-----	ACF, BL, CMG, DUP, GAF, KPC, PCO, TRC, VPC.
*Direct red 81-----	ACF, ACY, BL, CMG, DUP, GAF, KPC, PCO, SDH, TRC, VPC, YAW.
*Direct red 83-----	ATL, CMG, DUP, GAF, KPC, TRC, VPC.
*Direct red 84-----	ACF, GAF, TRC.
Direct red 93-----	VPC.
Direct red 94-----	ACF, DUP.
Direct red 99-----	ACF.
Direct red 100-----	TRC.
Direct red 111-----	GAF.
Direct red 117-----	DUP.
Direct red 118-----	VPC.
Direct red 120-----	GAF.
*Direct red 122-----	ACF, CMG, DUP, GAF, TRC, VPC.
*Direct red 123-----	ACF, GAF, KPC, VPC.
*Direct red 127 and 127A-----	ACF, CMG, DUP, GAF, KPC, TRC, VPC.
Direct red 128-----	ACF.
Direct red 139-----	VPC.
Direct red 148-----	DUP, GAF.
*Direct red 149-----	ACF, CMG, DUP, GAF, KPC, TRC, VPC.
Direct red 152-----	ACF, DUP.
*Direct red 153-----	ACF, CMG, VPC.
Direct red 155-----	GAF, VPC.
Other direct red dyes: Direct red, BN, 8BNL, GLJ, LEG, RLL, RP, RPC, WL, WLKS.	ALT, BL, DUP, GAF, TRC, YAW.
*Direct violet dyes:	
*Direct violet 1-----	ACF, DUP, KPC, TRC.
Direct violet 7-----	ACF, GAF.
*Direct violet 9-----	ACF, ATL, DUP, GAF, KPC, PCO, TRC.
Direct violet 12-----	GAF.
Direct violet 14-----	ACF, TRC.
Direct violet 22-----	ACF.
Direct violet 30-----	KPC.
Direct violet 47-----	DUP, GAF.
Direct violet 48-----	ACF, DUP, TRC.
Direct violet 51-----	ACF, DUP.
Direct violet 60-----	ACF.
Direct violet 67-----	ACF, DUP.
Direct violet 68-----	DUP.
Other direct violet dyes: Direct violet-----	ALT.
Direct blue dyes:	
*Direct blue 1-----	ACF, ACY, ATL, BL, CMG, DUP, GAF, KPC, TRC, VPC.
*Direct blue 2-----	ACF, ACY, ATL, DUP, GAF, KPC, TRC, VPC, YAW.
Direct blue 3-----	ACF, TRC.
*Direct blue 6-----	ACF, ACY, ATL, BL, DUP, GAF, KPC, TRC, YAW.
*Direct blue 8-----	ACF, ACY, ATL, DUP, GAF, KPC, TRC, YAW.
Direct blue 10-----	DUP, VPC.
*Direct blue 14-----	ACF, ATL, DUP, TRC.
*Direct blue 15-----	ACF, ATL, DUP, GAF, TRC.
Direct blue 21-----	TRC.
*Direct blue 22-----	ACF, ATL, CMG, DUP, GAF, KPC, TRC.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
Direct blue dyes--Continued	
*Direct blue 24-----	ACF, DUP, GAF, KPC, TRC, YAW.
*Direct blue 25-----	ACF, DUP, GAF, TRC.
*Direct blue 26-----	ACF, ATL, DUP, GAF, TRC, YAW.
Direct blue 27-----	DUP.
Direct blue 47-----	ACY.
Direct blue 55-----	ACF.
Direct blue 61-----	YAW.
Direct blue 66-----	DUP, VPC.
*Direct blue 67-----	ACF, ATL, DUP, TRC, VPC.
*Direct blue 71-----	ACF, DUP, GAF, TRC, VPC.
Direct blue 74-----	DUP.
Direct blue 75-----	TRC.
*Direct blue 76-----	ACF, ACY, ATL, BL, DUP, GAF, KPC, TRC, VPC.
*Direct blue 78-----	ACF, ATL, CMG, DUP, GAF, KPC, TRC, VPC.
*Direct blue 80-----	ACF, ACY, ATL, DUP, GAF.
Direct blue 81-----	ACF.
Direct blue 84-----	DUP.
*Direct blue 86-----	ACF, BL, CMG, DUP, GAF, ICC, KPC, TMS, TRC, VPC, WOC.
*Direct blue 98-----	ACF, ACY, ATL, BL, GAF, ICC, STD, TRC, WOC.
Direct blue 99-----	GAF.
Direct blue 100-----	ACF.
Direct blue 101-----	CMG.
Direct blue 102-----	CMG.
Direct blue 104-----	DUP.
*Direct blue 120 and 120A-----	DUP, GAF, PCO, TRC, VPC.
*Direct blue 126-----	ACF, DUP, GAF, TRC, VPC.
Direct blue 127-----	GAF.
Direct blue 130-----	ACF, GAF.
Direct blue 133-----	GAF.
Direct blue 136-----	GAF.
Direct blue 138-----	GAF.
Direct blue 143-----	DUP.
*Direct blue 151-----	ACF, ATL, DUP, GAF, TRC.
Direct blue 176-----	TRC.
Direct blue 180-----	CMG.
Other direct blue dyes: Direct blue, B, BFL, BG, BL, BRN, F, 2GFL, 3GFL, 6GL, 7GL, 8GLN, 4GLR, GLS, 7GUL, LIG, LWN, ML, RL, 6RL, UGLL, VG.	ACY, ALT, ATL, BL, DUP, TRC, VPC.
*Direct green dyes:	
*Direct green 1-----	ACF, ACY, ATL, DUP, GAF, KPC, TRC, YAW.
*Direct green 6-----	ACF, ACY, DUP, GAF, KPC, TRC, YAW.
Direct green 8-----	ACF, ATL, TRC, YAW.
Direct green 11-----	ACF.
Direct green 12-----	ACF, DUP, TRC.
Direct green 14-----	ACF.
Direct green 15-----	DUP.
Direct green 26-----	ACF, GAF, TRC.
Direct green 27-----	ACF, ATL, TRC.
Direct green 28-----	TRC.
*Direct green 38-----	DUP, GAF, TRC, VPC.
Direct green 39-----	GAF.
Direct green 41-----	DUP.
Direct green 45-----	VPC.
Direct green 46-----	VPC.
Direct green 47-----	DUP, GAF.
Other direct green dyes: Direct green, F3L, 5GSC, LPB, PG.	ACY, ALT, ATL, BL, DUP, TRC.
*Direct brown dyes:	
*Direct brown 1-----	ACF, ACY, DUP, GAF, TRC.
*Direct brown 2-----	ACF, ACY, ATL, DUP, GAF, KPC, TRC, YAW.
*Direct brown 6-----	ACF, ATL, DUP, GAF, KPC, TRC.
Direct brown 11-----	ACF.
Direct brown 21-----	DUP.
Direct brown 25-----	ACF, DUP.
Direct brown 27-----	GAF.
Direct brown 29-----	ACF.
Direct brown 30-----	GAF.
*Direct brown 31-----	ACF, DUP, GAF, KPC, PCO, YAW.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
*Direct brown dyes--Continued	
Direct brown 32-----	GAF.
Direct brown 33-----	ACF, DUP.
Direct brown 35-----	ACF.
Direct brown 40-----	DUP, KPC.
Direct brown 44-----	GAF, YAW.
Direct brown 48-----	KPC.
Direct brown 49-----	ACY.
Direct brown 59-----	ACY, TRC.
*Direct brown 74-----	ACF, DUP, GAF, KPC.
*Direct brown 95-----	ACF, BL, DUP, GAF, KPC, PCO, TRC, YAW.
Direct brown 101-----	GAF.
Direct brown 105-----	DUP.
Direct brown 106-----	ACF, GAF.
*Direct brown 111-----	DUP, GAF, TRC, VPC.
Direct brown 112-----	ACF, ATL, DUP.
Direct brown 125-----	GAF.
Direct brown 151-----	GAF.
*Direct brown 154-----	DUP, TRC, YAW.
Other direct brown dyes: Direct brown, CWR, DS, 6G, GR, IA, LBT, M, SGLL.	ACF, ALT, BL, DUP, PCO, TRC, YAW.
*Direct black dyes:	
Direct black 3-----	DUP.
*Direct black 4-----	ACF, ACY, ATL, DUP, GAF, TRC, YAW.
Direct black 9-----	ACF, DUP, GAF.
Direct black 17-----	ACF, GAF, TRC.
Direct black 19-----	ACF, GAF, TRC.
*Direct black 22-----	ACF, ATL, CMG, DUP, GAF, KPC, TRC, VPC, YAW.
Direct black 29-----	ATL.
Direct black 36-----	KPC.
*Direct black 37-----	ACF, DUP, KPC.
*Direct black 38-----	ACF, ACY, ATL, BL, DUP, GAF, KPC, PCO, TRC, YAW.
Direct black 41-----	GAF.
*Direct black 51-----	ACF, ATL, DUP, GAF, KPC, TRC.
Direct black 55-----	DUP.
Direct black 56-----	ACF, TRC.
Direct black 67-----	ACF, DUP, VPC.
Direct black 71-----	ACF, CMG.
Direct black 75-----	GAF.
*Direct black 78-----	ACF, DUP, TRC.
Direct black 80-----	ACF, BL, GAF, KPC, PCO, TRC, VPC, YAW.
Other direct black dyes: Direct black, #667, BBA, BH, 4BL, G, 5G, 2GFL, RCW, RWL, VBE.	ACF, ACY, ALT, BL, DUP, GAF, TRC, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse yellow 1-----	GAF.
Disperse yellow 2-----	DUP.
*Disperse yellow 3-----	ACF, DUP, EKT, GAF, HSH, ICC, KPC, STD, TRC.
Disperse yellow 5-----	EKT, GAF, ICC.
Disperse yellow 8-----	TRC.
Disperse yellow 17-----	KPC.
Disperse yellow 23-----	DUP, GAF.
Disperse yellow 28-----	KPC.
Disperse yellow 31-----	GAF.
Disperse yellow 32-----	DUP.
*Disperse yellow 33-----	EKT, ICC, KPC.
Disperse yellow 34-----	EKT.
Disperse yellow 37-----	KPC, TRC.
Other disperse yellow dyes: Disperse yellow 6D, 3G, 8-GLF, GSF, GSPD, M, 5R, R-GFD, 2R-GLF, RL, 4RL, 4RLD, W-GLF, YL.	DUP, EKT, GAF, ICC.
*Disperse orange dyes:	
Disperse orange 2-----	KPC.
*Disperse orange 3-----	DUP, GAF, ICC, KPC, STD, TRC.
*Disperse orange 5-----	EKT, GAF, KPC.
Disperse orange 6-----	KPC.
*Disperse orange 17-----	EKT, HSH, ICC, STD.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DISPERSE DYES--Continued	
*Disperse orange dyes--Continued	
Disperse orange 21-----	TRC.
Other disperse orange dyes: Disperse orange, GRN, O, 2R, 3R, 3RL, 3RLN.	DUP, EKT, ICC, KPC.
*Disperse red dyes:	
*Disperse red 1-----	DUP, EKT, GAF, ICC, KPC, STD, TRC.
Disperse red 4-----	GAF.
*Disperse red 5-----	DUP, EKT, GAF, HSH, ICC, KPC, STD, TRC.
Disperse red 6-----	KPC.
Disperse red 7-----	KPC.
Disperse red 9-----	DUP, KPC.
Disperse red 11-----	DUP, GAF, KPC.
*Disperse red 13-----	DUP, GAF, ICC, KPC, TRC.
*Disperse red 15-----	ACF, HSH, ICC, KPC, TRC.
*Disperse red 17-----	DUP, GAF, HSH, ICC, KPC, STD, TRC.
Disperse red 19-----	TRC.
Disperse red 20-----	ACF, EKT.
Disperse red 21-----	EKT.
Disperse red 28-----	KPC.
Disperse red 30-----	EKT.
Disperse red 32-----	GAF.
Disperse red 35-----	EKT.
Other disperse red dyes: Disperse red, B, BC, 2B-GLF, 3B-GLF, FL, FS, 2G, LB, MG, N, R-GLF, RL.	DUP, EKT, ICC, KPC.
*Disperse violet dyes:	
*Disperse violet 1-----	DUP, GAF, ICC, KPC, STD, TRC.
*Disperse violet 4-----	DUP, GAF, ICC, KPC.
Disperse violet 6-----	KPC.
Disperse violet 8-----	GAF.
Disperse violet 11-----	EKT.
Other disperse violet dyes: Disperse violet, #303, B, BN, DAC, R, 2R, 3R-GLF.	DUP, EKT, GAF, ICC.
*Disperse blue dyes:	
*Disperse blue 1-----	GAF, KPC, TRC.
*Disperse blue 3-----	ACF, EKT, GAF, HSH, ICC, KPC, STD, TRC.
*Disperse blue 7-----	ACF, GAF, ICC, KPC, TRC.
Disperse blue 8-----	DUP.
Disperse blue 9-----	GAF, ICC.
Disperse blue 19-----	KPC.
Disperse blue 27-----	EKT.
Other disperse blue dyes: Disperse blue, AB-7, AB-45, B, BCN, BG, BGF, B-GLF, BLF, CR, FGS, 2G, GB, GBN, GFD, 3G-GFD, 5G-GFD, GNA, GP, GR, GSFR, GSS, JB, LS, LTD, MJ, NBNJ, NSP, NXY, 2R, 4R, RB, RG, 3RL.	ACF, DUP, EKT, GAF, ICC, TRC, VPC.
Disperse brown dyes: Disperse brown JG, MS, R-----	DUP, ICC.
Disperse black dyes:	
Disperse black 1-----	DUP, TRC.
Disperse black 2-----	DUP, TRC.
Disperse black 6-----	ACF, DUP, KPC.
Disperse black 7-----	GAF, KPC, YAW.
*Disperse black 9-----	ACF, DUP, EKT, GAF, KPC.
Other disperse black dyes: Disperse black, GGN, GY, JN, NC.	ICC, YAW.
FIBER-REACTIVE DYES	
*Fiber-reactive dyes:	
Black #1, B, G-----	DUP, HST.
Blue, R-----	AHC, HST.
Orange, #2-----	AHC, DUP.
Red, 3B, 2G-----	AHC, DUP.
Red violet R-----	HST.
Yellow, #2, #3, G, RT-----	AHC, DUP, HST.
FLUORESCENT BRIGHTENING AGENTS	
Fluorescent brightening agent 1-----	GGY.
Fluorescent brightening agent 2-----	FBC, VPC.
Fluorescent brightening agent 4-----	ACY.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
FLUORESCENT BRIGHTENING AGENTS--Continued	
Fluorescent brightening agent 6-----	ACY.
Fluorescent brightening agent 8-----	ACY.
Fluorescent brightening agent 9-----	ACY.
Fluorescent brightening agent 22-----	GGY.
Fluorescent brightening agent 24-----	GGY.
Fluorescent brightening agent 25-----	GAF.
Fluorescent brightening agent 28-----	ACY, DUP.
Fluorescent brightening agent 30-----	DUP, GAF.
Fluorescent brightening agent 33-----	GAF.
Fluorescent brightening agent 34-----	DUP.
Fluorescent brightening agent 45-----	TRC.
Fluorescent brightening agent 46-----	GGY.
Fluorescent brightening agent 49-----	SAN.
Fluorescent brightening agent 54-----	GGY.
Fluorescent brightening agent 66-----	SDH.
Fluorescent brightening agent 67-----	FBC, GAF.
*Fluorescent brightening agent 68-----	ACY, CCW, GAF, SDH.
Fluorescent brightening agent 71-----	GAF.
Other fluorescent brightening agents: Fluorescent brightening agent, AHF, AT, 3BSA, BUP, DPS, EDT, LP, NAR, TAS, WANS, WCN.	ACY, CCW, DUP, GGY, VPC.
FOOD, DRUG, AND COSMETIC DYES	
<i>Food, Drug, and Cosmetic Colors</i>	
*Blue No. 1-----	ACF, BAT, KON, SDH, WRN.
Blue No. 2-----	ACF, BAT, KON.
Green No. 1-----	ACF, KON, WRN.
Green No. 2-----	ACF, WRN.
Green No. 3-----	WRN.
Orange No. 1-----	ACF.
*Red No. 1-----	ACF, BAT, KON, SDH.
*Red No. 2-----	BAT, KON, SDH, STG, WRN.
*Red No. 3-----	BAT, KON, SDH, STG.
Red No. 4-----	BAT, KON, SDH, STG, WRN.
Red No. 6-----	ACF.
Red No. 9-----	ACF.
Red No. 14-----	ACF.
Violet No. 1-----	ACF, KON.
Violet No. 2-----	ACF.
Yellow No. 1-----	KON.
Yellow No. 3-----	ACF, DYK, SDH.
Yellow No. 4-----	ACF, DYK, KON, SDH.
*Yellow No. 5-----	ACF, BAT, KON, SDH, STG, WRN.
*Yellow No. 6-----	ACF, BAT, KON, SDH, STG, WRN.
Yellow No. 10-----	ACF.
Yellow No. 11-----	ACF.
<i>Drug and Cosmetic Colors</i>	
Black No. 1-----	ACF, KON.
Blue No. 1-----	KON.
Blue No. 6-----	KON.
Green No. 1-----	KON.
Green No. 5-----	HSB, KON.
Green No. 8-----	KON, SDH.
Orange No. 3-----	KON.
*Orange No. 4-----	KON, SNA, TMS.
Orange No. 5-----	KON, TMS.
Orange No. 15-----	SNA.
Orange No. 17-----	SNA.
Red No. 1-----	KON.
Red No. 2-----	KON, SNA.
Red No. 3-----	KON, TMS.
Red No. 5-----	KON.
Red No. 6-----	SNA, TMS.
*Red No. 7-----	KON, SNA, TMS.
Red No. 8-----	KON, SNA.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959-- Continued

Dye	Manufacturers' identification codes (according to list in table 23)
FOOD, DRUG, AND COSMETIC DYES--Continued	
<i>Drug and Cosmetic Colors--Continued</i>	
Red No. 9-----	KON, SNA, TMS.
Red No. 10-----	KON, SNA.
*Red No. 11-----	KON, SNA, TMS.
Red No. 12-----	SNA, TMS.
Red No. 13-----	KON, SNA.
*Red No. 19-----	KON, SNA, TMS.
*Red No. 21-----	KON, SNA, TMS.
Red No. 27-----	SNA, TMS.
Red No. 28-----	KON.
Red No. 30-----	KON.
Red No. 31-----	KON, SNA.
Red No. 33-----	KON.
Red No. 34-----	KON, SNA.
Red No. 35-----	SNA.
Red No. 36-----	KON, SNA, TMS.
Red No. 39-----	SDH.
Violet No. 2-----	HSH.
Yellow No. 1-----	KON.
Yellow No. 5-----	KON, TMS.
Yellow No. 6-----	KON.
Yellow No. 7-----	KON, TMS.
Yellow No. 8-----	TMS.
Yellow No. 10-----	KON.
Yellow No. 11-----	KON.
<i>Drug and Cosmetic Colors, External</i>	
Orange No. 3-----	KON.
Red No. 2-----	ACY, TMS.
Red No. 13-----	KON.
Red No. 14-----	ACY.
Violet No. 2-----	HSH, KON.
Yellow No. 1-----	KON.
Yellow No. 5-----	KON.
INGRAIN DYES	
Ingrain blue 2-----	VPC.
MORDANT DYES	
*Mordant yellow dyes:	
*Mordant yellow 1-----	ACY, GAF, KPC, PDC, TRC.
Mordant yellow 3-----	ACF.
*Mordant yellow 5-----	ACF, DUP, GAF, TRC.
*Mordant yellow 8-----	ACF, DUP, GAF, TRC, VPC.
*Mordant yellow 10-----	ACF, DUP, TRC.
Mordant yellow 14-----	ACF, TRC.
*Mordant yellow 16-----	ACF, ACY, DUP.
Mordant yellow 18-----	PDC.
*Mordant yellow 20-----	ACF, GAF, TRC.
Mordant yellow 26-----	ACF, VPC.
Mordant yellow 29-----	GAF.
Mordant yellow 30-----	TRC.
Mordant yellow 36-----	GAF, PDC.
*Mordant orange dyes:	
*Mordant orange 1-----	ACY, GAF, KPC, TRC.
Mordant orange 3-----	TRC.
Mordant orange 4-----	GAF, VPC.
*Mordant orange 6-----	ACY, GAF, TRC.
Mordant orange 8-----	ACF, TRC.
Mordant orange 30-----	ACF.
*Mordant red dyes:	
*Mordant red 3-----	ACF, ACY, AHC, GAF, KPC.
Mordant red 5-----	ACF, GAF.
Mordant red 6-----	GAF.
*Mordant red 7-----	ACF, ACY, CMG, DUP, GAF, PDC, TRC, VPC.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
MORDANT DYES--Continued	
*Mordant red dyes--Continued	
*Mordant red 9-----	ACF, GAF, TRC.
Mordant red 11-----	ACF, ACY, KPC.
Mordant red 59-----	TRC.
Mordant red 64-----	PDC.
Mordant violet dyes:	
Mordant violet 1-----	ACF.
*Mordant violet 5-----	ACF, HSH, PDC.
Mordant violet 11-----	GAF.
Mordant violet 20-----	GAF.
Mordant blue dyes:	
*Mordant blue 1-----	ACF, DUP, GAF, KPC, TRC.
Mordant blue 3-----	ACF, GAF.
*Mordant blue 9-----	ACF, GAF, TRC.
Mordant blue 13-----	ACF, HSH.
Mordant blue 32-----	CMG.
Mordant blue 51-----	GAF.
*Mordant green dyes:	
Mordant green 9-----	ACF.
Mordant green 12-----	ACY.
Mordant green 17-----	GAF.
Mordant green 27-----	ACF.
*Mordant green 36-----	DUP, PDC, TRC.
Mordant green 39-----	ACF.
Other mordant green dyes: Mordant green-----	TRC.
*Mordant brown dyes:	
*Mordant brown 1-----	ACF, ACY, CMG, DUP, GAF, TRC, YAW.
Mordant brown 4-----	PDC.
Mordant brown 13-----	ACF.
Mordant brown 15-----	GAF.
Mordant brown 17-----	GAF.
Mordant brown 18-----	ACF, DUP.
*Mordant brown 19-----	ACF, GAF, TRC.
Mordant brown 21-----	GAF.
*Mordant brown 33-----	ACF, DUP, GAF, TRC.
*Mordant brown 40-----	ACF, CMG, DUP, GAF, PDC, TRC, VPC, YAW.
Mordant brown 42-----	HSH.
Mordant brown 50-----	TRC.
Mordant brown 60-----	TRC.
Mordant brown 63-----	TRC.
Mordant brown 70-----	DUP, PDC.
Mordant brown 78-----	CMG.
*Mordant black dyes:	
*Mordant black 1-----	ACF, GAF, TRC.
Mordant black 3-----	ACF, GAF, TRC.
*Mordant black 5-----	ACF, GAF, TRC.
Mordant black 7-----	GAF.
Mordant black 8-----	VPC.
*Mordant black 9-----	ACF, GAF, VPC.
*Mordant black 11-----	ACF, ATL, CMG, DUP, GAF, KPC, TRC, VPC.
*Mordant black 13-----	ACF, AHC, GAF, HSH, KPC, TRC.
Mordant black 16-----	ACF.
*Mordant black 17-----	ACF, ACY, CMG, DUP, GAF, TRC.
Mordant black 19-----	PDC.
Mordant black 33-----	HSH, TRC.
*Mordant black 38-----	ACF, DUP, GAF, VPC.
OXIDATION BASES	
Oxidation base 3-----	AHC.
Oxidation base 8 and 8A-----	ACY.
Oxidation base 10 and 10A-----	ACY.
Other oxidation bases: Oxidation base BCA, NZA-----	CMG.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent yellow 1-----	ACY, KPC.
*Solvent yellow 2-----	ACF, ACY, DUP, FH, GAF, KPC, PAT.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
SOLVENT DYES--Continued	
*Solvent yellow dyes--Continued	
*Solvent yellow 3-----	ACF, DUP, FH, GAF.
Solvent yellow 13-----	ACY, GAF.
*Solvent yellow 14-----	ACF, ACY, DUP, GAF, KPC, PAT, SDH, TRC.
Solvent yellow 16-----	PAT.
Solvent yellow 19-----	GAF.
Solvent yellow 29-----	ACF, GAF.
Solvent yellow 30-----	GAF.
Solvent yellow 33-----	ACF, ACY.
Solvent yellow 34-----	ACY, DUP.
Solvent yellow 40-----	ACF.
Solvent yellow 42-----	ACF.
Solvent yellow 44-----	ACF, GAF.
Solvent yellow 45-----	ACF, DUP.
Solvent yellow 46-----	ACY.
Solvent yellow 47-----	DUP, GAF.
Other solvent yellow dyes: Solvent yellow, 7G, LN, R---	ACY, DSC, DUP, FH, GAF.
*Solvent orange dyes:	
Solvent orange 2-----	ACF.
*Solvent orange 3-----	ACF, ACY, GAF.
Solvent orange 5-----	TRC.
*Solvent orange 7-----	ACF, ACY, GAF.
Solvent orange 18-----	ACF.
Solvent orange 20-----	ACF, ACY, GAF.
Solvent orange 22-----	ACF.
Solvent orange 23-----	ACF.
Solvent orange 24-----	DUP.
Solvent orange 25-----	DUP.
Solvent orange 30-----	FH.
Solvent orange 31-----	ACF, FH.
Other solvent orange dyes: Solvent orange, #47, DP, PEL, R, Y-293.	ACF, ACY, DUP, FH, PAT.
*Solvent red dyes:	
Solvent red 8-----	GAF.
Solvent red 22-----	GAF.
Solvent red 23-----	ACF.
*Solvent red 24-----	ACF, ACY, DUP, GAF, PAT, SDH.
*Solvent red 26-----	ACF, ACY, KPC.
Solvent red 27-----	ACF.
Solvent red 33-----	DUP.
Solvent red 34-----	DUP.
Solvent red 35-----	GAF.
Solvent red 40-----	GAF.
*Solvent red 49-----	ACF, ACY, DUP, GAF.
Solvent red 60-----	ACF.
Solvent red 63-----	ACF.
Solvent red 65-----	ACF.
Solvent red 68-----	ACF.
Solvent red 69-----	ACF, DUP.
Other solvent red dyes: Solvent red, #289, #322, #371, #390, G, SN, XO, Y.	ACF, DSC, DUP, FH, PAT, VPC.
*Solvent violet dyes:	
Solvent violet 8-----	ACF, ACY, GAF.
Solvent violet 13-----	HSH, KPC.
Solvent violet 16-----	ACF.
Other solvent violet dyes: Solvent violet-----	DSC, PAT.
Solvent blue dyes:	
*Solvent blue 4-----	ACF, DSC, DUP, GAF, NYC, SDH.
Solvent blue 5-----	DSC.
Solvent blue 7-----	ACF, ACY.
Solvent blue 9-----	GAF.
Solvent blue 12-----	ACF.
Solvent blue 13-----	AHC.
Solvent blue 16-----	ACF.
Solvent blue 30-----	ACF.
Solvent blue 31-----	ACF.
Solvent blue 32-----	KPC.
Solvent blue 34-----	DUP.
Solvent blue 36-----	DUP.

TABLE 8B. --Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959 --Continued

Dye	Manufacturers' identification codes (according to list in table 23)
SOLVENT DYES--Continued	
Solvent blue dyes--Continued	
Solvent blue 37-----	DUP.
Solvent blue 38-----	ACF, ACY, CMG, DUP.
Other solvent blue dyes: Solvent blue, AP, HLR, RA, THS, ZN.	ACY, DSC, GAF, KPC, PAT.
*Solvent green dyes:	
*Solvent green 1-----	ACF, DSC, SDH.
Solvent green 2-----	GAF.
*Solvent green 3-----	ACY, HSH, KPC.
Solvent green 10-----	DUP.
Solvent green 11-----	DUP.
Other solvent green dyes: Solvent green-----	DSC.
*Solvent brown dyes:	
Solvent brown 11-----	GAF.
Solvent brown 12-----	GAF.
Solvent brown 17-----	DUP.
Solvent brown 19-----	DUP.
Solvent brown 20-----	DUP.
Solvent brown 21-----	ACF.
Other solvent brown dyes: Solvent brown, #54, GN-----	ACY, FH, PAT.
Solvent black dyes:	
Solvent black 3-----	ACF.
Solvent black 5-----	ACF, ACY.
Solvent black 7-----	ACF, ACY.
Solvent black 12-----	ACF.
Solvent black 13-----	ACF.
Solvent black 17-----	DUP.
Solvent black 19-----	GAF.
Other solvent black dyes: Solvent black, #204, BN, RB-----	ACF, DSC, DUP, FH.
All other solvent dyes-----	PAT.
SULFUR DYES	
Sulfur yellow dyes:	
Sulfur yellow 1-----	ACF.
Sulfur yellow 2-----	ACY, DUP.
Solubilized sulfur yellow 2-----	ACY.
Sulfur yellow 4-----	ACF, DUP, SDC.
Sulfur yellow 10-----	GAF.
Sulfur yellow 11-----	ACF.
Sulfur red dyes:	
*Sulfur red 1-----	ACF, ACY, DUP, GAF.
Solubilized sulfur red 1-----	ACF.
Sulfur red 5-----	ACF.
*Sulfur red 6-----	ACF, ACY, DUP, GAF.
Sulfur red 8-----	DUP.
Sulfur blue dyes:	
*Sulfur blue 5-----	ACY, DUP, GAF.
*Sulfur blue 7-----	ACF, ACY, DUP, SDC.
Solubilized sulfur blue 7-----	ACF, ACY, SDC.
Sulfur blue 9-----	ACF.
Sulfur blue 10-----	TRC.
Sulfur blue 11-----	ACF, DUP.
Sulfur blue 13-----	ACY.
Solubilized sulfur blue 13-----	ACY.
Sulfur blue 15-----	ACF, ACY, DUP.
Other sulfur blue dyes: Sulfur blue, OJ-----	ACF.
Sulfur green dyes:	
Sulfur green 1-----	ACF.
*Sulfur green 2-----	ACF, DUP, SDC.
Solubilized sulfur green 2-----	SDC.
Sulfur green 3-----	ACF, ACY.
Sulfur green 11-----	DUP.
Sulfur green 14-----	DUP.
Other sulfur green dyes: Sulfur green 2BFEX, GCF-----	ACY, GAF.
Sulfur brown dyes:	
Solubilized sulfur brown 3-----	SDC.
Sulfur brown 10-----	ACF, DUP.
Solubilized sulfur brown 10-----	SDC.

TABLE 8B. -- Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959 -- Continued

Dye	Manufacturers' identification codes (according to list in table 23)
SULFUR DYES--Continued	
Sulfur brown dyes--Continued	
Sulfur brown 14-----	ACY, GAF.
Sulfur brown 20-----	DUP.
Sulfur brown 26-----	GAF.
Sulfur brown 30-----	ACY.
Sulfur brown 33-----	ACY.
Sulfur brown 37-----	SDC.
Solubilized sulfur brown 37-----	SDC.
Sulfur brown 39-----	DUP.
Sulfur brown 40-----	DUP.
Sulfur brown 43-----	ACF.
Solubilized sulfur brown 43-----	ACF.
Sulfur brown 44-----	ACF.
Solubilized sulfur brown 44-----	ACF.
Sulfur brown 45-----	ACF.
Sulfur brown 50-----	ACF.
Other sulfur brown dyes: Sulfur brown GR, RCF, 3RL-----	ACY, GAF.
Sulfur black dyes:	
*Sulfur black 1-----	ACF, ACY, DUP, SDC.
Solubilized sulfur black 1-----	ACF, ACY, SDC.
Sulfur black 2-----	ACF, ACY, DUP.
Solubilized sulfur black 2-----	ACF, ACY.
Sulfur black 6-----	GAF.
Solubilized sulfur black 6-----	ACF.
Sulfur black 10-----	ACY, DUP.
Solubilized sulfur black 10-----	ACF, ACY.
Sulfur black 11-----	SDC.
Solubilized sulfur black 11-----	SDC.
VAT DYES	
*Vat yellow dyes:	
Vat yellow 1, 12-1/2%-----	ACF.
*Vat yellow 2, 8-1/2%-----	ACF, ACY, AHC, DUP, GAF, HST, KPC, TRC, VPC.
Solubilized vat yellow 2, 25%-----	AHC, GAF.
Vat yellow 3, 12-1/2%-----	DUP.
*Vat yellow 4, 12-1/2%-----	ACF, ACY, AHC, CMG, DUP, GAF, HST, TRC, VPC.
*Solubilized vat yellow 4, 37-1/2%-----	AHC, GAF, HST.
Vat yellow 10, 10%-----	GAF.
Vat yellow 13, 6-1/2%-----	AHC.
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%-----	DUP, POO.
Vat yellow 22, 10%-----	DUP.
Other vat yellow dyes: Vat yellow, 50, GL, 6GL-----	ACF, ACY, DUP, GAF.
Vat orange dyes:	
*Vat orange 1, 20%-----	ACF, AHC, DUP, GAF, HST, TRC.
*Solubilized vat orange 1, 26%-----	AHC, GAF, HST.
*Vat orange 2, 12%-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC, TRC.
Vat orange 3, 13-1/2%-----	ACF, ACY, AHC, DUP, MAY, TRC.
Vat orange 4, 6%-----	ACF, ACY, CMG, DUP, GAF.
*Vat orange 5, 10%-----	ACY, DUP, HST, KPC.
Solubilized vat orange 5, 30%-----	AHC, GAF.
Vat orange 7, 11%-----	HST, TRC.
*Vat orange 9, 12%-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC, TRC.
Vat orange 11, 6%-----	ACF, DUP.
*Vat orange 15, 10%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC.
Other vat orange dyes: Vat orange 2BG-----	DUP.
Vat red dyes:	
*Vat red 1, 13%-----	ACF, ACY, DUP, GAF, HST, KPC.
Solubilized vat red 1, 37%-----	AHC, GAF, HST.
*Vat red 10, 18%-----	ACF, GAF, TRC.
Solubilized vat red 10, 31%-----	GAF.
Vat red 12, 8-1/2%-----	DUP.
*Vat red 13, 11%-----	ACF, DUP, GAF, MAY, TRC.
Vat red 14, 10%-----	HST.
Vat red 15, 10%-----	HST, TRC.
Vat red 16, 11%-----	DUP.

TABLE 8B.--Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
VAT DYES--Continued	
Vat red dyes--Continued	
Vat red 17, 10%-----	GAF.
Vat red 27, 7-1/2%-----	DUP.
Vat red 29, 18%-----	ACF, GAF.
Vat red 32, 20%-----	ACF, GAF.
*Vat red 35, 12-1/2%-----	ACF, GAF, TRC.
Vat red 40-----	DUP.
Vat red 41, 20%-----	HST.
Vat red 44, 17%-----	TRC.
Other vat red dyes: Vat red, EKN, FG, GL, 3N, 2R-----	DUP, GAF.
*Vat violet dyes:	
*Vat violet 1, 11%-----	ACF, ACY, AHC, DUP, GAF, MAY, TRC.
Solubilized vat violet 1, 26%-----	AHC, GAF.
*Vat violet 2, 20%-----	ACF, ACY, DUP, GAF, HST, VPC.
*Vat violet 3, 15%-----	ACF, DUP, GAF, HST.
Solubilized vat violet 3, 43%-----	GAF.
*Vat violet 9, 12%-----	AHC, DUP, GAF, TRC.
Vat violet 12, 10%-----	DUP.
*Vat violet 13, 6-1/4%-----	ACF, ACY, AHC, DUP, GAF, TRC.
Vat violet 14, 12-1/2%-----	ACF, DUP.
*Vat violet 17, 12-1/2%-----	ACF, DUP, GAF.
Other vat violet dyes: Vat violet P, R-----	ACF, DUP.
*Vat blue dyes:	
*Vat blue 1, 20%-----	ACF, DOW, DUP.
Solubilized vat blue 1, 25%-----	GAF.
Vat blue 3, 16%-----	HST.
*Vat blue 4, 10%-----	ACY, DUP, GAF.
*Vat blue 5, 16%-----	ACF, DUP, HST, VPC.
Solubilized vat blue 5, 38%-----	AHC, GAF, HST.
*Vat blue 6, 8-1/3%-----	ACF, ACY, AHC, DUP, GAF, KPC, TRC, VPC.
*Solubilized vat blue 6, 17-1/2%-----	AHC, GAF, HST.
Vat blue 7, 12-1/2%-----	ACF.
Solubilized vat blue 9, 35%-----	GAF.
*Vat blue 14, 8-1/3%-----	ACF, DUP, GAF, TRC.
Vat blue 16, 16%-----	ACF, ACY, DUP.
*Vat blue 18, 13%-----	ACY, AHC, DUP, GAF, KPC, MAY, TRC.
Vat blue 19, 16-7/10%-----	TRC.
*Vat blue 20, 14%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, PCO, TRC.
Vat blue 35, 20%-----	DUP.
Vat blue 43, 40%-----	DUP, SDC.
Other vat blue dyes: Vat blue B, 3B, BCL, HG, RA, VH-----	ACF, DUP, GAF, x.
Vat green dyes:	
*Vat green 1, 6%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC.
*Solubilized vat green 1, 12-1/2%-----	AHC, GAF, HST.
*Vat green 3, 10%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC.
*Solubilized vat green 3, 26%-----	AHC, GAF, HST.
*Vat green 8, 8-1/2%-----	ACF, AHC, DUP, GAF.
*Vat green 9, 12-1/2%-----	ACF, ACY, DUP, GAF, KPC, MAY, PCO, SDC, TRC.
Vat green 18, 8%-----	DUP.
Vat green 19, 13%-----	DUP.
Vat green 20, 6%-----	DUP.
*Vat brown dyes:	
*Vat brown 1, 11%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC, VPC.
Solubilized vat brown 1, 17%-----	AHC, GAF.
*Vat brown 3, 11%-----	ACF, ACY, AHC, DUP, GAF, KPC, MAY, TRC, VPC.
Solubilized vat brown 3, 17%-----	AHC.
*Vat brown 5, 13%-----	ACY, DUP, GAF, HST, KPC, VPC.
Solubilized vat brown 5, 17%-----	GAF.
Vat brown 11, 12%-----	MAY.
Vat brown 12, 12-1/2%-----	ACF, DUP.
Vat brown 13, 17%-----	MAY.
Vat brown 14, 12%-----	HST.
*Vat brown 20, 10-1/2%-----	ACF, DUP, GAF, KPC.
Vat brown 25, 11-1/2%-----	GAF.
Vat brown 29, 13%-----	ACY.
Vat brown 31, 28%-----	KPC.
Vat brown 38, 20%-----	AHC.

TABLE 8B. -- Synthetic organic chemicals: Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1959-- Continued

Dye	Manufacturers' identification codes (according to list in table 23)
VAT DYES--Continued	
*Vat brown dyes--Continued	
Vat brown 40, 14%-----	DUP.
Other vat brown dyes: Vat brown, AG, 3B, G, N, 2RF-----	ACF, DUP, MAY, SDC, TRC.
*Vat black dyes:	
Vat black 1-----	ACF, GAF.
Solubilized vat black 1, 27-1/2%-----	GAF, HST.
*Vat black 9, 16%-----	ACF, ACY, GAF, TRC.
Vat black 11, 17-1/2%-----	ACY.
Vat black 13, 14%-----	ACF, DUP.
Vat black 14, 11-1/2%-----	DUP.
Vat black 15, 18%-----	KPC.
Vat black 17, 16%-----	ACY.
Vat black 18, 15-1/2%-----	ACF, GAF.
Vat black 21, 18-1/2%-----	ACY.
Vat black 22, 19%-----	ACY.
*Vat black 25, 12-1/2%-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC, MAY, TRC.
Vat black 26, 2 1/2%-----	ACF.
*Vat black 27, 12-1/2%-----	ACF, ACY, AHC, CMG, DUP, GAF, KPC, MAY, TRC.
Vat black 30, 15-9/10%-----	TRC.
Other vat black dyes: Vat black, BED, BJ, 2G, 3GA, GR, PBC.	ACF, ACY, AHC, GAF, SDC, TRC.
All other dyes-----	DUP, HST, TRC, WLM.

Toners and Lakes

TABLE 11B. --Synthetic organic chemicals: Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1959

[Toners and lakes 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 23. 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 23)
TONERS OR FULL-STRENGTH COLORS	
Black toners:	
Pigment Black 1, C.I. 50 440-----	SNA.
All other-----	UHL.
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA-----	ADC, BLN, CC, DUP, EAK, HCC, IMP, LVY, MGR, MRX, NYC, SDH, SNA, SNP, UHL.
*Pigment Blue 1, C.I. 42 595, PTA-----	ACF, AMS, BLN, CC, IMP, KON, MGR, MRX, SAN, SNA, SNP, SW, UHL.
Pigment Blue 2, C.I. 44 045, PMA-----	SW.
Pigment Blue 2, C.I. 44 045, PTA-----	WOC.
Pigment Blue 3, C.I. 42 140, PTA-----	CC, MRX.
*Pigment Blue 9, C.I. 42 025, PMA-----	BLN, MGR, MRX.
*Pigment Blue 9, C.I. 42 025, PTA-----	IMP, MGR, MRX, SDH.
Pigment Blue 10, C.I. 44 040, PMA-----	SDH.
*Pigment Blue 15, C.I. 74 160, alpha modification-----	ACF, ACY, AHC, DUP, GAF, ICC, IMP, PCC, SDH, SNA, SUC, SW, TMS, TRC.
*Pigment Blue 15, C.I. 74 160, beta modification-----	ACY, DUP, GAF, IMP, KON, LVY, SDH, SNA, SW, TMS.
Pigment Blue 15, C.I. 74 160, crude-----	ACY, AHC, PCC, SNA, TRC, WOC.
*Pigment Blue 19, C.I. 42 750A-----	ACY, ERD, NYC, SUC, SW.
Pigment Blue 22, C.I. 69 810-----	ACF, DUP.
*Pigment Blue 25, C.I. 21 180-----	ACF, DUP, GAF, ICC, SAN.
All other-----	ACF, LVR, SDH, TRC, x.
*Brown toners:	
Pigment Brown 1, C.I. 12 480-----	AHC.
Pigment Brown 2, C.I. 12 071-----	SDH.
Pigment Brown 3, C.I. 21 010, PMA-----	BLN, KCW.
All other-----	ACF, HAR, SNA, SW.
Green toners:	
*Pigment Green 1, C.I. 42 040, PMA-----	CC, CIK, IMP, MGR.
*Pigment Green 1, C.I. 42 040, PTA-----	BLN, IMP, MRX, SAN, SDH.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA-----	ADC, BLN, CC, IMP, LVY, MGR, SAN, SDA, SNA, UHL.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA-----	ACY, ADC, AMS, BLN, CC, EAK, IMP, KON, MGR, SAN, SDH, SNA, SNP.
Pigment Green 4, C.I. 42 000, PMA-----	ADC, BLN, CC.
*Pigment Green 4, C.I. 42 000, PTA-----	ACY, ADC, AMS, CC, IMP, KON, SNA.
*Pigment Green 7, C.I. 74 260-----	ACF, ACY, DUP, GAF, PCC, SNA, SW, TMS, WOC.
*Pigment Green 8, C.I. 10 006-----	ACF, DUP, EAK, GAF, HAR, IMP, KCW, SNA, SW.
Pigment Green 10, C.I. 12 775-----	DUP.
All other-----	CC, HAR, MGR.
*Orange toners:	
Pigment Orange 1, C.I. 11 725-----	ACF, KON, SNA.
*Pigment Orange 2, C.I. 12 060-----	CC, FCL, IMP, SDH, SUC, SW.
*Pigment Orange 5, C.I. 12 075-----	ACY, EAK, HAR, IMP, SNA, SUC, SW.
Pigment Orange 9-----	DUP.
*Pigment Orange 13, C.I. 21 110-----	ACF, ACY, AMS, CC, GAF, ICC, IMP, KON, SAN, SDH, SNP, SW.
*Pigment Orange 16, C.I. 21 160-----	ACF, CC, DUP, GAF, ICC, IMP, ROM, SAN, SNA, SW.
All other-----	ACF, ICC, KON, SDH, SW, TRC, x.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310-----	ACF, EAK, HCC, IMP, KSC, KON, SAN, SNA, SW.
*Pigment Red 5, C.I. 12 490-----	ACF, AHC, DUP, GAF, HST, ICC, IMP, SNA, SNA, SNP, SW.
Pigment Red 9, C.I. 12 460-----	IMP, SAN.
Pigment Red 13, C.I. 12 395-----	ACF, IMP.
Pigment Red 14, C.I. 12 380-----	ACF, DUP.
*Pigment Red 17, C.I. 12 390-----	ACY, BLN, FCL, ICC, IMP, SAN, SNA, SNP, SW.
*Pigment Red 18, C.I. 12 350-----	ACF, HAR, IMP, SW.
*Pigment Red 22, C.I. 12 315-----	ACF, ACY, AMS, DUP, FCL, IMP, MRX, SNA, SW.
*Pigment Red 23, C.I. 12 355-----	ACF, ACY, DUP, FCL, HCC, ICC, IMP, SAN, SW.
Pigment Red 31, C.I. 12 360-----	SNA.
All other naphthol reds-----	AHC, DUP, GAF, HCC, ICC, LVR, SDH, SNA, SW.

See note at end of table for definition of abbreviations.

TABLE 11B. --Synthetic organic chemicals: Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Product	Manufacturers' identification codes (according to list in table 23)
TONERS OR FULL-STRENGTH COLORS--Continued	
*Red Toners--Continued	
*Pigment Red 1, C.I. 12 070, dark-----	ACF, ACY, AMS, APC, EAK, FCL, HAR, HCC, IMP, KON, LVY, PPG, SDH, SNA, SUC, SW, WDC.
*Pigment Red 1, C.I. 12 070, light-----	ACY, CIK, EAK, FCL, HAR, HCC, IMP, KON, PPG, SDH, SNA, SUC, SW.
*Pigment Red 3, C.I. 12 120-----	ACF, ACY, APC, CIK, DUP, EAK, FCL, HAR, HCC, IMP, KOW, KON, MRX, PPG, SAN, SDH, SNA, SUC, SW, WDC.
*Pigment Red 4, C.I. 12 085-----	ACF, ACY, AMS, FCL, HAR, HCC, IMP, KON, SAN, SNA, SNP, SUC, SW, WDC.
Pigment Red 6, C.I. 12 090-----	DUP, HAR, SDH, SW.
*Pigment Red 38, C.I. 21 120-----	ACF, GAF, HAR, SAN, SNA, SW.
Pigment Red 40, C.I. 12 170-----	IMP.
*Pigment Red 41, C.I. 21 200-----	ACF, DUP, GAF, SAN.
*Pigment Red 48, C.I. 15 865-----	ACF, ACY, AMS, BLN, DUP, FCL, GAF, HAR, HCC, IMP, KON, LVY, SDH, SNA, SW.
*Pigment Red 49, C.I. 15 630:	
*Barium toner-----	ACY, AMS, CIK, FCL, HCC, IMP, KON, LVY, SDH, SNA, SNP, SUC, SW.
*Calcium toner-----	ACY, AMS, CC, CIK, EAK, FCL, HCC, IMP, LVY, KON, PPG, SDH, SNA, SUC, SW.
Sodium salt-----	ACY, AMS, CC, FCL, HCC, KON, SDH, SUC, SW.
All other Pigment Red 49 toners-----	KON.
Pigment Red 51, C.I. 15 580-----	SUC.
*Pigment Red 52, C.I. 15 860-----	ACF, AMS, HAR, HCC, IMP, SUC, SW.
*Pigment Red 53, C.I. 15 585:	
*Barium toner-----	ACF, AMS, BLN, FCL, HCC, IMP, LVY, KON, SAN, SDH, SNA, SNP, SUC, SW.
Sodium salt-----	ACF, ADC, SW.
Pigment Red 54, C.I. 14 830:	
Calcium toner-----	IMP, MRX.
Sodium salt-----	GAF, IMP, MRX.
*Pigment Red 57, C.I. 15 850, calcium toner-----	ACF, ADC, AMS, BLN, DUP, FCL, HAR, HCC, IMP, LVY, SAN, SDH, SNA, SNP, SUC, SW.
Pigment Red 58, C.I. 15 825-----	BLN, DUP, IMP.
*Pigment Red 63, C.I. 15 880-----	ACF, FCL, HAR, IMP, KON, SNA, SW.
Pigment Red 64, C.I. 15 800-----	ACF.
*Pigment Red 81, C.I. 45 160, PMA-----	BLN, CC, IMP, KON, MGR, MRX, SAN, SNA.
*Pigment Red 81, C.I. 45 160, PTA-----	ACY, AMS, CC, DUP, EAK, FCL, HCC, IMP, KON, MGR, MRX, SAN, SDH, SNA, SNP.
*Pigment Red 90, C.I. 45 380-----	AMS, FCL, ICC, LVY, NYC, SDH, SNA, SNP.
(Vat red 13)-----	KOW.
All other-----	ACF, DUP, ICC, SDH, SW, x.
Violet toners:	
*Pigment Violet 1, C.I. 45 170, PMA-----	BLN, CC, CIK, IMP, LVY, MGR, MRX, SNA.
*Pigment Violet 1, C.I. 45 170, PTA-----	ACY, AMS, BLN, CC, DUP, EAK, FCL, HCC, IMP, KON, MGR, MRX, SAN, SNA.
*Pigment Violet 3, C.I. 42 535, fugitive-----	ACY, ADC, AMS, BLN, HCC, IMP, LVY, NYC, SDH, SUC, UHL.
*Pigment Violet 3, C.I. 42 535, PMA-----	ADC, AMS, BLN, CC, EAK, HCC, IMP, KON, LVY, MGR, MRX, NYC, PPG, SDH, SNA, SNP, SUC, SW, UHL.
*Pigment Violet 3, C.I. 42 535, PTA-----	ACY, AMS, BLN, HCC, IMP, KON, MRX, SAN, SNA, SNP, SW.
(Vat Violet 3), C.I. 73 395-----	ACF.
All other-----	ACF, GAF, ICC.
*Yellow toners:	
Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090-----	ACF, ACY, AMS, DUP, FCL, GAF, HAR, HCC, ICC, IMP, KON, LVY, MRX, SAN, SDH, SNA, SNP, SW, WDC.
*Pigment Yellow 13, C.I. 21 100-----	ACF, GAF, HST, IMP, ROM, SAN, SNA, SNP, SW.
*Pigment Yellow 14, C.I. 21 095-----	ACF, ACY, AMS, DUP, GAF, HAR, HST, ICC, IMP, KON, MRX, ROM, SAN, SDH, SNA, SNP, SW, x.
*Acetoacetanilidide Yellow (deb ---> aasa)-----	ACY, AMS, ICC, IMP, SAN, SNA, SW.
Other benzidine yellows-----	HAR, ICC, LVR, SW, x.
Hansa yellows:	
*Pigment Yellow 1, C.I. 11 680-----	ACF, ACY, AHC, AMS, DUP, EAK, FCL, GAF, HAR, HCC, IMP, KON, PPG, SAN, SDH, SNA, SW, WDC.
*Pigment Yellow 3, C.I. 11 710-----	ACF, HAR, HCC, IMP, KON, SAN, SNA, SW.
*Pigment Yellow 4, C.I. 11 665-----	ACF, SNA.
Pigment Yellow 5, C.I. 11 660-----	IMP.
Pigment Yellow 6, C.I. 11 670-----	CIK, IMP.
All other hansa yellows-----	AHC, HAR, IMP, SNA, SW, WDC, x.

See note at end of table for definition of abbreviations.

TABLE 11B. --Synthetic organic chemicals: Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Product	Manufacturers' identification codes (according to list in table 23)
TONERS OR FULL-STRENGTH COLORS--Continued	
*Yellow toners--Continued	
(Vat yellow 1) C.I. 70 600-----	TRC.
All other-----	HAR, HST, SW.
REDUCED OR EXTENDED TONERS	
*Black toners, reduced-----	
*Blue toners, reduced:	BLN, CC, HAM, MRX, SNA.
*Pigment Blue 1, C.I. 42 595, PMA-----	BLN, CC, DUP, HCC, IMP, MGR, NYC.
Pigment Blue 2, C.I. 44 045, fugitive-----	MGR, MRX.
Pigment Blue 2, C.I. 44 045, PMA-----	CC.
Pigment Blue 2, C.I. 44 045, PTA-----	CC.
Pigment Blue 3, C.I. 42 140, PMA-----	MRX.
*Pigment Blue 9, C.I. 42 025, PMA-----	CC, IMP, MRX, NYC.
Pigment Blue 9, C.I. 42 025, PTA-----	BLN, IMP.
Pigment Blue 10, C.I. 44 040, PMA-----	IMP.
Pigment Blue 10, C.I. 44 040, PTA-----	IMP.
*Pigment Blue 14, C.I. 42 600, PMA-----	CC, DUP, IMP, NYC.
Pigment Blue 14, C.I. 42 600, PTA-----	DUP, NYC.
*Pigment Blue 15, C.I. 74 160, alpha modification-----	ACF, BLN, CC, DUP, GAF, IMP, KCW, SNA, SUC, SW, TMS.
*Pigment Blue 15, C.I. 74 160, beta modification-----	ACF, DUP, IMP, KCW, KON, SW.
Pigment Blue 19, C.I. 42 750A-----	SUC.
Pigment Blue 22, C.I. 69 810-----	ACF, DUP, IMP.
(Basic Blue 9), C.I. 52 015-----	BLN, CC.
(Vat Blue 4), C.I. 69 800-----	DUP.
Blue BXM-----	DUP.
All other-----	CC, MRX, x.
*Brown toners, reduced:	
Pigment Brown 3, C.I. 21 010, fugitive-----	CC, SNA.
(Vat Brown 3), C.I. 69 015-----	CC.
All other-----	HAM, IOC.
*Green toners, reduced:	
*Pigment Green 1, C.I. 42 040, PMA-----	BLN, CC, IMP, MRX, NYC.
Pigment Green 1, C.I. 42 040, PTA-----	SNP.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA-----	BLN, CC, MRX, SNA, UHL.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA-----	ELN, DUP, MRX.
Pigment Green 4, C.I. 42 000, fugitive-----	BLN.
Pigment Green 4, C.I. 42 000, PMA-----	HAM, HCC.
*Pigment Green 7, C.I. 74 260-----	ACF, BLN, DUP, GAF, KCW, SUC, SW, TMS.
*Pigment Green 8, C.I. 10 006-----	CC, DUP, KCW.
Pigment Green 10, C.I. 12 775-----	DUP.
All other-----	BLN, CC, HAM, MGR, SW.
*Orange toners, reduced:	
Pigment Orange 2, C.I. 12 060-----	IMP, SW.
Pigment Orange 5, C.I. 12 075-----	CC.
Pigment Orange 13, C.I. 21 110-----	CC.
Pigment Orange 16, C.I. 21 160-----	DUP.
All other-----	ACF, HAM.
*Red toners, reduced:	
Naphthol reds, reduced:	
Pigment Red 2, C.I. 12 310-----	KCW.
Pigment Red 10, C.I. 12 440-----	KCW.
Pigment Red 13, C.I. 12 395-----	KCW.
Pigment Red 17, C.I. 12 390-----	ACF.
Pigment Red 22, C.I. 12 315-----	ACF, DUP.
*Pigment Red 23, C.I. 12 355-----	ACF, DUP, SNA, SUC, SW.
All other reduced naphthol reds-----	CC, HAR, SNA, SW.
*Pigment Red 1, C.I. 12 070, dark-----	BLN, IMP, UHL, WDC.
Pigment Red 1, C.I. 12 070, light-----	IMP.
*Pigment Red 3, C.I. 12 120-----	ELN, DUP, HAM, IMP, SW.
Pigment Red 4, C.I. 12 085-----	SAN.
Pigment Red 38, C.I. 21 120-----	ACF.
*Pigment Red 48, C.I. 15 865-----	ACF, BLN, DUP, HCC, IMP, KON, SAN, SNA, UHL, WDC.
Pigment Red 49, C.I. 15 630-----	ACF.
*Barium toner-----	BLN, CC, FCL, KON, SNA, UHL.
Calcium toner-----	CC.
Pigment Red 52, C.I. 15 860-----	HCC, SW.

See note at end of table for definition of abbreviations.

TABLE 11B. -- Synthetic organic chemicals: Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Product	Manufacturers' identification codes (according to list in table 23)
REDUCED OR EXTENDED TONERS--Continued	
*Red toners, reduced--Continued	
*Pigment Red 57, C.I. 15 850-----	BLN, IMP, KON, SAN, SNA.
Pigment Red 78-----	DUP.
Pigment Red 81, C.I. 45 160, fugitive-----	BLN.
*Pigment Red 81, C.I. 45 160, PMA-----	BLN, CC, DUP, NYC.
*Pigment Red 81, C.I. 45 160, PTA-----	BLN, DUP, HCC, SNA.
Pigment Red 87, C.I. 73 310-----	ACF.
Pigment Red 88-----	ACF.
Pigment Red 90, C.I. 45 380-----	IMP.
(Basic Red 2), C.I. 50 240-----	MRX.
All other-----	ACF, CC, KCW.
*Violet toners, reduced:	
Pigment Violet 1, C.I. 45 170, fugitive-----	BLN, CC, UHL.
*Pigment Violet 1, C.I. 45 170, PMA-----	BLN, CC, MRX, NYC.
Pigment Violet 1, C.I. 45 170, PTA-----	DUP, SNA.
Pigment Violet 3, C.I. 42 535, fugitive-----	BLN, CC, HAM, HCC, KON, MGR, UHL.
*Pigment Violet 3, C.I. 42 535, PMA-----	BLN, CC, DUP, HCC, IMP, NYC.
Pigment Violet 3, C.I. 42 535, PTA-----	CC, KON.
(Vat Violet 1), C.I. 60 010-----	ACF, DUP.
(Vat Violet 3), C.I. 73 395-----	ACF.
*Yellow toners, reduced:	
Benzidine yellows:	
Pigment Yellow 12, C.I. 21 090-----	ACF, DUP, IMF.
*Pigment Yellow 14, C.I. 21 095-----	ACF, ACY, CC, DUP, IMP, SW.
Hansa yellows:	
*Pigment Yellow 1, C.I. 11 680-----	DUP, HAR, IMF, MRX, WDC.
Pigment Yellow 3, C.I. 11 710-----	DUP, HAR, KCW.
Pigment Yellow 13, C.I. 49 005-----	IMF.
* (Basic Yellow 2), C.I. 41 000, fugitive-----	CC, MRX, SAN.
(Vat Yellow 1), C.I. 70 600-----	ACF.
All other yellows-----	ACF, KCW.
LAKES	
*Black lakes: (Natural Black 3), C.I. 75 291-----	
CPC, KON, NYC.	
Blue lakes:	
Pigment Blue 17, C.I. 74 180-----	BLN, CPC, KCW.
*Pigment Blue 24, C.I. 42 090-----	ACY, ADC, AMS, BLN, EAK, ICC, IMP, KON, LVY, MGR, SDH, SNA, SNP.
(Acid Blue 104), C.I. 42 735-----	CPC, KCW.
All other-----	GAF, ICC.
Brown lakes-----	
*Green lakes:	
(Acid Green 3), C.I. 42 085-----	BLN, CPC, SAN.
All other-----	GAF, x.
*Orange lakes:	
Pigment Orange 17, C.I. 15 510-----	AMS, CPC, IMP, KCW, LVY, MGR SNA.
All other-----	APC, GAF, x.
*Red lakes:	
*Pigment Red 60, C.I. 16 105-----	BLN, DUP, HAR, HCC, KON, MRX, SAN, SNA.
*Pigment Red 83, C.I. 58 000-----	HAR, IMF, KCW, KON, MRX, SNA, SW, UHL.
(Acid Red 17), C.I. 16 180-----	IMP, PPG, WDC.
* (Acid Red 26), C.I. 16 150-----	EAK, GAF, HAM, IMP, KCW, KON, SNA, UHL, x.
(Acid Red 27), C.I. 16 185-----	KON.
(Natural Red 4), C.I. 75 470-----	CNC, KON.
(Natural Red 24), C.I. 75 280-----	IMF.
All other-----	APC, BLN, SAN, SNP, SW, x.
*Violet lakes:	
*Pigment Violet 5, C.I. 58 055-----	ACF, BLN, DUP, GAF, HAR, IMP, SNA, TRC.
Pigment Violet 12, C.I. 58 050-----	HAR.
(Acid Violet 17), C.I. 42 650-----	BLN, HCC.
Yellow lakes:	
(Acid Yellow 1), C.I. 10 316-----	IMF.
(Acid Yellow 3), C.I. 47 005-----	IMF.
(Acid Yellow 11), C.I. 18 820-----	MGR.
* (Acid Yellow 23), C.I. 19 140-----	ACY, IMP, KON, MGR, MRX.
(Natural Yellow 10), C.I. 75 720-----	IMF.
All other-----	x.

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. The abbreviation deb stands for dichlorobenzene, and the abbreviation aasa, for o-acetoacetanilide.

Medicinals

TABLE 13B.--*Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959*

[Medicinals for which separate statistics are given in table 13A in pt. II are marked below with an asterisk (*); medicinals 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 23. 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 23)
MEDICINALS, CYCLIC	
<i>Benzenoid</i>	
3-Acetamido-2,4,6-triiodobenzoic acid and sodium salt----- Acetarsone (N-Acetyl-4-hydroxy-m-arsanilic acid) (Stovarsol).	MAL. SDW.
Acetylglycol salicylate-----	FES.
Acetylphenylurea-----	ABB.
*Acetylsalicylic acid (Aspirin)-----	DOW, ML, MON, NOR, SDG.
*Acetylsalicylic acid, aluminum basic salt-----	ABB, PYL, SFA.
Adrenaline (Epinephrine)-----	SDW, STS.
*Amino acids:	
3,5-Diiodotyrosine-----	EK.
dl-Phenylalanine-----	SDW.
l-Tyrosine-----	STA.
*p-Aminobenzoic acid and derivatives:	
p-Aminobenzoic acid-----	LEM, PYL.
Benzocaine (Ethyl p-aminobenzoate)-----	ABB, MFL.
Benzocaine, ethoxylated-----	BPC.
Butacaine base-----	ABB.
Butacaine sulfate-----	ABB.
Butesin (n-Butyl p-aminobenzoate)-----	FES.
2-Diethylaminoethyl 4-amino-2-propoxybenzoate (Ravocaine) hydrochloride.	SDW.
Isobutyl p-aminobenzoate (Cycloform)-----	FES.
Procaine base and salts:	
Procaine acetate-----	RIK.
Procaine base (2-Diethylaminoethyl p-aminobenzoate) (Novocaine base).	LEM.
*Procaine hydrochloride-----	ABB, CLC, LEM, MTL.
Procaine isobutyrate-----	LEM.
Propyl p-aminobenzoate-----	FES.
Tetracaine (2-Dimethylaminoethyl p-butylaminobenzoate) base.	FES.
Tetracaine hydrochloride-----	FES, SDW.
All other-----	CBF.
p-Aminobenzoic acid salts:	
Calcium p-aminobenzoate-----	LEM.
Potassium p-aminobenzoate-----	GAN, LEM, PYL.
Sodium p-aminobenzoate-----	GAN, LEM, PYL.
4-Aminosalicilic acid-----	MLS, PD.
4-Aminosalicilic acid salts:	
Calcium 4-aminosalicylate-----	MLS.
Potassium 4-aminosalicylate-----	HEX, MLS.
Sodium 4-aminosalicylate-----	MLS, PD.
3-Amino-2,4,6-triiodophenyl-2-ethylpropionic acid-----	SDW.
p-Anisoin (4,4'-Dimethoxybenzoin)-----	SPC.
Anthranilic acid, cadmium salt-----	MAL.
*Antihistamines:	
2-(Benzydryloxy)-N,N-dimethylethylamine hydrochloride--	PD.
Bromodiphenhydramine hydrochloride-----	PD.
p-Chlorobenzhydryl-m-methylbenzylidethylenediamine (Mecizline) dihydrochloride.	PFZ.
N,N-Dimethyl-2-(α -phenyl-o-toloxyl)ethylamine dihydrogen citrate.	BRS.
2-(Methylbenzydryloxy)-N,N-dimethylethylamine hydrochloride.	RIK.
All other-----	RIK.
Benzaldehyde-----	HN.
Benzoic acid-----	MON.

TABLE 13B.--Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
Benzenoid--Continued	
*Benzoic acid salts:	
Ammonium benzoate-----	PEN.
Lithium benzoate-----	MYW.
Benzyl succinate, mono-----	LEM.
3,4-Bis(p-hydroxyphenyl)-2,3-hexadienediacetate-----	MLS.
*Bismuth subgallate-----	BKC, MAL, PEN, PFZ.
Bismuth subsalicylate-----	MAL, NOR, PEN.
N,N'-Bis(3-nitrobenzenesulfonyl)ethylenediamine-----	SAL.
Bis(4-nitrophenyl) disulfide-----	ACY.
1-Butyl-3-p-tolylsulfonylurea-----	HST, x.
*Carbasone (p-Carbamidobenzenearsonic acid)-----	LIL, PYL, RSA.
Chloramine T (Sodium p-toluenesulfonchloramide)-----	MON.
6-Chloro-2H-1,2,4-benzothiadiazine-7-sulfonamide	MRK.
1,1-dioxide.	
3(p-Chlorophenylsulfonyl)-1-propylurea-----	PFZ.
Chlorothymol-----	OPC.
Chlorotrianiene-----	BKC.
1-Cyclohexyl-3-diethylamino-1-phenyl-1-propanol ethiodide-----	ACY.
Desoxyanisoin-----	SPC.
3,5-Diacetamido-2,4,6-triiodobenzoic acid, sodium salt-----	SDW.
2,5-Diaminotoluene sulfate-----	EK.
α-Diethylamino-2,6-acetoxyllidide-----	AST.
1-[p-(β-Diethylaminoethoxy)phenyl]-1-p-tolyl-2-(p-chloro-	BKC.
phenyl)ethanol.	
Diethylaminopropiophenone-----	BKC.
p,p'-(1,2-Diethylethylene)diphenol (Hexestrol)-----	SPC, x.
α,α'-Diethyl-4,4'-stilbenediol (Diethylstilbestrol)-----	ABB, LIL, SPC.
3,4-Dihydroxymephedrine (3,4-Dihydroxyphenylpropanol-	SDW.
amine) hydrochloride.	
β-(3,5-Diido-4-hydroxyphenyl)-α-hydratropic acid-----	SCH.
4-d-4-Dimethylamino-1,2-diphenyl-3-methyl-2-propoxybutane	LIL.
hydrochloride.	
4-Dimethylamino-2,2-diphenylvaleramide-----	ERS.
4-(2-Dimethylaminoethoxy)-N-(3,4,5-trimethoxybenzoyl)-	HOF.
benzylamine hydrochloride.	
Dimethylethyl(γ-carbamyl-γ,γ-diphenylpropyl)ammonium	x.
bromide.	
1-N,α-Dimethylphenethylamine base-----	ABB.
N,α-Dimethylphenethylamine (Desoxyephedrine) base-----	HEX.
*d-N,α-Dimethylphenethylamine hydrochloride-----	ABB, GAN, HEX.
*N,α-Dimethylphenethylamine (Desoxyephedrine) hydrochloride-----	GAN, HEX, MLS.
N,β-Dimethylphenethylamine phosphate-----	FBS.
N,2-Dimethyl-2-phenylsuccinimide-----	PD.
Dimethyl-p-toluidine-----	EK.
3,5-Dinitrobenzamide-----	SAL.
Diphenylacetyl-diethylaminoethanol hydrochloride-----	CBP.
3,5-Dipropionamido-2,4,6-triiodobenzoic acid and sodium	MAL.
salt.	
Dipropylene glycol salicylate-----	CP.
p-(Di-N-propylsulfamyl)benzoic acid (Benemid)-----	MRK.
*Dyes, medicinal:	
Acriflavine (3,6-Diamino-10-methylacridine chloride)-----	ACF.
2,4-Diamino-4'-ethoxyazobenzene hydrochloride (Serenium)-	KON.
Gentian violet-----	ACF, SDH.
Merbromin (Dibromohydroxymercurifluorescein, sodium salt)	HYN.
Methylene blue-----	ACF, ACY.
Scarlet red (Phenol red)-----	ACF.
Other-----	ACF.
Ephedrine, racemic-----	MRK.
N-Ethyl-3,3'-diphenyldipropylamine-----	SFC.
N-Ethyl-3,3'-diphenyldipropylamine citrate-----	SFC.
N-Ethyl-3,3'-diphenyldipropylamine hydrochloride-----	SFC.
Ethyl (iodophenyl)henecanoste (Fantopaque)-----	x.
Ethylmercurithiosalicylic acid-----	LIL.
Ethylmercurithiosalicylic acid, sodium salt-----	LAS, LIL, PYL.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Benzenoid--Continued</i>	
α-Ethyl-α-phenylglutarimide (Doriden)-----	CBP.
Ethyl salicylate carbonate-----	FBS, PD.
Gallic acid-----	MAL.
Glycol monosalicylate-----	FBS, MON.
Guaiacol, liquid and crystalline-----	HN, MON.
Hexylresorcinol-----	HEX, MRK.
p-Hydroxyacetanilide-----	MLS, NEF.
m-Hydroxybenzaldehyde-----	ACF.
p-Hydroxybenzoic acid esters:	
Benzyl p-hydroxybenzoate-----	HN, LIL.
n-Butyl p-hydroxybenzoate (Butoben)-----	FBS, HN.
Ethyl p-hydroxybenzoate-----	HN.
Methyl p-hydroxybenzoate-----	FBS, HN.
Propyl p-hydroxybenzoate-----	FBS, HN.
N-2-Hydroxyethylgentisamide-----	FBS.
Hydroxymercuri-4-nitro-o-cresol anhydride (Metaphen)-----	ABB.
4-Hydroxy-3-nitrobenzenearsonic acid-----	SAL.
2-Hydroxy-2-phenethyl carbamate-----	ARP.
α-(Isopropylaminomethyl)protocatechuy alcohol (Aleudrine)-----	SPC.
Mandelic acid (Phenylglycolic acid)-----	NEP.
Mandelic acid, calcium salt-----	MAL.
α-Methoxy-N,α-dimethylphenethylamine (1-(o-Methoxyphenyl)-2-methylaminopropane) hydrochloride.	MLS, ORT.
3-(o-Methoxyphenoxy)-1,2-propanediol (Glyceryl guaiacyl ether).	FBS, GAN.
α-(1-Methylaminoethyl)benzyl alcohol (Pseudoephedrine) hydrochloride.	BUR, GAN.
α-(1-Methylaminoethyl)benzyl alcohol sulfate-----	GAN.
4-(2-Methylaminoethyl)pyrocatechol-----	DOD.
1-Methyl-4-carbethoxy-4-phenylhexamethylenimine (Ethoheptazine) citrate.	WYT.
N-[2-(3,4-Methylenedioxyphenyl)isopropyl]-α-aminomethyl-protocatechuy alcohol hydrochloride (Caytine).	LKL.
*α-Methylphenethylamine (Amphetamine) base and salts:	
α-Methylphenethylamine (Amphetamine) (Benzedrine) base---	HEX, ORT, SK.
d-α-Methylphenethylamine base-----	HEX.
α-Methylphenethylamine hydrochloride-----	HEX.
d-α-Methylphenethylamine hydrochloride-----	HEX.
α-Methylphenethylamine sulfate-----	HEX.
d-α-Methylphenethylamine sulfate-----	HEX, SK.
N-Methyl-2-phenylsuccinimide-----	PD.
2-Naphthol (β-Naphthol)-----	FIN.
2-Naphthyl benzoate-----	BKL.
Neostigmine bromide-----	HEX.
Neostigmine methyl sulfate-----	HEX.
p-Nitrobenzenearsonic acid-----	SAL.
*Norephedrine (Propadrine) hydrochloride-----	FBS, GAM, HEX, ORT.
Phenacaine [(Di-p-ethoxyphenyl)acetamidine] hydrochloride-----	GAN, SDW.
Phenacetin (Acetophenetidin)-----	DOW, MON.
Phenolphthalein-----	MON.
Phenolsulfonic acid salts:	
Aluminum phenolsulfonate-----	MAL.
Ammonium phenolsulfonate-----	GAM.
Calcium phenolsulfonate-----	MAL.
Sodium phenolsulfonate-----	GAM, MAL.
Zinc phenolsulfonate-----	MAL.
2-Phenyl-tert-butylamine resin complex-----	BPC.
trans-2-Phenylcyclopropylamine sulfate-----	BPC.
1-Phenylephrine base-----	GAN.
*Phenylephrine (Neosynephrine) hydrochloride-----	GAN, HEX, SDW, SPC.
2-Phenyl-1,3-indandione (Danilon)-----	GAN, SPC.
β-Phenylisopropylhydrazine hydrochloride-----	LKL.
Phenyl mercuric derivatives:	
o-Chloromercuriphenol (o-Hydroxyphenylmercuric chloride)-----	MTL.
Phenylmercuric acetate-----	BRK.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
Benzenoid--Continued	
Phenyl mercuric derivatives--Continued	
Phenylmercuric benzoate-----	BRK, MFL.
Phenylmercuric borate-----	BRK, MFL.
Phenylmercuric chloride-----	MTL.
Phenylmercuric nitrate-----	BRK, MFL.
Phthalazone-----	ACF.
Pyrogallic acid-----	MAL.
Quinidine sulfate-----	HEX.
Resorcinol monoacetate-----	EK.
Resorcinol monobenzoate-----	EKT.
Salicylamide-----	PEN.
*Salicylic acid-----	DOW, HN, MON, SDH.
*Salicylic acid salts:	
Calcium salicylate-----	DOW.
Magnesium salicylate-----	MAL.
Mercuric salicylate-----	MAL.
Potassium salicylate-----	PEN.
*Sodium salicylate-----	DOW, HN, MDN.
Strontium salicylate-----	DOW, MAL.
Salol (Phenyl salicylate)-----	DOW, MAL, PEN.
Sodium antimony(III)-bis(catechol-2,4-disulfonate) (Fouadin).	SDW.
Sodium benzyl succinate-----	LEM.
Sodium o-iodohippurate dihydrate (Hippuran)-----	MAL.
Sodium phenoxycetate-----	ABB.
Sodium santoninate-----	MAL.
p-Stibonobenzoic acid-----	BKC.
*Sulfa drugs:	
6-Acetamido-4-hydroxy-3-(4'-sulfamoylphenylazo)-2,7-naphthalenedisulfonic acid, disodium salt (Neoprontosil) (Prontosil soluble).	SDW.
N ¹ -Acetyl-3,4-dimethyl-5-sulfanilamidoisoxazole-----	HOF.
4'-(Acetylsulfamoyl)phthalanilic acid-----	LEM.
Benzoylsulfanilamide-----	ACY.
Benzoylsulfanilamide, sodium salt-----	ACY.
p-Benzaminobenzenesulfonamide-----	SDW.
N ¹ -(6-Chloro-2-pyrazinyl)sulfanilamide-----	ACY.
N ¹ -(2,6-Dimethoxy-4-pyrimidinyl)sulfanilamide-----	HOF.
N ¹ -(3,4-Dimethyl-5-isoxazolyl)sulfanilamide-----	HOF.
N ¹ -(5-Ethyl-1,3,4-thiadiazol-2-yl)sulfanilamide-----	ACY.
N ¹ -(5-Methyl-1,3,4-thiadiazol-2-yl)sulfanilamide-----	ACY.
4'-(p-Nitrophenylsulfamoyl)acetanilide (N ⁴ -Acetyl-N ¹ -(4-nitrophenyl)sulfanilamide).	ACY, SAL.
Sulfabromomethazine, sodium salt-----	MRK.
Sulfadiazine-----	ACY.
Sulfadiazine, sodium salt-----	ACY.
Sulfaguandine-----	ACY.
Sulfamerazine-----	ACY.
Sulfamerazine, sodium salt-----	ACY.
Sulfamethazine-----	ACY.
Sulfamethoxypyridazine-----	ACY.
Sulfanilamide (p-Aminobenzenesulfonamide)-----	ACY.
Sulfanilamide-----	SAL.
N-Sulfanilylacetamide (Sulfaacetamide)-----	LEM, SCH.
N-Sulfanilylacetamide, sodium salt-----	LEM, SCH.
Sulfapyridine-----	ACY, MRK.
Sulfapyridine, sodium salt-----	ACY, MRK.
Sulfaquinolaxine-----	MRK.
Sulfasuxidine (Succinylsulfathiazole)-----	MRK.
Sulfathalidine-----	MRK.
Sulfathiazole-----	ACY, MRK.
Sulfathiazole, sodium salt-----	ACY, MRK.
Tannin albuminate (Tannalbin)-----	PYL.
Thiosalicylic acid-----	LLL.
Thymol-----	GIV, HNW.
Thymol iodide-----	MAL.
*3-o-Toloxyl-1,2-propanediol (o-Cresyl a-glyceryl ether)-----	BRL, FBS, HEX.

TABLE 13B.--*Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued*

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Benzenoid--Continued</i>	
Vitamins:	
K (2-Methyl-1,4-naphthalenediol diphosphate, tetrasodium salt).	HOF.
*K (Menadione) (2-Methyl-1,4-naphthoquinone)-----	ABB, HET, HFT.
K (Menadione), sodium bisulfite-----	ABB, HET.
K ₁ (2-Methyl-3-phytyl-1,4-naphthoquinone)-----	MRK.
K ₂ (4-Amino-2-methyl-1-naphthol, hydrochloride)-----	PD.
<i>Alicyclic and Heterocyclic</i>	
5-Acetamido-1,3,4-thiadiazole-2-sulfonamide-----	ACY.
2-Acetylamino-5-nitrothiazole (Acetyl enheptin)-----	ACY.
Adenine hydrochloride-----	SBR.
Adenine sulfate-----	SBR.
Adenosine-----	SBR.
Adenosine-5-phosphoric acid-----	SBR.
Adenosinetriphosphoric acid-----	SBR.
Adenosinetriphosphoric acid, salt-----	PBS, SBR.
Adenylic acid-----	SBR.
*Alkaloids and related products:	
Berberine hydrochloride-----	ABB, PEN.
Colchicine-----	ABB, PEN.
Digitalis glucosides:	
Digitonin-----	PEN.
Gitalin-----	PEN.
All other-----	BUR, CBP.
Eserine salicylate-----	PEN.
Ethylmorphine hydrochloride-----	MAL, MRK.
Eucatropine hydrochloride-----	WER.
Homatropine-----	HEX, SPC.
Homatropine hydrobromide-----	SPC.
*Homatropine methyl bromide-----	EN, HEX, SPC.
Hydrastine-----	PEN.
Hydrastine hydrochloride-----	ABB, PEN.
d-3-Methoxy-N-methylmorphinan hydrobromide-----	HOF.
Rauwolfia serpentina (Alseroxylon) fraction-----	RIK.
Reserpine-----	PEN.
Reserpine with rescinnamine-----	PFZ.
Tubocurarine-----	OMS.
Veratrum viride (Alkavervir)-----	PEN, RIK.
Allantoin (5-Ureidohydantoin)-----	FIN, HFT.
2-Aminopurine-6-thiol-----	BUR.
Amino acids:	
dl-Acetyltryptophane-----	SDW.
d-Tryptophane-----	DOW.
dl-Tryptophane-----	SDW.
l-Tryptophane-----	SDW.
2-Amino-5-nitrothiazole (Enheptin)-----	ACY.
3-Amino-2-oxazolidinone-----	NOR.
1-m-Aminophenyl-2-pyridone-----	BPC.
*Antibiotics for human or veterinary use:	
Actidione-----	UPJ.
*Bacitracin-----	COM, PBS, PEN, PFZ.
Carbomycin (Magnamycin)-----	PFZ.
Chloramphenicol (Chloromycetin)-----	PD.
Chlortetracycline (Aureomycin) hydrochloride-----	ACY.
Cycloserine-----	COM, PFZ.
*Dihydrostreptomycin-----	ACY, LIL, MRK, OMS, PFZ.
Erythromycin-----	ABB, COM, LIL.
Fumagillin-----	ABB.
Gramicidin-----	PEN.
*Neomycin, base-----	ACY, MRK, OMS, PEN, PFZ, UPJ.
Novobiocin-----	MRK, x.
Nystatin-----	OMS.
Oleandomycin-----	PFZ.
Oleandomycin, triacetate-----	PFZ.
Oxytetracycline (Terramycin) hydrochloride-----	PFZ.

TABLE 13B. -- Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
*Antibiotics for human or veterinary use--Continued	
*Penicillin salts:	
Benzathine penicillin G-----	PFZ, WYT.
Benzathine penicillin V-----	WYT.
Chloroprocaïne penicillin O-----	UPJ.
Hydrabamine penicillin V-----	ABB.
Penicillin V-----	LIL.
*Potassium penicillin G-----	ABB, ERS, LIL, MRK, OMS, PFZ, WYT.
*Potassium penicillin V-----	ABB, LIL.
*Potassium α-phenoxethyl penicillin-----	ERS.
*Procaïne penicillin G-----	ABB, ERS, LIL, MRK, OMS, PFZ, WYT.
Sodium penicillin G-----	MRK, OMS, PFZ.
Sodium penicillin O-----	UPJ.
Polymixin B sulfate-----	PFZ.
Spontin-----	ABB.
*Streptomycin-----	ACY, LIL, MRK, OMS, PFZ.
*Tetracycline-----	ACY, ERS, PFZ.
Thiostrepton-----	OMS.
Tyrosine-----	PEN.
Viomycin-----	PFZ.
Other-----	ACY, ERS, LIL, MRK, OMS.
*Antibiotics for animal feed supplements, food preservation, and crop spraying:	
Attermin-----	BIF.
*Bacitracin-----	CGM, GPR, PBS, PEN.
Chlortetracycline (Aureomycin) hydrochloride-----	ACY.
Hygromycin B-----	LIL.
Oxytetracycline (Terramycin)-----	PFZ.
Penicillin salts:	
Benzathine penicillin G-----	PFZ.
Potassium penicillin G-----	PFZ.
*Procaïne penicillin G-----	ABB, CGM, LIL, MRK, OMS, PFZ.
Streptomycin-----	MRK, PFZ.
All other-----	MRK.
*Antihistamines:	
2-(Benzhydryloxy)-N,N-dimethylethylamine 8-chloro- theophyllinate.	SRL.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine citrate----	CEP.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine hydro- chloride.	CEP.
2-[1-(p-Bromophenyl)-3-dimethylaminopropyl]pyridine (Parabromolylamine) maleate.	SCH.
1-(4-Chlorobenzhydryl)-4-methylpiperazine hydrochloride----	ABB, BUR.
2-[p-Chloro-α-(2-dimethylaminoethoxy)benzyl]pyridine maleate.	SCH.
1-(p-Chloro-α-phenylbenzyl)-4-(p-tertbutylbenzyl)- piperazine dihydrochloride.	PFZ.
*2-[1-(p-Chlorophenyl)-3-dimethylaminopropyl]pyridine maleate (Chlorophenylpyridamine maleate).	HEX, SCH, x.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-2-butanol-----	LIL.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-1-butene diphosphate and hydrochloride.	LIL.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-1-butene hydrobromide.	LIL.
2-[α-(2-Dimethylaminoethoxy)-α-methylbenzyl]pyridine succinate (2-(Methyl-2'-dimethylaminoethoxybenzyl) pyridine succinate) (Decapryn succinate).	BKC.
2-[1-(2-Dimethylaminoethyl-p-methoxybenzyl)amino]pyridine maleate.	MRK.
2-[1-(2-Dimethylaminoethyl-p-methoxybenzyl)amino]pyrimidine (N,N-Dimethyl-N'-p-methoxybenzyl-N,2-pyrimidylethylene- diamine).	NEP.
2-[1-(2-Dimethylaminoethyl)thienylamino]pyridine fumarate (N,N-Dimethyl-N',2-pyridyl-N',2-thienylethylenediamine fumarate).	ABB, MON.
2-[1-(2-Dimethylaminoethyl)thienylamino]pyridine hydro- chloride (N,N-Dimethyl-N',2-pyridyl-N',2-thienyl- ethylenediamine hydrochloride).	ABB, SDW.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
*Antihistamines--Continued	
2-[[2-(Dimethylaminoethyl)thienylamino]pyridine o-(p-Hydroxybenzoyl)benzoate.	LIL.
N-(2'-Dimethylamino-2'-methyl)ethylphenothiazine hydrochloride.	MON, WYT.
*2-[3-(Dimethylamino)-1-phenylpropyl]pyridine maleate-----	HEX, SCH, x.
N,N-Dimethyl-N'-(2-pyridyl)-N''-(5-chloro-2-thienyl)-ethylenediamine citrate.	MON.
Phenindamine-----	HOF.
Antipyrine (1,5-Dimethyl-2-phenyl-3-pyrazolone)-----	DOW.
Barbituric acid-----	ABB, KF.
Barbituric acid, sodium salt-----	ABB.
*Barbituric acid derivatives:	
5-Allyl-5-sec-butylbarbituric acid-----	SDW.
5-Allyl-5-(2-cyclopenten-1-yl)barbituric acid and salt (Cyclopal).	GAN.
5-Allyl-5-isobutylbarbituric acid and salt-----	GAN.
*5-Allyl-5-(1-methylbutyl)barbituric acid (Secobarbital) and salt.	EPC, GAN, LIL.
5-Allyl-5-(1-methylbutyl)-2-thiobarbituric acid, sodium salt (Thiamylal).	PD.
dl-5-Allyl-1-methyl-5-(1-methyl-2-pentynyl) barbituric acid and salt.	LIL.
5-sec-Butyl-5-ethylbarbituric acid-----	ABB, EPC, GAN.
5-sec-Butyl-5-ethylbarbituric acid, sodium salt-----	ABB, EPC, GAN.
5-(1-Cyclohexen-1-yl)-1,5-dimethylbarbituric acid (Evipal).	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-Diallylbarbituric acid (Dial)-----	GAN.
5,5-Diethylbarbituric acid (Barbital)-----	GAN, LIL.
5,5-Diethylbarbituric acid, sodium salt-----	GAN.
5-Ethyl-5-isoamylbarbituric acid and salt (Amytal)-----	EPC, GAN, LIL.
5-Ethyl-5-isopropylbarbituric acid and salt-----	ABB.
5-Ethyl-5-(1-methyl-1-butenyl)barbituric acid (Delvinal)--	x.
*5-Ethyl-5-(1-methyl-n-butyl)barbituric acid (Pentobarbital).	ABB, EPC, GAN.
*5-Ethyl-5-(1-methyl-n-butyl)barbituric acid, sodium salt--	ABB, EPC, GAN.
5-Ethyl-5-(1-methyl-n-butyl)-2-thiobarbituric acid and salt (Pentothal).	ABB, EPC.
5-Ethyl-1-methyl-5-phenylbarbituric acid (Mephobarbital)--	SDW.
5-Ethyl-5-n-pentylbarbituric acid, sodium salt-----	EPC.
*5-Ethyl-5-phenylbarbituric acid (Phenobarbital) (Luminal)-	ABB, EPC, GAN, MAL, SDW.
*5-Ethyl-5-phenylbarbituric acid, sodium salt-----	EPC, GAN, MAL, SDW.
2-Thiobarbituric acid-----	EK.
1-[2-(Benzylcarbamoyl)ethyl]-2-isonicotinoylhydrazine-----	PFZ.
3-Benzyl-3,4-dihydro-6-(trifluoromethyl)-2H-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide (Benzhydroflumethiazide).	OMS.
2-Benzyl-2-imidazoline (Tolazoline) hydrochloride-----	SFC.
1-Benzyl-2-(5-methyl-3-isoxazolalcarbonyl) hydrazine-----	HOF.
3-Benzylthiomethyl-6-chloro-2H-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	PFZ.
*Bile acids and salts:	
Bilirubin-----	PFN.
Biliron-----	LIL.
Cholic acid-----	ARP, DRG, SRL, WIL, WTM.
*Dehydrocholic acid-----	DRG, MRK, WIL, WTM.
Desoxycholic acid-----	DRG, MRK, WIL.
*Ketocholeonic acids-----	EN, MRK, SRL, WTM.
Mixed oxidized bile acids-----	ARP, WIL.
*Bromocamphor, mono-----	DOW, MAL, PEN.
4-[3-p-Butoxyphenoxy]propylmorpholine hydrochloride (Fyromoxine).	ABB.
α-Butyloxycinchonic acid diethylethylenediamide and hydrochloride (Nupercaine).	CBP.
*Caffeine, natural-----	GNF, MYW, RB.
*Caffeine, synthetic-----	MON, PFZ.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Alicyclic and Heterocyclic--Continued</i>	
Caffeine derivatives, natural and synthetic:	
*Caffeine citrate-----	MAL, MRK, PFZ.
Caffeine sodium benzoate-----	MAL.
Camphor, synthetic, U.S.P.-----	DUP, HNW.
Camphoric acid-----	FIN, PYL.
Camphoric anhydride-----	FIN, PYL.
Camphosulfonic acid-----	PYL.
Camphosulfonic acid, calcium salt-----	FIN.
Carboxymethylcellulose, sodium salt-----	CBP.
N-[3-(Carboxymethylmercaptomercuri)-2-methoxypropyl]	WYT.
α -camphoramate, disodium salt.	
Cellulose, oxidized-----	EKT.
7-Chloro-4-(4-diethylamino-1-methylbutylamino)quinoline	SDW.
(Aralen).	
6-Chloro-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfon-	CBP, MRK.
amide 1,1-dioxide.	
7-Chloro-4-(4-[ethyl(2-hydroxyethyl)amino]-1-methylbutyl-	SDW.
amino)quinoline sulfate.	
*5-Chloro-7-iodo-8-quinolinol (Iodochlorohydroxyquinoline)---	CBP, LEM, MTL.
2-(4-Chlorophenyl)tetrahydro-3-methyl-4H-1,3-thiazin-4-one	SDW.
1,1-dioxide.	
4-(7-Chloro-4-quinolylamino)- α -diethylamino-o-cresol-----	PD.
2-Chlorothiophene-----	GAM.
Coenzyme A-----	PBS.
Cozymase-----	PBS.
α -Cyclohexyl- α -phenyl-1-piperidinepropanol-----	SDW.
Cyclopentanol-----	LIL.
Cyclopentyl bromide-----	LIL.
1-Cyclopentyl-2-methylpropylamine (Cyclopentamine)	LIL.
hydrochloride.	
α -Cyclopentyl-2-thiophenylglycolic acid, 2-diethylaminoethyl	SDW.
ester methobromide.	
Cytosine-----	KF.
Dextran-----	COM.
2,4-Diamino-5-(p-chlorophenyl)-6-ethylpyrimidine-----	BUR.
1,3-Dibromo-5,5-dimethylhydantoin-----	DRG.
4,7-Dichloroquinoline-----	PD.
Diethylaminocarbethoxybicyclohexyl (Dicyclamine) hydro-	EKC.
chloride (Bentyl hydrochloride).	
6-(2-Diethylaminoethoxy)-2-dimethylaminobenzothiazole	HOF.
hydrochloride.	
1-Diethylcarbonyl-4-methylpiperazine dihydrogen citrate	ACY.
(Hetrazan).	
*Dihydrocodeine bitartrate-----	EN, MAL, MRK, PEN.
Dihydrohydrocodeine hydrochloride-----	EN.
3,5-Diido-N-methyl-4-pyridone-2,6-dicarboxylic acid-----	SCH.
3,5-Diido-4-pyridone-N-acetic acid, diethanolamine-----	SDW.
*5,7-Diido-8-quinolinol-----	LEM, MTL, PYL, RSA, SRL.
6,7-Dimethoxy-1-(4-ethoxy-3-methoxybenzyl)-3-methylquinoline	LIL.
phosphate (Dioxiline phosphate).	
3-(3-Dimethylaminopropyl)-1,3,8,8-tetramethylazoniabicyclo-	WYT.
[3,2,1]octane, methyl sulfate, methosulfate.	
p, α -Dimethylbenzyl camphorate, diethanolamine salt-----	SPC.
N, α -Dimethylcyclohexane-ethylamine (1-Cyclohexyl-2-methyl-	SK.
aminopropane).	
6-Dimethyl-2-[2-(2,5-dimethyl-1-phenyl-3-pyrrolyl)vinyl]-1-	x.
methylquinolinium chloride dihydrate.	
N,N-Dimethyl-4-piperidylidene-1,1-diphenylmethane, methyl	SCH.
sulfate (Diphenmethanil methyl sulfate).	
5,5-Diphenylhydantoin-----	PD.
5,5-Diphenylhydantoin, sodium salt-----	HEX, PD, PYL.
5-Ethyl-3,5-dimethyl-2,4-oxazolidinedione-----	ABB.
5-Ethyl-10,10-diphenylphenarsazine-----	MRK.
Ethyl 1-methyl-4-phenylisonipecotate (Demarol)-----	SDW, WYT.
3-Ethyl-5-phenylhydantoin-----	ABB.
N-Ethyl-3-piperidyl benzilate methobromide-----	LKL.
N-Ethyl-3-piperidyl diphenylacetate hydrochloride-----	LKL.
Ethynyl cyclohexyl carbamate (Valmid)-----	LIL.
Fructose (Levulose)-----	DLI.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Alicyclic and Heterocyclic--Continued</i>	
Galactose-----	PFN.
Glucose-6-phosphate, barium salt and sodium salt-----	SBR.
Glucuronolactone-----	CRN.
1-Hexadecylpyridinium chloride-----	HEX, x.
Hexamethylenetetramine-----	HN.
Hexamethylenetetramine anhydromethylene citrate (Helmitol)-	SDW.
Hexamethylenetetramine mandelate-----	NEP.
Hexokinase-----	PES.
Hexosediphosphoric acid salts:	
Barium and magnesium salts-----	SBR.
Calcium hexosediphosphate-----	SBR.
*Hormones (steroid):	
Adrenocorticotrophic hormone (ACTH)-----	ARP, ORG, WIL.
Allopregnane-3,11,20-trione-----	UPJ.
Dexamethasone-----	MRK.
Dexamethasone acetate-----	SCH.
Dexamethasone alcohol-----	SCH.
Dienediol-----	UPJ.
Estrogenic substance-----	ORG.
Estrone, natural, equine-----	ORG.
Fluorocortisone-----	MRK.
9- α -Fluorohydrocortisone acetate-----	UPJ.
Fluoxymesterone-----	UPJ.
*Hydrocortisone alcohol and acetate-----	MRK, PFZ, UPJ.
Hydrocortisone diethylaminoacetate hydrochloride-----	PFZ.
*17-Hydroxy-11-dehydrocorticosterone (Cortisone) and acetate.	
11- α -Hydroxyprogesterone-----	UPJ.
Methylandrostenediol-----	SRL.
Methylprednisolone-----	x.
Methyltestosterone-----	CBP, SRL.
*Prednisolone-----	MRK, PFZ, UPJ.
*Prednisone-----	MRK, SCH, UPJ.
Progesterone-----	SRL, x.
Sitosterol B-----	UPJ.
Testosterone-----	SRL.
Testosterone propionate-----	SRL.
Triamcinolone-----	ACY, GMS.
Trienediol-----	UPJ.
1-Hydrazinonaphthalazine hydrochloride-----	CBP.
3-Hydroxy-1-methylpyridinium bromide dimethylcarbamate-----	HOF.
8-Hydroxyquinoline-5-sulfonic acid-----	LEM.
4,5-Imidazolidinecarboxamide (Glycarblylamide)-----	MRK.
2-Iodoethyl-1,3-dioxolane-4-methanol-----	x.
Isonicotinic acid hydrazide-----	NEP.
1-Isonicotinyl-2-isopropylhydrazine phosphate-----	HOF.
Maltose-----	PFN.
β -Menthofuran-----	x.
Menthyl salicylate-----	FES.
homo-Menthyl salicylate-----	FES.
6-Mercaptopurine-----	BUR.
β -Methoxy- γ -hydroxymercuric propylamide of camphoric acid, sodium salt with theophylline (Mercupurin).	FIN.
Methoxyoximercuripropylsuccinyl urea-----	LKL.
3-(p-Methoxyphenyl)-1,3-indandione-----	SCH.
2-Methylbenzothiazole-----	FMT.
Methylcholanthrene-----	EK.
Methyl dehydromorphinone-----	MAL.
3,3'-Methylenebis[4-hydroxycoumarin] (Dicumarol)-----	ABB, FIN.
Methyl nicotinate-----	NEP.
3-Methyl-2-phenylmorpholine hydrochloride (PreLudin)-----	GGY.
N-Methyl-3-piperidylbenzilate methobromide-----	LKL.
N-Methylpiperidyl-3-methylphenothiazine hydrochloride hydrate.	NEP.
3-(2-Methyl-1-piperidyl)propyl benzoate (Metycaine)-----	LIL.
3-(2-Methyl-1-piperidyl)propyl p-cyclohexyloxybenzoate-----	LIL.
2-Methyl-3-o-tolyl-4(3H)-quinazolinone-----	BFC.
1-Methyl-2-undecyl-3-benzylimidazolium bromide-----	LIL.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Alicyclic and Heterocyclic--Continued</i>	
5-(4-Morpholinomethyl)-3-(5-nitrofurfurylideneamino)-2-oxazolindione.	NOR.
2-(1-Naphthylmethyl)-2-imidazoline (Privine) hydrochloride-Nikethamide (Coramine)-----	ORT. CBP, PYL.
5-Nitro-2-furaldehyde diacetate-----	NOR.
5-Nitro-2-furaldehyde semicarbazone (Furacin)-----	NOR.
5-Nitro-2-furfurylidene-1-aminohydantoin (Furadantin)-----	NOR.
N-(5-Nitro-2-furfurylidene)-3-amino-2-oxazolindione-----	NOR.
Novalgin (1-Phenyl-2,3-dimethyl-4-methylamino-5-pyrazolone formaldehyde bisulfite).	SDW.
Nucleic acid-----	SBR.
Nucleic acid salts-----	SBR.
Papaverine hydrochloride, synthetic-----	LIL.
Phenothiazine-----	CLV.
α -Phenylcyclohexaneglycolic acid, 1-methyl-1,4,5,6-tetrahydro-2-pyrimidinmethanol ester.	PFZ.
1-Phenylcyclopentylcarboxylic acid, 2-(2-diethylaminoethoxy)ethyl ester.	PFZ.
2-Phenyl-1,3-diketohydrindane-----	BKC.
Phytic acid-----	STA.
Phytic acid, calcium salt-----	STA.
Piperazine-----	JCC, UCC.
*Piperazine derivatives:	
N-Benzhydryl-N ¹ -methylpiperazine base and hydrochloride--	BUR.
N-(β -Cyclohexyl- β -hydroxy- β -phenyl)ethyl-N'-methylpiperazine methosulfate.	ABB.
Dimethylaminoethyl-4-methylpiperazine-----	UCC.
N-(β , β -Diphenyl- β -hydroxy)ethyl-N'-methylpiperazine dihydrochloride.	ABB.
Methyl-N-methyl-N-piperazine acetate-----	JCC, UCC.
N-Methylpiperazine-----	JCC.
Piperazine adipate-----	EN.
Piperazine calcium ethylenediamine tetraacetate (Perin)--	BRK.
Piperazine carbon disulfide-----	JCC, PYL, RSA.
Piperazine citrate-----	JCC, PYL.
Piperazine dihydrochloride-----	JCC.
Piperazine hydrochloride-----	BUR, JCC.
Piperazine phosphate-----	PYL.
Piperazine tartrate-----	PYL.
sym-N-Tetramethylpiperazine diiodide-----	JCC.
Piperazine hexahydrate-----	ACY, PYL.
6-Propyl-2-thiouracil-----	HOF.
2-Pyridinemethanol tartrate-----	HOF, NEP.
Fyridium (2,6-Diamino-3-phenylazopyridine)-----	SDW.
Quinaerin (Atebrin) (2-Methoxy-6-chloro-9-diethylaminopentylaminoacridine).	
8-Quinololinol (8-Hydroxyquinoline) salts and esters:	
*8-Quinololinol base-----	GAM, LEM, MTL.
8-Quinololinol benzoate-----	GAM.
8-Quinololinol citrate-----	GAM.
*8-Quinololinol sulfate (Quinosol)-----	GAM, LEM, MTL.
Rutin-----	LEM, PEN.
Terpinol hydrate-----	LEM, PEN.
dL-2-(1,2,3,4-Tetrahydro-1-naphthyl)-2-imidazoline hydrochloride.	PFZ.
Theobromine derivatives:	
Theobromine calcium gluconate-----	WTM.
Theobromine sodium acetate-----	MAL.
Theobromine sodium salicylate-----	CLC, MAL.
*Theophylline (1,3-Dimethylxanthine) base and derivatives:	
Theophylline aminoisobutanol-----	GAN.
Theophylline, anhydrous-----	GAN.
Theophylline base-----	LEM, MAL.
Theophylline cholineate-----	NEP.
*Theophylline ethylenediamine (Aminophylline)-----	GAN, LEM, SRL.
Theophylline ethylenediamine, sodium biphosphate-----	GAN.
Theophylline methoxymercuripropyl succinylurea-----	LKL.
Theophylline sodium acetate-----	GAN, MAL.
2-Thiouracil-----	ACY.

TABLE 13B.--Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, CYCLIC--Continued	
<i>Alicyclic and Heterocyclic--Continued</i>	
Thymidine-----	SBR.
*Tranquilizers (including benzenoid):	
1-p-Chlorobenzhydrol-4-[2-(2-hydroxyethoxy)ethyl]- piperazine (Hydroxyzine) dihydrochloride.	PFZ.
1-(p-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl]- diethylenediamine dihydrochloride.	FFA.
2-Chloro-10-(3-dimethylaminopropyl)phenothiazine (Chlorpromazine) hydrochloride.	SK.
2-Chloro-10-(3-[4-(2-hydroxyethyl)piperazinyl]propyl)- phenothiazine.	SCH.
2-Chloro-10-[3-(1-methyl-4-piperazinyl)propyl]pheno- thiazine dimaleate.	SK.
2-(p-Chlorophenyl)-3-methyl-2,3-butanediol-----	LLL.
10-(γ -Dimethylaminopropyl)phenothiazine (Promazine) hydrochloride.	WYT.
2-Ethyl-3-propylglycidamide (Quiactin)-----	BKC.
α -(4-Piperidyl)benzhydrol (Azocyclonol) hydrochloride-----	BKC.
6-(Trifluoromethyl)-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	OMS.
2-Trifluoromethyl-10-(3-dimethylaminopropyl)phenothiazine (Triflupromazine) hydrochloride.	OMS.
3,5,5-Trimethyl-2,4-oxazolinedione (Tridione)-----	ABB.
Triphosphopyridine nucleotide-----	PBS.
3-Tropanol (Tropine)-----	HEX.
Tropine benzhydrol ether methanesulfonate-----	x.
Uric acid-----	x.
Uridine-----	SBR.
Uridine triphosphate-----	PBS.
1-Vinyl-2-pyrrolidinone iodine complex monomer-----	GAF.
*Vitamins:	
*A, from all sources:	
A acetate-----	CW, EK, HOF, MRK, PFZ.
A acetate (feed grade)-----	HOF, PFZ.
A alcohol-----	CW.
A esters (natural)-----	EK.
A palmitate-----	EK, HOF, MRK, PFZ.
A palmitate (feed supplement)-----	EK, HOF, PFZ.
β -Carotene-----	HOF.
*B ₁ (Thiamine derivatives):	
(Thiamine hydrochloride)-----	HOF, MRK.
(Thiamine nitrate)-----	HOF, MRK.
B ₂ :	
(Riboflavin-5'-phosphate, monosodium salt) (100%),-----	HOF.
*(Riboflavin for human consumption) (100%)-----	GPR, HOF, MRK.
*(Riboflavin for animal and poultry consumption)-----	COM, GPR, HOF, MRK, PBS.
*B ₆ (Pyridoxine)-----	ACY, HOF, MRK.
*B ₁₂ , 100%:	
Feed grade-----	BIF, COM, GPR, MRK, PBS, PFZ.
Pharmaceutical quality-----	BIF, MRK.
U.S.P. Crystalline-----	MRK.
*D ₂ (Irradiated ergosterol) (Calciferol)-----	DGS, DLI, GNM, SDW, VTM.
*D ₃ (Irradiated animal sterol) (Delsterol)-----	DGS, DLI, NOP, VTM.
E (α -Tocopherol)-----	HOF.
E (α -Tocopherol acetate)-----	HOF.
Biotin-----	HOF.
*Folic acid-----	ABB, ACY, SCR, UPJ.
Inositol-----	STA.
*Niacin (Nicotinic acid)-----	ABB, ACP, HFT, KPT, MRK, NOP.
*Niacinamide-----	ABB, MRK, NEP, SCR.
*Nicotinic acid (animal feed)-----	CKL, KPT.
Sodium nicotinate-----	MRK.
Xylose-----	PFN.
MEDICINALS, ACYCLIC	
Acetylcarbromal (1-Acetyl-3-(2-bromo-2-ethylbutyl)urea)---	MLS.
Acetylcholine bromide-----	EK.
Acetylcholine chloride-----	MRK.
Acetylmethionine-----	DOW, USI.

TABLE 13B. --Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, ACYCLIC--Continued	
Acetyl- β -methylcholine chloride-----	RSA.
*Amino acids:	
dl-Alanine (dl- α -Alanine)-----	DOW.
* β -Alanine-----	ABB, BFG, NOP.
dl-Aspartic acid-----	ACF.
l-Cysteine hydrochloride-----	PUL.
Glutamic acid and salts:	
l(+)-Glutamic acid-----	GNM, HPC, IMC.
l(+)-Glutamic acid, calcium salt-----	LEM.
*l(+)-Glutamic acid hydrochloride-----	GNM, IMC, LEM.
l(+)-Glutamic acid, monoammonium salt-----	x.
l(+)-Glutamic acid, monopotassium salt-----	IMC.
l(+)-Glutamine-----	IMC.
Glycine (Aminoacetic acid)-----	BPC, DOW.
Glycine hydrochloride-----	EK.
2-Hydroxy-4-(methylthio)butyric acid, calcium salt-----	DUP, MON.
l-Isoleucine-----	DOW.
dl-Leucine-----	DOW.
l-Leucine-----	STA.
*l(+)-Lysine hydrochloride-----	DUP, MRK, PFZ.
dl-Methionine-----	DOW, DUP, LEM.
Methionine (animal-feed grade)-----	DUP.
dl-Threonine-----	SDW.
dl-Valine-----	DOW.
l-Valine-----	SER.
Amino acid mixtures-----	CUT, STA.
Amyl nitrite (Isoamyl nitrite)-----	MAL.
Betaine base-----	HFT.
*Betaine hydrochloride-----	HFT, IMC, LEM.
Bromoform (Tribromomethane)-----	DOW.
Calcium lactophosphate-----	MAL.
Calcium succinate-----	LEM, PEN.
Carbomol (Bromodiethylacetylcarbamide)-----	BKL, MLS.
*Chlortone (tert-Trichlorobutyl alcohol)-----	BPC, FBS, PD.
3-Chloromercuri-2-methoxypropylurea-----	LKL.
* β -Chlorovinylethyloxyethyl carbinal-----	ABB.
*Choline compounds:	
Choline bicarbonate-----	COM.
Choline bitartrate-----	ACY, HFT.
*Choline chloride, for animal and poultry feed and for use as a chemical.	COM, HFT, x.
Choline chloride, medicinal grade only-----	HFT.
Choline dihydrogen citrate-----	ACY, HFT.
Choline tricitrate-----	ACY.
Diallylacetic acid-----	x.
3-Diethylamino-2,2-dimethylpropanol acid ester phosphate-----	HOF.
Di(2-ethylhexyl) sulfosuccinate-----	ACY.
2,4-Dihydroxy-3,3-dimethylbutyric acid gamma-lactone-----	PD.
2,4-Dihydroxy-3,3-dimethylbutyric acid gamma-lactone, racemic.	PD.
Divinyl ether-----	MRK.
Ethyl carbamate (Urethane)-----	FMP.
2-Ethyl-cis-crotonylurea-----	MLS.
Ethylendiamine diiodide-----	PYL.
Ethyl iodide-----	EK, FMT, MAL.
Ethyl nitrite-----	MAL.
*Gluconic acid salts:	
Ammonium gluconate-----	PFZ.
Calcium glucoheptonate-----	PFN.
Calcium gluconate-----	MAL, PFZ.
Calcium gluconate borate-----	FIN.
Copper gluconate-----	PFZ.
Iron (ferrous) gluconate-----	PFZ.
Magnesium gluconate-----	PFZ.
Manganese gluconate-----	PFZ.
Potassium gluconate-----	PFZ.
Sodium gluconate-----	DLI, PFZ.
Glucono-delta-lactone-----	PFZ.
Glucosamine hydrochloride-----	PFZ.

TABLE 13B.--Synthetic organic chemicals: Medicinals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINALS, ACYCLIC--Continued	
Glutathione-----	SBR.
Glutathione (oxidized)-----	SBR.
Glycerophosphoric acid-----	HN.
*Hexamethylenepis[trimethylammonium chloride] (Hexamethonium chloride).	HEX, NEP, RSA.
2-Hydroxy-4-methylisobutyric acid, calcium salt-----	MON.
Iodized oils-----	SRL.
Iodoform-----	MAL, PEN.
Iodomethanesulfonic acid, sodium salt-----	SDW.
Iron (ferrous) oxalate-----	BKL.
Lactic acid salts (medicinal grades only): Iron (ferrous) lactate.	MAL.
Lecithin-----	UPJ.
Magnesium citrate-----	MAL.
Malononitrile-----	GAM, KF.
Methylenecitric acid and salts-----	SDW.
Methylene iodide-----	SDW.
Methyl iodide-----	EK, MAL.
2-Methyl-2-propyl-1,3-propanediol-----	ABB, BKL.
Pantolactone (racemic)-----	ABB, CKL, UCC.
Phosphoglyceric acid-----	SBR.
2-Propylvaleric acid, bismuth salt-----	x.
Ribose-5-phosphate, barium salt-----	SBR.
Sodium bismuth triglycolamate-----	BPC.
Sodium succinate-----	PEN.
Sodium tartrate-----	MAL.
Succinylcholine dichloride-----	BUR, SDW.
Tetramethylammonium chloride-----	EK.
Tetramethylammonium hydroxide-----	RSA.
Thiosemicarbazide-----	FMT.
*Tranquilizers: 2-Methyl-2-n-propyl-1,3-propanediol dicarbamate (Meprobamate) (Equanil) (Miltown).	ABB, EKL, FBS, PEN, x.
2,2,2-Tribromoethanol-----	SDW.
Triiodoethionic acid-----	SCH.
*Vitamins:	
*Ascorbic acid and derivatives:	
*Ascorbic acid-----	HOF, MRK, PFZ.
Ascorbic acid, calcium salt-----	PFZ.
Ascorbic acid, sodium salt-----	HOF, MRK, PFZ.
Ascorbyl palmitate-----	PFZ.
*Pantothenic acid and derivatives:	
Pantothenic acid-----	DLI.
Pantothenic acid, d-calcium salt-----	AGY, MRK, PD, x.
*Pantothenic acid, dl-calcium salt-----	ABB, CKL, HFT, LIL, MRK, NOP, SCR.
Pantothenic acid, sodium salt-----	PD.
d-Pantothenyl alcohol (α,γ -Dihydroxy-N-(3-hydroxy-propyl)- β -dimethylbutyramide).	HOF.
dl-Pantothenyl alcohol-----	HOF.

Flavor and Perfume Materials

TABLE 14B.--Synthetic organic chemicals: Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1959

[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 23. 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 23)
FLAVOR AND PERFUME MATERIALS, CYCLIC	
<i>Benzenoid and Naphthalenoid</i>	
2'-Acetonsaphthone (Methyl β -naphthyl ketone)-----	GIV, TBK.
Acetophenone-----	TBK.
7-Acetyl-6-ethyl-1,1,4,4-tetramethyl-1,2,3,4-tetrahydro- naphthalene.	GIV, TBK.
*4-Allylveratrole (Eugenyl methyl ether)-----	FBS, GIV, TBK.
Anethole (p-Propenylanisole)-----	GID, HNW, HPC.
*p-Anisaldehyde (p-Methoxybenzaldehyde)-----	FBS, GIV, OPC, TBK.
Anisole (Methyl phenyl ether)-----	FBS, GIV.
Anisyl acetate-----	GIV, TBK.
Anisyl alcohol-----	GIV, TBK.
*Benzophenone-----	FBS, GIV, OPC, TBK.
*Benzyl acetate-----	GIV, IFF, OPC, SHL, TBK.
*Benzyl alcohol-----	BPC, GIV, OPC, SHL, TBK, TNP.
*Benzyl benzoate-----	GIV, MON, OPC, TBK, TNP.
Benzyl butyrate-----	TBK.
*Benzyl cinnamate-----	FBS, GIV, TBK.
Benzyl ether-----	OPG.
Benzyl formate-----	TBK.
Benzyl isoeugenyl ether-----	GIV, TBK.
Benzyl isopentyl ether-----	GIV, TBK.
Benzyl phenylacetate (Benzyl α -toluate)-----	GIV, TBK.
*Benzyl propionate-----	FB, GIV, TBK.
Benzyl salicylate-----	GIV, TBK.
α -Bromostyrene-----	TBK.
4'-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone (Musk ketone).	GIV, SHL.
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette)--	GIV, SHL.
p-tert-Butyl- α -methylhydrocinnamaldehyde (α -Methyl- β - (p-tert-butylphenyl)propionaldehyde).	GIV.
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, FBS, GIV, OPC, TBK.
Cinnamic acid-----	BPG.
Cinnamyl acetate-----	TBK.
*Cinnamyl alcohol-----	GIV, NEO, TBK.
Cinnamyl anthranilate-----	FEL, GIV.
Cinnamyl cinnamate-----	TBK.
Cinnamyl formate-----	FEL.
Cinnamyl isovalerate-----	TBK.
trans-Decahydro-2-naphthol-----	IFF.
p, α -Dimethylbenzyl alcohol (p-Methylphenylmethylcarbinol)	GIV.
α , α -Dimethylphenethyl acetate-----	GIV, IFF, TBK.
α , α -Dimethylphenethyl alcohol-----	IFF.
α , α -Dimethyl-3-phenyl-1-propanol-----	IFF, TBK.
4,6-Dinitro-1,1,3,3,5-pentamethylindan-----	GIV.
Diphenylmethane-----	TBK.
2-Ethoxynaphthalene (Ethyl β -naphthyl ether)-----	GIV, TBK.
Ethyl anthranilate-----	FMT.
Ethyl benzoate-----	TBK.
Ethyl cinnamate-----	TBK.
*Ethyl α , β -epoxy- β -methylhydrocinnamate-----	FEL, GIV, TBK, VPC.
2-Ethylhexyl salicylate-----	FEL.
Ethyl p-methoxycinnamate-----	GIV.
Ethyl β -phenylglycidate-----	TBK, VPC.
Ethyl salicylate-----	TBK.
Ethylvanillin-----	MON.
*Eugenol-----	FB, FBS, GIV, LUE, PEN, RT, TBK, VLY, WEB, x.
Hexylcinnamaldehyde-----	IFF, TBK.
Hydratropaldehyde (α -Phenylpropionaldehyde)-----	GIV, TBK.

TABLE 14B.--Synthetic organic chemicals: Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Material	Manufacturers' identification codes (according to list in table 23)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Benzenoid and Naphthalenoid--Continued</i>	
Hydratropaldehyde, dimethyl acetal-----	GIV.
*Isobutyl phenylacetate (Isobutyl α -toluate)-----	FB, GIV, MYW, TBK.
*Isobutyl salicylate-----	FB, GIV, TBK.
*Isoeugenol-----	GIV, OPC, SHL, TBK, VLY.
Isoeugenyl acetate-----	TBK.
*Isopentyl salicylate (Amyl salicylate)-----	FB, FBS, GIV, TBK.
p-Isopropylbenzaldehyde (Cumaldehyde)-----	GIV, VPC.
*p-Isopropyl- α -methylhydrocinnamaldehyde (Cyclamen aldehyde).-----	GIV, OPC, TBK, VPC.
*4-Methoxyacetophenone-----	FBS, GIV, OPC, TBK.
2-Methoxynaphthalene (Methyl β -naphthyl ether)-----	GIV, TBK.
Methoxyphenylbutanone-----	TBK.
p-Methylacetophenone (Methyl p-tolyl ketone)-----	TBK.
p-Methylanisole (p-Cresyl methyl ether)-----	GIV, OPC, TBK.
*Methyl anthranilate-----	DOW, GIV, MEE, OPC, UCC.
Methyl benzoate-----	HN, TBK.
* α -Methylbenzyl acetate-----	GIV, TBK, VLY.
p-Methylbenzyl acetate-----	FBS.
* α -Methylcinnamaldehyde-----	GIV, VLY, VPC.
Methyl cinnamate-----	FBS, TBK.
Methyl N-methylantranilate (Dimethyl anthranilate)-----	GIV, OPC.
Methyl phenylacetate (Methyl α -toluate)-----	GIV, TBK.
*Methyl salicylate (Synthetic wintergreen oil)-----	DOW, HN, MON, PEN.
* α -Pentylcinnamaldehyde (α -Amylcinnamaldehyde)-----	GIV, IFF, NEO, TBK, VLY.
Pentyl phenylacetate-----	GIV.
*Phenethyl acetate-----	GIV, IFF, NEO, OPC.
*Phenethyl alcohol-----	GIV, IFF, OPC.
Phenethyl formate-----	IFF.
*Phenethyl isobutyrate-----	GIV, IFF, RI, TBK.
Phenethyl isovalerate-----	FB.
Phenethyl methacrylate-----	GIV.
*Phenethyl phenylacetate (Phenethyl α -toluate)-----	GIV, IFF, TBK.
Phenethyl salicylate-----	IFF, TBK.
2-Phenoxyethyl isobutyrate-----	GIV, IFF, TBK.
Phenylacetaldehyde (α -Tolualdehyde)-----	GIV, TBK.
Phenylacetaldehyde, dimethyl acetal-----	GIV, TBK.
Phenylacetaldehyde phenylethylene glycol acetal-----	TBK.
o-Phenylanisole (2-Methoxybiphenyl)-----	GIV, IFF.
4-Phenyl-3-buten-2-one (Benzylidene acetone)-----	TBK.
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	GIV, TBK.
Phenyl-2-propanone (Benzyl methyl ketone)-----	TBK.
3-Phenyl-1-propyl acetate-----	GIV, TBK.
*4-Propenylveratrole (Isoeugenyl methyl ether)-----	FBS, GIV, TBK.
Salicylaldehyde-----	DOW.
1,2,3,6-Tetrahydro-2,3,5-trimethylbenzaldehyde-----	IFF.
p-Tolualdehyde (p-Methylbenzaldehyde)-----	GIV, HN.
p-Tolyl acetate (p-Cresyl acetate)-----	GIV.
p-Tolyl phenylacetate (p-Cresyl α -toluate)-----	GIV, TBK.
* α -(Trichloromethyl)benzyl acetate (Rosetone)-----	FBS, OPC, TBK.
Vanillin-----	MON, MYW, SLV.
<i>Terpenoid, Heterocyclic, and Alicyclic</i>	
Allyl ionone-----	GIV, TBK.
Bornyl acetate-----	FEL.
4-tert-Butylcyclohexyl acetate-----	IFF.
Carvone (Carvol)-----	FB, FRM, OPC, PEN.
Caryophyllene-----	FB, GIV.
Cedrol-----	GIV, IFF, TBK, VLY.
*Cedryl acetate-----	GIV, IFF, TBK, x.
Cineole (Eucalyptol)-----	OPC.
*Citral (Geraniol)-----	FB, GIV, LUE, NEO, RI, TBK, x.
Citronellal-----	FB, GIV, TBK.
*Citronellol-----	FB, FBS, GIV, GLD, IFF, SHL, TBK, VLY.
*Citronellyl acetate-----	GIV, IFF, OPC, TBK, VLY.
Citronellyl butyrate-----	GIV.
*Citronellyl formate-----	GIV, IFF, TBK.
Citronellyl isobutyrate-----	GIV, TBK.
*Coumarin-----	DOW, MON, NEO, TBK.

TABLE 14B. --Synthetic organic chemicals: Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Material	Manufacturers' identification codes (according to list in table 23)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
Cyclohexadecanolide-----	IFF.
Cyclopentanol-----	ARA.
Cyclopentanone-----	ARA.
Dihydrosafrole-----	GIV.
Dihydroterpinyl acetate-----	GIV.
*Ethyl oxyhydrate-----	FEL, FLO, LUE, RT, VND, VPC.
*Geraniol-----	FB, GIV, GLD, IFF, SHL, TBK, VLY.
*Geranyl acetate-----	FB, FEL, GIV, IFF, TBK, VLY.
Geranyl butyrate-----	GIV.
Geranyl formate-----	GIV, TBK, VLY.
Geranyl phenylacetate (Geranyl α -toluate)-----	GIV, TBK.
2-Hexyl-2-cyclopenten-1-one-----	IFF.
*Hydrocoumarin (3,4-Dihydrocoumarin)-----	FBS, GIV, OPC, TBK.
*Hydroxycitronellal-----	GIV, NEO, TBK, VLY.
*Hydroxycitronellal, dimethyl acetal-----	FB, GIV, TBK.
16-Hydroxy-5-7-hexadecenoic acid, lactone-----	IFF.
Indole-----	GIV.
*Ionones:	
* α -Ionone-----	GIV, IFF, MYW, TBK.
β -Ionone-----	GIV, MYW, NEO, TBK.
Ionone (α - and β -)-----	GIV, IFF, LUE, MYW, NEO, TBK, VLY, x.
Isoborneol (Isobornyl alcohol)-----	TBK.
Isobornyl acetate-----	GIV, OPC, TBK, x.
Isobutylfuryl propionate-----	VPC.
Isobutylquinoline-----	IFF.
Isopropylquinoline-----	FMT.
Isopulegol-----	GIV, VLY.
Isosafrole-----	GIV, OPC.
d-Limonene-----	FLA, RT, x.
Linalool-----	FB, FEL, GIV, GLD, HOF, IFF, NEO, TBK.
*Linalyl acetate-----	FB, GIV, GLD, HOF, LUE, NEO, TBK, x.
Linalyl benzoate-----	FMT.
Linalyl cinnamate-----	TBK.
Linalyl isobutyrate-----	GIV, TBK.
Linalyl propionate-----	FB, TBK.
*Menthol, synthetic:	
*Tech-----	FBS, GIV, GLD, NEO, SHL.
*U. S. P.-----	GIV, GLD, HNW, NEO, SHL.
*Menthone-----	
Menthyl acetate-----	GIV, GLD, HNW.
6-Methylcoumarin-----	FB, GIV.
*Methylionones:	
Methyl- α -ionone-----	GIV, IFF, MYW.
Methyl- β -ionone-----	MYW.
Methylionone (α - and β -)-----	GIV, IFF, MYW, NEO, TBK, VLY, x.
Methyl- δ -ionone-----	TBK.
Methyl- γ -ionone-----	TBK.
Necomenthol-----	GLD.
Necomenthyl acetate-----	GLD.
*Nerol-----	
Nopyl acetate-----	FB, GLD, IFF, TBK.
Phellandrene-----	DOW.
*Piperonal (Heliotropin)-----	
FBS-----	GIV, PEN, SHL, TBK.
Rhodinol-----	FB, FEL, GIV, IFF, SHL.
Rhodinyl acetate-----	FB, GIV, IFF.
Rhodinyl formate-----	GIV, IFF.
*Safrole-----	
Santalol-----	FB, FLO, GIV, OPC, PEN, TBK.
Santalyl acetate-----	GIV, IFF.
GIV-----	GIV.
*Sweeteners, synthetic:	
Cyclohexanesulfamic acid, calcium salt-----	ABB, DUP.
Cyclohexanesulfamic acid, sodium salt-----	ABB, DUP.
Saccharin-----	MEE, MON.
Saccharin, calcium salt-----	MEE.
Saccharin, sodium salt-----	MEE, MON.
*Terpineols:	
α -Terpineol-----	GLD, HNW, HPC.
β -Terpineol-----	HNW.
Terpineol (α - and β -)-----	GIV.

TABLE 14B.--Synthetic organic chemicals: Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Material	Manufacturers' identification codes (according to list in table 23)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
Terpinol hydrate (Terpin hydrate), tech----- *Terpinyl acetate----- Terpinyl propionate----- 3,5,5-Trimethylcyclohexanol----- Vetivenol----- *Vetivenyl acetate-----	HPC. GIV, HW, OPC, TBK, x. GIV, TBK. FBS. TBK. FB, GIV, IFF, NEO, TBK.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Allyl heptanoate (Allyl enanthate)----- *Allyl hexanoate (Allyl caproate)----- Allyl isothiocyanate (Synthetic mustard oil)----- Allyl sulfide (Diallyl sulfide)----- 2,3-Butanedione (Biacetyl)----- Butyl butyrate----- Butyl isovalerate----- Butyrene (Di-n-propyl ketone)----- Decanal (Capraldehyde) (C ₁₀)----- Diethyl sebacate (Ethyl sebacate)----- Diethyl succinate----- 2,6-Dimethyl-2-heptenal----- 3,6-Dimethyl-3-octanol----- Dimethyl succinate----- Dodecyl acetate (Lauryl acetate)----- *Ethyl butyrate----- Ethyl decanoate (Ethyl caprate)----- Ethyl heptanoate (Ethyl enanthate)----- *Ethyl hexanoate (Ethyl caproate)----- Ethyl isovalerate----- Ethyl laurate----- Ethyl nonanoate (Ethyl pelargonate)----- Ethyl octanoate (Ethyl caprylate)----- Glutamic acid, monopotassium salt----- *Glutamic acid, monosodium salt (Monosodium glutamate)----- Heptanal (Enanthaldehyde) (C ₇)----- Heptyl alcohol (Heptanol)----- Heptyl ether (Enanthic ether)----- 3-Hydroxy-2-butanone (Acetoin)----- 4-Hydroxynonanoic acid, γ -lactone (γ -Nonalactone)----- 4-Hydroxyoctanoic acid, γ -lactone (γ -Octalactone)----- *4-Hydroxyundecanoic acid, γ -lactone (γ -Undecalactone)----- Isobutyl acetate----- *Isopentyl butyrate (Amyl butyrate)----- Isopentyl formate (Amyl formate)----- Isopentyl heptanoate (Amyl caproate)----- Isopentyl isovalerate (Amyl isovalerate)----- Lauraldehyde (Dodecyl aldehyde) (C ₁₂)----- 6-Methyl-5-hepten-2-one----- 2-Methylundecanal (2-Methylundecylaldehyde)----- Nonanal (Pelargonaldehyde) (C ₉)----- Octanal (Caprylaldehyde) (C ₈)----- n-Octyl acetate----- *n-Octyl isobutyrate----- Tetradecanal----- Trimethylundecylaldehyde----- Undecanal (Hendecanaldehyde) (C ₁₁)----- Undecenal (Hendecenaldehyde)----- 9-Undecen-1-ol (Hendecenol)----- Valerolactone-----	TBK. FB, GIV, RT, TBK. FBS, MRT, OPC. RT. BPC, FBS. TBK. TBK. GIV, TBK. FEL, TBK. UCG. GIV. AIR. FBS. TBK. FB, NW, RT, TBK. RT. FEL, TBK. NW, RT, TBK. FB, TBK. FB. TBK. RT. GRW. GRW, HPC, IMC, MRK, STA. BAC, WTM. BAC. TBK. FMT. GIV, TBK. GIV, TBK. FB, GIV, TBK. FB. FB, GIV, NW, RT, TBK. TBK. FEL. FB, TBK. GIV, TBK. GIV, TBK. GIV, TBK. GIV, TBK. FB, TBK. FB, FBS, TBK. PFZ. VPC. GIV, TBK. GIV, TBK. GIV. GIV.
CHEMICALLY MODIFIED ESSENTIAL OILS	
Citronella oil, acetone condensation product----- Citronella oil, acetylated----- Geranium oil isopropyl alcoholysis product----- Lavandin, acetylated----- Rosemary oil, acetylated----- Sassafras oil, hydrogenated----- Spike lavender oil, acetylated-----	CP. FB. CP. FEL. FB, x. GIV. FB.

Plastics and Resin Materials

TABLE 15B. --Synthetic organic chemicals: Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1959

[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 23. 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 23)
PLASTICS AND RESIN MATERIALS, BENZENOID	
Aniline-formaldehyde resins-----	TRC, UCP.
*Coumarone-indene resins-----	ACP, DSO, NEV, NSP, PAI.
Epoxy resins:	
*Unmodified-----	DOW, JOD, RCI, REL, SHC, TRC, UCP.
*Modified-----	ACP, ADM, AMF, BEN, CM, CPV, DSO, EW, FRE, GE, GEL, GLD, GRV, ICF, JOB, MCC, MID, MNP, MRB, MRW, OSB, PPG, PRM, RCI, SPR, SRR, SW, WAS, WTT.
*Petroleum polymer and condensation resins-----	ACC, CFX, DSO, ESL, NEV, NSP, PAI, TRC, VEL.
*Phenolic and other tar-acid resins:	
*Unmodified:	
*Cresols-formaldehyde-----	BOR, CD, HRB, ICF, RAB, RCI, SCN, UCP, VAR.
*Creylic acid-formaldehyde-----	CAT, CD, FCD, FCM, HRB, ICF, RAB, RCD, RCI, SCN, SPL, TAY, UCP, VAR.
*Phenol (and substituted phenols)-formaldehyde-----	ACP, ACR, ADM, AMR, ARK, BOR, CAT, CD, CIK, DEP, DSO, EW, FL, FCM, GE, GEL, GLD, GRG, HCD, HRB, ICF, INL, IRI, KND, KRM, MAM, MON, MRB, MTC, PCU, PLS, PYR, PYZ, RAB, RCI, RGC, RH, SCN, SED, SIM, SPL, SPR, SW, SYR, SYV, UCP, VAR, WAT, WEV, WTT.
*Resorcinol-formaldehyde-----	AMR, BOR, CAT, KPC, MTC, PCU, RCI, RH, SCN, UCP.
All other unmodified phenolic and other tar-acid resins	ACP, BOR, CAT, CD, GE, ICF, MTC, RAB, RCD, RGC, SCN, SPL, SPR, UCP, WAS.
*Modified:	
*Phenol (and substituted phenols)-formaldehyde with modifiers (except rosin).	CAT, CPR, DSO, FCD, GE, HER, NTC, PPG, RAB, RCI, REZ, RH, SCM, SMC, UCP.
*Rosin and rosin esters modified with phenolic and other tar-acid resins (hard resins).	ACP, ADM, AKL, CPV, DAV, DSO, GIL, GLD, HPC, KRM, RCI, RH, SCN, SW, WTT.
All other modified phenolic and other tar-acid resins--	ADM, DSO, GE, REZ, SPR, UCP.
*Phthalic alkyd resins:	
*Unmodified-----	ABR, ACP, ACY, ADM, AKL, AMF, AMK, APV, ARO, BAL, BEN, BOY, CEN, CIK, CM, CPL, CFV, CRO, DAV, DSO, DUP, EW, FAR, FBR, FCD, FLW, FRE, GE, GEL, GIL, GLD, GRV, HAN, HPC, ICF, JOB, JOD, JWL, KEL, KPV, KYN, LON, MCC, MCW, MID, MJM, MR, MRW, NON, NTL, OB, OSB, PPG, PRT, RCI, RED, REL, RH, RMC, SCF, SCM, SED, SIP, SPP, SPR, SRR, STT, SW, TEK, TV, UCP, VTV, WAS, WEV, WPC, WTT.
*Modified-----	ACP, ACY, ADM, AKL, AMF, APV, ARO, BAL, BEN, BOY, BRU, CEN, CIK, CM, CPV, CRO, DAV, DSO, DUN, DUP, EW, FAR, FCD, FLW, FRE, FSH, GE, GEL, GIL, GLD, GRG, GRV, HPC, ICF, JAM, JOD, JWL, KRM, KYN, LON, MAS, MCC, MCW, MID, MJM, MNP, MR, MRW, NON, OB, OSB, PER, PFP, PPG, PRT, RCI, RED, REL, RH, RMC, SCF, SCM, SED, SIP, SPP, SPR, SRR, STT, SW, TV, UCP, VTV, WEV, x.
*Polyester resins-----	ACP, ACR, ACY, ADM, AKL, AMK, AMR, APD, CEL, CIK, CPR, CPV, DAV, DSO, EW, FMP, FRE, GE, GEL, GLD, GNT, GRG, GRV, GYR, HED, ICF, MOB, NOP, OSB, PPG, RCI, REL, RH, SCN, SPR, SW, USR, WTC, WTT.
*Polyurethane and diisocyanate resins-----	ACP, ADM, AMF, APV, ARO, BFG, CNN, DUP, FRE, GLD, MOB, NOP, WTC.
*Styrene and styrene derivative polymer and copolymer resins:	
Polymethyl styrene-----	ACC, ACY.
*Polystyrene-----	CSD, DOW, PG, GOR, GRD, KPP, MON, MTC, SEM, SOL, UBS, UCP, UNC.
*Styrene-acrylonitrile copolymer-----	ACY, BFG, DOW, MON, UCP, USR.
*Styrene-alkyd polyesters (for protective coatings)-----	ACP, ACY, ADM, APV, CEN, CPV, DSO, DUP, EW, FRE, GLD, GRV, ICF, JOD, KEL, MTC, PPG, RCI, REL, RH, SCN, SPP, SPR, SW.
*Styrene-butadiene copolymer:	
*Latexes-----	DOW, DSO, FIR, GNT, GRD, GYR, KPP, SHC, USR.
All other-----	BFG, BOR, DSO, FIR, GRV, GYR, MCB, MMM, SPR, USR.
*Styrene-divinylbenzene copolymer-----	CPR, DOW, PRM, RH.
All other styrene and styrene derivative polymer and copolymer resins.	ACP, ACY, ARO, CAT, DOW, DUP, FIR, GLD, GNT, GYR, JNS, MCW, PAI, PRM, SW, UCP, WAS.

TABLE 15B. --Synthetic organic chemicals: Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Material	Manufacturers' identification codes (according to list in table 23)
PLASTICS AND RESIN MATERIALS, BENZENOID--Continued	
Toluenesulfonamide resins-----	ACY, MON.
All other benzenoid plastics and resin materials-----	ACP, ACY, MTC, RH.
PLASTICS AND RESIN MATERIALS, NONBENZENOID	
Acetone-formaldehyde resins-----	ACY, FRM, RCI, UCP.
Acrylic resins:	
Polymethylmethacrylate resins-----	CAT, DOW, DUP, ICF, RCI, RH, USP.
All other acrylic resins-----	ACY, DOW, DSO, DUF, ICF, JNS, MMM, PPG, RCI, RH, TRC, UBS, UCP, WIC.
*Alkyd resins (except phthalic):	
*Unmodified-----	ACP, ACY, ADM, AMF, APV, CM, CPL, CPV, DSO, DUN, DUP, EW, FBR, FLW, FRE, GEL, GLD, GRV, HPC, MCC, MCW, MR, OSB, PPG, PRT, RCI, RH, SFP, SPR, SRR, SW, WTC.
*Modified:	
*Rosin and rosin esters, modified with maleic and fumaric acids only (hard resins).	ACP, ADM, APV, BAL, CBY, CEN, CM, CPT, CPV, DAV, DSO, FAR, FBR, FCD, FLW, FSH, GIL, GLD, GRV, HPC, JOD, KRM, MCC, MCW, MID, MR, OSB, PPG, RCI, RED, REL, RH, SCF, SCN, SPR, SRR, SW, WAS.
All other modified alkyd resins-----	ADM, AMF, AMR, BRD, CIK, FBR, GEL, GLD, ICF, KYN, LON, MJM, MMM, OSB, PPG, RCI, REL, RH, RMC, STT, SW, TV, UCP, VIV, WEV.
Dicyandiamide resins-----	ACY, CRC, DEP, GGY, NOP, TEK, TRC, VAL, WIC, x.
*Polyamide resins-----	ACF, DUP, FIR, GNM, SPN.
*Polychloroethylene and polyfluoroethylene resins-----	DUP, FIR.
*Polyethylene resins:	
*High-pressure process-----	ACS, DOW, DUP, EKX, KFP, MTC, NPC, SPN, UCC.
*Low-pressure process-----	ACS, CEL, GRP, HPC, KFP, PLC, UCC.
Polypropylene resins-----	ACP, HPC.
Polyterpene resins-----	PAI, SCN.
*Rosin modifications:	
*Rosin and terpene adduct resins:	
*Rosin and rosin esters, unmodified:	ADM, CEN, CIK, GLD, HPC, OSB, RCI, SPR, SW.
*Esterified with glycerol-----	ACP, ADM, AKL, APV, CBY, CIK, CPV, DAV, FCD, GIL, GLD, HPC, KRM, MCC, OB, OSB, PPG, RCI, SW.
*Esterified with other alcohols-----	ADM, AKL, BRD, CBY, CPV, DSO, FAR, GLD, HPC, MMM, MRW, OB, OSB, RCI, SCN, SPR, SRR, SW, WAS.
All other rosin modifications-----	ACP, DUN, GRV, ICF, JNS, MMM, ONX, PPG, RCI, UCP, WAS.
*Silicone resins-----	ACP, DCC, SPD, UCS.
*Urea and melamine resins:	
*Melamine-formaldehyde type-----	ACP, ACY, CAT, CDF, COL, CPV, DUP, FCM, GLD, MON, MTC, PPG, RCI, RH, SFA, SW, TEK, x.
*Urea-formaldehyde type-----	ACP, ACY, AMR, APX, AV, BOR, BRY, CAP, CAT, CDF, CPR, CPV, CRC, DEP, DUP, EDY, FCM, GDN, GGY, GLD, GRV, HPC, HRT, ICF, JOD, MDP, MMM, MON, MTC, NTC, ONX, PC, PGU, PPG, QCP, RCI, REL, RH, SAN, SIM, SNW, SOR, SPR, SW, SYV, TEK, TRC, USO, USR, VAL, WIC, WON, x.
*Vinyl and vinyl copolymer resins:	
*Polyvinyl acetate-----	AML, BCN, BFG, BOR, BOY, CEL, COL, DAV, DSO, DUP, FLH, GLD, GRD, HAN, HRT, JOD, MCC, MRN, NOP, NSC, ONX, PGU, QCP, RCI, RH, SED, SH, SHW, SNM, SPR, SW, SYR, UCC, WIC.
Polyvinyl alcohol-----	BOR, COL, DUP, SHW.
Polyvinyl butyral-----	DUP, SHW, UCC.
*Polyvinyl chloride and copolymers:	
Polyvinyl chloride-----	AKL, BFG, CRY, DA, DOW, ESC, FIR, GNT, GRA, GYR, KYS, MTC, PRS, RCI, RUB, THC, UCC, USR.
Polyvinyl chloride-acetate copolymer-----	ADM, BFG, BOR, CRY, FIR, MTC, PRS, RUB, UCC.
All other polyvinyl chloride and copolymer resins-----	BFG, DOW, FBR, FIR, GYR.
Polyvinyl chloride-vinylidene chloride copolymer-----	DOW.
Polyvinyl formal-----	ACP, SHW.
All other vinyl and vinyl copolymer resins-----	GAF, MMM.
All other nonbenzenoid plastics and resin materials-----	AKL, BOR, CPR, DUP, FIR, GLD, GLY, GRD, HKD, KRM, MTC, PPG, UCP.

Rubber-Processing Chemicals

TABLE 17B. --Synthetic organic chemicals: Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959

[Rubber-processing chemicals for which separate statistics are given in table 17A are marked below with an asterisk (*); chemicals 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 23. 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 23)
RUBBER-PROCESSING CHEMICALS, CYCLIC	
*Accelerators:	
*Aldehyde-amines:	
Acetaldehyde-aniline-----	USR.
n-Butyraldehyde-aniline-----	DUP, MON, USR.
N,N'-Dibutylidithioadipamide-----	DUP.
4,4'-Dithiodimorpholene-----	MON.
α-Ethyl-β-propylacrylamide-----	COO.
Formaldehyde-p-toluidine (Methylene-p-toluidine)-----	DUP.
Heptaldehyde-aniline-----	USR.
Triethyltrimethylenetriamine-----	USR.
p-Benzoquinone dioxime-----	ACF, DUP.
Carbon disulfide-1,1'-methylenedipiperidine-----	MON.
Dibenzoyl-p-quinonedioxime-----	USR.
Dibenzylamine-----	USR.
Di-N-pentamethylenethiuram tetrasulfide-----	DUP.
*Dithiocarbamic acid derivatives:	
Dibenzylidithiocarbamic acid, sodium salt-----	USR.
Dibenzylidithiocarbamic acid, zinc salt-----	USR.
Dibutylidithiocarbamic acid, N,N-dimethylcyclohexyl-amine salt.	MON.
Dibutylidithiocarbamic acid, diphenylguanidine salt----	COO.
Dimethylethylene diphenylidithiocarbamic acid, lead salt	COO.
2,4-Dinitrophenyl dimethylidithiocarbamate-----	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts.	DUP.
Guanidines:	
Diccatechol borate, di-o-tolylguanidine salt-----	DUP.
Diphenylguanidine-----	ACY.
Diphenylguanidine phthalate-----	MON.
Di-o-tolylguanidine-----	ACY, DUP.
1,2,3-Triphenylguanidine-----	ACF.
2-Imidazoline-2-thiol-----	DUP.
Poly-p-dinitrosobenzene-----	CWN, DUP.
*Thiazole derivatives:	
2-Benzothiazyl-N,N-diethylthiocarbamoyl sulfide-----	PAS.
1,3-Bis(2-benzothiazoly)mercaptomethyl)urea-----	MON.
N-tert-Butyl-2-benzothiazolesulfenamide-----	MON.
*N-Cyclohexyl-2-benzothiazolesulfenamide-----	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide-----	ACY.
2,2'-Di thiobis(benzothiazole)-----	ACY, GYR, MON, USR.
*2-Mercaptobenzothiazole-----	ACY, GYR, MON, USR.
2-Mercaptobenzothiazole, sodium salt-----	ACY, GYR, MON.
2-Mercaptobenzothiazole, zinc salt-----	ACY, GYR, USR.
N-Oxydiethylene-2-benzothiazolesulfenamide-----	ACY, GYR.
Thiazoline-2-thiol-----	ACY.
All other cyclic accelerators-----	DUP, MON, x.
Antioxidants:	
Aldehyde- and acetone-amines:	
Acetaldehyde-aniline hydrochloride-----	USR.
Aldol-α-naphthylamine condensation-----	BFG.
Diphenylamine-acetone-----	BFG, MON, USR.
p-Phenetidine-acetone-----	MON.
Phenyl-2-naphthylamine-acetone-----	USR.
*Amino and hydroxy compounds:	
*Amino compounds:	
p-Anilinophenol-----	BFG.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine-----	MON, USR.
Diarylarylene diamines, mixed-----	GYR.
N,N'-Di(1-ethyl-3-methylpentyl)-p-phenylenediamine--	EKT, UPM.
1,2-Dihydro-2,2,4-trimethylquinoline-----	BFG.
p,p'-Dimethoxydiphenylamine-----	DUP.

TABLE 17B.--Synthetic organic chemicals: Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
Antioxidants--Continued	
*Amino and hydroxy compounds--Continued	
*Amino compounds--Continued	
N,N'-Di(1-methylheptyl)-p-phenylenediamine-----	EKT, UFM.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
N,N'-Diphenylethylenediamine-----	CCO, NOP.
*N,N'-Diphenyl-p-phenylenediamine-----	BFG, DUF, USR.
N,N'-Diphenyl-1,3-propanediamine-----	CCO.
N,N'-Di-o-tolylethylenediamine-----	CCO.
6-Ethoxy-1,2-dihydro-2,2,4-trimethylquinoline-----	MON.
p-Isopropoxydiphenylamine-----	BFG.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	USR.
4,4'-Methylenedianiline-----	ACF, USR.
Octyldiphenylamine-----	USR.
Octyldiphenylamine, alkylated-----	BFG.
N-Phenyl-1-naphthylamine-----	ACF, DUF.
N-Phenyl-2-naphthylamine-----	BFG, DUF.
Tetramethyldiphenylethylenediamine-----	NOP.
p-(p-Toluenesulfonamido)diphenylamine-----	USR.
N-o-Tolyl-2-naphthylamine-----	GYR.
*Hydroxy compounds:	
p-Benzoyloxyphenol-----	BFG.
2,5-Di(1,1-dimethyl-propyl)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-----	BFG, CCO, GYR, MEE, USR.
Phenol, hindered-----	DUF.
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 and processing aids:	
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide-----	DUF.
Dinitropentamethylenetetramine-----	AHC, DUF, NPI.
p,p'-Oxybis(benzenesulfonhydrazide)-----	USR.
Inhibitors, modifiers, and stabilizers:	
Dioctyl disulfide-----	USR.
N,4-Dinitroso-N-methylaniline-----	MON.
N-Nitrosodiphenylamine-----	BFG, GYR, USR.
Nonyl phenyl phosphites, mixed-----	USR.
*Peptizers:	
Aryl mercaptans-----	PIT.
2-Benzamidothiophene, zinc salt-----	ACY.
2',2''-Di-thiobis(benzanilide)-----	ACY.
Dixylol 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.
Bis(iso-octylhydroxyphenylmethylene)-----	HSY.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators:	
n-Butyraldehyde-butylamine-----	DUF.
Di-n-butylammonium oleate-----	DUF.
*Dithiocarbamic acid derivatives:	
Dibutyldithiocarbamic acid, sodium salt-----	ALC, DUP, USR.
*Dibutyldithiocarbamic acid, zinc salt-----	ALC, DUF, GYR, PAS, USR, VNC.
Diethyldithiocarbamic acid, selenium salt-----	VNC.
Diethyldithiocarbamic acid, sodium salt-----	PAS, USR.
Diethyldithiocarbamic acid, tellurium salt-----	VNC.
*Diethyldithiocarbamic acid, zinc salt-----	ALC, GYR, PAS, USR, VNC.
Dimethyldithiocarbamic acid, bismate salt-----	VNC.
Dimethyldithiocarbamic acid, copper salt-----	VNC.

TABLE 17B.--*Synthetic organic chemicals: Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued*

Chemical	Manufacturers' identification codes (according to list in table 23)
RUBBER-PROCESSING CHEMICALS, ACYCLIC--Continued	
*Accelerators--Continued	
*Dithiocarbamic acid derivatives--Continued	
Dimethyldithiocarbamic acid, lead salt-----	VNC.
*Dimethyldithiocarbamic acid, potassium salt-----	GYR, PAS, USR.
Dimethyldithiocarbamic acid, selenium salt-----	VNC.
*Dimethyldithiocarbamic acid, sodium salt-----	ALC, BFG, DUP, GYR, PAS, RBC, RH, VNC.
*Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide.	BFG, GNT, USR.
All other-----	PAS.
*Thiurams:	
Bis(dibutylthiocarbamoyl)sulfide-----	USR.
Bis(diethylthiocarbamoyl)disulfide-----	GYR, PAS.
*Bis(dimethylthiocarbamoyl)disulfide-----	BFG, CLY, DUP, GYR, MON, PAS, RBC, USR, VNC.
Bis(dimethylthiocarbamoyl)sulfide-----	DUP, GYR, USR.
Xanthates and sulfides:	
Di-n-butylxantho disulfide-----	USR.
Di-isopropylxantho disulfide-----	BFG.
Zinc dibutylxanthate-----	USR.
All other acyclic accelerators:	
Ethylenediamine carbonate-----	DUP.
Polyoxyalkylenetetrasulfide-----	TKL.
*Blowing agents:	
1,1'-Azobisformamide-----	NPI, USR.
Urea-biuret mixture-----	SW.
*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, USR.
Zinc laurate-----	USR.

Elastomers (Synthetic Rubbers)

TABLE 18B. --Synthetic organic chemicals: Elastomers (synthetic rubbers) for which U.S. production or sales were reported, identified by manufacturer, 1959

[Elastomers (synthetic rubbers) 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 23. 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 23)
ELASTOMERS, CYCLIC	
*Polybutadiene-styrene type (S-type)-----	ASY, BFG, CPY, FIR, FRS, GGC, GNT, GYR, PLC, SHC, TUS, URC, USR.
*Polyurethane type-----	BFG, DUP, GNT, NOP, TKL, USR.
ELASTOMERS, ACYCLIC	
Polyacrylate ester type-----	BFG, FIR.
Polybutadiene type-----	FRS, GYR.
*Polybutadiene-acrylonitrile type (N-type)-----	BFG, FIR, GYR, HER, USR.
*Polychloroprene type (Neoprene)-----	DUP.
*Polyisobutylene-isoprene type (Butyl)-----	ESL, HUM.
Polysulfide polymers-----	TKL.
Reaction products of natural rubber-----	GYR, HPC.
*Silicone type-----	DCC, SPD, UCS.
All other-----	ASY, DUP, ESL, SHC, x,x.

Plasticizers

TABLE 19B. --Synthetic organic chemicals: Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1959

[Plasticizers 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 23. 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 23)
PLASTICIZERS, CYCLIC	
Camphor, synthetic-----	DUP.
Coumarone-indene plasticizer-----	NEV.
N-Cyclohexyl-p-toluenesulfonamide-----	MON.
Dibenzyl sebacate-----	WTH.
Diethylene glycol dibenzoate-----	TNP.
Di-tert-octylphenyl ether-----	DOW.
Diphenyl cyclohexane, o-, m-, p-----	MON.
Dipropandiol dibenzoate-----	TNP, UCC.
N-Ethyl-p-toluenesulfonamide-----	MON.
Isopropylidenediphenoxypropanol-----	DOW.
Naphthalene, alkylated-----	ACC.
Phosphoric acid esters:	
*Cresyl diphenyl phosphate-----	CEL, KLK, MON, MTR, SPP.
Dibutyl phosphate-----	MON.
Diphenyl mono-o-xeryl phosphate-----	DOW.
Diphenyl octyl phosphate-----	MON.
Methyl diphenyl phosphate-----	MON.
Tri(tert-butylphenyl) phosphate-----	DOW.
*Tricresyl phosphate-----	CEL, FMP, KLK, MON, MTR.
*Triphenyl phosphate-----	CEL, DOW, EK, MON, MTR.
*Phthalic anhydride esters:	
Butyl benzyl phthalate-----	MON.
Butyl cyclohexyl phthalate-----	ACP.
Butyl decyl phthalate-----	PCC, PRS, ROS.
Butyl 2-ethylhexyl phthalate-----	ACP, MON, UCC.
Butyl isodecyl phthalate-----	RGB.

TABLE 19B. --Synthetic organic chemicals: Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PLASTICIZERS, CYCLIC--Continued	
*Phthalic anhydride esters--Continued	
Butyl iso-octyl phthalate-----	RUB.
Butyl octyl phthalate-----	KLK.
Butyl phthalyl butyl glycolate-----	MON, NOP.
Castor oil phthalate-----	DUP.
Diethyl phthalate-----	PRS.
Di(2-butoxyethyl) phthalate-----	FMP, KES.
*Dibutyl phthalate-----	ACP, COM, DEC, DUP, EKT, FMP, GRD, HAL, KLK, MON, NFI, PFZ, RUB, SPR, SW, WTC, WTH.
*Dicyclohexyl phthalate-----	ACP, DUP, FMP, MON.
*Didecanoyl phthalate (Dicapryl phthalate)-----	ACP, RH, WTH.
Di-n-decyl phthalate-----	BFG.
Di(2-(2-ethoxyethoxy)ethyl) phthalate-----	FMP.
Diethylene glycol phthalate-----	ARK.
Di(ethylhexyl) hexahydrophthalate-----	UCC.
*Diethyl phthalate-----	DUP, EKT, KF, KLK, MON.
Di-n-hexyl phthalate-----	CCA, PRS, SW.
Diisobutyl phthalate-----	EKT.
*Diisodecyl phthalate-----	ACP, BFG, DEC, KLK, MON, PCC, PFZ, RUB, THC, UCC.
Diisohexyl phthalate-----	RUB.
*Di(2-methoxyethyl) phthalate-----	DUP, EKT, FMP, KES.
*Dimethyl phthalate-----	ACP, DUP, EKT, KF, KLK, MON.
Dinonyl phthalate-----	DEC, EKT.
*Diocetyl phthalates:	
*Di-2-ethylhexyl phthalate-----	ACP, BFG, DEC, DUP, EKT, FMP, GRD, KLK, MON, NOP, NFI, PCC, PFZ, ROS, RUB, SW, THC, UCC, WTC.
*Diiso-octyl phthalates and mixtures-----	ACP, BFG, DEC, EKT, FMP, GDL, KLK, MON, PCC, PFZ, PRS, ROS, RUB, SPR, THC, UCC, WTC, WTH.
Diphenyl phthalate-----	MON.
Ditridecyl phthalate-----	RUB.
2-Ethylhexyl isodecyl phthalate-----	UCC.
Ethyl, and methyl phthalyl ethyl glycolate-----	MON.
Isobutyl isodecyl phthalate-----	ACP, KLK, THC.
Isobutyl isooctyl phthalate-----	EKT.
*Octyl decyl phthalates:	
*Iso-octyl isodecyl phthalate-----	ACP, BFG, DEC, KLK, PCC, PFZ, RUB.
*n-Octyl n-decyl phthalate-----	ACP, DEC, FMP, HPC, KLK, PCC, PFZ, PRS, THC.
All other phthalic anhydride esters-----	ACP, ARG, DEC, FMP, HPC, PFZ, PRS, ROS.
Tetrahydrofurfuryl oleate-----	CCW, EMR.
Toluenesulfonamide, o-, p- mixture-----	MON.
All other cyclic plasticizers-----	AV, PFZ, TNP.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
Di(2-(2-butoxyethoxy)ethyl) adipate-----	FMP, TKL.
Di(2-butoxyethyl) adipate-----	DEC, DUP, MON.
Diisobutyl adipate-----	DEC, FMP, GRD.
*Di(2-ethylhexyl) adipate-----	DEC, EKT, FMP, KLK, PCC, PFZ, ROS, RUB, SPR, THC, UCC.
*Diisodecyl adipate-----	ACP, BFG, DEC, FMP, HAL, KLK, MON, PCC, RUB, THC, UCC.
*Diocetyl adipate-----	ACP, BFG, DEC, EKT, FMP, KLK, MON, NOP, PCC, PFZ, PRS, RH, RUB.
Dinonyl adipate-----	EKT, PCC.
*Octyl decyl adipate-----	BFG, DEC, FMP, HPC, MON, PCC, PRS, THC.
*Complex adipic acid polyesters-----	EKT, MON, PFZ, RUB, UCC.
All other adipic acid esters-----	ACP, DEC, KES, FMP, RH, ROS.
*Azelaic acid esters:	
*Di(2-ethylhexyl) azelate-----	DEC, DUP, EKT, EMR, HAL, PFZ, SW.
Diisobutyl azelate-----	EKT, HAL.
All other azelaic acid esters-----	EMR, GRD, PFZ.
N-Butyl myristate-----	AHC, KES.
Castor oil maleate-----	RH.
Di(2-(2-butoxyethoxy)ethyl) methane-----	TKL.
Dibutyl maleate-----	DUP, GRD, MON, RUB.
Diethylene glycol dinonanoate-----	EMR, RUB.
Diisooctyl diglycolate-----	CCA, FMP.
Glycerol diacetyl tartrate monoesters-----	WTC.
Lauric acid esters-----	FOR, HAL, KES.

TABLE 19B. --Synthetic organic chemicals: Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1959-- Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PLASTICIZERS, ACYCLIC--Continued	
*Oleic acid esters:	
2-Butoxyethyl oleate-----	HAL, KES.
*Butyl oleate-----	AHC, CCW, FMP, HAL, KES, NOP, RUB, WTH.
Glycerol trioleate-----	DRW, EMR.
*Methyl oleate-----	AHC, EMR, FOR, NOP.
All other oleic acid esters-----	AHC, EMR, FMP, RH, x.
*Palmitic acid esters:	
Isooctyl palmitate-----	KES, KLK, PFZ, RUB.
All other palmitic acid esters-----	EKT, FOR.
*Phosphoric acid esters:	EKT, FMP, UCC.
Polyethylene glycol di-2-ethylhexoate-----	KES, UCC.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate-----	BAC, DEC.
Butyl ricinoleate-----	BAC, DEC.
*Glycerol monoricinoleate-----	BAC, CCW, GLY, HAL, NOP.
All other ricinoleic and acetylricinoleic acid esters-----	BAC, DEC, KES, NOP.
*Sebacic acid esters:	
Dibutyl sebacate-----	DEC, EKT, GRD, HAL, PCC, RH, WTH.
Di(2-ethylhexyl) sebacate-----	DEC, GRD, HAL, PCC, RH, RUB, WTH.
All other sebacic acid esters-----	DEC, HAL, NOP, PFZ, PRS., RH, RUB, x.
*Stearic acid esters:	
n-Butyl stearate-----	AHC, CCW, FMP, KES, NOP, RUB, SCF, WTH.
All other stearic acid esters-----	ARG, BAC, CCW, DRW, FMP, HK, HPC, KES, NOP, RH, ROS.
Tributyl acetyl citrate-----	EKT, PFZ.
*Triethylene glycol di(caprylate-caprate)-----	DRW, FOR, RUB.
Triethylene glycol di-2-ethylbutyrate-----	UCC.
All other acyclic plasticizers-----	ARG, DUP, EKT, EMR, FMP, HPC, KES, PFZ, PRS, RH, ROS, RUB, UCC, x.

Surface-Active Agents

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959

[Surface-active agents 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 23. 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 23)
SURFACE-ACTIVE AGENTS, CYCLIC	
*Esters and ethers, nonsulfonated:	
Anhydroxitol castor oil polyethoxyethyl ether-----	AFD.
Anhydroxitol dioleate-----	AFD.
Anhydroxitol glycerol monolaurate-----	AFD.
Anhydroxitol monolaurate-----	AFD.
Anhydroxitol monolaurate polyethoxyethyl ether-----	AFD.
Anhydroxitol mono-oleate-----	AFD.
Anhydroxitol mono-oleate polyethoxyethyl ether-----	AFD.
Anhydroxitol monopalmitate-----	AFD.
Anhydroxitol monopalmitate polyethoxyethyl ether-----	AFD.
Anhydroxitol monostearate-----	AFD.
Anhydroxitol monostearate polyethoxyethyl ether-----	AFD.
Anhydroxitol tall oil ester-----	AFD.
Anhydroxitol tall oil polyethoxyethyl ether-----	AFD.
Anhydroxitol tetrastearate-----	AFD.
Anhydroxitol trioleate-----	AFD.
Anhydroxitol trioleate polyethoxyethyl ether-----	AFD.
Anhydroxitol triricinoleate-----	AFD.
Anhydroxitol tristearate-----	AFD.
Anhydroxitol tristearate polyethoxyethyl ether-----	AFD.
Castor oil phthalate polyester-----	AFD.

TABLE 20B. -- Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, CYCLIC--Continued	
*Esters and ethers, nonsulfonated--Continued	
Cyclohexyloxy polyethoxyethanol-----	APD.
Diisobutylphenoxy polyethoxyethanol-----	GAF, RH.
Dinonylphenoxy polyethoxyethanol-----	GAF.
Dodecylphenoxy polyethoxyethanol-----	MON, PCS.
Glucose polyethoxyethyl distearate-----	APD.
Glucose polyethoxyethyl oleate-----	APD.
Iso-octylphenoxy polyethoxyethanol-----	GAF, NOP, CMC.
*Nonylphenoxy polyethoxyethanol-----	AHC, APD, CLY, GAF, HPC, JCC, NOP, CMC, PCS, RH, STP, UCC, VIS.
Pentylphenoxy polyethoxyethanol-----	APD.
Pentylphenoxy tall oil polyethoxyethanol-----	APD.
Phenoxy polyethoxyethanol-----	APD, GAF, NOP.
Tetradecylphenoxy polyethoxyethanol-----	ORO, PCS.
All other-----	HDG, HPC, TRC, VIS.
*Nitrogen-containing surface-active agents, nonsulfonated:	
Benzyl dimethyl hydrogenated tallow ammonium chloride-----	ARC.
Benzyl dimethyl octadecyl ammonium chloride-----	APX, RET.
Benzyl dimethyl octyl ammonium chloride-----	ONX.
*Benzyl dodecyl dimethyl ammonium chloride-----	APD, DEP, FIN, ITX, ONX, RH, SDH.
Benzyl hexadecyl dimethyl ammonium chloride-----	FIN, ONX, RH, SDW.
Benzyl (polyethoxyethyl coco) dimethyl ammonium chloride-----	GAF.
Benzyl trimethyl ammonium chloride-----	COM.
Caproyl ethyl-5-hydroxycycloimidine, sodium ethylate, sodium ethionate.	MIR.
3,4-Dichlorobenzyl dodecyl dimethyl ammonium chloride-----	ONX, SDW.
(Dodecyl benzyl diethyl (2-hydroxyethyl) ammonium chloride-----	ORO.
(Dodecyl benzyl trimethyl ammonium chloride-----	PC.
(Dodecyl benzyl trimethyl ammonium chloride-----	'TTC.
Dodecyl (dimethyl benzyl) dimethyl ammonium chloride-----	ONX.
2-Dodecyl isoquinolinium bromide-----	ITX, ONX.
(Dodecyl methyl benzyl) trimethyl ammonium chloride-----	RH.
1-Dodecyl pyridinium chloride-----	HK.
(Ethoxy benzyl) dimethyl (octyl phenoxy) ammonium chloride-----	RH.
2-Heptadecyl-1-hydroxyethyl-2-imidazoline-----	GGY.
2-Heptadecyl-1-hydroxyethyl-2-imidazoline-----	GGY, PCS.
1-Hexadecyl pyridinium chloride-----	FBS, FIN.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine-----	APX.
1-Hydroxyethyl-2-nonyl-2-imidazoline-----	GGY.
1-Hydroxyethyl-2-tridecyl imidazolium chloride-----	GGY.
1-Hydroxyethyl-2-undecyl imidazoline-----	GGY.
Lauryl-5-ethoxycycloimidine, disodium ethionate-----	MIR.
Laurylethyl-5-hydroxycycloimidine, sodium ethylate, sodium ethionate.	MIR.
2-Lauryl oxyethyl carbamoyl-1-methyl pyridinium chloride-----	WTC.
Oleoyl imidazoline-----	PCS, SNW.
Oxazoline, substituted-----	COM.
Rosin aminopolyethoxyethanol-----	APD, HPC, PCS, VIS.
Rosin polyamidoimidazoline-----	GRD, PCS.
Stearoyl ethyl-5-hydroxycycloimidine, sodium ethylate, sodium ethionate.	MIR.
Stearoyl imidazoline-----	SCO.
2-Stearoyl oxyethyl carbamoyl-1-methyl pyridinium chloride-----	WTC.
N-Tallow 1,2-propanediamine naphthenic acid-----	APD.
All other-----	APD, FBS, FIN, ONX, PCS.
*Sulfated and sulfonated cyclic surface-active agents:	
*Alkyl benzenoid compounds, sulfated and sulfonated:	
*Decyl benzenesulfonic acid-----	EFH, HLI, MON, SCO, STP.
Didodecyl benzenesulfonic acid-----	APD, CO.
*Dodecyl benzenesulfonic acid-----	ACF, CO, KRY, LEV, MON, NOP, FIL, PRX, QCP, SOC, STP, TN, TRC, TRP, WTC, WTU.
Dodecyl benzenesulfonic acid, ammonium salt-----	ATR, VIS.
Dodecyl benzenesulfonic acid, butyl ammonium salt-----	WTC.
*Dodecyl benzenesulfonic acid, calcium salt-----	RH, STP, TRP, VIS, WTC.
Dodecyl benzenesulfonic acid, cyclohexylamine salt-----	GAF.
*Dodecyl benzenesulfonic acid, isopropyl ammonium salt-----	PCS, SNW, STP, TRP, WTC.
Dodecyl benzenesulfonic acid, potassium salt-----	TRP.
*Dodecyl benzenesulfonic acid, sodium salt-----	ACF, AHC, AML, ATR, CO, DEP, EMX, HLI, HRT, LEV, NOP, PC, PG, PIL, PRX, SOC, TDC, TN, TRP, WIC, WTU, WYN, X.

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, CYCLIC--Continued	
*Sulfated and sulfonated cyclic surface-active agents-- Continued	
*Alkyl benzencid compounds, sulfated and sulfonated-- Continued	
*Dodecylbenzenesulfonic acid, triethanolamine salt-----	ACF, AML, ATR, CO, HLI, LUR, PCS, PIL, STP, TN, TRP, WTC, x.
Nonylbenzenesulfonic acid, sodium salt-----	WTU.
Pentylbenzenesulfonic acid, sodium salt-----	MON.
Tridecylbenzenesulfonic acid, ammonium salt-----	WTU.
Tridecylbenzenesulfonic acid, sodium salt-----	CP, WTU.
All other-----	PCS.
*Lignin derivatives, sulfonated:	
Lignosulfonic acid, ammonium salt-----	CRZ.
*Lignosulfonic acid, calcium salt-----	CWF, INP, LKY, MAR, NYP, PSP.
Lignosulfonic acid, magnesium salt-----	MAR.
Lignosulfonic acid, sodium salt-----	CRZ, INP, MAR, WVA.
*Naphthalene derivatives, sulfonated:	
Benzyl-naphthalenesulfonic acid-----	GAF.
*Butyl-naphthalenesulfonic acid-----	CMG, GGY, PFZ, SCP.
*Di-butyl-naphthalenesulfonic acid-----	GAF, MRA, SAN, SNW.
Didodecyl-naphthalenesulfonic acid-----	PFZ.
*Diisopropyl-naphthalenesulfonic acid-----	DUP, GAF, GRD, PFZ, WTU.
Dipentyl-naphthalenesulfonic acid-----	x.
*Isopropyl-naphthalenesulfonic acid, mono-	ACF, BRY, CMG, DUP, NOP, ONX.
Methylenedi(2-naphthalenesulfonic acid)-	AHC, DUP.
Mixed alkyl-naphthalenesulfonic acid-----	DRW, UDI.
Pentyl-naphthalenesulfonic acid-----	ONX.
Tetrahydronaphthalenesulfonic acid-----	DUP.
*All other sulfated and sulfonated cyclic surface-active agents:	
N-Alkylethylmorpholinium ethyl sulfate-----	APD.
Benzenesulfonic acid, sodium salt-----	UPF.
Butylhydroxybiphenylsulfonic acid-----	FBS, RBC.
N-Cyclohexyl-N-palmitoyl taurine-----	GAF.
N-(Didodecylbenzyl)-N-methyl taurine, sodium salt-----	ORO.
Dodecylphenoxy polyethoxyethyl sulfate-----	GAF.
Nonylphenoxy polyethoxyethyl phosphate-----	GAF.
Nonylphenoxy polyethoxyethyl sulfate-----	GAF, HLI, KRY, STP, TRP, WTC.
n-Octylphenoxy polyethoxyethyl sulfate-----	RH.
n-Octylphenoxy polyethoxyethyl sulfonate-----	RH.
*Petroleum sulfonate, water soluble type, sodium salt-----	SIN, SOI, SON.
*Toluene sulfonic acid, sodium salt-----	CO, PIL, STP, TRP, WTU.
Trichlorophenol sulfate, ethanolamine salt-----	GAF.
*Xylene sulfonic acid, sodium salt-----	CO, NES, PIL, STP, TRP, WTU.
All other-----	FIN, GAF, TRC.
SURFACE-ACTIVE AGENTS, ACYCLIC	
*Esters and ethers, nonsulfonated:	
*Diethylene glycol monolaurate-----	CCW, GLY, HAL, HDG, KAL, KES, NOP, PCS, QCP, WTC.
*Diethylene glycol mono-oleate-----	EMR, GLY, HDG, KES, NOP, WTC.
*Diethylene glycol monostearate-----	CCW, CP, GLY, HAL, KES, NOP, PC, PCS, QCP, VAL, VND, WTC.
Diethylene glycol tall oil ester-----	WTC, x.
Diisobutylene maleate-----	RH.
Dipolyethoxyethyl polyoxypropylene glycol ether-----	PCS, VIS, WYN.
Ethylene glycol mono-oleate-----	CSP, EFH, HAL.
*Ethylene glycol monostearate-----	GLY, HAL, KES, KNP, PCS, STP, VND.
*Glycerol diolate-----	KES, LEV.
Glycerol maleate mono-oleate-----	NOP, WTC.
Glycerol mono and di esters of fatty acids-----	DRW, KES, PCS, WTC.
Glycerol monococate-----	CP, HAL, VND.
Glycerol monoester of lard-----	DRW, GLY.
Glycerol monolaurate-----	KES, KNP.
*Glycerol mono-oleate-----	APD, CCW, DRW, EFH, EMR, GLY, HAL, HDG, KES, PAR, PCS, SPP, STP.
*Glycerol monostearate-----	APD, APX, BCN, CCW, CP, CRC, DRW, EFH, GLY, HAL, HDG, KES, LUR, MRA, NOP, NW, PC, PCS, PG, VND, WTC.
Hexitol polyethoxyethyl beeswax ester-----	APD.

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959 --Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Esters and ethers, nonsulfonated--Continued	
Hexitol polyethoxyethyl dioleate-----	APD.
Hexitol polyethoxyethyl hexaoleate-----	APD.
Hexitol polyethoxyethyl hexa(tall oil) ester-----	APD.
Hexitol polyethoxyethyl lanolin ester-----	APD.
Hexitol polyethoxyethyl oleate-----	APD.
Hexitol polyethoxyethyl pentalaurate-----	APD.
Hexitol polyethoxyethyl penta(tall oil) ester-----	APD.
Hexitol polyethoxyethyl stearate-----	APD.
Hexitol polyethoxyethyl tetra(oleate, laurate) ester-----	APD.
Hexitol polyethoxyethyl tetra(tall oil) ester-----	APD.
*Methoxy polyethoxyethyl coconut oil ester-----	DRW, JOR, KES, ONX.
Pentaerythritol monostearate-----	VAL.
Polyethoxyethyl castor oil ester-----	GAF, GGY, WTC.
*Polyethoxyethyl castor oil ether-----	APD, NOP, PCS, VIS.
Polyethoxyethyl coconut oil ester-----	NOP, PG, WTC.
Polyethoxyethyl decyl ether-----	AHC, APD, PCS.
Polyethoxyethyl diglycolate-----	APD.
*Polyethoxyethyl dilaurate-----	DEX, EFH, GGY, GLY, HAL, JOR, KES, PCS.
*Polyethoxyethyl dioleate-----	EFH, GGY, GLY, HAL, HDG, KES, NOP, PCS, SPP.
*Polyethoxyethyl distearate-----	GLY, HAL, KES, PCS, QCP.
Polyethoxyethyl dodecyl ether-----	APD, DUP, GAF, JCC, PCS, UCC.
Polyethoxyethyl tert-dodecyl thioether-----	EFH, MON, PAS.
Polyethoxyethyl hydrogenated castor oil ether-----	APD.
Polyethoxyethyl lanolin ether-----	APD, GAF, VIS.
Polyethoxyethyl mixed fatty acid esters and ethers-----	APD.
*Polyethoxyethyl monolaurate-----	ARC, BSC, CCA, DEX, DRW, GGY, GLY, HAL, JOR, KES, KNP,
	NOP, QCP, SRR, SYC.
*Polyethoxyethyl mono-oleate-----	AHC, APD, ARC, CCA, DEX, DRW, EFH, GAF, GGY, GLY, HAL,
	HDG, KES, NOP, ONX, PAR, PCS, QCP, SPP, SYC.
Polyethoxyethyl monopalmitate-----	APD, DRW.
Polyethoxyethyl monoricinoleate-----	HAL, KES, NOP.
*Polyethoxyethyl monostearate-----	AHC, AML, APD, ARC, CCW, DEX, GAF, GGY, GLY, HAL, HDG,
	JOR, KES, KNP, NOP, ONX, PC, PCS, PD, RH, WTC.
Polyethoxyethyl octadecyl ether-----	AAC, APD.
*Polyethoxyethyl oleyl ether-----	APD, DUP, GAF, NOP, PCS.
Polyethoxyethyl resin ester-----	APD, VIS, x.
Polyethoxyethyl rosin ether-----	APD.
Polyethoxyethyl tall oil ester-----	AML, APD, ARC, EFH, KES, MON, NOP, QMB, PCS, WTC.
Polyethoxyethyl tallow ester-----	DEX, SOS.
*Polyethoxyethyl tridecyl ether-----	AHC, APD, APX, EFH, GAF, JCC, MON, QMC, PCS, VIS, x.
Polyglycerol oleate-----	WTC.
1,2-Propanediol monococate-----	CP.
*1,2-Propanediol monolaurate-----	CP, DRW, HAL, KES.
1,2-Propanediol mono-oleate-----	HAL, KES.
*1,2-Propanediol monostearate-----	CCW, CP, HAL, KES, PCS, PG, WTC.
1,2-Propanediol polyethoxyethyl stearate-----	APD.
Propylpolyethoxyethyl polyoxypropylene glycol ether-----	APD.
All other-----	AHC, APD, GRD, PCS, UCC.
*Nitrogen-containing surface-active agents, nonsulfonated:	
Alkylamino polyethoxyethanol-----	GAF, NOP.
N-(Aminoethyl)-N-(hydroxyethyl)coconut oil amide-----	DEX, DRW, NOP.
*N-(Aminoethyl)-N-(hydroxyethyl)octadecanamide	AHC, AML, CST, DEP, DEX, HRT, MRA, NOP, ONX, PC, QCP,
(Stearamide of aminoethylthanolamine).	SAN, SCP, SNW, TRC, WTU.
*N-(Aminoethyl)-N-(hydroxyethyl)oleamide-----	CMG, DEX, NOP, SOC, WTU.
N-(Aminoethyl)-N-(hydroxyethyl)palm oil amide-----	SCP.
N,N-Bis(2-hydroxyethyl)bisoleamide-----	STP.
N,N-Bis(2-hydroxyethyl)decanamide-----	GGY.
*N,N-Bis(2-hydroxyethyl)dodecanamide-----	HLI, JRG, KRY, NOP, PCS, PG.
*N,N-Bis(2-hydroxyethyl)octadecanamide-----	AML, BSC, CST, GGY, JOR, NOP, ONX, QCP, SNW, STP, TXC,
	WTU, x.
*N,N-Bis(2-hydroxyethyl)oleamide-----	CCW, GGY, NOP, PCS, SCP, STP, WTC.
N,N-Bis(2-hydroxyethyl)tallow amide-----	PG.
N-Coconut oil- β -alanine-----	QNM.
*Coconut oil amide of bis(diethanolamine)-----	AML, BSC, QMC, DEP, HLI, MOA, MRV, NOP, PCS, PNX, QCP,
	SNW, TRP, VAL.
*Coconut oil amide of mono(diethanolamine)-----	APX, CP, EFH, EMX, GGY, HRT, KAL, KNP, MOA, MRA, NOP,
	ONX, PC, PCS, PG, STP, TRP, VND, WTC.

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Nitrogen-containing surface-active agents, nonsulfonated--Continued	
*Coconut oil amide of diethanolamine, neither bis nor mono.	DEX, JOR, JRG, KRY, LUR, PCS, SCO, TXC, WTU, x.
Coconut oil amide of diethylenetriamine-----	APX, NOP.
Coconut oil amide of diisopropanolamine-----	QCP.
Coconut oil amide of isopropanolamine-----	ARC, STP, TRP.
Coconut oil amide of monoethanolamine-----	APX, DEP, HRT, PCS, PG, WTC, WTU.
Coconut oil amine acetate-----	ARC, PCS.
Cocotrimethylammonium chloride-----	ARC.
N-Cocoyl sarcosine, sodium salt-----	GGY.
Cottonseed oil mixed amines-----	GNM.
Decylbetaine-----	DUP.
Dicocodimethylammonium chloride-----	ARC, GNM.
Dihydrogenated tallow dimethylammonium chloride-----	ARC, GNM, ONX.
N-(3-Dimethylamino)oleamide-----	CCW.
Dimethylidisoa-ammonium chloride-----	ARC.
Dodecyl, hexadecyl trimethylammonium chloride-----	DUP.
Dodecyltrimethylammonium chloride-----	ARC, GNM.
N,N-Ethylene bis-octadecanamide-----	CCW, NOP, WTU.
N,N-Ethylene bis-oleamide-----	CCW.
Ethylidimethyloctadecylammonium bromide-----	ITX.
Ethylhexadecyldimethylammonium chloride-----	FIN, ONX.
Hexadecylbetaine-----	DUP.
Hexadecyltrimethylammonium bromide-----	FIN.
N-(2-Hydroxyethyl)octadecanamide-----	STP.
N-(2-Hydroxyethyl)oleamide-----	EFH, FBC.
N-(2-Hydroxyethyl)-N-(2-stearoylaminoethyl) glycine-----	GAF.
N-(2-Hydroxyethyl)tetradecanamide-----	WTC.
N-(2-Hydroxypropyl)dodecanamide-----	PCS, WTU.
N-(2-Hydroxypropyl)oleamide-----	WTC.
N-(2-Hydroxypropyl)tetradecanamide-----	WTU.
N-Lauroyl polypeptide-----	MYW.
N-Lauroyl sarcosine, sodium salt-----	CP, GGY.
N-Octadecyl-β-alanine, sodium salt-----	DUP.
Octadecyl amine acetate-----	ACY, ARC.
Octadecyltrimethylammonium chloride-----	ARC.
Oetyl amine acetate-----	ARC.
Oleamide of diethylenetriamine-----	APD, PCS.
Olecyllamino polyethoxyethanol-----	APD, ARC, GAF.
Olecyll polypeptide-----	MYW.
N-Oleoyl sarcosine, sodium salt-----	GAF, GGY.
Polyethoxyethyl N-coco amine-----	APD, ARC.
Polyethoxyethyl N-hydrogenated tallow amine-----	ARC.
Polyethoxyethyl N-octadecyl amine-----	APD, ARC.
Polyethoxyethyl N-soya amine-----	ARC.
Polyethoxyethyl N-tallow amine-----	ARC.
Polyethoxyethyl N-tallow trimethylidamine-----	ARC.
Polypeptide-----	MYW.
Soyatrimethylammonium chloride-----	ARC.
Stearamide of diethylenetriamine-----	APX, DEP, NOP, ONX, QCP.
Stearamide of tetraethylenepentamine-----	AHC, DEX, ONX.
1-Stearamido-1'-adipoamido diethylenetriamine-----	APX.
Stearoylbisguanide hydrochloride-----	GAF.
Stearoyl-N-(2-hydroxyethyl)octadecanamide-----	WTC.
N-Stearoyl sarcosine, sodium salt-----	GAF, GGY.
Tallow amine acetate-----	ARC, GNM.
Tallow amine acetate, hydrogenated-----	ARC, GNM.
N-Tallow-β-aminodipropionic acid, sodium salt-----	GNM.
Tallow diethanolamine acetate-----	PG.
N,N,N',N'-Tetrakis hydroxyethyl(polyoxyethylene)polyoxypropylene)ethylenediamine.	VIS, MYN.
Triethanolamine myristate-----	DOM.
*Triethanolamine oleate-----	CMC, DOM, HAL, HDG, NOP, QCP.
Triethanolamine stearate-----	AML, HDG.
Trimethyl hydrogenated tallow ammonium chloride-----	ARC.
Trimethyl tallow ammonium chloride-----	ARC.
All other-----	AHC, APD, CBP, CCW, GAF, GGY, MYW, ONX, PCS, PG, TRC, VIS, x, x, x.

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959 --Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Phosphorus-containing surface-active agents, nonsulfonated:	
Alkyl phosphates, diethanolamine salt-----	DUP.
Capryl polyphosphate, potassium salt-----	DEX.
Capryl polyphosphate, sodium salt-----	VIC.
Dodecyl polyethoxyethyl phosphate-----	GAF.
2-Ethylhexyl phosphate, sodium salt-----	UCC.
Mixed mono and dialkyl acid phosphates-----	DUP, VIC.
Octyl polyphosphate, potassium salt-----	DEX.
Octyl polyphosphate, sodium salt-----	CRC, VIC.
Oleyl phosphate-----	DUP.
Oleyl polyethoxyethyl phosphate-----	GAF.
All other-----	DUP, VIC.
*Salts of fatty acids, nonsulfonated:	
*Coconut oil, potassium salt-----	LUR, OTT, PCH, SAN.
Coconut oil, triethanolamine salt-----	PG.
Corn oil, potassium salt-----	EPH, PCH.
Corn oil, sodium salt-----	LUR.
Olive oil, sodium salt-----	LUR.
Peanut oil, potassium salt-----	KAL.
Potassium laurate-----	BSC, NOP.
*Potassium oleate-----	AML, EPH, NOP, OTT, PCH, QCP, SAN, SHP, WBG, x.
Potassium resinate-----	DEX.
Potassium stearate-----	DEX, QCP, VAL.
*Potassium tallate-----	BSC, CON, EPH, KAL, LUR, OTT, PCH, PCS, PNK, QCP.
Rapeseed oil, potassium salt-----	KAL.
Sodium laurate-----	DEP.
Sodium oleate-----	DEP, LUR, MRV, NOP, QCP, WBG, WTC.
Sodium resinate-----	QCP.
Sodium stearate-----	LEV, MAL, MRV, NOP, WTC.
Sodium tallate-----	BSC, DEX, MRV, NOP, QCP.
Soybean oil, potassium salt-----	DRW, OTT, PCH.
Tallow, potassium salt-----	QCP.
*Tallow, sodium salt-----	CON, DRW, LUR, NOP, QCP.
*Sulfated and sulfonated acyclic surface-active agents:	
*Acids, sulfated and sulfonated:	
Acetyloleic acid, sulfonated-----	DUP.
*Oleic acid, sulfonated (Sulfonated red oil)-----	ACT, ACY, AHC, DEX, DRW, GAF, KAL, LEA, LUR, MRA, MRV, NOP, PC, QCP, SCO, SON, SWT, TN, WBG, WHI, WHW. DRW, NOP.
Ricinoleic acid, sulfonated-----	
*Alcohols, sulfated and sulfonated:	
*Decyl sulfate-----	DUP, ONX, PCS.
Decyl sulfate, triethanolamine salt-----	DUP.
3,9-Diethyl-6-tridecyl sulfate-----	UCC.
Dodecyl, octadecenyl sulfate-----	DUP.
Dodecyl sulfate, 2-amino-2-methylpropanol salt-----	DUP.
*Dodecyl sulfate, ammonium salt-----	AAC, DUP, ONX, PCS, STP, TRP.
*Dodecyl sulfate, diethanolamine salt-----	AAC, DUP, ONX, PCS, STP, TRP.
Dodecyl sulfate, N,N-diethylcyclohexylamine salt-----	DUP.
Dodecyl sulfate, monoethanolamine salt-----	SYC.
Dodecyl sulfate, monoisopropanolamine salt-----	JRG, PCS.
Dodecyl sulfate, potassium salt-----	PG.
*Dodecyl sulfate, sodium salt-----	AAC, DUP, HLI, HLN, KRY, ONX, PCS, PG, RET, STP, TRP.
*Dodecyl sulfate, triethanolamine salt-----	AAC, DUP, HLI, KRY, ONX, PCS, PG, RET, STP, TRP.
2-Ethylhexyl sulfate-----	AAC, UCC, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate-----	UCC.
Hexadecyl, octadecenyl sulfate-----	CMG.
Hexadecyl sulfate-----	AAC, DUP, GGY.
Octadecyl sulfate-----	AAC, DUP, EMK, ONX, PG.
Octadecyl sulfate, triethanolamine salt-----	DUP.
Octyl sulfate, sodium salt-----	DUP.
Tridecyl sulfate, sodium salt-----	AAC.
All other-----	AAC, PCS.
*Esters and ethers, sulfated and sulfonated:	
Bis-sulfosuccinate ester of tallow monoglyceride-----	ACY.
Bis(tridecyl)sulfosuccinate, sodium salt-----	ACY.
Butyl ethylene glycol sulfo-oleate-----	SAN.
n-Butyl sulfo-oleate-----	AHC, AML, NOP, ONX, PC.

TABLE 20B. --Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Sulfated and sulfonated acyclic surface-active agents-- Continued	
*Esters and ethers, sulfated and sulfonated--Continued	
n-Butyl sulfuricinate-----	DEC, NOP.
Coconut oil isethionate, sodium salt-----	GAF, LEV.
Didecanoyl sulfosuccinate, sodium salt-----	RH.
*Di(2-ethylhexyl)sulfosuccinate-----	ACY, AHC, CRC, CST, EMX, GGY, HRT, MOA, MRA, PC, QCP.
Dihexyl sulfosuccinate-----	ACY, MOA.
Dipentyl sulfosuccinate, sodium salt-----	ACY.
Dodecyl sulfoacetate-----	ACF.
Glycerol mono(coconut oil)ester, sulfated, ammonium salt.	CP, KAL.
Glycerol mono(coconut oil)ester, sulfated, sodium salt	CP.
Glycerol monostearate sulfoacetate-----	WTC.
Glycerol tri(sulfo-oleate)-----	AHC, MRV, NOP, SCP.
*Isopropyl sulfo-oleate-----	AHC, BRY, DEX, HRT, LUR, NOP, QCP, SON, TXC.
Lauroyl-2-hydroxy-1-propane sulfonic acid-----	SDH.
Methyl, ethyl, propyl sulfo-oleate-----	NOP.
Methyl sulfo-oleate-----	AHC.
Oleoyl isethionate-----	GAF.
Polyethoxyethyl decyl sulfate-----	WTC.
Polyethoxyethyl dodecyl sulfate, sodium salt-----	AAC, PCS, PG.
Polyethoxyethyl dodecyl sulfate, triethanolamine salt-	FG.
Polyethoxyethyl octadecyl sulfate, sodium salt-----	DUP.
Polyethoxyethyl oleyl sulfate-----	PCS.
*n-Propyl sulfo-oleate-----	ACY, BSC, EFH, EMR, MRV.
All other-----	DEX, EMR, GAF, PFZ, x.
*Nitrogen-containing surface-active agents, sulfated and sulfonated:	
Coconut oil amide of isopropanolamine, sulfated, sodium salt.	APX, ONX, QCP.
*Coconut oil amide of monoethanolamine, sulfated, potassium salt.	DEX, EMX, HRT, ONX, SON.
Coconut oil amide of monoethanolamine, sulfated, sodium salt.	AML, DEP, QCP.
N-(2-Hydroxyethyl)neat's-foot oil amide, sulfated, ammonium salt.	APX.
N-(2-Hydroxyethyl)octadecanamide, sulfated-----	NOP.
N-(2-Hydroxyethyl)oleamide, sulfated-----	NOP, SCP.
N-(2-Hydroxyethyl)tallow sulfosuccinamide-----	SCP.
Lauroylsulfoacetethanolamide, potassium salt-----	WTC.
*N-Methyl-N-oleoyl taurine-----	CRC, DEP, GAF, HRT, MRA, NOP, WIC.
N-Methyl-N-palmitoyl taurine-----	GAF.
N-Methyl-N-tallow taurine-----	LEV.
N-(Myristoyl)ethyl)sulfosuccinamide-----	WTC.
N-Octadecylsulfosuccinamide, disodium salt-----	ACY.
N-(Oleoyl)isopropyl)sulfosuccinamide-----	WTC.
All other-----	ACY, DUP, RH, x.
*Oils, fats, and waxes, sulfated and sulfonated:	
Animal fats and oils, sulfated and sulfonated:	
Grease, other than wool, sulfonated-----	NOP, WHW.
Lard oil, sulfonated-----	APX, FBC, WAW.
*Neat's-foot oil, sulfonated-----	ACT, APX, ARF, DRW, FBC, KAL, LEA, LUR, MRD, NOP, OTT, PC, WHW.
*Tallow, sulfonated-----	ACT, ACY, AHC, ARF, BRY, CRC, DRW, EFH, GTS, HRT, LEA, LUR, MRA, MRD, NOP, ONX, OTT, PC, QCP, RAY, SCP, SID, SNW, SON, SOG, WHI. FBC, FRR, WHI.
All other-----	
*Fish and marine-animal oils, sulfated and sulfonated:	
*Cod oil, sulfonated-----	ACT, DRW, EFH, FBC, LEA, MRD, NOP, OTT, SAN, WAW, WHI, WHW.
Herring oil, sulfonated-----	NOP.
Menhaden oil, sulfonated-----	ARF.
Mixed fish oils, sulfonated-----	AML, NOP, SCO.
*Sperm oil, sulfonated-----	ACT, ARF, DRW, EFH, FBC, HRT, KAL, KNG, LEA, MRD, NOP, ONX, OTT, QCP, RTC, SAN, SON, SWT, WBG, WHI, WHW.
Whale oil, sulfonated-----	KNG.

TABLE 20B.--Synthetic organic chemicals: Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Sulfated and sulfonated acyclic surface-active agents-- Continued	
*Oils, fats, and waxes, sulfated and sulfonated-- Continued	
Vegetable oils, sulfated and sulfonated:	
*Castor oil, sulfonated-----	AAE, ACT, ACY, AHC, AML, APX, ARF, BRY, BSC, CRC, DEX, DRW, DUP, EFH, FBC, GAF, GTS, HRI, KAL, KNG, LEA, LUR, MRA, MRD, MRV, NOP, ONX, OTI, PC, RTC, ROY, SAN, SCO, SCP, SLC, SON, SWT, WBG, WHI, WHW, WTU.
*Coconut oil, sulfonated-----	ACY, LEA, LUR, MRD, NOP, OTT, PC, RTC, WBG, WHW.
Cottonseed oil, sulfonated-----	ARF, NOP.
Linseed oil, sulfonated-----	LEA.
Mustard-seed oil, sulfonated-----	LUR, NOP.
*Peanut oil, sulfonated-----	ACY, AHC, LEA, NOP, ROY, RTC, SCP, SLC, SON, SOS.
Rapeseed oil, sulfonated-----	NOP.
*Rice-bran oil, sulfonated-----	EFH, HRT, KNG, LUR, NOP, QCP, ROY.
*Soybean oil, sulfonated-----	HRT, KAL, LEA, MRD, ONX.
All other oils, fats, and waxes, sulfated and sulfonated:	
Oleostearine, sulfonated-----	WHW.
*Tall oil, sulfonated-----	ACY, AHC, APX, ARF, QCP, WHW.
All other-----	FRR.
All other acyclic surface-active agents:	
Mixed alkane sulfonic acid, sodium salt-----	DUP.
All other-----	ACY, AIR, TN.

Pesticides and Other Organic Agricultural Chemicals

TABLE 21B. --Synthetic organic chemicals: Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959

[Pesticides and other organic agricultural chemicals for which separate statistics are given in table 21A are marked below with an asterisk (*); products 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 23. 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 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC	
*Fungicides:	
Cadmium anilino dilactate-----	GUA.
Captan (N-Trichloromethylthio-4-cyclohexene-1,2-dicarbox- imide).	CHO, CSP.
Chloranil (Tetrachloro-p-quinone)-----	USR.
5-Chloro-2-mercaptobenzothiazole, laurylpyridium salt----	VNC.
Dichlone (2,3-Dichloro-1,4-naphthoquinone)-----	SF, USR.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine-----	CHG.
3,5-Dimethyltetrahydro-2H,1,3,5-thiadiazine-2-thione----	CLY.
Glyodin (2-Heptadecyl-2-imidazoline acetate)-----	UCC.
2-Mercaptobenzothiazole, monoethanolamine salt-----	VNC.
*Mercury fungicides:	
2-Chloro-4-(hydroxymercuri)phenol-----	DUP.
Diphenylmercuriammonium propionate-----	MTL.
N-(Ethylmercuri)-p-toluenesulfonanilide-----	DUP.
4-(Hydroxymercuri)-2-nitrophenol-----	DUP.
8-(Methylmercurioxy)quinoline-----	MTL.
2-(Phenylmercuri-amino)ethyl acetate-----	CLY.
N-Phenylmercuri-formamide-----	GUA, VIN.
8-(Phenylmercurioxy)quinoline-----	MTL.
Phenylmercury ammonium acetate-----	GUA.
Phenylmercury carbonate-----	GUA.
Phenylmercury hydroxide-----	BRK, MTL.
Phenylmercury lactate-----	GUA.
Phenylmercury naphthenate-----	HNX, MTL.
*Phenylmercury oleate-----	BRK, CLY, DUP, GUA, HNX, MTL.
Phenylmercury propionate-----	MTL.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium acetate----	GUA.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium lactate----	CLY.
2-(1-Methylheptyl)-4,6-dinitrophenyl crotonate (Karathane).	RH.
*Naphthenic acid, copper salt-----	CCA, FER, HAR, HNX, SHP, SM, SOC, SRR, TOL, WTC.
Naphthyl methylcarbamate-----	UCC.
Penicillin, dried fermented solids-----	MRK.
*Pentachlorophenol-----	DOW, FRO, MON, RCI.
Pentachlorophenol, sodium salt-----	DOW, MON.
α-Phenyl-p-cresol (p-Benzylphenol)-----	MON.
8-Quinololinol (8-Hydroxyquinoline), copper salt-----	GAM, HNX.
2,3,4,6-Tetrachlorophenol-----	DOW.
Trichloromethylthiophthalimide-----	CHO.
*2,4,5-Trichlorophenol-----	DA, DOW, HK.
2,4,5-Trichlorophenol, ethanolamine salt-----	DOW, GAF.
2,4,5-Trichlorophenol, sodium salt-----	DOW, MON.
2,4,6-Trichlorophenol-----	DA, DOW.
2,4,6-Trichlorophenol, potassium salt-----	CLY, DA.
*Herbicides:	
1-n-Butyl-3-(3,4-dichlorophenyl)-1-methylurea-----	DUP.
2-sec-Butyl-4,6-dinitrophenol-----	DOW.
2-sec-Butyl-4,6-dinitrophenol, triethanolamine salt----	SAC.
3-(p-Chlorophenyl)-1,1-dimethylurea (GMI)-----	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea-trichloroacetate----	ACG.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea-----	DUP.
1,2-Dihydro-3,6-pyridazinedione (Maleic hydrazide)-----	ACY, USR.
1,1-Dimethyl-3-phenylurea-----	DUP.
1,1-Dimethyl-3-phenylurea trichloroacetate-----	ACG.
Dimethyl tetrachloroterephthalate-----	DA.
4,6-Dinitro-o-cresol (DNOC)-----	SAC.
4,6-Dinitro-o-cresol, sodium salt (Sinox)-----	SAC.
Gibberellic acid-----	ABB, MRK, PFZ.
Indolebutyric acid-----	ARA, MRK.
Isopropyl carbanilate (Isopropyl N-phenylcarbamate) (IPC)	FMP, PFG.

TABLE 21B. -- Synthetic organic chemicals: Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Herbicides--Continued	
Isopropyl 3-chlorocarbamate (Isopropyl N-(3-chlorophenyl)carbamate) (CIPC).	PPG.
*1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetamide-----	AMC, TMC.
1-Naphthaleneacetic acid-----	AMC, COK, TMC.
1-Naphthaleneacetic acid, methyl ester-----	AMC, COK, TMC.
1-Naphthaleneacetic acid, sodium salt-----	AMC.
N-1-Naphthylphthalamic acid-----	USR.
7-Oxabicyclo[2,2,1]heptane-2,3-dicarboxylic acid, disodium salt (Endothal).	PAS.
Phenoxyacetic acid derivatives:	
(4-Chloro-o-tolyloxy)acetic acid-----	DOW.
*(2,4-Dichlorophenoxy)acetic acid (2,4-D)-----	DA, DOW, FRO, MON, RIV, TMC.
*(2,4-Dichlorophenoxy)acetic acid, dimethylamine salt--	AMC, CSP, RIV, TMC, TMH.
*(2,4-Dichlorophenoxy)acetic acid esters:	
(2,4-Dichlorophenoxy)acetic acid, butoxyethoxypropyl ester.	DA.
(2,4-Dichlorophenoxy)acetic acid, 2-butoxyethyl ester	x.
(2,4-Dichlorophenoxy)acetic acid, butoxypolypropylene-glycol ester.	DOW.
*(2,4-Dichlorophenoxy)acetic acid, n-butyl ester-----	AMC, DA, DOW, MON, RIV, TMC, TMH.
(2,4-Dichlorophenoxy)acetic acid, sec-butyl ester-----	MON.
(2,4-Dichlorophenoxy)acetic acid, ethyl ester-----	AMC.
(2,4-Dichlorophenoxy)acetic acid, 2-ethylhexyl ester-	DA.
*(2,4-Dichlorophenoxy)acetic acid, iso-octyl ester----	AMC, DOW, MON, RIV, TMC, TMH.
*(2,4-Dichlorophenoxy)acetic acid, isopropyl ester----	AMC, DA, DOW, MON, RIV, TMH.
(2,4-Dichlorophenoxy)acetic acid, tetrahydrofurfuryl ester.	CSP.
(2,4-Dichlorophenoxy)acetic acid, sodium salt-----	DOW.
*(2,4,5-Trichlorophenoxy)acetic acid (2,4,5-T)-----	DA, DOW, MON, RIV, TMC.
*(2,4,5-Trichlorophenoxy)acetic acid esters:	
(2,4,5-Trichlorophenoxy)acetic acid, butoxyethoxypropyl ester.	DA, MON.
(2,4,5-Trichlorophenoxy)acetic acid, 2-butoxyethyl ester.	x.
(2,4,5-Trichlorophenoxy)acetic acid, butoxypolypropylene-glycol ester.	DOW.
*(2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester----	DA, DOW, MON, RIV.
(2,4,5-Trichlorophenoxy)acetic acid, 2-ethylhexyl ester.	DA.
*(2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester--	AMC, DOW, MON, RIV, TMC, TMH.
(2,4,5-Trichlorophenoxy)acetic acid, isopropyl ester--	DA, MON.
(2,4,5-Trichlorophenoxy)acetic acid, pentyl ester----	TMH.
(2,4,5-Trichlorophenoxy)acetic acid, tetrahydrofurfuryl ester.	CSP.
*Phenylmercury acetate (PMA)-----	
N-Tolylphthalamic acid-----	BKM, BRK, CLY, GUA, MTL.
(2,4,5-Trichlorophenoxy)propionic acid-----	DOW, TMC.
*Insecticides:	
Allethrin (Allyl homolog of Cinerin I)-----	BPC.
Benzyl thiocyanate-----	HK.
*Chlorinated insecticides:	
Aldrin (Hexachloro-hexahydro-endo, exo-dimethanonaphthalene).	SHC.
1,1-Bis(p-chlorophenyl)-2-nitrobutane-----	COM.
1,1-Bis(p-chlorophenyl)-2-nitropropane-----	COM.
Bis(S'-Diethoxyphosphinethiocylicmercapto)-methane-	FMP.
2-(p-tert-Butylphenoxy)-1-methylethyl-2-chloroethyl sulfite (Aramite).	USR.
Chlordan (Octachloro-tetrahydro-methanonidan)-----	VEL.
Chlorinated mixed terpenes (Strobane)-----	BFG.
p-Chlorophenyl p-chlorobenzenesulfonate-----	DA, DOW.
S-(p-Chlorophenylthio)methyl O,O-diethyl phosphorodithioate.	SF.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone-----	FMP.

TABLE 21B. --Synthetic organic chemicals: Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Insecticides--Continued	
*Chlorinated insecticides--Continued	
6-Chloroperonyl chrysanthemummono-carboxylate-----	BPC.
4,4'-Dichlorobenzilic acid-----	GGY.
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethane (DDD)-----	ACG, RH.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane-----	RH.
O-(2,4-Dichlorophenyl) O,O-diethyl phosphorothioate-----	VC.
4,4'-Dichloro- α -(trichloromethyl)benzhydrol-----	RH.
Dieldrin (Hexachloro-epoxy-octahydro-endo, exo-di-methanonaphthalene).	SHC.
Endrin (Hexachloro-epoxy-octahydro-endo, endo-di-methanonaphthalene).	SHC, VEL.
Heptachlor (Heptachloro-tetrahydro-methanoindene)-----	VEL.
*Hexachlorocyclohexane (Benzene hexachloride)-----	ACG, DA, FRO, HK, PPG, SF.
*Lindane-----	HK.
Toxaphene (Chlorinated camphene)-----	HPC.
*1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)-----	ACG, DA, GGY, LEB, MCH, MTO, QMC.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	DUP.
2-Cyclohexyl-4,6-dinitrophenol-----	DOW.
O,O-Diethyl O-(3-chloro-4-methylumbelliferone) phosphorothioate.	CHG.
O,O-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate.	GGY.
N,N-Diethyltoluamide-----	CWL.
*O,O-Dimethyl O-(p-nitrophenyl) phosphorothioate (Methyl parathion).	MON, SHC, VEL, VIC.
O,O-Dimethyl S-(4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl) phosphorodithioate.	CHG.
O-Ethyl O-(p-nitrophenyl)benzene phosphorothioate (EPN)--	VIC.
*Parathion (O,O-Diethyl O-(p-nitrophenyl)phosphorothioate)	ACY, AMP, MON, VEL.
*Thanite (Isobornyl thioacyanoacetate)-----	BKC, HPC.
*Rodenticides:	
2-Isovaleryl-1,3-indandione, calcium salt-----	MOT.
2-Pivaloyl-1,3-indandione-----	MOT.
Warfarin (3-(Acetonylbenzyl)-4-hydroxycoumarin)-----	ABB, PEN.
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC	
*Fungicides:	
Bis-1,4-bromoacetoxybutene-2-----	VIN.
Cadmium succinate-----	MAL.
Dimethyldithiocarbamic acid, ferric salt (Ferbam)-----	BRK, DUP, RBC.
*Dimethyldithiocarbamic acid, zinc salt (Ziram)-----	ALC, BRK, DUP, GYR, PAS, RBC, USR.
Disodium cyanodithioimidocarbonate-----	BKM.
Ethylene bis(dithiocarbamic acid), diammonium salt-----	RBC.
*Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)-	CIS, DUP, x.
Ethylene bis(dithiocarbamic acid), manganese salt (Manzate).	DUP, RH.
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)-----	CIS, DUP, x.
3-Ethyl-(mercurithio)-1,2-propanediol-----	DUP.
Ethylmercury acetate-----	DUP, MTL.
Ethylmercury chloride-----	DUP, MTL.
Ethylmercury phosphate-----	DUP.
Hydroxyethylmercury acetate-----	BRK.
2-Methoxyethylmercury acetate-----	BRK.
Methylmercury cyanide-----	MTL.
Methylmercury nitrile-----	BRK, MTL.
Zinc undecenoate (Zinc hendecenoate)-----	WTM.
*Herbicides:	
2-Chloroallyl diethyldithiocarbamate-----	MON.
N,N-Diallyl-2-chloroacetamide-----	MON.
2,2-Dichloropropionic acid, sodium salt-----	DOW.
Diethyl dithiobis(thionoformate)-----	RBC.
Ethyl N,N-di-n-propylthiocarbamate-----	SF.
Hexachloroacetone-----	ACG.

TABLE 21B. --Synthetic organic chemicals: Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC--Continued	
*Herbicides--Continued	
*Methanearsonic acid, disodium salt-----	ASL, CLY, VIN.
Octyldecylammoniummethyl arsonate-----	VIN.
S,S,S-Tributyl phosphorothioate-----	CHG, VC.
Trichloroacetic acid, sodium salt (TCA)-----	DOW.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate-----	RH.
O-(2,2-Dichlorovinyl) O,O-dimethyl phosphate (DDVP)-----	MTR.
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.
Diethyl phosphorochlorodithionate-----	VIC.
O,O-Dimethyl O-(2-methoxycarbonyl)isopropenyl phosphate-----	SHC.
Dimethyl phosphorochlorodithionate-----	VIC.
Ethyl pyrophosphate (Tetraethyl pyrophosphate) (TEPP)---	AMP, CSP.
Malathion (S-(1,2-Bis(ethoxycarbonyl)ethyl) O,O-dimethyl phosphorodithioate).	ACY.
Metaldehyde-----	CCM.
2-Thiocyanatoethyl laurate-----	RH.
*Rodenticides: Sodium fluoroacetate-----	RBC.
*Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY.
*Soil fumigants:	
*Bromomethane (Methyl bromide)-----	AMP, DOW, KIK, MCH.
Chloropicrin-----	DOW, IMC.
1,2-Dibromo-3-chloropropane-----	DOW, SHC.
1,2-Dichloropropane-----	SHC.
1,3-Dichloropropane-----	DOW.
1,3-Dichloropropene-----	SHC.
N-Methylthiocarbamic acid, sodium salt-----	DUP, SF.

Miscellaneous Synthetic Organic Chemicals

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959

[Miscellaneous chemicals for which separate statistics are given in table 22A are marked below with an asterisk (*); chemicals not so marked do not appear in table 22A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 23. 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 23)
MISCELLANEOUS CHEMICALS, CYCLIC	
2-Aminobenzothiazole-----	FMI.
1-(2-Aminoethyl)piperazine-----	JCC.
Benzoic acid salts:	
Aluminum benzoate-----	GAf.
Calcium benzoate-----	HN.
*Sodium benzoate, tech-----	HN, TNP.
*Sodium benzoate, U.S.P-----	HK, HN, MCN, TNP.
p-Benzoquinone (p-Quinone)-----	EKT, HSH.
Benzothiazole-----	ACV.
Benzoyl peroxide-----	CAD, WTL.
Benzoylresorcinol-----	GAf.
p-Benzylaminophenol hydrochloride-----	EK.
Benzylmagnesium chloride-----	ARA.
Benzyl p-methoxycinnamate-----	GIV.
Biological stains-----	ACF, HLC.
Bis(2,4-dichlorobenzoyl) peroxide-----	CAD.
m-Bis(phenoxyphenoxy)benzene-----	MCN.
Boron fluoride-phenol complex-----	ACG.
Bromocyclopentane (Cyclopentyl bromide)-----	ARA.
α -(2-(2-Butoxyethoxy)ethoxy)-4,5-methylenedioxy-2-propyl- toluene (Piperonyl butoxide).	FMP.
Butoxyisafrole-----	GIV.
2-(and 3)-tert-Butyl-4-methoxyphenol-----	EKT, UFM.
tert-Butyl peroxybenzoate-----	WTL.
4-tert-Butylpyrocatechol-----	DOW.
Camphene-----	DUP, GLD, HPC.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)-----	PAS, SDH.
Chemical indicators-----	ACF, EK, HLC, LAM.
Chemical reagents-----	ACF, ACG, ARA, EK, HLC, LAM, MAL.
Chloramine B-----	NES.
5-Chloro- α , α -bis[3,5-dichloro-2-hydroxyphenol]-o-toluene- sulfonic acid.	GAf.
Chlorophyllin, sodium-potassium-copper-----	KCH.
Cholesterol-----	CW.
Cumene hydroperoxide-----	HPC.
Cyclohexanone peroxide-----	WTL.
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid), disubstituted, polyester salts:	
Barium salt-----	DEC.
Barium cadmium salt-----	DEC.
Cadmium salt-----	DEC.
N-Cyclohexyltaurine, sodium salt-----	GAf.
Cyclopentanepropionic acid-----	ARA.
*Cyclopropane-----	MAL, OH, QMS, TAE.
Cytidine and derivatives-----	
Decahydronaphthalene (Decalin)-----	DUP.
Decyl diphenyl phosphite-----	HKP.
n-Decylgallophenone-----	ARA.
Diazodinitrophenol-----	HPC.
1,3-Dibromo-5,5-dimethylhydantoin-----	ARA, GLY.
2,5-Di-n-butoxyaniline (Aminohydroquinone, dibutyl ether)- 1,3-Dichlorohexahydro-s-triazine-2,4,6-trione-----	EKT.
*2,6-Di-tert-butyl-p-cresol:	FMP.
*Food grade-----	CAT, EKT, HPC, KPT, SHC.
*Tech-----	ACV, CAT, EKT, HPC, KPT, SHC.
2,5-Di-tert-butylhydroquinone-----	EKT.
1,3-Dichloro-5,5-dimethylhydantoin-----	GLY.
Dicyclohexylammonium nitrite-----	CMC.
Dicyclopentadienyliiron-----	TNA.
Didecyl phenyl phosphite-----	HKP.
2,5-Diethoxyaniline-----	EKT.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone-----	GAf.
2,6-Dihydroxyisonicotinic acid (2,6-Dihydroxy-4-carboxy- pyridine).	EK.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
3,5-Diiodosalicylic acid-----	MRT.
Diisopropylenebenzene hydroperoxide-----	HPC.
2,5-Dimethoxyaniline-----	EKT.
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)-----	FBS.
Dimethyl xylol phosphate-----	TNA.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol-----	x.
Dioxane (1,4-Diethylene oxide)-----	UCC.
Diphenyl hydrogen phosphite-----	HKP.
Diphenylpentaerythritol diphosphite-----	HKP.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)-----	SHC.
6-Ethoxy-m-anol (Propenylmethylguaethol)-----	FBS.
2-Ethoxyethyl p-methoxycinnamate-----	GIV.
Ethylenediaminebis[o-hydroxyphenylacetic acid], monosodium ferric salt.	GGY.
Ethylene glycol 2,4-dichlorophenyl ether-----	UCC.
2-Ethylhexyl octylphenyl phosphite-----	VC.
Ethyl hydrocaffeate-----	FBS.
4-Ethylmorpholine-----	JCC.
1-Ethyl-3-(5-nitro-2-thiazolyl)urea-----	x.
Ethyl 2-phenylbutyrate-----	MAL.
Ethyl 2-phenylcyclopropanecarboxylate-----	BPC.
Fenchone-----	HNW.
*Flotation reagents:	
Diethylphosphorodithioic acid (Diethylthiophosphoric acid).	ACY.
Diethylphosphorodithioic acid, ammonium salt-----	ACY.
Diethylphosphorodithioic acid, sodium salt-----	KCU.
2,2'-Dimethylthiocarbonylurea (Di-o-tolylthiourea)-----	DUP.
Rosin amines-----	HPC.
Thiocarbonylurea (Diphenylthiourea)-----	ACY, MON.
Furan derivatives:	
2-Furaldehyde (Furfural)-----	QKO.
2-Furoic acid-----	QKO.
Tetrahydrofurfuryl alcohol-----	QKO.
Gallic acid, tech-----	HSH, MAL.
*Gasoline additives:	
p-Butylaminophenol-----	DUP.
2,6-Di-tert-butylphenol-----	TNA.
N,N'-Di-sec-butyl-p-phenylenediamine-----	DUP, EKT, UFM.
N,N'-Disalicylidene-1,2-propanediamine-----	DUP, EKT, UFM.
Methylcyclopentadienylmanganese tricarbonyl-----	TNA.
2,2'-Thiobis(2-tert-butyl-p-cresol)-----	CAT.
All other-----	EKT, UFM.
Glycerol p-aminobenzoate-----	VND.
*Hexamethylenetetramine, tech-----	BOR, DUP, HKD, HN, MRK, UCP.
Hydroxymethyl-5,5-dimethylhydantoin-----	GLY.
2-Hydroxy-4-methoxybenzophenone-----	GAF.
2-Imidazolidinethione (1,3-Ethylene-2-thiourea)-----	PAS.
Isopropylresols-----	CF, GIV.
Ligninsulfonic acid-iron complex-----	CRZ.
*Lubricating oil additives:	
Chlorosulfurized and sulfurized compounds:	
Alicyclic compounds, sulfurized-----	SIN, SOI.
Heterocyclic compounds, sulfurized-----	ORO.
Tail oil ester, sulfurized-----	LUB.
Terpenes, sulfurized-----	LUB.
Liquid disulfide-----	HK.
Oil-soluble petroleum sulfonates:	
Oil-soluble petroleum sulfonate, ammonium salt-----	SIN.
*Oil-soluble petroleum sulfonate, barium salt-----	ACY, ATR, CO, LUB, PAR, SIN, SON, x.
*Oil-soluble petroleum sulfonate, calcium salt-----	CO, LUB, ORO, SHO, SIN, SON.
*Oil-soluble petroleum sulfonate, sodium salt-----	CO, MOR, NOP, PAR, SHO, SOC, SOI, SON, SUN, TX, x, x.
Phenol salts:	
Barium salt of dodecylphenol-----	x.
Barium salt of nonylphenol-----	CCA.
Barium salts of other alkylphenols-----	LUB, MON.
Calcium salt of octylphenol-formaldehyde-----	SHC.
Calcium salt of polypropylphenol-----	ORO.
Calcium salts of other alkylphenols-----	LUB, SIN.
All other-----	ACY, GDC, LUB, ORO, SIN.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Lubricating oil additives--Continued	
Phosphorodithioates (Dithiophosphates)-----	MON, ORO.
All other-----	GDC, MON, ORO, SHC, SIN, TNA.
p-Menthane-----	HNW, HPC.
8-p-Menthyl hydroperoxide-----	HNW, HPC.
4-Methoxyphenol-----	ASL, EXT, FBS.
Methylbenzylphenol mixture-----	DOW.
2-Methylcyclohexanol-----	HK.
2,2-Methylenebis[6-tert-butyl-p-cresol]-----	CAT.
2,2'-Methylenebis[4-chlorophenol] (Dichlorophene)-----	GIV.
2,2'-Methylenebis[3,4,6-trichlorophenol] (Hexachlorophene)-----	GIV.
2,2'-Methylenedi-p-cresol (Bis(5-methyl-2-hydroxyphenyl) methane).-----	GIV.
Methyl gallate-----	HSH.
Methylglucoside-----	CRN.
4-Methylmorpholine-----	JCC.
Methyl phenyl phosphates-----	TNA.
1-Methyl-2-pyrrolidone, monomer-----	GAF.
Methyl terpinyl ether-----	HPC.
Morpholine-----	JCC, UCC.
Morpholine cocate-----	ARC.
Morpholine oleate-----	PCH.
Morpholine salt of p-toluenesulfonic acid-----	AMB.
*Naphthenic acid salts:	
Aluminum naphthenate-----	HAR.
Barium naphthenate-----	x.
Cadmium naphthenate-----	CCA.
*Calcium naphthenate-----	CCA, FER, HAR, HNX, SHP, SOC, SPP, SRR, SW, WTC.
Cobalt lead manganese naphthenate-----	HAR, HNX, SW.
*Cobalt naphthenate-----	CCA, CCC, CS, FER, HAR, HNX, SHP, SOC, SPP, SRR, SW, WTC.
*Iron naphthenate-----	CCA, HAR, HNX, SOC, SRR, WTC.
*Lead naphthenate-----	CCA, CCC, CCW, FER, HAR, HNX, SHP, SOC, SPP, SRR, SW, WTC, x.
Lithium naphthenate-----	CCA.
*Manganese naphthenate-----	CCA, CCC, FER, HAR, HNX, SHP, SOC, SPP, SRR, SW, WTC.
Mercury naphthenate-----	HNX, MIL.
Nickel naphthenate-----	CCA.
Rare earths naphthenate-----	CCA, HNX.
Strontium naphthenate-----	CCA.
*Zinc naphthenate-----	CCA, CCC, FER, HAR, HNX, SHP, SOC, SRR, SW, WTC.
Organic mercury compounds:	
Phenyl mercuric borate-----	BRK.
Fyridyl mercuric acetate-----	MAL.
All other-----	MTL.
Pentachlorophenylthioacetic acid-----	DUP.
Phenolthiosulfonic acid-----	GAF.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)-----	DOW, UCC.
2,2'-(p-Phenyleneoxy)diethanol (2,2-Paraphenylenedioxydiethanol).-----	EKT.
Phenylmagnesium bromide-----	ARA.
4-Phenylmorpholine-----	UCC.
5-Phosphorylribose-1-pyrophosphate-----	PES.
*Photographic chemicals:	
3-Amino-1,2,4-triazole (5-Amino-1,3,4-triazole)-----	FMT.
*Benzotriazole-----	EK, FMT, MRT.
Catechol (Pyrocatechin)-----	KPC.
5-Chlorobenzotriazole-----	FMT.
3-Chloro-4-diethylaminobenzene-diazonium chloride (p-Diazo-2-chloro-N,N-diethylaniline) - zinc chloride.-----	FMT.
2,4-Diaminophenol dihydrochloride (Amidol)-----	VPC.
*p-Diethylaminobenzene-diazonium chloride (p-Diazo-N,N-diethylaniline) - zinc chloride.-----	ACF, FMT, GAF, IDC, MRT.
N,N-Diethyl-p-phenylenediamine hydrochloride-----	EKT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride-----	EKT.
2,5-Dihydroxybenzenesulfonic acid-----	EK.
p-Dimethylaminobenzene-diazonium chloride (p-Diazo-N,N-dimethylaniline) - zinc chloride.-----	FMT, IDC.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959-- Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Photographic chemicals--Continued	
p-(N-Ethylbenzamido)benzenediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline).	FMT.
p-(N-Ethylbenzamido)benzenediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline) - zinc chloride.	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)-----	CRS, EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline) - zinc chloride.	FMT, IDC.
N-(p-Hydroxyphenyl)glycine-----	IDC.
1-(3-Hydroxyphenyl)urea-----	FMT.
4-Methoxy-1-naphthol-----	EKT.
p-Methylaminophenol sulfate (Metol)-----	EK, HSH.
5-Methylbenzotriazole-----	EK.
2-Methylnaphthoxazole-----	FMT.
2-Methylthiazoline-----	FMT.
6-Nitrobenzimidazole-----	EK, FMT.
p-(N-Phenylamino)benzenediazonium chloride-----	FMT.
Phenylmercaptotetrazole-----	FMT.
1-Phenyl-3-pyrazolidone-----	GGY.
4-Phenylpyrocatechol-----	EKT.
4,4'-Thiodiresorcinol (Diresorcy sulfide)-----	BKC.
2,5,6-Trimethylbenzoxazole-----	FMT.
All other-----	FMT.
Phthalic acid, lead salt, dibasic-----	NTL.
Pinene-----	GLD, HPC.
Pinene mercaptan-----	DUP.
Polyethylene terephthalate-----	DUP, EK.
Polyvinyl phthalate-----	x.
*Propyl gallate-----	EKT, FIN, HN, HSH.
Purine and pyrimidine derivatives-----	PBS, SBR.
Pyrogallol (Pyrogallie acid)-----	HSH, MAL.
Quinhydrone-----	HSH.
*Rosin acid salts:	
Aluminum resinate-----	JMS, MAL.
Calcium lead resinate-----	JOD.
Calcium resinate-----	JMS, SRR, SW.
Calcium zinc resinate-----	JOD.
Cobalt resinate-----	SHP, WTC.
Copper resinate-----	JMS.
Iron resinate-----	JMS.
*Lead resinate-----	HAR, JMS, SRR.
Manganese resinate-----	JMS, SRR.
Zinc resinate-----	GLD, HAR, JMS, SW.
Salicylanilide-----	DUP, MON.
Salicylic acid, lead salt-----	NTL.
1-Salicylideneaminoguanidine, tall oil salt-----	DUP.
Silicones-----	DOC.
Sulfosalicylic acid-----	MON, MRK.
Sodium cresoxide (Cresylic acid, sodium salt)-----	DEX, GOC.
Tall oil fatty acyl chloride-----	GAF.
*Tall oil salts (Linoleic-rosin acid salts):	
Barium zinc tallate-----	HAR.
Calcium tallate-----	CCA, HNX, WTC.
*Cobalt tallate-----	CCA, CCC, FER, HAR, HNX, SHP, SRR, WTC.
Copper tallate-----	HNX, SHP.
Iron tallate-----	CCA, HNX, SRR, WTC.
Lead manganese tallate-----	HAR.
*Lead tallate-----	CCA, CCC, FER, HAR, HNX, SHP, SRR, WTC.
*Manganese tallate-----	CCA, CCC, FER, HAR, HNX, SHP, WTC.
Zinc glyceryl tallate-----	CCA.
Zinc tallate-----	CCA, HAR, HNX.
Tannic acid-----	MAL.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Tanning materials, synthetic:	
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	GGY.
*2-Naphthalenesulfonic acid, formaldehyde condensate and salts.	ACF, GRD, NOP, NYC, RH.
2-Naphtholsulfonic acid, formaldehyde condensate-----	NOP.
1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated).	NOP, RH.
Styrene maleic anhydride interpolymer, partial sodium salt.	DUP.
Sulfonyldiphenolsulfonic acid, formaldehyde condensate--	GAF.
Terpene hydrocarbons-----	DUP.
2-Terpinoxyethanol (Ethylene glycol terpinyl ether)-----	HPC.
Tetra(diphenylphosphito)pentaerythritol-----	HKP.
1,2,3,4-Tetrahydronaphthalene (Tetralin)-----	DUP.
Tetrahydro-2-naphthylmethylidene-1-octadecenylpyrimidine--	SPP.
Tetrahydrothiophene-----	ORO, PAS.
Tetraphenylbutadiene-----	ARA.
*Textile chemicals, other than surface-active agents:	
N-Benzyl (and N,N-dibenzyl)-p-sulfanilic acid-----	GAF.
1,3-Bis(hydroxymethyl)-2-imidazolidone (Dimethylol ethylene urea).	ACY, DEX.
N ¹ , N ² -Diphenyl-1,2-propanediamine-----	SNW.
1-[(Octadecyloxy)methyl]pyridinium chloride-----	DUP.
Phenol, sulfurated-----	GAF.
Protalbinic acid-----	CMG.
Saccharide bisulfite-----	SNW.
Stearamidomethylcarbamide-----	SNW.
2,2',4,4'-Tetrahydroxybenzophenone-----	GAF.
2,2'-Thiobis[4-chlorophenol]-----	GIV.
2,2'-Thiobis[4,6-dichlorophenol]-----	CAT, MON.
o-Tolylbiguanide-----	MON.
3,4,4'-Trichlorocarbanilide-----	MON.
3,4,5-Trimethoxybenzoic acid-----	FBS.
ε-Trioxane-----	CEL.
Triphenyl phosphite-----	HK, HKP, MON.
1-Vinyl-2-pyrrolidinone, monomer-----	GAF.
1-Vinyl-2-pyrrolidinone, polymer-----	GAF, SH.
1-Vinyl-2-pyrrolidinone - vinyl acetate copolymer-----	GAF.
MISCELLANEOUS CHEMICALS, ACYCLIC	
*Acetaldehyde-----	BFG, CEL, COM, DUP, EKT, EKK, GOC, HPC, MIC, PUB, UCC.
Acetamide-----	ACG.
Acetamidine hydrochloride-----	x.
2-Acetamidoethanol (N-Acetylethanolamine)-----	RBC, UCC.
Acetylhydrazide trimethylammonium chloride-----	ARA.
*Acetic acid, synthetic, 100%-----	CEL, COM, EKT, HPC, PUB, UCC.
*Acetic acid salts:	
Aluminum acetate-----	ACG, ACY, NOP, UCC.
Aluminum subacetate-----	MAL.
*Ammonium acetate-----	ACG, BKC, MAL.
Barium acetate-----	ACG, BKC, MAL.
Cadmium acetate-----	ACG, MAL.
Calcium acetate-----	ACG, BKC, MAL.
Chromium acetate-----	ACY, VAL.
Cobalt acetate-----	BKC, HAR, SHP.
*Copper acetate-----	ACG, BKC, UCC.
Lead acetate-----	ACG, BKC, MAL, SRR, SW.
Lead subacetate-----	ACG, BKC.
Lead tetraacetate-----	ARA.
Magnesium acetate-----	ACG, BKC.
Manganese acetate-----	HAR.
Mercuric acetate-----	ACG, BKC, MAL.
Nickel acetate-----	HAR.
*Potassium acetate-----	ACG, BKC, MAL, UCC.
Silver acetate-----	MAL.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Acetic acid salts--Continued	
Sodium acetate-----	ACG, BKC, CEL, MAL, UCC.
Zinc acetate-----	ACG, BKC, HAR, MAL, UCC.
Zirconium acetate-----	NTL.
All other-----	UCC.
*Acetic anhydride, 100%:	
From acetaldehyde-----	HPC, UCC.
From recovered acetic acid by the vapor-phase process----	CEL, EKT, HPC.
From acetic acid (other than recovered) by the vapor-phase process.	CEL, EKT.
Acetin:	
Mono-----	KES.
Di-----	KES.
Tri-----	EKT, KES.
*Acetone:	
By fermentation-----	PUB.
From cumene-----	ACP, HPC, SHC, SOC.
*From isopropyl alcohol-----	EKT, ESL, SHC, UCC, x.
All other-----	CEL.
Acetone semicarbazone-----	NOR.
Acetonitrile-----	UCC.
Acetyl chloride-----	TBK.
Acetylenedicarboxylic acid-----	ACF.
Acetyl peroxide-----	WTL.
Acrolein (Acrylaldehyde)-----	UCC.
*Acrylic acid-----	BFG, RH, UCC.
Acrylic monomers not specifically listed-----	RH.
*Acrylonitrile-----	ACY, BFG, MTC, UCC.
*Adipic acid-----	ACF, CS, DUP, MON.
Adiponitrile-----	CS, DUP.
Adipyl chloride-----	EK.
*Alcohols, monohydric, unsubstituted:	
*Alcohols C ₃ or lower:	
Allyl alcohol-----	SHC.
Amyl alcohols:	
Unmixed:	
Amyl alcohol (n-Pentyl alcohol)-----	PAS.
Isopentyl alcohol (Isoamyl alcohol)-----	FB, USI.
2-Methyl-2-butanol (tert-Amyl alcohol)-----	PAS.
2-Pentanol-----	PAS.
Mixed:	
Fusel oil, crude-----	USI.
Fusel oil, refined-----	CCM, PUB, USI.
Other than fusel oil:	
Primary mixed-----	EXX, FAS, UCC.
Secondary mixed-----	PAS.
Other-----	PAS.
*Butyl alcohols:	
Primary:	
Iso (Isopropylcarbinol)-----	CEL, DUP, EKT, EXX, UCC.
Normal (n-Propylcarbinol)-----	CEL, DUP, EKT, PUB, UCC.
Secondary (Methylethylcarbinol)-----	SHC, x.
Tertiary (Trimethylcarbinol)-----	SHC.
Mixed-----	CEL, EXX.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)-----	UCC.
*Ethyl alcohol, synthetic-----	DUP, EXX, ESL, HPC, NPC, SHC, UCC.
2-Ethyl-1-butanol (sec-Hexyl alcohol)-----	UCC.
2-Ethyl-1-hexanol-----	EXX, UCC.
2-Ethyl-4-methyl-1-pentanol-----	EXX, KF.
Hexyl alcohol-----	CEL, ESL, UCC.
1-Hexyn-3-ol-----	AIR.
3-Hexyn-2-ol-----	LIL.
*Iso-octyl alcohols-----	EXX, ESL, GOC, SOI.
*Isopropyl alcohol (Isopropanol)-----	ESI, SHC, UCC.
*Methanol, synthetic	ACN, CEL, CCM, DUP, ESC, GOC, HPC, MTC, RH, SPN, UCC.
3-Methyl-3-pentanol-----	AIR.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)-----	SHC, UCC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)-----	AIR.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Alcohols, monohydric, unsubstituted--Continued	
*Alcohols C ₆ or lower--Continued	
Nonyl alcohol-----	EKK.
*1-Octanol-----	DUP.
*2-Octanol-----	RH, WTH.
Propyl alcohol (Propanol)-----	CEL, DUP, UCC.
All other-----	AIR, CEL, EKK.
*Alcohols C ₁₀ or higher:	
*Decyl alcohols-----	DUP, ESL, PG, SOI, UCC.
3,9-Diethyl-6-tridecanol-----	UCC.
Dodecyl alcohol (Lauryl alcohol)-----	DUP, PG.
7-Ethyl-2-methyl-4-hendecanol-----	UCC.
5-Ethyl-2-nonanol-----	UCC.
*1-Hexadecanol (Cetyl alcohol)-----	ADM, DUP, WTH.
1-Octadecanol (Stearyl alcohol)-----	ADM, DUP, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)-----	ADM, DUP.
1-Tridecanol-----	ESL.
2,6,8-Trimethyl-4-nonanol-----	UCC.
All other-----	ADM, DUP, GOC, HMY, PG, x.
Aldol (Acetaldol)-----	UCC.
Alkylene oxides, mixed-----	DOW.
Alkyl mercaptans and thioethers-----	HMY.
Alkyl sulfides-----	ORO.
Allyl(hydroxyethyl)urea-----	FMT.
Allyl isothiocyanate, nonflavoring grade-----	FBS.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)-----	SHC.
3-(Allyloxy)-1,2-propanediol (Allyl glyceryl ether)-----	SHC.
Aluminum isopropoxide (Aluminum isopropylate)-----	ORT, SFA.
Amidinourea (Guanylurea) phosphate-----	ACY.
Amidinourea (Guanylurea) sulfate-----	ACY.
*Amines:	
*Butylamine-----	EKT, PAS, UCC.
tert-Butylamine-----	MON, RH.
Cetyldimethylamine-----	OMX.
*Cocoon oil amine-----	ADM, ARC, GNM.
Coco-alkylenediamines-----	ARC, GNM.
Diallylamine-----	SHC.
Dibutylamine-----	PAS, UCC.
N,N-Dibutyl-1,3-propanediamine-----	ACY.
*Diethylamine-----	DUP, PAS, UCC.
Diethylamine hydrochloride-----	EKL.
Diethylenetriamine-----	DOW, UCC.
N,N-Diethylethylenediamine-----	COK, GGY.
N ¹ ,N ² -Diethyl-1,4-pentanediamine (Novoldiamine)-----	SDH.
N,N-Diethyl-1,3-propanediamine-----	ACY, UCC.
Disopropylamine-----	PAS.
*Dimethylamine-----	COM, DUP, PAS, RH.
Dimethylamine sulfate-----	RH.
N,N-Dimethyloctadecylamine (Stearyldimethylamine)-----	ARC, x.
N,N-Dimethyl-1,3-propanediamine-----	ACY, UCC.
Dimethyl tallow amine, dihydrogenated-----	ADM, ARC.
Dipentylamine (Diamylamine)-----	EK, PAS.
Dipropylamine-----	PAS.
Dipropylenetriamine-----	UCC.
Dodecylamine-----	ARC, GNM.
Ethylamine-----	PAS, UCC.
Ethylenediamine-----	DOW, HMP, UCC.
Ethylenediamine dihydrochloride-----	BKC.
Fish oil amines, hydrogenated-----	ADM.
*Hexadecylamine-----	ADM, ARC, GNM.
1,6-Hexanediamine (Hexamethylenediamine)-----	CS, DUP.
3,3'-Iminobispropylamine-----	ACY, UCC.
Isobutylamine-----	PAS.
Isopentylamine-----	ALB, PAS.
Isopropylamine-----	PAS, UCC.
*Methylamine, mono-----	COM, DUP, PAS, RH.
Octadecylamine-----	ARC, GNM.
Octylamine-----	ARC, RH, UCC.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Amin.s--Continued	
Pentylamine (Monoamylamine)-----	PAS.
Primary amines, mixed-----	RH.
1,2-Propanediamine (Propylenediamine)-----	UCC.
Propylamine-----	PAS, UCC.
Soybean oil amine-----	ARC, GNM.
Tallow amine-----	ADM, ARC, GNM.
*Tallow amine, hydrogenated-----	ADM, ARC, GNM.
Tallow-alkylenediamines-----	ARC, GNM.
Tetraethylenepentamine-----	DOW, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine-----	UCC.
N,N,N',N'-Tetramethylethylenediamine-----	ALB.
Tributylamine-----	PAS.
Tricaprylylamine-----	GNM.
Triethylamine-----	PAS, UCC.
Triethylenetetramine-----	DOW, UCC.
*Trimethylamine-----	COM, DUP, PAS, RH.
Tripropylamine-----	PAS.
All other-----	ARC, MON.
Amine acid reaction products-----	SHC.
2-Amino-1-butanol-----	COM.
1-Aminoethanol (Acetaldehyde ammonia)-----	TBK.
Aminoethoxypropylsilane-----	UCS.
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)-----	JCC, UCC.
2-Amino-2-ethyl-1,3-propanediol-----	COM.
Aminoguanidine bicarbonate-----	TRJ.
Aminoguanidine sulfate-----	GAF.
2-Amino-2-(hydroxymethyl)-1,3-propanediol (Tris(hydroxy-	COM.
methyl)aminomethane)-----	
2-Amino-2-methyl-1,3-propanediol-----	COM.
2-Amino-2-methyl-1-propanol-----	COM.
2-Amino-2-methyl-1-propanol hydrochloride-----	VAL.
3-Amino-1-propanol-----	ACY.
*Amyl acetates, 90%:	
Amyl acetate (n-Pentyl acetate)-----	COM, EK, MAL, TBK.
Isopentyl acetate (Isoamyl acetate)-----	FB, NW.
Mixed-----	PAS, PUB, UCC.
Azelaic acid-----	E.R.
2,2'-Azobis[2-methylpropionitrile] (α, α' -Azodisobutyro-	WST.
nitrile).-----	
Barbituric acid, sodium salt-----	KF.
Behenic acid-----	ADM.
Bis[2-(2-butoxyethoxy)ethyl] ether (Tetraethylene glycol	RBC.
dibutyl ether).-----	
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl	DOW, UCC.
ether).-----	
Bis(2-chloroethoxy)methane (Dichloroethylformal)-----	TKL.
*Bis(2-chloroethyl) ether (Dichlorodiethyl ether)-----	JCC, COM, UCC, WYN.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl	DOW, WYN.
ether).-----	
Bis(2,6-dimethyl-4-heptyl) maleate-----	GAF.
Bis(dodecyltrimethylammonium) polythionate-----	BKC, PAS.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether)-----	UCC.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)-----	DUP, x.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol	ASL.
dimethyl ether).-----	
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl	ASL.
ether).-----	
Biuret-----	SW.
Boric acid esters:	
Trihexylene glycol baborate-----	USB.
Trimethyl borate-----	MTR.
All other-----	USB.
Boron fluoride ethyl ether complex-----	ACG.
Boron trifluoride monoethylamine complex-----	ACG.
N-Bromoacetamide-----	ARA.
2-Bromododecanic acid (α -Bromolauric acid)-----	DUP.
N-Bromosuccinimide (Succinibromimide)-----	ARA, SDW.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
1,2(and 1,3)-Butanediol (Butylene glycol)-----	CEL.
1,4-Butanediol-----	GAF.
2,3-Butanedione 2-oxime-----	EK.
2-Butanone (Methyl ethyl ketone)-----	EKT, SHC, x.
Butanone mixture-----	CEL.
2-Butanone oxime-----	ACF, ALB, x.
2-Butanone peroxide-----	CAD, WTL.
2-Butene-1,4-diol-----	GAF.
3-Buten-2-one (Methyl vinyl ketone)-----	PFZ.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	SHC.
2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	CMC, UCC.
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether).-----	CMC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether).-----	DOW, CMC.
2-(2-Butoxyethoxy)ethyl acetate-----	UCC.
1-Butoxyethoxy-2-propanol-----	UCC.
2-Butoxyethyl acetate-----	UCC.
*Butyl acetates, 90%:	
Iso-----	CEL, EKT, PAS, UCC.
*Normal-----	CEL, CCM, EK, EKT, PUB, UCC.
Secondary-----	ESL, HPC, x.
Mixed-----	CEL, EKT.
Butyl acrylate-----	CEL.
Butylene oxide-----	UCC.
Butyl ether (Di-n-butyl ether)-----	EK, UCC.
tert-Butyl hydroperoxide-----	CAD, SHC, WTL.
Butyl isocyanate-----	CWN.
Butyl lactate-----	CMC.
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	SHC, WTL.
tert-Butyl peroxyacetate-----	WTL.
tert-Butyl peroxyisobutyrate-----	WTL.
1-Butyne (Ethylacetylene)-----	AIR.
2-Butyne-1,4-diol-----	GAF.
Butyraldehyde-----	CEL, EKT, EKX, UCC.
Butyraldehyde oxime-----	ACF.
*Butyric acid-----	CEL, EKT, UCC.
Butyric anhydride-----	EKT, UCC.
Butyrolactone-----	GAF.
Butyryl chloride-----	HK.
*Carbon disulfide-----	ACG, BKT, FMW, OLH, PAS, PPG, SF, WRS.
2-Carboxymethyl semicarbazide-----	NOR.
*Cellulose esters:	
*Cellulose acetate-----	AV, CEL, DUP, EKT, HPC.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Cellulose propionate-----	CEL.
Nitrocellulose (Cellulose nitrate)-----	DUP, HPC.
All other-----	x.
*Cellulose ethers:	
Ethylcellulose-----	DOW, HPC.
Ethylhydromethylcellulose-----	HPC.
Hydroxyethylcellulose-----	UCC.
Methylcellulose-----	DOW.
*Sodium carboxymethylcellulose, 100%-----	BUK, DUP, HPC, KON, WYN.
Sodium carboxymethylhydroxyethylcellulose-----	BUK, HPC.
*Chloral (Trichloroacetaldehyde)-----	DA, FMW, GGY, MTO.
*Chloroacetic acid, mono-----	BPC, BUK, DOW, HPC, MON.
Chloroacetic acid, mono, derivatives:	
Butyl chloroacetate-----	MON.
Ethyl chloroacetate-----	DOW, KF, MON.
Methyl chloroacetate-----	DOW, KF.
Sodium chloroacetate-----	DOW.
Chloroacetic anhydride-----	BPC.
Chloroacetonitrile-----	BPC.
Chloroacetyl chloride-----	DOW.
*2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride-----	ABB, BKL, GAM, HEX, MCH, NES.
2-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
3-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH, NES.
2-Chloroethanol (Ethylene chlorohydrin)-----	CMC, TKL, UCC, x.
2-(2-Chloroethoxy)ethyl 2-chloroethyl ether (Triethylene glycol dichloride).	UCC.
N-(2-Chloroethyl)diisopropylamine hydrochloride-----	MCH.
2-Chloroethyl vinyl ether-----	UCC.
Chloromethyl methyl ether-----	EK, HK, x.
Chloromethyl silanes-----	SPD.
1-Chloro-1-penten-3-one (β -Chlorovinyl ethyl ketone)-----	ABB.
3-Chloro-1,2-propanediol (Glycerol α -chlorohydrin)-----	EKT, FBS, RBC.
Chloro-2-propanone (Chloroacetone)-----	EK.
N-Chlorosuccinimide (Succinichlorimide)-----	ACF.
2-Chlorotriethylamine (Diethylaminoethyl chloride)-----	NES.
2-Chlorotriethylamine hydrochloride-----	BKL, GAM, MCH.
4-Chloro-N,N,1-trimethylpropylamine hydrochloride-----	MCH.
Chlorotrimethylsilane-----	UCS.
Citric acid-----	ML, 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.
Manganese citrate-----	MAL.
Potassium citrate-----	MAL, PFZ.
Sodium citrate-----	MAL, PFZ.
Coconut oil amide-----	ADM, ARC, KES.
Crotonaldehyde-----	CEL, EKT, UCC.
Crotonic acid (2-Butenoic acid)-----	EKT, UCC.
2-Cyanoacetamide-----	KF.
Cyanoacetic acid-----	KF.
2-Cyanopropylamine-----	EKT.
n-Decane-----	HMY.
1,10-Decanediol-----	KLK.
Decanoic acid (Capric acid)-----	FOR.
Decanoyl chloride-----	HK.
1-Decene-----	HMY.
Decyl hydrogen succinate-----	KES.
1,2-Dibutoxyethane (Ethylene glycol di-n-butyl ether)-----	DOW.
2-Dibutylaminoethanol-----	PAS.
Dibutyl fumarate-----	MON, RUB.
Di-n-butylmercury-----	EK.
Dibutylmethoxytin (Dibutyl tin methoxide)-----	x.
1,3-Dibutyl-2-thiourea-----	PAS.
Dichloroacetaldehyde-----	FMW.
Dichloroacetic acid-----	KF.
Dichloroacetyl chloride-----	EK, KF.
Dichlorodimethylsilane-----	UCS.
Dichlorohydrogenmethylsilane-----	UCS.
Dichloromethylvinylsilane-----	DCC.
Di (1,2-epoxypropane)amine-----	DUP.
Diethoxydimethylsilane-----	UCS.
Diethylaluminum chloride-----	TNA.
Diethyl adipate-----	ARA.
2-Diethylaminoethanol-----	PAS, UCC.
2-Diethylaminoethyl methacrylate-----	DUP.
Diethylaminopropionamide-----	DUP.
Diethyl sec-butylethylmalonate-----	ABB.
Diethyl butylmalonate-----	BPC.
Diethyl sec-butylmalonate-----	ABB.
Diethylcarbamoyl chloride-----	GAM.
Diethyl carbonate (Ethyl carbonate)-----	DLM, FMP.
Diethyl diethylmalonate (Diethyl malonic ester)-----	ABB, LIL.
*Diethylene glycol-----	ACN, CAU, DOW, GAF, JCC, OMC, UCC, WYN.
Diethylene glycol chloroformate-----	PPG.
Diethyl (ethoxymethylene)malonate-----	KF.
Diethyl ethylisopentylmalonate-----	BPC, KF, LIL.
Diethyl ethyl(1-methylbutyl)malonate-----	ABB.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Di-2-ethylhexyl fumarate-----	RUB.
Di-2-ethyl-1-hexyl maleate-----	AHC, QCP, UCC.
N,N-Diethylhydroxylamine oxalate-----	EK.
Diethyl maleate-----	ACV, UCC.
*Diethyl malonate (Malonic ester)-----	ABB, KF, LIL.
Diethyl (1-methylbutyl)malonate-----	ABB, LIL.
Diethyl oxalate (Ethyl oxalate)-----	BFC, FMP.
Diethylthiophosphoryl chloride-----	ACV.
1,3-Diethyl-2-thiourea-----	PAS.
Diglycolic acid-----	DJP.
2,4-Dihydroxy-3,3-dimethylbutyric acid, γ -lactone (Pantolactone).-----	ACV.
1,3-Dihydroxy-2-propanone-----	PFZ.
2-Disopropylaminoethanol-----	PAS.
Disopropylammonium nitrite-----	CMC.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)-----	PPG.
1,3-Disopropyl-2-thiourea-----	PAS.
Dimethoxyethane (Ethylene glycol dimethyl ether)-----	ARA, ASL.
N,N-Dimethylacetamide-----	ARA, DUF, EK.
*2-Dimethylaminoethanol-----	PAS, RH, UCC.
3-Dimethylaminopropionitrile-----	ACV.
2,3-Dimethyl-2,3-butanediol, hydrate-----	ARA.
3,3-Dimethyl-2-butanone (Pinacolone)-----	ARA.
Dimethylcarbamoyl chloride-----	GAM.
N,N-Dimethylformamide-----	DUP.
Dimethylglyoxime-----	EK, PRE.
2,5-Dimethyl-2,5-hexanediol-----	AIR.
2,5-Dimethyl-3-hexyne-2,5-diol-----	AIR.
1,1-Dimethylhydrazine-----	FMP, FMW.
Dimethyl malonate-----	KF.
3,6-Dimethyl-4-octyne-3,6-diol-----	AIR.
Di(4-methyl-2-pentyl) maleate-----	RUB.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	EKX.
Dimethyl sulfoxide-----	CRZ.
1,3-Dimethylurea-----	PAS.
Dioctyl maleate-----	DEC, RUB.
Dioleyl maleate-----	MON.
Dipentaerythritol-----	HPC.
Dipropylene glycol-----	CEL, DOW, JCC, UCC.
n-Dodecane-----	HMV.
Dodecanemethylenimine (Dodecyl-azomethine)-----	SPF.
1-Dodecene-----	HMV.
*Dodecenylsuccinic anhydride-----	ACF, HMV, MON.
*Epichlorohydrin-----	DOW, SHC, UCC.
Erucamide-----	ADM, FIN.
Erucic acid-----	ADM.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)-----	ACN, DOW, JCC, CMC, UCC.
*2,2'-Iminodiethanol (Diethanolamine)-----	ACN, DOW, JCC, CMC, UCC.
*2,2',2''-Nitriilotriethanol (Triethanolamine)-----	ACN, DOW, JCC, CMC, UCC.
Ethanolamine salt with formaldehyde-----	RH.
2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	DOW, CMC, UCC.
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether).-----	DOW, CMC, UCC.
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).-----	DOW, CMC.
2-(2-Ethoxyethoxy)ethyl acetate-----	UCC.
2-Ethoxyethyl acetate-----	EKT, UCC.
3-Ethoxypropionitrile-----	ACV.
1-Ethoxy-1,3,3-trimethoxypropane-----	KF.
*Ethyl acetate, 85%-----	COM, EKT, ESL, HPC, PUB, SHW, UCC.
Ethyl acetoacetate-----	FMP, UCC.
*Ethyl acrylate-----	CEL, RH, UCC.
Ethylaluminum dichloride-----	TNA.
Ethylaluminum sesquichloride-----	TNA.
2-Ethylaminoethanol (Ethylmonoethanolamine)-----	PAS.
Ethyl bromoacetate-----	DOW.
2-Ethylbutyraldehyde-----	UCC.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
2-Ethylbutyric acid (Diethylacetic acid)-----	UCC.
Ethyl carbamate-----	FMP.
Ethyl chloroformate-----	FMP.
Ethyl cyanoacetate-----	KF.
Ethylene, from ethyl alcohol-----	OH.
Ethylene carbonate-----	JCC.
*Ethylene glycol-----	ACN, CAU, CEL, DOW, DUP, GAF, JCC, OMC, UCC, WYN.
Ethylene glycol diacetate-----	UCC.
Ethylene glycol dimercaptoacetate-----	EVN.
*Ethylene oxide-----	ACN, CAU, DOW, GAF, JCC, OMC, UCC, WYN.
*Ethyl ether:	
Absolute-----	MAL.
Tech-----	EKX, ESL, HPC, NPC, UCC.
U.S.P.-----	MAL, OMS.
*Ethyl formate-----	OCM, FB, TBK, UCC.
2-Ethylhexanal (α -Ethylcaproaldehyde)-----	EKX, UCC.
2-Ethyl-1,3-hexanediol-----	UCC.
2-Ethylhexanoic acid (α -Ethylcaproic acid)-----	EKT, UCC.
*2-Ethylhexanoic acid (α -Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate-----	WTC.
Barium 2-ethylhexanoate-----	CCA.
Cadmium 2-ethylhexanoate-----	CCA, ROS.
*Calcium 2-ethylhexanoate-----	CCA, FER, HAR, HNX, SRR, SW, WTC.
*Cobalt 2-ethylhexanoate-----	CCA, CW, FER, HAR, HNX, SRR, SW, WTC.
Copper 2-ethylhexanoate-----	CCA, SRR.
Iron 2-ethylhexanoate-----	WTC.
*Lead 2-ethylhexanoate-----	CCA, HAR, HNX, NTL, SRR, SW, WTC.
Lithium 2-ethylhexanoate-----	WTC.
*Manganese 2-ethylhexanoate-----	CCA, HAR, HNX, SRR, SW.
Rare earths 2-ethylhexanoate-----	CCA.
Strontium 2-ethylhexanoate-----	CCA.
*Zinc 2-ethylhexanoate-----	CCA, HAR, HNX, ROS, SRR, WTC.
Zirconium 2-ethylhexanoate-----	CCA, HNX.
2-Ethyl-2-hexenoic acid (2-Ethyl-3-propylacrylic acid)-----	UCC.
2-Ethyl-1-hexyl acetate-----	DEC, UCC.
2-Ethyl-1-hexyl acrylate-----	CEL, UCC.
Ethyl 2-hydroxy-3-methylbutyrate (Ethyl α -hydroxyiso- valerate)-----	RH.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylol- propane)-----	CEL.
2,2'-(Ethylimino)diethanol (N,N-Bis-(2-hydroxyethyl)- ethylamine)-----	PAS.
2-Ethylisohexyl acetate-----	EKT.
Ethyl lactate-----	ACY, KF.
Ethylmagnesium bromide-----	ARA.
2-(Ethylmercapto)ethanol-----	PAS.
Ethyl 2-methyl lactate (Ethyl α -hydroxyisobutyrate)-----	RH.
2-Ethyl-4-methylvaleric acid (2-Ethylisohexanoic acid)-----	EKT.
Ethyl polysiloxanes-----	SFA.
*Ethyl propionate-----	FB, NW, TBK.
Ethyl propyl nitrate-----	TNA.
Ethyl silicate (Tetraethoxysilane)-----	MTR, SFA, UCC.
Ethyl sulfate (Diethyl sulfate)-----	UCC.
Ethyl vinyl ether-----	UCC.
Fats and oils, chemically modified:	
Castor oil, phosphated-----	VIC.
Lard oil, nitrated-----	SPP.
Vegetable oils, brominated-----	DOM, RT.
All other-----	BAC, RT.
Fatty acids, chemically modified:	
α -Bromo(lauric-stearic) acids-----	DUP.
Castor oil fatty acids, dehydrated-----	BAC.
Stearic acid, dehydrated-----	RH.
*Fatty acid esters, not included with plasticizers or surface-active agents:	
Butyl palmitate-----	NOP.
Ethyl 3-oxoisostearate (Ethyl stearoylacetate)-----	x.
Ethyl stearate-----	FBS.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Fatty acid esters, not included with plasticizers or surface-active agents--Continued	
Hexadecyl stearate-----	KES.
*Isopropyl myristate-----	AHC, GIV, KES, PRP.
*Isopropyl oleate-----	AHC, KES, PFZ, PRP.
Isopropyl palmitate-----	AHC, GIV, KES, PRP.
Isopropyl stearate-----	KES, PRP.
Methyl decanoate-----	FOR.
Methyl ester of coconut oil-----	FOR.
Methyl ester of lard oil-----	CCW.
Methyl esters of tallow-----	FOR.
Methyl 12-hydroxystearate-----	EAC.
Methyl myristate-----	FOR.
Methyl octanoate-----	FOR.
Pentaerythritol monostearate-----	JNS.
1,2-Propylene glycol dioleate-----	DRW.
Vinyl stearate, monomer and polymer-----	AIR.
All other-----	RT, x.
Flotation reagents:	
Isopropyl ethylthiocarbamate-----	DOW.
Phosphorodithioates (Dithiophosphates):	
Potassium dihexyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl phosphorodithioate-----	ACY.
Sodium diethyl phosphorodithioate-----	ACY.
Sodium dihexyl phosphorodithioate-----	ACY.
Sodium diisopropyl phosphorodithioate-----	ACY.
Xanthates:	
Potassium n-butylxanthate-----	USR.
Potassium sec-butylxanthate-----	DOW.
Potassium ethylxanthate-----	ACY, DOW.
Potassium hexylxanthate-----	DOW.
Potassium isopropylxanthate-----	DOW.
Potassium pentylxanthates-----	ACY, DOW.
Potassium sec-pentylxanthate-----	DOW.
Sodium n-butylxanthate-----	DOW, KCC, USR.
Sodium sec-butylxanthate-----	ACY.
Sodium ethylxanthate-----	ACY, DOW.
Sodium isopropylxanthate-----	ACY, DOW.
All other-----	ACY.
*Formaldehyde, 37% by weight-----	ACN, BOR, CEL, COM, DUP, HKD, HN, HPC, KF, MRK, MTC,
	RCI, RH, SPN, TRJ, UCP.
Formamide-----	DUP.
*Formic acid, 90%-----	DUP, HN, MAL, VIC.
*Formic acid salts:	
Aluminum formate-----	SNW, VIC, UCC.
Ammonium formate-----	ACG, HEX.
Calcium formate-----	TRJ.
Chromic formate-----	GAF.
Copper formate-----	CIT.
Lead formate-----	NTL.
Nickel formate-----	HAR.
Sodium formate, refined-----	ACG.
Sodium formate, tech-----	HN, HPC, TEK.
Thallos formate-----	EK.
*Fumaric acid-----	ACF, BZ, MON.
Fumaric acid, lead salt (Tetrabasic)-----	NTL.
Gluconic acid, tech-----	DLI, PFZ.
Glutaric acid-----	EK.
Glycerol, synthetic-----	DOW, SHC.
Glycerol tri(polyoxypropylene) ether-----	UCC, WYN.
Glycidol (2,3-Epoxy-1-propanol)-----	RBC.
Glycine (Aminoacetic acid), tech-----	BPC.
Glycine, cupric salt-----	BPC.
Glycine ethyl ester hydrochloride-----	BPC.
Glycolic acid (Hydroxyacetic acid)-----	DUP.
Glycolonitrile-----	ACY.
Glyoxal-----	UCC.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Guanidine hydrochloride-----	ACY, NYC.
Guanosine and derivatives-----	SBR.
4-Guanyl-1-isonitrosoguanyl-1-tetrazene-----	REM.
*Halogenated hydrocarbons:	
1-Bromobutane (n-Butyl bromide)-----	DOW, EK.
2-Bromobutane (sec-Butyl bromide)-----	ABB, DOW.
Bromochloromethane-----	DOW.
1-Bromo-3-chloropropane (Trimethylenechlorobromide)-----	DOW, MCH.
1-Bromododecane-----	DOW, HMY.
Bromoethane (Ethyl bromide)-----	DOW, MCH.
1-Bromohexadecane (Cetyl bromide)-----	DOW.
1-Bromohexane (n-Hexyl bromide)-----	BPC.
2-Bromo-3-hexyne-----	LIL.
1-Bromo-octadecane-----	DUP, GAF.
1-Bromopentane (n-Amyl bromide)-----	DOW.
2-Bromopentane (1-Methylbutyl bromide)-----	ABB, LIL.
1-Bromopropane (n-Propyl bromide)-----	DOW.
2-Bromopropane (Isopropyl bromide)-----	DOW.
3-Bromopropene (Allyl bromide)-----	DOW.
3-Bromopropyne-----	GAF.
Bromotrichloromethane-----	DOW.
Bromotrifluoromethane-----	DOW, DUP.
*Carbon tetrachloride-----	ACO, DA, DOW, FMW, FRO, MAL, PPG, SF.
*Chlorinated paraffins:	
Less than 35% chlorine-----	HK, x.
*35%-64% chlorine-----	DA, HK, HPC, UCP, UWS.
65% or more chlorine-----	DA.
1-Chlorobutane (n-Butyl chloride)-----	UCC.
2-Chlorobutane-----	EK.
1-Chloro-1,1-difluoroethane-----	ACG.
*Chlorodifluoromethane-----	ACG, DUP, PAS, UCC.
1-Chlorododecane (Lauryl chloride)-----	HMY, USR.
*Chloroethane (Ethyl chloride):	
Tech-----	DOW, DUP, HPC, MTO, NPC, TNA.
U.S.P-----	DOW, SHC.
*Chloroform:	
*Tech-----	ACO, BR, DA, DOW, DUP, FRO, KLK, SF.
*U.S.P-----	ACO, BR, DA, DOW, KLK.
*Chloromethane (Methyl chloride):	
Crude-----	ASL, DCC, KLK, SPD.
Refined (refrigerant grade)-----	ACO, DA, DOW, DUP.
1-Chloro-3-methylbutane (Isoamyl chloride)-----	LIL.
2-Chloro-2-methylpropane (tert-Butyl chloride)-----	EK.
3-Chloro-2-methylpropene (Methallyl chloride)-----	FMP.
Chloropentanes, mixed isomers-----	PAS.
2-Chloropropane (Isopropyl chloride)-----	DOW.
3-Chloropropene (Allyl chloride)-----	DOW, SHC.
Chlorotrifluoroethylene, (Trifluorovinyl chloride)-----	ACG, DUP.
Chlorotrifluoroethylene, polymerized-----	ACG, HK.
Chlorotrifluoromethane-----	DUP.
Dibromodifluoromethane-----	DOW, DUP.
1,2-Dibromoethane (Ethylene dibromide)-----	AMP, DOW, ETD, FMW, MCH.
Dibromomethane (Methylene bromide)-----	DOW.
1,2-Dibromo-1,1,2,2-tetrafluoroethane-----	DUP.
1,4-Dichlorobutane-----	DUP.
*Dichlorodifluoromethane-----	
*1,2-Dichloroethane (Ethylene dichloride)-----	ACG, DUP, PAS, UCC.
1,2-Dichloroethane (Ethylene dichloride)-----	DA, DOW, JCC, MTC, CMC, RH, TNA, UCC, WYN.
Dichloromethane (Methylene chloride)-----	ACO, DA, DOW, DUP, FRO, KLK, SF.
Dichloromonofluoromethane-----	ACG.
Dichloropentanes, mixed isomers-----	PAS.
1,2-Dichloropropane (Propylene dichloride)-----	DOW, JCC, UCC, WYN.
2,3-Dichloropropene-----	RBC, UCC.
*Dichlorotetrafluoroethane-----	ACG, DUP, PAS.
1,1-Difluoroethane-----	ACG.
Difluorotetrachloroethane-----	DUP.
Diiodomethane (Methylene iodide)-----	NTB.
Hexafluoropropene-----	DUP.
Iodoethane (Ethyl iodide), tech-----	DUP, FMT.
Iodoform (Triiodomethane)-----	NTB.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Halogenated hydrocarbons--Continued	
Iodomethane (Methyl iodide), tech-----	CLB.
Pentachloroethane-----	DUP.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)-----	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)-----	DUP, PFG.
*Tetrachloroethylene (Perchloroethylene)-----	DA, DOW, DUP, FRO, PFG, SF, TTX.
Tetrafluoroethylene polymer (Teflon)-----	DUP.
Tetrafluoromethane-----	DUP.
1,1,1-Trichloroethane (Methyl chloroform)-----	DOW.
1,1,2-Trichloroethane (Vinyl trichloride)-----	UCC.
*Trichloroethylene-----	DOW, DUP, HK, PFG, TTX.
*Trichlorofluoromethane-----	ACG, DUP, PAS, UCC.
1,2,3-Trichloropropane-----	SHC.
Trichlorotrifluoroethane-----	ACG, DUP, PAS.
*Vinyl chloride, monomer (Chloroethylene)-----	ACG, BFG, DA, D'W, GYR, MTC, TNA, UCC, USR.
Vinylidene chloride, monomer (1,1-Dichloroethylene)-----	DOW.
Vinyl fluoride-----	DUP.
All other-----	CLB, EK, HK.
2-Heptanone (Methyl amyl ketone)-----	UCC.
3-Heptanone (Ethyl butyl ketone)-----	UCC.
1-Heptene-----	HMY.
Hexadecane-----	HMY.
Hexadecylsuccinic anhydride-----	HMY.
Hexamethyleneadipamide-----	CS.
2,5-Hexanedione (Acetylacetone)-----	RBC.
Hexanoic acid (Caproic acid)-----	TEK.
5-Hexen-2-one (Allylacetone)-----	FMP.
Hexyl acetates-----	CEL.
Hexyl ether-----	UCC.
Hexyl-octyl silicates-----	UCC.
2-(Hexyloxy)ethanol (Ethylene glycol hexyl ether)-----	UCC.
Hydroacrylic acid, β -lactone (β -Propiolactone)-----	CEL.
Hydracrylonitrile (Ethylene cyanhydrin)-----	RH, UCC.
Hydrazine and salts-----	FMT, CMC.
2-Hydrazinethanol-----	NOR.
N-2-Hydroxyethylacetamide-----	WTC.
1,1'-(2-Hydroxyethylimino)di-2-propanol (N,N-Diisopropanol ethanolamine).	UCC.
α -Hydroxyisobutyric acid-----	EK.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylol-ethane).	TRJ.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris(hydroxymethyl)nitromethane).	COM.
N-(Hydroxymethyl)octadecanamide (N-Hydroxymethylstearamide).	DUP.
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	SHC, UCC.
Iminodiacetic acid, disodium salt-----	GGY.
Iodoacetic acid-----	EK.
Isaethionic acid (2-Hydroxyethanesulfonic acid)-----	GAF.
*Isoscorbic acid and sodium salt-----	MLS, MRK, PFZ.
Isobutyl vinyl ether-----	UCC.
Isobutyraldehyde-----	EKX.
Isobutyric acid and anhydride-----	EKT.
Isobutyronitrile-----	EKX.
Iso-octyl acetate-----	DEC.
Iso-octyl mercaptopropionate-----	EVN.
Isopropanolamines:	
1-Amino-2-propanol (Monoisopropanolamine)-----	DOW, UCC.
1,1'-Iminodi-2-propanol (Diisopropanolamine)-----	DOW, UCC.
1,1',1''-Nitrilotri-2-propanol (Trisopropanolamine)-----	UCC.
Mixed-----	DOW.
3-Isopropoxypropionitrile-----	ACY.
3-Isopropoxypropylamine-----	ACY.
*Isopropyl acetate-----	EKT, ESL, HPC, UCC.
2-Isopropylaminoethanol-----	PAS.
Isopropyl chloroformate-----	DLM, FMP, PFG.
*Isopropyl ether-----	ESL, SHC, UCC.
Isopropylidene-----	ARA.
Isovalerone (Diisobutyl ketone)-----	UCC.
Itaconic acid (Methylene succinic acid) and esters-----	PFZ.

TABLE 22B. --Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Lactic acid, 100%:	
*Edible-----	AMZ, CLN, DUP.
*Medicinal-----	DUP.
*Technical-----	AMZ, CLN, DUP.
*Lactic acid salts:	
Ammonium lactate-----	CIT.
Calcium lactate-----	AMZ, SHF.
Sodium zirconium lactate-----	NTL.
Zirconium lactate-----	NTL.
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)-----	CLN.
Lauric acid, barium cadmium salt-----	CCW.
Lauroyl chloride-----	GAF, HK, TBK, WTC.
Lauroyl peroxide-----	CAD, WTL.
Levulinic acid-----	QXO.
*Linoleic acid salts:	
*Calcium linoleate-----	CCA, LEF, SHP, SRR, WTC.
*Cobalt linoleate-----	HAR, SDH, SHP, SRR.
Copper linoleate-----	HAR, WTC.
Iron linoleate-----	HAR.
*Lead linoleate-----	HAR, HNX, SHP, SRR, WTC.
Lead manganese linoleate-----	SDH, SRR.
Manganese linoleate-----	SHP, SRR.
*Lubricating oil additives:	
Chloronaphtha xanthate-----	MON.
Chlorosulfurized lard oil-----	CCW.
Chlorosulfurized sperm oil-----	CCW.
High-molecular-weight hydrocarbons and their phosphorus derivatives.	SOI.
Lauryl and diethylaminoethyl polymethacrylates-----	DUP.
Oxidized hydrocarbons-----	ALX.
*Phosphorodithioates (Dithiophosphates):	
Barium alkyl phosphorodithioates-----	ACY, LUB, SIN.
Nickel zinc alkyl phosphorodithioates-----	SIN.
Zinc di(butylhexyl) phosphorodithioate-----	ORO.
Zinc dihexyl phosphorodithioate-----	SIN.
Zinc hexyl isopropyl phosphorodithioate-----	ACY, x.
Sulfurized butenes-----	LUB.
Sulfurized lard oil-----	CCW, GOC.
*Sulfurized sperm oil-----	CCW, LUB, SIN, WBG, x.
Tetradecyl selenide-----	ORO.
All other-----	CCW, GDC, HK, LUB, MON, ORO, SIN.
Magnesium methylete-----	MRT, SFA.
Maleic acid-----	ACF, PFN.
Maleic acid, tribasic lead salt-----	NTL.
*Maleic anhydride-----	ACF, ACY, MON, PCC, RCI.
Maleic liquid-----	PCC.
Malic acid-----	ACF, EK, PFN.
Malonic acid-----	AMB, KF.
Mannitol-----	APP.
Mannitol hexanitrate-----	APP.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN, HAB.
*Mercaptoacetic acid (Thioglycolic acid) derivatives:	
2-Aminoethyl mercaptoacetate (Monoethanolamine thio-	EVN, HAB.
glycolate).	
*Ammonium mercaptoacetate (Ammonium thioglycolate)-----	EVN, HAB, HLN, MRT, SUM.
Antimony mercaptoacetate-----	x.
Calcium mercaptoacetate-----	EVN.
Dodecyl mercaptoacetate-----	RET.
Iso-octyl mercaptoacetate-----	EVN, RET.
Potassium mercaptoacetate-----	EVN.
Sodium mercaptoacetate-----	EVN.
Mercaptoethanol-----	UCC.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
Mercaptopropionic acid-----	EVN.
Mesityl oxide-----	SHC, UCC.
Metal soaps of oxidized hydrocarbons-----	ALX.
Methacrylamide-----	RH.
Methacrylate monomers above methyl-----	DUP.
Methacrylic acid-----	DUP, RH.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Methacrylic acid, sodium salt-----	RH.
2-Methoxy-1-butanol-----	CEL.
2-Methoxyethanol (Ethylene glycol monomethyl ether)-----	DOW, CMC, UCC.
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether).-----	DOW, CMC, UCC.
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether).-----	DOW, CMC, UCC.
2-(2-Methoxyethoxy)ethyl 2-methoxyethyl ether (Triethylene glycol dimethyl ether).-----	ASL.
2-Methoxyethyl acetate-----	UCC.
Methoxypolyethylene glycol-----	UCC.
1-Methoxy-2-propanol-----	DOW.
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-----	ACY.
Methyl acetate-----	BOR, COL, FBS, SHW, UCC.
Methyl acetoacetate-----	UCC.
Methyl acrylate, monomer-----	CEL, RH.
2-Methylaminoethanol (N-Methylethanolamine)-----	UCC.
Methyl borate-----	SFA.
2-Methyl-1-butene-----	HMY.
2-Methyl-1-buten-3-yne (Isopropenylacetylene)-----	AIR.
2-Methyl-3-buten-2-ol-----	AIR.
2-Methylbutyric acid-----	EKT.
Methyl carbamate-----	FMP.
Methyl chloroformate-----	DLM.
Methyl cyanoacetate-----	KF.
Methyl 2-cyanoacrylate-----	EKT.
Methyl dichloroacetate-----	KF, PD.
Methyl disulfide-----	EK.
N,N'-Methylenebisacrylamide-----	ACY.
N,N'-Methylenebisoctadecanamide-----	ARC.
Methyl ether (Dimethyl ether)-----	COM, DUP.
Methyl formate-----	DUP.
N-Methylglucamine-----	DUP.
Methyl glycolate (Methyl hydroxyacetate)-----	DUP.
Methyl hexanoate (Methyl caproate)-----	FOR.
2,2'-(Methylimino)diethanol (Methyl diethanolamine)-----	UCC.
2-Methylactonitrile (Acetone cyanohydrin)-----	DUP, RH.
Methylmagnesium bromide-----	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)-----	SHC, UCC.
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	SHC, UCC.
4-Methyl-2-pentanone oxime (Methylisobutyl ketoxime)-----	ALB.
4-Methyl-2-pentyl acetate-----	UCC.
Methylpolyethanolamine-----	GAF.
2-Methyl-2-propyl-1,3-propanediol-----	FBS.
Methyl sulfate (Dimethyl sulfate)-----	DUP.
Methyl sulfide (Dimethyl sulfide)-----	CRZ.
N-Methyltaurine-----	GAF.
Methylurea-----	LIL.
2-Methylvaleraldehyde (2-Methylpentaldehyde)-----	UCC.
Methyl vinyl ether-----	GAF.
Mucochloric acid (2,3-Dichloro-3-formylacrylic acid)-----	EK.
Nitrotriacetic acid, tripotassium salt-----	GGY.
Nitriminobispropionic acid-----	ACY.
Nitroethane-----	COM.
Nitromethane-----	COM.
1-Nitropropane-----	COM.
2-Nitropropane-----	COM.
Nonanoic acid (Pelargonic acid)-----	EMR.
Nonenylsuccinic anhydride-----	HMY.
Nylon (Polyhexamethylene adipamide)-----	CS, DUP.
1-Octadecene-----	HMY.

TABLE 22B.--*Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued*

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Octadecyl isocyanate-----	MOB.
n-Octane-----	HMY.
1-Octanesulfonyl fluoride-----	HK.
1-Octanethiol (n-Octyl mercaptan)-----	PAS.
Octanoic acid (Caprylic acid)-----	FOR.
Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate-----	LEF, NOP.
Barium octanoate-----	CCW.
Cadmium octanoate-----	CCW.
Zinc octanoate-----	BKC.
2-Octanone (Hexyl methyl ketone)-----	ACP, EKT, RH, TBK, VLY, WTH.
3-Octanone (Amyl ethyl ketone)-----	SHC.
Octanoyl chloride-----	TBK.
1-Octene-----	HMY.
1-(and 2-)Octene-----	WTH.
2-Octene-----	ACP, HMY.
Octenylsuccinic anhydride-----	HMY.
Octylene mixture-----	HMY.
Octyl nitrile-----	ARC.
Oleamide (Octadecene amide)-----	ARC, FIN.
*Oleic acid salts:	
Aluminum oleate-----	MAL, WTC.
Barium zinc oleate-----	HAR.
Cobalt oleate-----	CCW.
*Copper oleate-----	SHP, SRR, WTC.
Lead oleate-----	SHP, WTC.
Oleoyl chloride-----	DEP, GAF, WTH.
*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.
Ferrous oxalate-----	EKL.
Potassium binoxalate-----	BKC.
Potassium oxalate-----	ACG, BKC, PFZ.
Sodium binoxalate-----	VIC.
Sodium oxalate-----	ACG, BKC, MAL, VIC.
Oxalyl chloride-----	EK.
Oxidized hydrocarbon mixtures, other than lubricating oil additives.	ALX.
2-Oxohexamethylenimine (Caprolactam)-----	ACF.
Palmitic acid salts:	
Aluminum palmitate-----	LEF, NOP, WTC.
*Zinc palmitate-----	ACY, LEF, NOP, WTC.
All other-----	APD.
Palmitoyl chloride-----	GAF, TBK.
Paraformaldehyde-----	CEL, DUF, HN.
Paraldehyde (Paraacetaldehyde)-----	UCC.
*Pentaerythritol-----	COM, DCI, GOC, HN, HPC, RCI, TRJ.
*Pentaerythritol tetranitrate-----	APD, DUF, HPC, TRJ.
2,4-Pentanedione (Acetylacetone)-----	UCC.
2-Pentanone (Methyl propyl ketone)-----	UCC.
3-Pentanone (Diethyl ketone)-----	UCC.
Perchloromethanethiol (Perchloromethyl mercaptan)-----	CHO.
Peroxyacetic acid-----	FMB.
*Phosgene (Carbonyl chloride)-----	DLM, DUP, PPG, SWC, TNA.
*Phosphorus acid esters, not elsewhere specified (See also Plasticizers, Surface-Active Agents, Pesticides, Flo-tation reagents, and Lubricating oil additives):	
Bis(2-chloroethyl) vinyl phosphonate-----	MON.
Bis(2-ethylhexyl) hydrogen phosphite-----	HKF, VC.
Butyl phosphates (mono and di)-----	VIC.
Chloropropyl thiophosphate-----	TNA.
Dichlorovinyl dimethyl phosphate-----	OPC.
Dodecyl phosphates (mono and di)-----	DUP, VIC.
2-Ethylhexyl phosphates (mono and di)-----	UCC, VIC.
Ethyl phosphates (mono and di)-----	VIC.

TABLE 22B.--Synthetic organic chemicals; Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Phosphorus acid esters, not elsewhere specified--Continued	
Iso-octyl hydrogen phosphate-----	VC.
Methyl phosphates (mono and di)-----	HK, VIC.
Octadecyl phosphates (Mono and distearyl phosphates)-----	HK.
Octyl phosphates (mono and di)-----	DUP, VIC.
Pentyl phosphates (Mono and diamyl phosphates)-----	HK, VIC.
Tributyl phosphate-----	COM, EKT, FMP.
Tributyl phosphite-----	VC.
Tridecyl phosphite-----	HKP.
Triethyl phosphite-----	VC.
Triiso-octyl phosphite-----	VC.
Trimethyl phosphite-----	VC.
Trioctadecyl phosphate-----	PRM.
Tris(2-chloroethyl) phosphate-----	CEL.
Tris(2-chloroethyl) phosphite-----	VC.
Tris(2,3-dibromopropyl) phosphate-----	DUP, MCH.
Tris(2-ethylhexyl) phosphite-----	HKP.
All other-----	HK, VC, VIC.
Pine oil, synthetic-----	CBT.
Polyacrylamide-----	ACR.
Polyacrylic acid-----	BFG.
*Polyacrylic acid salts:	
Ammonium polyacrylate-----	BFG, NOP.
Sodium polyacrylate-----	ALC, BFG, JOR, NOP, RH, WIC.
Polyacrylonitrile-----	DUP.
Polyethoxyethylsorbitol-----	APP.
*Polyethylene glycol-----	CAJ, DOW, JCC, OMC, UCC, WYN.
Polyethylene oxide-----	UCC.
Polyethylene polysulfide-----	BFG.
Polyglycerol-----	CP, WTC.
Polyglycols, ethylene glycol and glycol ethers, mixtures-----	DOW.
Polyoxypropylene ethers-----	WYN.
Polypropoxysorbitol-----	APP.
Polypropylene glycol-----	DOW, JCC, UCC, WYN.
Polytetramethylene glycol-----	DUP.
Propionaldehyde-----	EKC, UCC.
*Propionic acid-----	CEL, COM, DUP, EKT, UCC.
Propionic acid salts:	
*Calcium propionate-----	CEL, DUP, EKT, UCC.
*Sodium propionate-----	CEL, DUP, EKT, UCC.
Zinc propionate-----	EKC.
Propionic anhydride-----	EKT, UCC.
Propionitrile-----	UCC.
Propionyl chloride-----	ABB.
Propyl acetate-----	CEL.
*Propylene carbonate-----	JCC, UCC.
*Propylene glycol (1,2-Propanediol)-----	CEL, DOW, DUP, JCC, UCC.
Propylene glycol, mixed ethers-----	DOW.
*Propylene oxide-----	CEL, DOW, JCC, UCC, WYN.
Propylene oxide adduct of glycerol-----	JCC.
Propyl isocyanate-----	GWN.
Propyl 4-methylvalerate (Propyl isocaproate)-----	COM.
Propyl nitrate-----	TNA.
Propyne (Methylacetylene)-----	AIR.
Rare sugars-----	PFN.
Ricinoleic acid, calcium salt-----	BAC.
d-Saccharic acid, calcium salt-----	PFZ.
Sarcosine (N-Methylaminoacetic acid)-----	ACY, DUP, GAF, VPC.
Sarcosine, sodium salt-----	GGY.
Sebacic acid-----	WTH, x.
Sebacyl chloride-----	EK.
Semicarbazide base and hydrochloride-----	FMT.
*Sequestering agents:	
(Diethylenetrinitrilo)pentaacetic acid-----	TEK.
(Diethylenetrinitrilo)pentaacetic acid, monosodium	GGY.
hydrogen ferric salt.	
*(Diethylenetrinitrilo)pentaacetic acid, sodium salt-----	DOW, GGY, HMP, MOA.
N,N-Dihydroxyethylglycine, sodium salt-----	DOW, GGY, MOA.
*(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine-	ACY, DOW, GAF, GGY, GLY, HMP, TEK, VIC.
tetraacetic acid).	

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Sequestering agents--Continued	
(Ethylenedinitrilo)tetraacetic acid, dihydrogen disodium salt.	DOW, EK, GGY, HMP, HRT, TEK.
(Ethylenedinitrilo)tetraacetic acid, disodium calcium salt.	GGY.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt.	GGY.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	GGY.
(Ethylenedinitrilo)tetraacetic acid, manganese salt----	GGY, TEK.
(Ethylenedinitrilo)tetraacetic acid, monohydrogen trisodium salt.	DOW, GGY, HMP, TEK.
* (Ethylenedinitrilo)tetraacetic acid, monosodium iron salt.	DOW, GAF, GGY, GLY, HMP, TEK.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	GGY.
* (Ethylenedinitrilo)tetraacetic acid, tetrasodium salt---	DOW, GAF, GGY, GLY, HMP, MOA, NOP, TEK.
Glucosheptonic acid, sodium salt-----	PFN, WTC.
Hexahydroxyheptanoic acid, sodium salt-----	PCW.
(N-Hydroxyethylethylenedinitrilo)triacetic acid-----	GGY.
* (N-Hydroxyethylethylenedinitrilo)triacetic acid, tri-sodium salt.	DOW, GGY, HMP, MOA, TEK.
Nitrilotriacetic acid, trisodium salt-----	HMP.
All other-----	GGY, TEK.
Serine and derivatives-----	SBR.
Silicones-----	DCC, ORO, SPD.
Sodium diethyldithiocarbonate-----	HMP.
Sodium ethoxide-----	KF.
Sodium ethyl oxalacetate-----	FMP.
Sodium formaldehydebisulfite-----	ACG, EK.
*Sodium formaldehydesulfoxylate-----	NOP, RH, ROY.
*Sodium methoxide (Sodium methylate)-----	HAR, KF, OMC, x.
Sodium sorbitol borate-----	APD.
Sorbic acid (2,4-Hexadienoic acid) and potassium salt-----	UCC.
Sorbitol-----	APD, x.
Soybean oil acyl chloride salt of sodium lysalbinate-----	KLD.
Stearamide (Octadecane amide)-----	ADM, DUP, FIN.
*Stearic acid salts:	
*Aluminum stearates:	
Aluminum monostearate-----	ACY, LEF, MAL, NOP.
*Aluminum distearate-----	ACY, HNX, JTC, LEF, MAL, NOP, PRP, SYP, WTC.
Aluminum tristearate-----	ACY, HNX, LEF, MAL, NOP, PRP, SYP, WTC.
*Ammonium stearate-----	DEX, FRR, LEF, NOP, SYP, WTC.
Barium stearate-----	LEF, NOP, PRP, SYP, WTC.
Cadmium stearate-----	SYP, WTC.
*Calcium stearate-----	ACY, CCW, HNX, JTC, LEF, MAL, NOP, PRP, SYP, WTC.
Cobalt stearate-----	NOP, WTC.
Copper stearate-----	WTC.
Ferric stearate-----	WTC.
*Lead stearate-----	HAR, LEF, NOP, NTL, WTC.
Lead stearate, dibasic-----	NOP, NTL, WTC.
Lithium hydroxystearate-----	WTC.
*Lithium stearate-----	LEF, NOP, PRP, WTC.
*Magnesium stearate-----	ACY, JTC, LEF, MAL, NOP, PRP, SYP, WTC.
Manganese stearate-----	WTC.
Stannous stearate-----	WTC.
*Zinc stearate-----	ACY, CCW, HAR, HNX, JTC, LEF, MAL, NOP, PRP, SYP, WTC.
All other-----	APD.
Stearoyl chloride-----	GAF, WTC.
Succinic acid-----	ACF, ARA.
Succinic acid, sodium salt-----	MAL.
Succinic anhydride-----	ACF, MON.
Succinimide-----	ARA.
Succinonitrile-----	ACY.
Succinyl peroxide-----	WTL.
Sucrose octa-acetate-----	UCC.
Tallow amide, hydrogenated-----	ADM, ARC.
Tallow fatty acyl chloride-----	GAF.
Tartaric acid salts, nonmedicinal-----	MAL, PFZ.

TABLE 22B.--Synthetic organic chemicals: Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1959--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
n-Tetradecane-----	HMY.
1,1,1,3-Tetraethoxypropane-----	KF.
Tetraethylene glycol-----	DOW, JCC.
Tetraethyllead-----	DUP, TNA.
Tetrahydroxysuccinic acid (Dioxytartaric acid)-----	ACY.
Tetrakis(hydroxymethyl)phosphonium chloride-----	HK.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine-----	WYN.
Tetramethylammonium hydroxide-----	EK.
Tetramethylguanidine-----	ACY.
Tetraoctyl orthosilicate-----	MCN.
Thioacetamide-----	ARA, EK.
2,2'-Thiodiethanol (Thiodiethylene glycol)-----	UCC.
3,3'-Thiodipropionic acid-----	ACY.
Titanic acid esters-----	DUP.
Triallyl cyanurate-----	ACY.
Tributylphosphine-----	FMP.
Trichloroacetyl chloride-----	EK.
Trichloroethylsilane (Eihyl silicone trichloride)-----	DCC, UCS.
Trichloromethylsilane-----	DCC.
Trichloro-octadecylsilane-----	DCC.
Trichloropentylsilane-----	UCS.
Trichlorovinylsilane-----	DCC, UCS.
Triethoxyethylsilane-----	UCS.
Triethoxyvinylsilane-----	UCS.
Triethyl acetylacrylate-----	PFZ.
Triethylaluminum-----	KPP.
Triethylaluminum chloride-----	TNA.
Triethylboron-----	KPP.
*Triethylene glycol-----	ACN, CAU, DOW, GAF, JCC, OMC, UCC.
Tri-2-ethylhexyl acetylacrylate-----	PFZ.
Triethyl orthoacetate-----	EK, KF.
Triethyl orthoformate-----	KF.
Triethyl orthopropionate-----	KF.
Trifluoroacetic anhydride-----	EK.
Tri-isobutylsuccinic anhydride-----	HMY.
Triisobutylaluminum-----	TNA.
Trimethoxyboroxine-----	MTR.
Trimethylaluminum-----	TNA.
2,6,8-Trimethyl-4-nonanone-----	UCC.
Trimethyl orthoformate-----	KF.
2,2,4-Trimethyl-1,3-pentanediol-----	EKX.
Tri-n-octylphosphine oxide-----	EK.
1,2,6-Tri(polypropoxypropyl)hexane-----	UCC.
Tripropylene glycol-----	DOW.
Undecenoic acid (Undecylenic acid)-----	BAC, WIM.
*Urea in compounds or mixtures:	
*In feed compounds-----	ACN, DUP, GGC, GRC, MSC, SOH.
*In liquid fertilizer-----	ACN, DUP, GGC, GRC, HPC, MSC, SOH, SPN.
*In solid fertilizer-----	ACN, DUP, GGC, GRC, MSC, SHC, SOH, SPN.
In plastics-----	DUP.
All other-----	ACN, DUP, MRK, SOH.
Urea peroxide-----	FMB.
Urea-urethane copolymer-----	DUP.
*Vinyl acetate, monomer-----	AIR, CEL, DUP, UCC.
*Zinc formaldehydesulfoxylate-----	NOP, RH, 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. In most instances, the assigned symbols were approved by the companies they identify.

For 1959, the Directory of Manufacturers lists 653 primary manufacturers (see table 23). Some of the companies that report production of synthetic organic chemicals 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, the company address, and the plant locations.

TABLE 23. -- Synthetic organic chemicals: Directory of manufacturers, 1959

SECTION 1. ALPHABETICAL DIRECTORY BY CODE

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1959 are listed below in the order of their identification codes as used in tables in pt. III. Section 2 of this table lists these manufacturers alphabetically and gives their office and plant addresses]

Code	Name of company	Code	Name of company
AAC	American Alcolac Corp.	ARC	Armour & Co., Armour Industrial Chemical Co. Div.
AAE	American Aniline & Extract Co., Inc.	ARF	Atlas Refinery, Inc.
ABB	Abbott Laboratories	ARG	Argus Chemical Corp.
ABR	Andrew Brown Co.	ARK	Armstrong Cork Co.
ACC	Amoco Chemicals Corp.	ARO	Arco Co.
ACF	Allied Chemical Corp., National Aniline Div.	ARP	Armour & Co., Armour Pharmaceutical Co. Div.
ACG	Allied Chemical Corp., General Chemical Div.	ASH	Ashland Oil & Refining Co.
ACN	Allied Chemical Corp., Nitrogen Div.	ASL	Ansul Chemical Co.
ACO	Allied Chemical Corp., Solvay Process Div.	AST	Astra Pharmaceutical Products, Inc.
ACP	Allied Chemical Corp., Plastics & Coal Chemicals Div.	ASY	American Synthetic Rubber Corp.
ACS	Acme Resin Corp.	ATL	Atlantic Chemical Corp.
ACS	Allied Chemical Corp., Semet-Solvay Petrochemical Div.	ATR	Atlantic Refining Co.
ACT	Arthur C. Trask Co.	AUG	Augusta Chemical Co.
ACY	American Cyanamid Co.	AV	American Viscose Corp.
ADC	Ad-Co Color Corp.	BAC	Baker Castor Oil Co.
ADM	Archer-Daniels-Midland Co.	BAL	Baltimore Paint & Chemical Corp.
AHC	Arnold, Hoffman & Co., Inc.	BAT	Bates Chemical Co.
AIR	Air Reduction Co., Inc., Air Reduction Chemical Co. Div.	BCN	Beech-Nut Life Savers, Inc.
AKL	Reichhold Chemicals, Inc., Alkydol Laboratories Div.	BEN	Bennett's
ALB	Ames Laboratories, Inc.	BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
ALC	Alco Oil & Chemical Corp.	BIF	Bioferm Corp.
ALL	Alliance Color & Chemical Co.	BIS	Bios Laboratories, Inc.
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.	BKC	J. T. Baker Chemical Co.
ALX	Alcox Corp.	BKL	Berkeley Chemical Corp.
AMS	American Bio-Synthetics Corp.	BKM	Buckman Laboratories, Inc.
AMC	Amchem Products, Inc.	BKT	J. T. Baker Chemical Co., Taylor Chemical Div.
AMF	American Marietta Co., Ferbert-Schorndorfer Co. Div.	BL	Belle Chemical Co., Inc.
AMK	American Alkyd Industries	BLN	Brooklyn Color Works, Inc.
AML	Amalgamated Chemical Corp.	BOR	Borden Chemical Co.
AMO	American Oil Co. (Texas)	BOY	Walter N. Boyesen Co.
AMP	American Potash & Chemical Corp.	BPC	Benzol Products Co.
AMR	American Marietta Co., Adhesive, Resin & Chemical Div.	BR	Brown Co.
AMS	American Marietta Co., Ridgway Color & Chemical Co. Div.	BRD	Bird & Son, Inc., Floor Covering Div.
AMZ	American Maize Products Co.	BRK	F. W. Berk & Co., Inc.
APC	Appleton Coated Paper Co.	BRS	Bristol-Meyers Co., Bristol Laboratories Div.
APD	Atlas Powder Co.	BRU	M. A. Bruder & Sons, Inc.
APR	Atlas Processing Co.	BRY	Bryant Chemical Corp.
APV	Armstrong Paint & Varnish Works, Inc.	BSC	Burkart-Schier Chemical Co.
APX	Apex Chemical Co., Inc.	BUK	Buckeye Cellulose Corp.
ARA	Arapahoe Chemicals, Inc.	BUR	Burroughs Wellcome & Co. (U.S.A.), Inc.
		BZ	Bzura, Inc.
		CAD	Cadet Chemical Corp.
		CAP	Capital Plastics, Inc.
		CAT	Catalin Corp. of America
		CAU	Calcasieu Chemical Corp.
		CBP	Ciba Pharmaceutical Products, Inc.
		CBT	Samuel Cabot, Inc.

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959 --Continued

Code	Name of company	Code	Name of company
CBY	Crosby Chemicals, Inc.	DLH	Delhi-Taylor Oil Corp.
CC	Collway Colors, Inc.	DLI	Dawe's Laboratories, Inc.
CCA	Carlisle Chemical Works, Inc., Advance Solvents & Chemical Div.	DLM	Delmar Chemical Co., Inc.
CCC	Chase Chemical Corp.	DLT	Delta Chemical Works, Inc.
CCO	Chemico, Inc.	DOD	Donald A. Dodd
CCP	Crown Central Petroleum Corp.	DCM	Dominion Products, Inc.
CCW	Carlisle Chemical Works, Inc.	DOW	Dow Chemical Co.
CD	Continental-Diamond Fibre Corp.	DRG	Drug Processors, Inc.
CDF	Concord Dyeing & Finishing Co., Inc.	DRW	E. F. Drew & Co., Inc.
CEL	Celanese Corp. of America: Celanese Chemical Co. Div. Celanese Plastics Co. Div.	DSC	Dye Specialties, Inc.
CEN	Central Paint & Varnish Works, Inc.	DSO	DeSoto Chemical Coatings, Inc.
CFX	Chemfax, Inc.	DUN	Frank W. Dunne Co.
CHG	Chemagro Corp.	DUP	E. I. duPont de Nemours & Co., Inc.
CHO	Stauffer Chemical Co., Calhio Chemicals, Inc. Div.	DYK	Dykem Co.
CIK	California Ink Co., Inc.	EAK	J. S. & W. R. Eakins, Inc.
CIS	Chemical Insecticide Corp.	EDY	Eddystone Manufacturing Co.
CIT	City Chemical Corp.	EFH	E. F. Houghton & Co.
CKL	Chemlek Laboratories, Inc.	EK	Eastman Kodak Co.
CLB	Columbia Organic Chemicals, Inc.	EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
CLC	Chas. L. Hisking & Co., Inc., Clintbrook Chemical Co. Div.	EKY	Eastman Kodak Co., Texas Eastman Co. Div.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	EMK	Emkey Chemical Co.
CLV	Clover Chemical Co.	EMR	Emery Industries, Inc.
CLY	W. A. Cleary Corp.	EN	Endo Laboratories, Inc.
CM	Carpenter-Morton Co.	ERD	Erdmann Chemical Co., Inc.
CMC	Comcolloid, Inc.	ESC	Escombia Chemical Corp.
CMG	Chemical Manufacturing Co., Inc.	ESL	Humble Oil & Refining Co., Esso Standard Div. (Louisiana)
CO	Continental Oil Co.	ESQ	Humble Oil & Refining Co., Esso Standard Div. (New Jersey)
COK	Cockerville Chemicals, Inc.	EST	Eastern States Petroleum & Chemical Co.
COL	Air Reduction Co., Inc., Colton Chemical Co. Div.	EID	Ethyl-Dow Chemical Co.
COM	Commercial Solvents Corp.	EVN	Evans Chemicals, Inc.
CON	Concord Chemical Co., Inc.	EW	Westinghouse Electric Corp.
COP	Coopers Creek Chemical Corp.	FAR	Farnow, Inc.
COS	Coastwise Petroleum Co.	FB	Fritzsche Bros., Inc.
CP	Colgate-Palmolive Co.	FBC	Fiber Chemical Corp.
CPC	Childs Pulp Colors, Inc.	FBR	Fibreboard Paper Products Corp.
CPD	Chemical Products Corp.	FBS	Fries Bros., Inc.
CPL	Coast Paint & Lacquer Co., Inc.	FCD	France, Campbell & Darling, Inc.
CFR	Chemical Process Co.	FCL	Federal Color Laboratories, Inc.
CFT	Consolidated Paint Co.	FEL	Felton Chemical Co., Inc.
CFV	Cook Paint & Varnish Co.	FER	Ferro Chemical Corp.
CFY	Copolymer Rubber & Chemical Corp.	FG	Foster Grant Co., Inc.
CRC	Crown Chemical Corp.	FH	Foster-Heaton Co.
CRN	Corn Products Co.	FIN	Fine Organics, Inc.
CRO	Crownoil Chemical Co., Inc.	FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.
CRS	Carus Chemical Co., Inc.	FL	Farley & Loetscher Manufacturing Co.
CRT	Crown Tar & Chemical Works, Inc.	FLA	Florida Chemical Co., Inc.
CRY	Cary Chemicals, Inc.	FLH	H. B. Fuller Co.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	FLO	Florasynth Laboratories, Inc.
CS	Chemstrand Corp.	FLW	W. P. Fuller & Co.
CSD	Cosden Petroleum Corp.	FMB	Food Machinery & Chemical Corp., Becco Chemical Div.
CSP	California Spray-Chemical Corp.	FMF	Schuykill Chemical Co.
CST	Charles S. Tanner Co.	FMP	Food Machinery & Chemical Corp., Chemicals & Plastics Div.
CUT	Cutter Laboratories	FMT	Fairmount Chemical Co., Inc.
CW	Collett-Week Corp.	FMW	Food Machinery & Chemical Corp., Chlor-Alkali and Mineral Products Div.
CWL	Cowles Chemical Co.	FCM	Formica Corp., Subsidiary of American Cyanamid Co.
CWN	Carwin Co.	FOR	Foremost Food & Chemical Co., El Dorado Div.
CWP	Consolidated Water Power & Paper Co.	FRE	Freeman Chemical Corp.
DA	Diamond Alkali Co.	FRM	Farmers' Chemical Co.
DAN	Dan River Mills, Inc.	FRO	Vulcan Materials Co., Frontier Chemical Co. Div.
DAV	H. B. Davis Co.	FRR	Estate of W. U. Farrington
DCC	Dow Corning Corp.	FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.
DCI	Delaware Chemicals, Inc.	FSH	Frisch & Co., Inc.
DEC	Deeey Products Co.	GAF	General Aniline & Film Corp., Dyestuff & Chemical Div.
DEP	DePaul Chemical Co., Inc.	GAM	Gamma Chemical Corp.
DEX	Dexter Chemical Corp.	GAN	Gane's Chemical Works, Inc.
DGS	Douglas Chemical Corp.		

TABLE 23. -- Synthetic organic chemicals: Directory of manufacturers, 1959 -- Continued

Code	Name of company	Code	Name of company
GCC	W. R. Grace & Co., Grace Chemical Div.	IMP	Imperial Color Chemical & Paper Corp.
GDC	Gulf Research & Development Co.	INL	Inland Steel Container Co.
GDL	Gordon-Lacey Chemical Products Co., Inc.	INP	International Paper Co.
GDN	Gordon Chemicals, Inc.	IRI	Ironsidcs Co.
GE	General Electric Co., Chemical Materials Dept.	ITX	Intex Chemical Corp.
GEI	General Electric Co., Insulating Materials Dept.	JAM	Jamestown Paint & Varnish Co.
GGC	Goodrich-Gulf Chemicals, Inc.	JCC	Jefferson Chemical Co., Inc.
GGY	Geigy Chemical Corp.	JEN	Jennison-Wright Corp.
GIL	Gilman Paint & Varnish Co.	JMS	J. Meyer & Sons, Inc.
GIV	Givaudan Corp.	JNS	S. C. Johnson & Son, Inc.
GLD	Glidden Co.	JOB	Jones-Blair Paint Co., Inc.
GLY	Chas. L. Hisking & Co., Inc., Glyco Chemicals Div.	JOD	Jones-Dabney Co.
GNC	General Color Co., Inc.	JOR	W. H. & F. Jordan, Jr. Manufacturing Co.
GNF	General Foods Corp., Maxwell House Div.	JRG	Andrew Jergens Co.
GNM	General Mills, Inc.	JTC	Joseph Turner & Co.
GNT	General Tire & Rubber Co., Chemical Div.	JWL	Jewel Paint & Varnish Co.
GOC	Gulf Oil Corp.	KAL	Kali Manufacturing Co.
GOR	Cordon Chemical Co., Inc.	KCC	Kennecott Copper Corp., Chino Mines Div.
GPR	Grain Processing Corp.	KCH	Keystone Chemurgic Corp.
GRA	Great American Plastics Co.	KCU	Kennecott Copper Corp., Utah Copper Div.
GRC	Deere & Co., Grand River Chemical Div.	KCW	Keystone Color Works, Inc.
GRD	W. R. Grace & Co., Dewey & Almy Chemical Div.	KEL	Kelly-Pickering Chemical Corp.
GRG	P. D. George Co.	KEN	Kendall Refining Co.
GRP	W. R. Grace & Co., Polymer Chemicals Div.	KES	Kessler Chemical Co., Inc.
GRS	Great Southern Chemical Corp.	KF	Kay-Fries Chemicals, Inc.
GRV	Grand Rapids Varnish Corp.	KLD	Kalide Corp.
GRW	Great Western Sugar Co.	KLK	Kolker Chemical Corp.
GTS	Greenwood Textile Supply Co.	KLS	Kilsdonk Chemical Corp.
GUA	Guard Chemical Co.	KND	Knoedler Chemical Co.
GUY	Guyan Color & Chemical Works, Inc.	KNO	O. L. King & Co.
GYR	Goodyear Tire & Rubber Co.	KNP	Knapp Products, Inc.
HAB	Halby Products Co., Inc.	KON	H. Kohnstamm & Co., Inc.
HAL	C. P. Hall Co. of Illinois	KPC	Koppers Co., Inc., Chemicals & Dyestuffs Div.
HAM	Hampden Color & Chemical Co.	KPP	Koppers Co., Inc., Plastics Div.
HAN	Hanna Paint Manufacturing Co., Inc.	KPT	Koppers Co., Inc., Tar Products Div.
HAR	Harshaw Chemical Co.	KPV	Keystone Paint & Varnish Corp.
HCC	Holland Color & Chemical Co.	KRM	Krumhaar Chemicals, Inc.
HDG	Hodag Chemical Corp.	KRY	Krystall Chemical Co.
HER	Heresite & Chemical Corp.	KYN	Kyanize Paints, Inc.
HET	Heterochemical Corp.	KYS	Keyser Chemical Co.
HEX	Hexagon Laboratories, Inc.	LAM	LaMotte Chemical Products Co.
HFT	Hoffman-Taff, Inc.	LAS	LaSalle Chemical Corp.
HK	Hooker Chemical Corp.	LEA	Leatex Chemical Co.
HKD	Hooker Chemical Corp., Durez Plastics Div.	LEB	Lebanon Chemical Corp.
HKP	Hooker Chemical Corp., Phosphorus Div.	LEF	Leffingwell Chemical Co.
HLC	Hartman-Leddon Co., Inc.	LEM	B. L. Lemke & Co., Inc.
HLI	Haag Laboratories, Inc.	LEN	Leonard Refineries, Inc.
HLN	Helene Curtis Industries, Inc.	LEV	Lever Brothers Co.
HMC	H. M. Chemical Co., Ltd.	LEW	Lewia Tar Products Co.
HMP	Hampshire Chemical Corp.	LIL	LIl Lilly & Co.
HMY	Rumphrey-Wilkinson, Inc.	LKL	Lakeside Laboratories, Inc.
HN	Heyden Newport Chemical Corp.	LKY	St. Regis Paper Co., Lake States Yeast & Chemical Div.
HNW	Heyden Newport Chemical Corp., Newport Industries Co. Div.	LQN	Charles R. Long, Jr. Co.
HDX	Heyden Newport Chemical Corp., Nuodex Products Co. Div.	LUB	Lubrizol Corp.
HOF	Hoffmann-LaRoche, Inc.	LUE	George Lueders & Co.
HPC	Hercules Powder Co.	LUR	Laurel Soap Manufacturing Co., Inc.
HRB	Harbor Plywood Corp.	LVR	C. Lever Co., Inc.
HRT	Hart Products Corp.	LVY	Fred'k H. Levey Co., Inc.
HST	Hoechst Chemical Corp.	MAL	Mallinckrodt Chemical Works
HSY	Harsyd Chemicals, Inc.	MAR	American Can Co., Marathon Corp. Div.
HUM	Humble Oil & Refining Co., Humble Div.	MAS	Mass & Waldstein Co.
HUS	Rusky Oil Co.	MAY	Otto B. May, Inc.
HYN	Hynson, Westcott & Dunning, Inc.	MCB	Borg-Warner Corp., Marbon Chemical Div.
ICC	Interchemical Corp., Color & Chemicals Div.	MCC	McCloskey Varnish Co.
ICF	Interchemical Corp., Finishes Div.	MCH	Michigan Chemical Corp.
IDC	Industrial Dyestuff Co.	MCW	McWhorter Chemicals, Inc.
IDD	International Flavors & Fragrances, Inc.	MDP	Maryland Plastics Co.
IMC	International Minerals & Chemical Corp.	MED	Medical Chemicals Corp.
		MEK	Maumee Chemical Co.
		MER	Jefferson Lake Sulphur Co., Merichem Co. Div.
		MGR	Magruder Color Co., Inc.

TABLE 23. -- Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Code	Name of company
MID	Midland Industrial Finishes Co.	PC	Proctor Chemical Co., Inc.
MIR	Miranol Chemical Co., Inc.	PCC	Pittsburgh Coke & Chemical Co.
MJM	M. J. Merkin Paint Co., Inc.	PCH	Peerless Chemical Co.
ML	Miles Laboratories, Inc.	PCO	Peerless Color Co., Inc.
MLS	Miles Chemical Co.	PCS	Process Chemicals Co.
MAM	Minnesota Mining & Manufacturing Co.	PCW	Pfister Chemical Works, Inc.
MNP	Minnesota Paints, Inc.	PD	Parke-Davis & Co.
MCA	Mona Industries, Inc.	PDC	Poughkeepsie Dyestuff Corp.
MOB	Mobay Chemical Co.	PEK	Peck's Products Co.
MON	Monsanto Chemical Co.	PEN	S. B. Penick & Co.
MOR	Mineral Oil Refining Co.	PER	Perry & Derrick Co.
MOT	Motomco, Inc.	PET	Petroleum Chemicals, Inc.
MR	Benjamin Moore & Co.	PFN	Pfanstiehl Laboratories, Inc.
MRA	Metro-Atlantic, Inc.	PPF	Phelan-Faust Paint Manufacturing Co.
MRB	Marblette Corp.	PFZ	Chas. Pfizer & Co., Inc.
MRD	Marden-Wild Corp.	PG	Procter & Gamble Manufacturing Co.
MRK	Merck & Co., Inc.	PGU	Perkins Glue Co.
MRN	Morningstar Paisley, Inc.	PIL	Pilot Chemical Co. of California
MRT	Morton Chemical Co.	PIT	Pitt-Consol Chemical Co.
MRV	Marlowe-Van Loan Corp.	PLC	Phillips Chemical Co.
MRW	Morwear Paint Co.	PLP	Phillips Petroleum Co.
MRX	Max Marx Color & Chemical Co.	PLS	Plastics Engineering Co.
MSC	Mississippi Chemical Corp.	PNX	Phoenix Oil Co.
MTC	Monsanto Chemical Co., Plastics Div.	PPG	Pittsburgh Plate Glass Co.
MIL	Metalsalts Corp.	PRD	Productol Co.
MTO	Montrose Chemical Corp. of California	PRE	Premium Chemicals, Inc.
MTR	Montrose Chemical Co.	PRM	Praudler Permutit, Inc., Permutit Co. Div.
MYW	Maywood Chemical Works	PRO	Pure Oil Co.
NEO	Norda Essential Oil & Chemical Co., Inc.	PRP	M. W. Parsons-Plymouth, Inc.
NEP	Nepera Chemical Co., Inc.	PRS	Presto Plastic Products Co., Inc.
NES	Nease Chemical Co., Inc.	PRT	Pratt & Lambert, Inc.
NEV	Neville Chemical Co.	PRX	Purex Corp., Ltd.
NIL	Nilok Chemicals, Inc.	PSP	Puget Sound Pulp & Timber Co.
NON	A. P. Nonweiler Co.	PTT	Petro-Tex Chemical Corp.
NOP	Nopco Chemical Co., Inc.	PUB	Publiicker Industries, Inc.
NOR	Norwich Pharmacal Co.	PUL	Paul-Lewis Laboratories, Inc.
NFC	National Petro-Chemicals Corp.	PYL	Polychemical Laboratories, Inc.
NFI	National Polychemicals, Inc.	PYR	Poly Resins, Inc.
NSC	National Starch & Chemical Corp.	PTZ	Polyrez Co., Inc.
NSP	National Southern Products Corp.	QCP	Quaker Chemical Products Corp.
NTB	National Biochemical Co.	QKO	Quaker Oats Co.
NTC	National Casein Co.	RAB	Raybestos-Manhattan, Inc.
NTL	National Lead Co.	RB	Robert & Co., Inc.
NW	Northwestern Chemical Co.	RBC	Roberts Chemicals, Inc.
NYC	American Dyewood Co., New York Color & Chemical Co. Div.	RCD	Richardson Co.
NYP	New York & Pennsylvania Co.; Inc.	RCI	Reichhold Chemicals, Inc.
OB	O'Brien Corp.	RED	Red Spot Paint & Varnish Co., Inc.
ODB	Odessa Butadiene Co.	REL	Reliance Varnish Co., Inc.
ODS	Odessa Styrene Co.	REM	Remington Arms Co., Inc.
OH	Ohio Chemical & Surgical Equipment Co.	REP	Republic Creosoting Co.
OIL	Oil & Chemical Products, Inc.	RET	Rayette, Inc., Chemical Div.
OLC	Old Colony Tar Co., Inc.	REZ	Rezolin, Inc.
OLH	Old Hickory Chemical Co., Inc.	RGC	Rogers Corp.
OMB	Olin Mathieson Chemical Corp., Blockson Chemical Co. Div.	RH	Rohm & Haas Co.
OMC	Olin Mathieson Chemical Corp., Chemicals Div.	RIC	Richfield Oil Corp.
OMS	Olin Mathieson Chemical Corp., E. R. Squibb & Sons Div.	RIK	Riker Laboratories, Inc.
ONX	Oryx Chemical Corp.	RIL	Reilly Tar & Chemical Corp.
OPC	Orbis Products Corp.	RIV	Riverdale Chemical Co.
ORG	Organics, Inc.	EMC	Rinshed-Mason Co.
ORO	Oronite Chemical Co.	ROC	Rock Hill Printing & Finishing Co.
ORT	Ortho Chemical Corp.	ROM	Roma Chemical Corp.
OSB	C. J. Osborn Co.	ROS	Rosett Chemicals, Inc.
OYT	Ottol Oil Co.	ROY	Royce Chemical Co.
PAI	Pennsylvania Industrial Chemical Corp.	RSA	R. S. A. Corp.
PAN	Pan American Petroleum Corp.	RT	F. Ritter & Co.
PAR	Pennsylvania Refining Co.	RTC	Ritter Chemical Co., Inc.
PAS	Pennsalt Chemicals Corp.	RUB	Rubber Corp. of America
FAT	Patent Chemicals, Inc.	RUR	Ruberoid Co.
PBS	Pabst Brewing Co.	SAC	Standard Agricultural Chemicals, Inc.
		SAL	Dr. Salsbury's Laboratories
		SAN	Sandoz, Inc.
		SBR	Schwarz BioResearch, Inc.

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Code	Name of company
SCC	Standard Chlorine Chemical Co., Inc.	SYV	Synvar Corp.
SCF	Schaefer Varnish Co., Inc.	TAE	Thomas A. Edison Industries, McGraw-Edison Co.
SCH	Schering Corp.	TAR	Tar Distilling Co., Inc.
SCN	Schenectady Varnish Co., Inc.	TAY	Taylor Fibre Co.
SCO	Scholler Bros., Inc.	TBK	Trubek Laboratories
SCP	Standard Chemical Products, Inc.	TDC	Diversey Corp.
SCR	R. P. Scherer Corp.	TEK	Refined Products Corp.
SDC	American Marietta Co., Southern Dyestuff Co. Div.	TGL	Triangle Chemical Co.
SDG	Sterling Drug, Inc., Glenbrook Laboratories Div.	THC	Thompson Chemical Co.
SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.	TKL	Thiokol Chemical Corp.
SDW	Sterling Drug, Inc., Winthrop Laboratories Div.	TMC	Thompson Chemicals Corp.
SED	Seidlitz Paint & Varnish Co.	TMH	Thompson-Hayward Chemical Co.
SEM	Seamco Chemical Co.	TMS	Thomasset Colors, Inc.
SF	Stauffer Chemical Co.	TN	Tennessee Corp.
SFA	Stauffer Chemical Co., Anderson Chemical Co. Div.	TNA	Ethyl Corp.
SH	Stein, Hall & Co., Inc.	TNP	Tennessee Products & Chemical Corp.
SHC	Shell Chemical Corp.	TRC	Toms River-Cincinnati Chemical Corp.
SHF	National Dairy Products Corp., Sheffield Chemical Co. Div.	TRJ	Trojan Powder Co.
SHL	Shulton, Inc.	TRP	Treprow Chemical Co.
SHO	Shell Oil Co.	TTX	Detrex Chemical Industries, Inc.
SHP	Shepherd Chemical Co.	TX	Texaco, Inc.
SHW	Shawinigan Resins Corp.	TXB	Texas Butadiene & Chemical Corp.
SID	George F. Siddall Co., Inc.	TXC	Tex Chemical Co.
SIM	Simpson Redwood Co.	TUS	Texas-U.S. Chemical Co.
SIN	Sinclair Refining Co.	TV	Tousey Varnish Co.
SIP	James B. Sipe & Co.	UBS	U B S Chemical Corp.
SK	Smith, Kline & French Laboratories	UCC	Union Carbide Corp., Union Carbide Chemicals Co. Div.
SLC	Soluol Chemical Co., Inc.	UCP	Union Carbide Corp., Union Carbide Plastics Co. Div.
SLV	Salvo Chemical Corp.	UCS	Union Carbide Corp., Silicones Div.
SM	Socory Mobil Oil Co., Inc.	UDI	Universal Detergents, Inc., and Petrochemicals Co.
SNA	Sun Chemical Corp., Ansbacher-Siegle Corp. Div.	UHL	Paul Uhlich & Co., Inc.
SNC	Sunoco Products Co.	UNC	United Cork Companies
SNM	Sun Chemical Corp., Ampruf Paint Co. Div.	UNG	Ungerer & Co.
SNP	Sun Chemical Corp., Pigment Div.	UOC	Union Oil Co. of California
SMT	Suntide Refining Co.	UPF	United States Pipe & Foundry Co.
SNW	Sun Chemical Corp., Warwick Chemical Co. Div.	UPJ	Upjohn Co.
SOC	Standard Oil Co. of California	UFM	Universal Oil Products Co., Universal Polyochem Manufacturing Div.
SOH	Sohio Chemical Co.	URC	United Rubber & Chemical Co.
SOI	Standard Oil Co. of Indiana	USB	U.S. Borax Research Corp.
SOL	Solar Chemical Corp.	USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.
SON	L. Sonneborn Sons, Inc.	USO	U.S. Oil Co.
SCR	Southern Resin Glue Co.	USP	U.S. Plastic Products Corp.
SOS	Southern Sizing Co.	USR	United States Rubber Co., Naugatuck Chemical Div.
SFC	Specific Pharmaceuticals, Inc.	UWS	Universal Western Chemical Corp.
SFD	General Electric Co., Silicone Products Dept.	VAL	Valchem
SFL	Spaulding Fibre Co., Inc.	VAR	Reichhold Chemicals, Inc., Varcum Chemical Corp. Div.
SPN	Spencer Chemical Co.	VC	Virginia-Caroline Chemical Corp.
SPP	Socory Paint Products Co.	VEL	Velsicol Chemical Corp.
SPR	Specialty Resins Co.	VIC	Stauffer Chemical Co., Victor Chemical Works Div.
SRL	G. D. Searle & Co.	VIN	Vineland Chemical Co.
SRR	Fred'k A. Stresen-Reuter, Inc.	VIS	Visco Products Co.
STA	A. E. Staley Manufacturing Co.	VLY	Verley Chemical Co., Inc.
STD	Standard Dyestuff Corp.	VNC	Vanderbilt Chemical Corp.
STG	Wm. J. Stange Co.	VND	Van Dyk & Co., Inc.
STN	Standard Naphthalene Products Co., Inc.	VPC	Verona-Pharma Chemical Corp.
STP	Stepan Chemical Co.	VPT	Vickers Petroleum Co., Inc.
STS	Stansbury Chemical Co., Inc.	VTM	Vitamins, Inc.
STT	Standard-Toch Chemicals, Inc.	VTV	Vita-Var Corp.
SUC	Standard Ultramarine & Color Co.	WAS	T. F. Washburn Co.
SUM	Summit Chemical Products Corp.	WAT	Watertown Manufacturing Co.
SUN	Sun Oil Co.	WAW	W. A. Wood Co.
SVT	Solvent Chemical Co., Inc.	WBG	White & Bagley Co.
SW	Sherwin-Williams Co.	WDC	Western Dry Color Co.
SWC	S & W Chemical Co., Inc.	WEB	R. D. Webb & Co., Inc.
SWT	Swift & Co.	WER	Werner Drug & Chemical Co.
SYC	Synthetic Chemicals, Inc.	WEV	Geo. D. Wetherill Varnish Co.
SYF	Synthetic Products Co.	WHI	White & Hodges, Inc.
SYR	Synco Resins, Inc.	WHW	Whittemore-Wright Co., Inc.
		WIC	Wlca Co., Inc.
		WIL	Wilson & Co., Inc., Wilson Laboratories Div.

TABLE 23. -- *Synthetic organic chemicals: Directory of manufacturers, 1959* --Continued

Code	Name of company	Code	Name of company
WLM	Wilmot & Cassidy, Inc.	WTL	Wallace & Tiernan, Inc., Lucidol Div.
WOC	Wilson Organic Chemicals, Inc.	WIM	Wallace & Tiernan, Inc.
WON	Woonsocket Color & Chemical Co.	WTT	John H. Witte & Sons, Resin Div.
WPC	Warren Paint & Color Co.	WTU	Witco Chemical Co., Ultra Chemical Works, Inc. Div.
WRN	Warner-Jenkinson Manufacturing Co.	WVA	West Virginia Pulp & Paper Co., Polychemicals Div.
WRS	Wheeler, Reynolds & Stauffer	WYN	Wyandotte Chemicals Corp.
WST	Westville Laboratories, Inc.	WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.
WTC	Witco Chemical Co., Inc.	YAW	Young Aniline Works, Inc.
WTH	Wallace & Tiernan, Inc., Harchem Div.		

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--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 1959 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 (location of plant given in parentheses if not in same city as office)
ABB	Abbott Laboratories-----	14th St. and Sheridan Rd., North Chicago, Ill.
ACR	Acme Resin Corp-----	1401 Circle Ave., Forest Park, Ill.
ADC	Ad-Co Color Corp-----	66 Lister Ave., Newark 5, N.J.
AIR	Air Reduction Co., Inc.: Air Reduction Chemical Co. Div-----	150 E. 42d St., New York 17, N.Y. (Calvert City, Ky.; and Bound Brook, N.J.).
COL	Colton Chemical Co. Div-----	1747 Chester Ave., Cleveland 14, Ohio (Elkton, Md.).
ALC	Alco Oil & Chemical Corp-----	Trenton Ave. and William St., Philadelphia 34, Pa.
ALL	Alliance Color & Chemical Co----- Allied Chemical Corp.:	33 Avenue P, Newark 5, N.J.
ACG	General Chemical Div-----	40 Rector St., New York 6, N.Y. (Danville, Ill.; Baton Rouge, La.; Baltimore, Md.; Buffalo, N.Y.; and Marcus Hook, Pa.).
ACF	National Aniline Div-----	40 Rector St., New York 6, N.Y. (Buffalo, N.Y.; Hopewell, Va.; and Moundsville, W. Va.).
ACN	Nitrogen Div-----	40 Rector St., New York 6, N.Y. (Omaha, Nebr.; South Point, Ohio; and Orange, Tex.).
ACP	Plastics & Coal Chemicals Div-----	40 Rector St., New York 6, N.Y. (Fairfield, Ala.; Calumet City and Chicago, Ill.; Detroit, Mich.; Edgewater and Whippany, N.J.; Ironton, Toledo, and Youngstown, Ohio; Bethlehem, Frankford, and Philadelphia, Pa.).
ACS	Semet-Solvay Petrochemical Div-----	40 Rector St., New York 6 (Tonawanda), N.Y.
ACO	Solvay Process Div-----	P.O. Box 271, Syracuse 1 (Village of Solvay), N.Y.
ALX	Alox Corp-----	3943 Buffalo Ave., Niagara Falls, N.Y.
AML	Amalgamated Chemical Corp-----	Ontario and Rorer Sts., Philadelphia 34, Pa.
AMC	Amchem Products, Inc-----	Amber, Pa. (Niles, Calif.; and St. Joseph, Mo.).
AAC	American Alcolac Corp-----	3440 Fairfield Rd., Baltimore 26, Md.
AMK	American Alkyd Industries-----	Broad & 14th Sts., Carlstadt, N.J.
AAE	American Aniline & Extract Co., Inc-----	Venango and F Sts., Philadelphia 34, Pa.
AME	American Bio-Synthetics Corp-----	710 W. National Ave., Milwaukee 4, Wis.
MAR	American Can Co., Marsthor Corp. Div-----	Menasha (Green Bay and Rothschild), Wis.
ACY	American Cyanamid Co-----	30 Rockefeller Plaza, New York 20, N.Y. (Azusa, Calif.; Stamford and Wallingford, Conn.; Avondale, La.; Bound Brook, Linden, Princeton, and Woodbridge, N.J.; Pearl River, N.Y.; Charlotte, N.C.; Cincinnati and Marietta, Ohio; Bridgeville, Pa.; Damascus, Va.; and Willow Island, W. Va.).
NYC	American Dyewood Co., New York Color & Chemical Co. Div.	374 Main St., Belleville 9, N.J.
WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.	P.O. Box 2899, Philadelphia 1 (Westchester), Pa.
AMZ	American Maize Products Co----- American Marietta Co.:	250 Park Ave., New York 17, N.Y.
AMR	Adhesive, Resin & Chemical Div-----	42 S. 3d St., Newark, Ohio; and 3400 13th Ave., S.W., Seattle 4, Wash.
AMF	Ferbert-Schorndorfer Co. Div-----	12815 Elmwood Ave., Cleveland 11, Ohio.
AMS	Ridgway Color & Chemical Co. Div-----	75 Front Street, Ridgway, Pa.
SDC	Southern Dyestuff Co. Div-----	P.O. Box 10098, Charlotte 1 (Sodyeco), N.C.
AMO	American Oil Co. (Texas)-----	P.O. Box 401, Texas City, Tex.
AMP	American Potash & Chemical Corp-----	3000 W. 6th St., Los Angeles 54, Calif.
ASY	American Synthetic Rubber Corp-----	P.O. Box 360, Louisville 1, Ky.
AV	American Viscose Corp-----	1617 Pennsylvania Blvd., Philadelphia 3, Pa. (Meadville, Pa.; and Fredericksburg, Va.).
ALB	Ames Laboratories, Inc-----	132 Water St., S. Norwalk, Conn.
ACC	Amoco Chemicals Corp-----	910 S. Michigan Ave., Chicago 80, Ill. (Joliet, Ill.; and Texas City, Tex.).
ASL	Ansul Chemical Co-----	Staunton Street, Marinette, Wis.
APX	Apex Chemical Co., Inc-----	200 S. 1st St., Elizabethtown 1, N.J.
APC	Appleton Coated Paper Co-----	1200 N. Meade St., Appleton, Wis.
ARA	Arasphoe Chemicals, Inc-----	2800 Pearl St., Boulder, Colo.
ADM	Archer-Daniels-Midland Co-----	700 Investors Bldg., Minneapolis, Minn. (Los Angeles, Calif.; Pensacola, Fla.; Minneapolis, Minn.; Valley Park, Mo.; and Newark, N.J.).
ARO	Arco Co-----	7301 Bessemer Ave., Cleveland 27, Ohio.
ARG	Argus Chemical Corp----- Armour & Co.:	633 Court St., Brooklyn 31, N.Y.
ARC	Armour Industrial Chemical Co. Div---	110 N. Wacker Dr., Chicago 6 (McCook), Ill.
ARP	Armour Pharmaceutical Co. Div-----	P.O. Box 511, Kankakee (Bradley), Ill.

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
ARK	Armstrong Cork Co-----	W. Liberty St., Lancaster (Pittsburgh), Pa.
APV	Armstrong Paint & Varnish Works, Inc-----	1318-1500 S. Kilbourn Ave., Chicago 23, Ill.
AHC	Arnold, Hoffman & Co., Inc-----	55 Canal Street, Providence 1, R.I. (Dighton, Mass.; Charlotte, N.C.; and Cincinnati, Ohio).
ASH	Ashland Oil & Refining Co-----	1401 Winchester Ave., Ashland, Ky. (Tonawanda, N.Y.).
AST	Astra Pharmaceutical Products, Inc-----	7 Neponset St., Worcester 6, Mass.
ATL	Atlantic Chemical Corp-----	153 Prospect St., Passaic (Nutley), N.J.
ATR	Atlantic Refining Co-----	260 S. Broad St., Philadelphia 1, Pa. (Philadelphia, Pa.; and Port Arthur, Tex.).
APD	Atlas Powder Co-----	Wilmington 99, Del. (New Castle, Del.; Memphis, Tenn.; and Houston, Tex.).
APR	Atlas Processing Co-----	P.O. Box 1786, 3546 Midway St., Shreveport, La.
ARF	Atlas Refinery, Inc-----	142 Lockwood St., Newark 5, N.J.
AUG	Augusta Chemical Co-----	P.O. Box 660, Augusta, Ga.
BAC	Baker Castor Oil Co-----	40 Avenue A, Bayonne, N.J. (Los Angeles, Calif.; and Bayonne, N.J.).
BKC	J. T. Baker Chemical Co-----	600 N. Broad St., Phillipsburg, N.J.
BKT	Taylor Chemical Div-----	600 N. Broad St., Phillipsburg, N.J. (Penn Yan, N.Y.).
BAL	Baltimore Paint & Chemical Corp-----	2325 Annapolis Ave., Baltimore 30, Md.
BAT	Bates Chemical Co-----	Scottdale Road, Lansdowne, Pa.
BCN	Beech-Nut Life Savers, Inc-----	Canajoharie, N.Y.
BL	Belle Chemical Co., Inc-----	534 Pearl St., Reading (Womelsdorf), Pa.
BEN	Bennett's-----	65 W. 1st South, Salt Lake City 10, Utah.
BPC	Benzol Products Co-----	237 South St., Newark 5 (Nixon), N.J.
BRK	F. W. Berk & Co., Inc-----	Wood-Ridge, N.J.
BKL	Berkeley Chemical Corp-----	11 Summit Ave., Berkeley Heights, N.J.
BIF	Bioferm Corp-----	P.O. Box 1375, Wasco, Calif.
BIS	Bios Laboratories, Inc-----	17 W. 60th St., New York 23, N.Y.
BRD	Bird & Son, Inc., Floor Covering Div-----	E. Walpole (Norwood), Mass.
BOR	Borden Chemical Co-----	350 Madison Ave., New York 17, N.Y. (Demopolis, Ala.; Compton, Calif.; Illopolis, Ill.; Lecminster, North Andover, and Peabody, Mass.; Middlesex, N.J.; Bainbridge, N.Y.; Fayetteville, N.C.; Springfield, Oreg.; Philadelphia, Pa.; Kent and Seattle, Wash.; and Browntown, Wis.).
MCB	Borg-Warner Corp., Marbon Chemical Div-----	Box 68, Washington, W. Va.
BOY	Walter N. Boysen Co-----	1101 42d St., Oakland 8, Calif.
BRS	Bristol-Meyers Co., Bristol Laboratories Div-----	P.O. Box 657, Syracuse 1, N.Y.
BLN	Brooklyn Color Works, Inc-----	Morgan & Norman Avenues, Brooklyn 22, N.Y.
BR	Brown Co-----	650 Main St., Berlin, N.H.
ABR	Andrew Brown Co-----	5431 District Blvd., Los Angeles 22, Calif.
BRU	M. A. Bruder & Sons, Inc-----	52d St. & Grays Ave., Philadelphia 43, Pa.
BRV	Bryant Chemical Corp-----	6 North St., N. Quincy 71, Mass.
BUK	Buckeye Cellulose Corp-----	2899 Jackson Ave., Memphis 8, Tenn.
BKM	Buckman Laboratories, Inc-----	1256 N. McLean, Memphis 8, Tenn.
ESC	Burkart-Schier Chemical Co-----	1228 Chestnut St., Chattanooga 2, Tenn.
BUR	Burroughs Wellcome & Co. (U.S.A.), Inc-----	1 Scarsdale Rd., Tuckahoe 7, N.Y.
EZ	Bzura, Inc-----	Clark St. & Broadway, Keyport, N.J.
CBT	Samuel Cabot, Inc-----	246 Summer St., Boston 10 (Chelsea), Mass.
CAD	Cadet Chemical Corp-----	2153 Lockport-Olcott Rd., Burt, N.Y.
CAU	Calcasieu Chemical Corp-----	P.O. Box 6, 821 Gravier St., New Orleans 6 (Lake Charles), La.
CIK	California Ink Co., Inc-----	711 Camella St., Berkeley 10, Calif.
CSP	California Spray-Chemical Corp-----	Lucas & Ortho Way, Richmond, Calif.
CAP	Capital Plastics, Inc-----	250 Mill St., Rochester 14, N.Y. (Brochhead, Wis.).
CCW	Carlisle Chemical Works, Inc-----	West Street, Reading 15, Ohio.
CCA	Advance Solvents & Chemical Div-----	500 Jersey Ave., New Brunswick, N.J.
CM	Carpenter-Morton Co-----	376 3d St., Everett 49, Mass.
CRS	Carus Chemical Co., Inc-----	1375 8th St., LaSalle, Ill.
CWN	Carwin Co-----	Stiles Lane, North Haven, Conn.
CRY	Cary Chemicals, Inc-----	P.O. Box 38, East Brunswick (Flemington), N.J.
CAT	Catalin Corp. of America-----	1 Park Ave., New York, N.Y. (Calumet City, Ill.; Fords, N.J.; and Thomasville, N.C.).
CEL	Celanese Corp. of America: Celanese Chemical Co. Div-----	180 Madison Avenue, New York 16, N.Y. (Amcelle and Cumberland, Mi.; Celriver and Rockhill, S.C.; Bishop and Pampa, Tex.; Celco and Narrows, Va.; and Gallipolis Ferry and Point Pleasant, W. Va.).
	Celanese Plastics Co. Div-----	744 Broad St., Newark 2, N.J. (Belvidere and Newark, N.J.; and Deer Park, Tex.).
CEN	Central Paint & Varnish Works, Inc-----	59 Prospect St., Brooklyn 1, N.Y.
CCC	Chase Chemical Corp-----	3527 Smallman St., Pittsburgh 1, Pa.
CHG	Chemagro Corp-----	Hawthorn Rd., Kansas City 20, Mo.
CFX	Chemfax, Inc-----	P.O. Box 763, Gulfport, Miss.
CIS	Chemical Insecticide Corp-----	30 Whitman Ave., Metuchen, N.J.

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
CMG	Chemical Manufacturing Co., Inc-----	Ashland, Mass.
CFR	Chemical Process Co-----	1901 Spring St., Redwood City, Calif.
CPD	Chemical Products Corp-----	P.O. Box 815, Cartersville, Ga.
CCO	Chemico, Inc-----	2508 E. Bailey Rd., Cuyahoga Falls, Ohio.
CKL	Chemlek Laboratories, Inc-----	4040 W. 123d St., Worth, Ill.
CS	Chemstrand Corp-----	350 5th Ave., New York 1, N.Y. (Gonzales, Fla.).
CPC	Childs Pulp Colors, Inc-----	43 Summit St., Brooklyn 31, N.Y.
CBP	Ciba Pharmaceutical Products, Inc-----	556 Morris Ave., Summit, N.J.
CIT	City Chemical Corp-----	132 West 22d St., New York 11, N.Y. (Jersey City, N.J.).
CLY	W. A. Cleary Corp-----	P.O. Box 749, New Brunswick (Franklin Township), N.J.
CLV	Clover Chemical Co-----	P.O. Box 10865, Pittsburgh 36, Pa.
CPL	Coast Paint & Lacquer Co., Inc-----	P.O. Box 1113, Houston 1, Tex.
COS	Coastwise Petroleum Co-----	1127 Munsey Bldg., Baltimore 2, Md. (Good Hope, La.).
COK	Cockerrille Chemicals, Inc-----	Greenwood, Va.
CP	Colgate-Palmolive Co-----	300 Park Avenue, New York 22, N.Y.
CW	Collett-Week Corp-----	Quimby St., Ossining, N.Y.
CC	Collway Colors, Inc-----	15 Market St., Paterson 1, N.J.
CLB	Columbia Organic Chemicals, Inc-----	1012 Drake Street, Columbia, S.C.
CMC	Comcolloid, Inc-----	3240 Grace Ave., Bronx 69, N.Y.
COM	Commercial Solvents Corp-----	260 Madison Ave., New York 16, N.Y.
CON	Concord Chemical Co., Inc-----	205 S. 2d St., Camden 1, N.J.
CDF	Concord Dyeing & Finishing Co., Inc-----	3470 3d Ave., New York 56, N.Y.
CFT	Consolidated Paint Co-----	3101 E. 11th St., Los Angeles 23, Calif.
CWP	Consolidated Water Power & Paper Co-----	Wisconsin Rapids, Wis.
CD	Continental-Diamond Fibre Corp-----	70 S. Chapel St., Newark, Del. (Bridgeport, Pa.).
CO	Continental Oil Co-----	1000 South Pine, Ponca City, Okla. (Westlake, La.; and Ponca City, Okla.).
CPV	Cook Paint & Varnish Co-----	P.O. Box 389, Kansas City 41, Mo.
COP	Coopers Creek Chemical Corp-----	River Rd., W. Conshohocken, Pa.
CFY	Copolymer Rubber & Chemical Corp-----	P.O. Box 2591, Baton Rouge 1, La.
CRN	Corn Products Co-----	17 Battery Place, New York 4, N.Y. (Argo, Ill.).
CSD	Cosden Petroleum Corp-----	P.O. Box 1311, Big Spring, Tex.
CWL	Cowles Chemical Co-----	7016 Euclid Ave., Cleveland 3, Ohio (Skaneateles Falls, N.Y.).
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.	530 Pear St., Reading, Pa.
CBY	Crosby Chemicals, Inc-----	Picayune, Miss. (De Ridder, La.; and Picayune, Miss.).
CCP	Crown Central Petroleum Corp-----	American Bldg., Baltimore 2, Md. (Pasadena, Tex.).
CRC	Crown Chemical Corp-----	240 India St., Providence 3, R.I.
CRO	Crownoil Chemical Co., Inc-----	2-14 49th Ave., Long Island 1, N.Y.
CRT	Crown Tar & Chemical Works, Inc-----	900 Wewatta St., Denver 4, Colo.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	Camas, Wash. (Lebanon, Oreg.).
CUT	Cutter Laboratories-----	4th & Parker Streets, Berkeley 10, Calif.
DAN	Dan River Mills, Inc-----	Danville, Va.
DAV	H. B. Davis Co-----	Bush and Severn Streets, Baltimore 30, Md.
DLI	Dawe's Laboratories, Inc-----	4300 S. Richmond St., Chicago 32, Ill. (Chicago, Ill.; and Newaygo, Mich.).
DEC	Deeey Products Co-----	120 Potter St., Cambridge 42, Mass.
GRC	Deere & Co., Grand River Chemical Div-----	Pryor, Okla.
DCI	Delaware Chemicals, Inc-----	50 Murray St., Staten Island 9, N.Y.
DLH	Delhi-Taylor Oil Corp-----	Box 4067, Corpus Christi, Tex.
DLM	Delmar Chemical Co., Inc-----	P.O. Box 108, Elkton, Md.
DLT	Delta Chemical Works, Inc-----	23 W. 60th St., New York 23, N.Y.
DEP	DePaul Chemical Co., Inc-----	44-27 Purvis St., Long Island 1, N.Y.
DSO	DeSoto Chemical Coatings, Inc-----	1350 S. Kostner Ave., Chicago 23, Ill.
TTX	Detroit Chemical Industries, Inc-----	P.O. Box 501, Detroit 32, Mich. (Ashtabula, Ohio).
DEX	Dexter Chemical Corp-----	845 Edgewater Rd., New York 59, N.Y.
DA	Diamond Alkali Co-----	300 Union Commerce Bldg., Cleveland 14, Ohio (Newark, N.J.; Fairport Harbor, Ohio; Houston and Pasadena, Tex.; and Belle, W. Va.).
TDC	Diversey Corp-----	1820 Roscoe St., Chicago 13, Ill.
DOD	Donald A. Dodd-----	Rt. 5, Box 621, Everett, Wash.
DOM	Dominion Products, Inc-----	10-40 44th Dr., Long Island 1, N.Y.
DGS	Douglas Chemical Corp-----	1624 Darrow Ave., Evanston, Ill.
DOW	Dow Chemical Co-----	Midland, Mich. (Pittsburgh and Torrance, Calif.; Gales Ferry, Conn.; and Freeport, Tex.).
DCC	Dow Corning Corp-----	P.O. Box 592, Midland, Mich.
DRW	E. F. Drew & Co., Inc-----	15 E. 26th St., New York 10, N.Y. (Boonton, N.J.).
DRG	Drug Processors, Inc-----	1219 E. Church St., Adrian, Mich.
DUN	Frank W. Dume Co-----	1007 41st St., Oakland 8, Calif.

TABLE 23.--Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
DUP	E. I. duPont de Nemours & Co., Inc-----	10th and Market Sts., Wilmington 98, Del. (Birmingham, Ala.; Antioch and San Francisco, Calif.; Loviers, Colo.; Fairfield, Conn.; Edge Moor, Newport, and Seaford, Del.; Tucker, Ga.; Chicago and Seneca, Ill.; E. Chicago and Fortville, Ind.; Clinton and Ft. Madison, Iowa; Louisville and Wurtland, Ky.; Baltimore, Md.; Everett and Leominster, Mass.; Ecorse, Flint, Montague, and Wyandotte, Mich.; Carl Junction, Mo.; Arlington, Carney's Point, Deepwater, Gibbstown, Kearny, Linden, Newark, Parlin, Perth Amboy, and Pompton Lakes, N.J.; Buffalo, Dresden, Newburgh, Niagara Falls, and Rochester, N.Y.; Kingston, N.C.; Circleville, Cleveland, Columbia Park, and Toledo, Ohio; Moosic, Philadelphia, and Towanda, Pa.; Camden, S.C.; Chattanooga, Columbia, Memphis, and Old Hickory, Tenn.; Beaumont, LaPorte, Orange, and Victoria, Tex.; Martinsville, Richmond, and Waynesboro, Va.; DuPont, Wash.; Belle, Charleston, Martinsburg, and Parkersburg, W. Va.; and Barksdale, Wis.).
DSC	Dye Specialties, Inc-----	26 Journal Sq., Jersey City 6, N.J.
DYK	Dykem Co-----	2307 N. 11th St., St. Louis 6, Mo.
EAK	J. S. & W. R. Eakins, Inc-----	55 Berry St., Brooklyn 11, N.Y.
EST	Eastern States Petroleum & Chemical Co-----	P.O. Box 5008, Harrisburg Station, Houston 12, Tex.
EK	Eastman Kodak Co-----	343 State St., Rochester 4, N.Y.
EKT	Tennessee Eastman Co. Div-----	Eastman Rd., Kingsport, Tenn.
EKY	Texas Eastman Co. Div-----	P.O. Box 2068, Longview, Tex.
EDX	Eddystone Manufacturing Co-----	P.O. Box 471, Wilmington 99, Del. (Eddystone, Pa.).
TAE	Thomas A. Edison Industries, McGraw-E Edison Co.	120 S. LaSalle St., Chicago 3, Ill. (Stuyvesant Falls, N.Y.).
EMR	Emery Industries, Inc-----	4300 Carew Tower, Cincinnati 2, Ohio.
EMK	Enkay Chemical Co-----	319 2d St., Elizabethport, N.J.
EN	Endo Laboratories, Inc-----	84-40 101st St., Richmond Hill 18, N.Y.
ERD	Erdmann Chemical Co., Inc-----	70 Lister Ave., Newark 5, N.J.
ESC	Escambia Chemical Corp-----	P.O. Box 467, Pensacola (Pace), Fla.
TNA	Ethyl Corp-----	100 Park Ave., New York 17, N.Y. (Pittsburg, Calif.; Baton Rouge, La.; Orangeburg, S.C.; and Pasadena, Tex.).
ETD	Ethyl-Dow Chemical Co-----	Midland, Mich. (Freeport, Tex.).
EVN	Evans Chemetics, Inc-----	250 E. 43d St., New York 17 (Waterloo), N.Y.
FMT	Fairmont Chemical Co., Inc-----	117 Blanchard St., Newark 5, N.J.
FL	Farley & Loetscher Manufacturing Co-----	7th & White Sts., Dubuque, Iowa.
FRM	Farmers' Chemical Co-----	P.O. Box 591, Kalamazoo, Mich.
FAR	Farnow, Inc-----	4-83 48th Ave., Long Island City 1, N.Y.
FRR	Estate of W. U. Farrington-----	Box 389, East Greenwich (Warwick), R.I.
FCL	Federal Color Laboratories, Inc-----	4633 Forest Ave., Norwood, Cincinnati 12, Ohio.
FEL	Felton Chemical Co., Inc-----	599 Johnson Ave., Brooklyn 37, N.Y.
FER	Ferro Chemical Corp-----	P.O. Box 349, 450 Krick Rd., Bedford, Ohio.
FBC	Fiber Chemical Corp-----	P.O. Box 218, Matawan (Cliffwood), N.J.
FBR	Fibreboard Paper Products Corp-----	P.O. Box 4331, Oakland 23 (Emeryville), Calif.
FIN	Fine Organics, Inc-----	205 Main St., Lodi, N.J.
FIR	Firestone Tire & Rubber Co.: Firestone Plastics Co. Div-----	P.O. Box 690, Pottstown, Pa.
FRS	Firestone Synthetic Rubber & Latex Co. Div.	381 W. Wilbeth Rd., Akron 1, Ohio.
FLO	Florasynth Laboratories, Inc-----	900 Van Nest Ave., New York 62, N.Y.
FLA	Florida Chemical Co., Inc-----	P.O. Box 997, Lake Alfred, Fla.
	Food Machinery & Chemical Corp.:	
FMB	Becco Chemical Div-----	Sawyer Ave. & River Rd., Buffalo 7 (Tonawanda), N.Y.
FMP	Chemicals & Plastics Div-----	1701 Patapsco Ave., Baltimore 26, Md. (Nitro, W. Va.).
FMW	Chlor-Alkali and Mineral Products Div.	161 E. 42d St., New York 17, N.Y. (Newark, Calif.; and S. Charleston, W. Va.).
FOR	Foremost Food & Chemical Co., El Dorado Div.	P.O. Box 599, Oakland 4, Calif.
FOM	Formica Corp., Subsidiary of American Cyanamid Co.	4614 Spring Grove Ave., Cincinnati 32, Ohio.
FH	Foster-Heaton Co-----	16 E. 5th St., Paterson 4, N.J.
FCD	France, Campbell & Darling, Inc-----	North Michigan Ave., Kenilworth, N.J.
FRE	Freeman Chemical Corp-----	211 E. Main St., Port Washington, Wis. (Ambridge, Pa.; and Saukville, Wis.).
FBS	Fries Bros., Inc-----	P.O. Box 8, Carlstadt, N.J.
FSH	Frisch & Co., Inc-----	88 E. 11th St., Paterson 4, N.J.
FB	Fritzsche Bros., Inc-----	76 9th Ave., New York 11, N.Y. (Clifton, N.J.).
FLH	H. B. Fuller Co-----	4819 Industrial Court, Cincinnati 17, Ohio.
FLW	W. P. Fuller & Co-----	450 E. Grand Ave., S. San Francisco, Calif.
GAM	Gamma Chemical Corp-----	355 Lexington Ave., New York 17, N.Y. (Great Meadows, N.J.).
GAN	Gane's Chemical Works, Inc-----	535 5th Ave., New York 17, N.Y. (Carlstadt, N.J.).

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
GGY	Geigy Chemical Corp-----	P.O. Box 430, Yonkers (Ardsley), N.Y.
GAF	General Aniline & Film Corp., Dyestuff & Chemical Div.	435 Hudson St., New York, N.Y. (Calvert City, Ky.; Linden, N.J.; and Rensselaer, N.Y.).
GNC	General Color Co., Inc----- General Electric Co.:	24 Avenue B, Newark 5, N.J.
GE	Chemical Materials Dept-----	1 Plastics Ave., Pittsfield, Mass. (Anaheim, Calif.; Pittsfield, Mass.; and Coshocton, Ohio).
GEI	Insulating Materials Dept-----	23 River Rd., Schenectady 5, N.Y. (Chelsea, Mass.).
SPD	Silicone Products Dept-----	Waterford, N.Y.
GNF	General Foods Corp., Maxwell House Div.	1125 Hudson St., Hoboken, N.J.
GNM	General Mills, Inc-----	9200 Wayzata Blvd., Minneapolis 26, Minn. (Kankakee, Ill.; and Keokuk, Iowa).
GNT	General Tire & Rubber Co., Chemical Div.	1708 Englewood Ave., Akron 9, Ohio (Ashtabula and Mogadore, Ohio; and Odessa, Tex.).
GRG	P. D. George Co-----	5200 N. 2d St., St. Louis 7, Mo.
GIL	Gilman Paint & Varnish Co-----	W. 8th and Pine Sts., Chattanooga 1, Tenn.
GIV	Givaudan Corp-----	109-201 Delawanna Ave., Delawanna, N.J.
GLD	Glidden Co-----	900 Union Commerce Bldg., Cleveland 14, Ohio.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	3135 Euclid Ave., Cleveland 15, Ohio (Henry, Ill.; Calvert City and Louisville, Ky.; Niagara Falls, N.Y.; and Akron and Avon Lake Village, Ohio).
GGC	Goodrich-Gulf Chemicals, Inc-----	1717 E. 9th St., Cleveland 14, Ohio (Port Neches, Tex.; and Institute, W. Va.).
Gyr	Goodyear Tire & Rubber Co-----	1144 E. Market St., Akron 16, Ohio.
GOR	Gordon Chemical Co., Inc-----	88 Webster St., Worcester 3, Mass.
GDN	Gordon Chemicals, Inc-----	Broad & 13th Sts., Carlstadt, N.J. (Wilmington, Del.).
GDL	Gordon-Lacey Chemical Products Co., Inc.	57-02 48th St., Maspeth 78, N.Y.
	W. R. Grace & Co.:	
GRD	Dewey & Almy Chemical Div-----	62 Whittmore Ave., Cambridge 40, Mass.
GCC	Grace Chemical Div-----	P.O. Box 4915, Memphis 7 (Woodstock), Tenn.
GRF	Polymer Chemicals Div-----	225 Allwood Rd., Clifton, N.J. (Baton Rouge, La.).
GPR	Grain Processing Corp-----	1600 Oregon St., Muscatine, Iowa.
GRV	Grand Rapids Varnish Corp-----	1350 Steele Ave. SW., Grand Rapids 2, Mich.
FG	Foster Grant Co., Inc-----	289 N. Main St., Leominster, Mass. (Baton Rouge, La.; and Manchester, N.H.).
GRA	Great American Plastics Co-----	85 Factory Street, Nashua, N.H. (Fitchburg, Mass.).
GRS	Great Southern Chemical Corp-----	P.O. Box 4166, Corpus Christi, Tex.
GRW	Great Western Sugar Co-----	Box 5308, Terminal Annex, Denver 17 (Johnstown), Colo.
GTS	Greenwood Textile Supply Co-----	27 Meadow St., Warwick, R.I.
GUA	Guard Chemical Co-----	North Water St., Ossining, N.Y.
GOC	Gulf Oil Corp-----	P.O. Drawer 2100, Houston 1, Tex. (Cleveland, Ohio; Philadelphia, Pa.; and Port Arthur, Tex.).
GDC	Gulf Research & Development Co-----	P.O. Drawer 2038, Pittsburgh 30 (Philadelphia), Pa.
GUY	Guyon Color & Chemical Works, Inc-----	Box 1088, Huntington 1, W. Va.
HMC	H. M. Chemical Co., Ltd-----	754 22d St., Santa Monica, Calif.
HLI	Haag Laboratories, Inc-----	14010 S. Seeley, Blue Island, Ill.
HAB	Halby Products Co., Inc-----	P.O. Box 366, Wilmington 99, Del.
HAL	C. P. Hall Co. of Illinois-----	5245 W. 73d St., Chicago 38, Ill.
HAM	Hampden Color & Chemical Co-----	5 Albany St., Springfield, Mass.
HMP	Hampshire Chemical Corp-----	Poisson Ave., Nashua, N.H.
HAN	Hanna Paint Manufacturing Co., Inc-----	1313 Windsor Ave., Columbus 16, Ohio.
HRB	Harbor Plywood Corp-----	P.O. Box 940, Aberdeen, Wash.
HAR	Harshaw Chemical Co-----	1945 E. 97th St., Cleveland 6, Ohio (Louisville, Ky.; Gloucester City, N.J.; and Hastings, N.Y.).
HSY	Harsyd Chemicals, Inc-----	397 W. 21st St., Holland, Mich.
HRT	Hart Products Corp-----	1440 Broadway, New York 18, N.Y. (Jersey City, N.J.).
HLC	Hartman-Leddon Co., Inc-----	60th & Woodland Ave., Philadelphia 43 (Conshohocken), Pa.
HLN	Helene Curtis Industries, Inc-----	4401 W. North Ave., Chicago 39, Ill.
HPC	Hercules Powder Co-----	900 Market St., Wilmington 99, Del. (Brunswick, Ga.; Mansfield, Mass.; Hattiesburg, Miss.; Burlington, Kenvil, and Parlin, N.J.; and Hopewell, Va.).
HER	Heresite & Chemical Co-----	822 S. 14th St., Manitowish, Wis.
HET	Heterochemical Corp-----	111 E. Hawthorne Ave., Valley Stream, N.Y.
HN	Heyden Newport Chemical Corp-----	342 Madison Ave., New York 17, N.Y. (Fords and Garfield, N.J.).
HNW	Newport Industries Co. Div-----	P.O. Box 911, Pensacola, Fla.
HNX	Nuodex Products Co. Div-----	830 Magnolia Ave., Elizabeth, N.J. (Long Beach, Calif.; and Elizabeth and Newark, N.J.).
HEX	Hexagon Laboratories, Inc-----	3536 Peartree Ave., New York 69, N.Y.
HDG	Hodag Chemical Corp-----	7247 N. Central Park Ave., Chicago 45, Ill.
HST	Hoechst Chemical Corp-----	129 Quindnick St., W. Warwick, R.I.
HOF	Hoffmann-LaRoche, Inc-----	324-424 Kingsland Rd., Nutley 10, N.J.
HFT	Hoffman-Taff, Inc-----	P.O. Box 1246, Springfield, Mo.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1959--Continued*

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
HCC	Holland Color & Chemical Co-----	492 Douglas Ave., Holland, Mich.
HK	Hooker Chemical Corp-----	Buffalo Ave. & 47th St., Niagara Falls, N.Y.
HKD	Durez Plastics Div-----	Walck Rd., North Tonawanda, N.Y.
HKP	Phosphorus Div-----	Buffalo Ave. & 47th St., Niagara Falls, N.Y.
EFH	E. F. Houghton & Co-----	303 W. Lehigh Ave., Philadelphia 33, Pa.
	Chas. L. Huisiking & Co., Inc.:	
CLC	Clintbrook Chemical Co. Div-----	417 5th Ave., New York 16, N.Y. (Lynchhurst, N.J.).
GLY	Glyco Chemicals Div-----	417 5th Ave., New York 16, N.Y. (Williamsport, Pa.).
	Humble Oil & Refining Co.:	
ESL	Esso Standard Div-----	P.O. Box 551, Baton Rouge 1, La.
ESO	Esso Standard Div-----	P.O. Box 23, Linden, N.J.
HUM	Humble Div-----	P.O. Box 2180, Houston 1 (Baytown), Tex.
HMY	Humphrey-Wilkinson, Inc-----	Devine St., North Haven, Conn.
HUS	Husky Oil Co-----	Box 380, Cody, Wyo. (Dickinson, N.D.).
HYN	Hynson, Westcott & Dunning, Inc-----	Charles & Chase Sts., Baltimore 1, Md.
IMP	Imperial Color Chemical & Paper Corp-----	P.O. Box 231, Glens Falls, N.Y.
IDC	Industrial Dyestuff Co-----	P.O. Box 4249, Massasoit Ave., E. Providence 14, R.I.
INL	Inland Steel Container Co-----	6532 S. Mendar Ave., Chicago 38, Ill.
	Interchemical Corp.:	
ICC	Color & Chemicals Div-----	150 Wagaraw Rd., Hawthorne, N.J.
ICF	Finishes Div-----	224 McWhorter St., Newark 1, N.J. (Los Angeles, Calif.; Chicago, Ill.; Elizabeth, N.J.; and Cincinnati, Ohio).
IFF	International Flavors & Fragrances, Inc.	521 W. 57th St., New York 19, N.Y. (Union Beach, N.J.).
IMC	International Minerals & Chemical Corp-----	5401 Old Orchard Rd., Skokie, Ill. (San Jose, Calif.; Skokie, Ill.; and Niagara Falls, N.Y.).
INP	International Paper Co-----	220 E. 42d St., New York 17, N.Y. (Corinth, N.Y.; and York Haven, Pa.).
ITX	Intex Chemical Corp-----	167 Main Street, Lodi, N.J.
IRI	Ironides Co-----	270 W. Mound St., Columbus 15, Ohio.
JAM	Jamestown Paint & Varnish Co-----	Jamestown, Pa.
JCC	Jefferson Chemical Co., Inc-----	P.O. Box 303, Houston 1 (Port Neches), Tex.
MER	Jefferson Lake Sulphur Co., Merichem Co. Div.	P.O. Box 9788, Houston 15, Tex.
JEN	Jemison-Wright Corp-----	Box 4187, Station E, Toledo 9, Ohio.
JRG	Andrew Jergens Co-----	2535 Spring Grove Ave., Cincinnati 14, Ohio.
JWL	Jewel Paint & Varnish Co-----	345 N. Western Ave., Chicago 12, Ill.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, Wis.
JOB	Jones-Blair Paint Co., Inc-----	6969 Denton Dr., P.O. Box 35286, Dallas, Tex.
JOD	Jones-Dabney Co-----	1481 S. 11th St., Louisville 8, Ky.
JOR	W. H. & F. Jordan, Jr. Manufacturing Co.	2126 E. Somerset St., Philadelphia 34, Pa.
KAL	Kali Manufacturing Co-----	427 E. Moyer St., Philadelphia 25, Pa.
KID	Kalide Corp-----	19 South Canal St., Lawrence, Mass.
KF	Kay-Fries Chemicals, Inc-----	180 Madison Ave., New York 16 (West Haverstraw), N.Y.
KEL	Kelly-Pickering Chemical Corp-----	956 Bransten Rd., San Carlos, Calif.
KEN	Kendall Refining Co-----	77 Kendall Ave., Bradford, Pa.
	Kennecott Copper Corp.:	
KCC	Chino Mines Div-----	Hurley, N. Mex.
KCU	Utah Copper Div-----	151 Mineral Square, Salt Lake City 1 (Arthur and Magna), Utah.
KES	Kessler Chemical Co., Inc-----	State Rd. & Cottman Ave., Philadelphia 35, Pa.
KYS	Keyser Chemical Co-----	Box 338, Saugus, Calif.
KCH	Keystone Chemurgic Corp-----	R.D. #2, Bethlehem, Pa.
KCW	Keystone Color Works, Inc-----	151 W. Gay Ave., York, Pa.
KPV	Keystone Paint & Varnish Corp-----	71 Otsego St., Brooklyn 31, N.Y.
KLS	Kilsdonk Chemical Corp-----	101 Canal St., Lock Haven, Pa.
KNG	O. L. King & Co-----	640 Gilman St., Berkeley 10, Calif.
KNP	Knapp Products, Inc-----	180 Hamilton Ave., Lodi, N.J.
KND	Knoedler Chemical Co-----	651 High St., Lancaster, Pa.
KON	H. Kohnstamm & Co., Inc-----	161 Avenue of the Americas, New York 7 (Brooklyn), N.Y.
KLK	Kolker Chemical Corp-----	600 Doremus Ave., Newark 5, N.J.
	Koppers Co., Inc.:	
KPC	Chemicals and Dyestuffs Div-----	Koppers Bldg., 430 7th Ave., Pittsburgh 19 (Lock Haven and Petrolia), Pa.
KPP	Plastics Div-----	Koppers Bldg., 430 7th Ave., Pittsburgh 19, Pa.
KPT	Tar Products Div-----	Koppers Bldg., 430 7th Ave., Pittsburgh 19, Pa. (Woodward, Ala.; Fontana, Calif.; New Haven, Conn.; Chicago, Ill.; Chalmette, La.; Bangor and Portland, Maine; Everett and Westfield, Mass.; Wyandotte, Mich.; St. Paul, Minn.; Kearny and Westfield, N.J.; Buffalo, Rochester, and Utica, N.Y.; Hamilton, Toledo, Warren, and Youngstown, Ohio; Kobuta, Oil City, Swedeland, and Swissvale, Pa.; East Providence, R.I.; Memphis, Tenn.; Houston, Tex.; Arroya and Follansbee, W. Va.; and Carrollville and Milwaukee, Wis.).

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
KRM	Krumbhaar Chemicals, Inc-----	24 Jacobus Ave., South Kearny, N.J.
KRY	Krystall Chemical Co-----	1301 W. Belden Ave., Chicago 14, Ill.
KYN	Kyanize Paints, Inc-----	2d and Boston Sts., Everett 49, Mass.
LKL	Lakeside Laboratories, Inc-----	1707 E. North Ave., Milwaukee 1, Wis.
LAM	LaMotte Chemical Products Co-----	Chestertown, Md.
LAS	LaSalle Chemical Corp-----	21-23 Merseles St., Jersey City 2, N.J.
LUR	Laurel Soap Manufacturing Co., Inc-----	Thompson & Tioga Sts., Philadelphia 34, Pa.
LEA	Leatec Chemical Co-----	2722 N. Hancock St., Philadelphia 33, Pa.
LEB	Lebanon Chemical Corp-----	P.O. Box 532, Lebanon, Pa.
LEF	Leffingwell Chemical Co-----	P.O. Box 1187, Perry Annex, Whittier, Calif.
LEM	B. L. Lemke & Co., Inc-----	199 Main St., Lodi, N.J.
LEN	Leonard Refineries, Inc-----	East Superior St., Alma (Mt. Pleasant), Mich.
LEV	Lever Brothers Co-----	390 Park Ave., New York 22, N.Y.
LVR	C. Lever Co., Inc-----	Howard and Huntington Sts., Philadelphia 33, Pa.
LVI	Fred'k H. Levey Co., Inc-----	380 Madison Ave., New York 17 (Brooklyn), N.Y.
LEW	Lewis Tar Products Co-----	P.O. Box A, Lyons (McCook), Ill.
LIL	Eli Lilly & Co-----	740 S. Alabama St., Indianapolis 6, Ind.
LON	Charles R. Long, Jr. Co-----	1630 W. Hill St., Louisville 10, Ky.
LUB	Lubrizon Corp-----	Cleveland 17, Ohio.
LUE	George Lueders & Co-----	427 Washington St., New York 13 (Patogue), N.Y.
MAS	Maas & Waldstein Co-----	2121 McCarter Highway, Newark 4, N.J.
MGR	Magruder Color Co., Inc-----	2385 Richmond Terrace, Staten Island 2, N.Y.
MAL	Mallinckrodt Chemical Works-----	3600 North Second St., St. Louis 7, Mo. (St. Louis, Mo.; and Jersey City, N.J.).
MRB	Marblette Corp-----	37-31 30th St., Long Island City 1, N.Y.
MED	Marden-Wild Corp-----	500 Columbia St., Somerville 43, Mass.
MRV	Marlowe-Van Loan Corp-----	1511 Byrum St., High Point, N.C.
MRX	Max Marx Color & Chemical Co-----	192 Coit St., Irvington 11, N.J.
MDP	Maryland Plastics Co-----	25 E. Central Ave., Federalburg (Ridgely), Md.
MEE	Maumee Chemical Co-----	1310 Expressway Dr., Toledo 8, Ohio.
MAY	Otto B. May, Inc-----	52 Amsterdam St., Newark 5, N.J.
MYW	Maywood Chemical Works-----	100 W. Hunter Ave., Maywood, N.J.
MCC	McCloskey Varnish Co-----	7600 State Rd., Philadelphia 36, Pa.
MCD	McWhorter Chemicals, Inc-----	1645 S. Kilbourn Ave., Chicago 23, Ill.
MED	Medical Chemicals Corp-----	4122 W. Grand Ave., Chicago 51, Ill.
MRK	Merck & Co., Inc-----	Lincoln Ave., Rahway, N.J. (Albany, Ga.; Danville, Philadelphia, and West Point, Pa.; and Elkton, Va.).
MJM	M. J. Merkin Paint Co., Inc-----	1441 Broadway, New York 18, N.Y. (Lyndhurst, N.J.).
MIL	Metalsalts Corp-----	200 Wagaraw Rd., Hawthorne, N.J.
MRA	Metro-Atlantic, Inc-----	2072 Smith St., Centerdale 11, R.I.
JMS	J. Meyer & Sons, Inc-----	4321 N. 4th St., Philadelphia 40, Pa.
MCH	Michigan Chemical Corp-----	500 N. Bankson St., St. Louis, Mich. (El Dorado, Ark.).
MID	Midland Industrial Finishes Co-----	East Water St., Waukegan, Ill.
MIS	Miles Chemical Co-----	N. Centennial St., Zeeland, Mich.
ML	Miles Laboratories, Inc-----	Elkhart, Ind.
MOR	Mineral Oil Refining Co-----	P.O. Drawer C, Dickinson 1, Tex.
MAM	Minnesota Mining & Manufacturing Co-----	900 Bush Ave., St. Paul 6, Minn.
MNP	Minnesota Paints, Inc-----	1101 S. 3d St., Minneapolis 15, Minn. (Fort Wayne, Ind.).
MIR	Miranol Chemical Co., Inc-----	277 Coit St., Irvington 11, N.J.
MSC	Mississippi Chemical Corp-----	P.O. Box 563, Yazoo City, Miss.
MDB	Mobay Chemical Co-----	1815 Washington Rd., Pittsburgh 34, Pa. (New Martinsville, W. Va.).
MOA	Mona Industries, Inc-----	65 E. 23d St., Paterson 17, N.J.
MON	Monsanto Chemical Co-----	800 N. Lindbergh, St. Louis 66, Mo. (Anniston, Ala.; Long Beach and Santa Clara, Calif.; Monsanto, Ill.; Luling, La.; Boston, Mass.; Trenton, Mich.; Kearny, N.J.; Seattle, Wash.; and Nitro, W. Va.).
MTC	Plastics Div-----	812 Monsanto Ave., Springfield, Mass. (Texas City, Tex.).
MTR	Montrose Chemical Co-----	100 Lister Ave., Newark 5, N.J.
MFO	Montrose Chemical Corp. of California-----	824 Wilshire Blvd., Los Angeles 17, Calif. (Torrance, Calif.; and Henderson, Nev.).
MR	Benjamin Moore & Co-----	511 Canal St., New York 13, N.Y. (Los Angeles, Calif.; Denver, Colo.; Carteret, N.J.; and Cleveland, Ohio).
MRN	Morningstar Paisley, Inc-----	1770 Canalport Ave., Chicago 16, Ill.
MRT	Morton Chemical Co-----	Ringwood, Ill.
MRW	Morwear Paint Co-----	568 14th St., Oakland 12, Calif.
MOT	Motomco, Inc-----	89 Terminal Ave., Clark, N.J.
NTB	National Biochemical Co-----	3127 W. Lake St., Chicago 12, Ill.
NTC	National Casein Co-----	601 W. 80th St., Chicago 20, Ill. (Tyler, Tex.).
SHF	National Dairy Products Corp., Sheffield Chemical Co. Div.	Box 630, Norwich, N.Y.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.	99 Park Ave., New York 16, N.Y. (New Orleans, La.).
NFL	National Lead Co-----	111 Broadway, New York 6, N.Y. (San Francisco, Calif.; Perth Amboy, N.J.; and Philadelphia, Pa.).

TABLE 23.--Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
NPC	National Petro-Chemicals Corp-----	99 Park Ave., New York 16, N.Y. (Tuscola, Ill.).
NPI	National Polychemicals, Inc-----	Emmes St., Wilmington, Mass.
NSP	National Southern Products Corp-----	P.O. Box 390, Tuscaloosa, Ala.
NSC	National Starch and Chemical Corp-----	750 3d Ave., New York 17, N.Y. (Meredosia, Ill.; and Plainfield, N.J.).
NES	Nease Chemical Co., Inc-----	P.O. Box 221, State College, Pa. (Fernald, Ohio; and Lock Haven and State College, Pa.).
NEP	Nepera Chemical Co., Inc-----	Rt. 17 & Averill Ave., Harriman, N.Y.
NEV	Neville Chemical Co-----	Neville Island, Pittsburgh 25, Pa. (Anaheim, Calif.; and Neville Island, Pa.).
NYP	New York & Pennsylvania Co., Inc-----	425 Park Ave., New York 22, N.Y. (Johnsonburg, Pa.).
NIL	Nilok Chemicals, Inc-----	2000 College Ave., Niagara Falls (Lockport), N.Y.
NON	A. P. Nonweiler Co-----	P.O. Box 1007, Oshkosh, Wis.
NOP	Nopco Chemical Co., Inc-----	60 Park Place, Newark 2, N.J. (Richmond, Calif.; Cedartown, Ga.; and Carlstadt, Clifton, Harrison, and North Arlington, N.J.).
NEO	Norda Essential Oil & Chemical Co., Inc.	601 W. 26th St., New York 1, N.Y. (Boonton, N.J.).
NW	Northwestern Chemical Co-----	120 N. Aurora St., West Chicago, Ill.
NOR	Norwich Pharmacal Co-----	17 Eaton Ave., Norwich, N.Y.
OB	O'Brien Corp-----	2001 W. Washington Ave., South Bend 21, Ind. (Baltimore, Md.; and South Bend, Ind.).
ODE	Odessa Butadiene Co-----	P.O. Box 1161, El Paso (Odessa), Tex.
ODS	Odessa Styrene Co-----	P.O. Box 1161, El Paso (Odessa), Tex.
OH	Ohio Chemical & Surgical Equipment Co-----	1400 E. Washington Ave., Madison 10, Wis. (Cleveland, Ohio).
OIL	Oil & Chemical Products, Inc-----	295 Madison Ave., New York 17, N.Y. (Houston, Tex.).
OLC	Old Colony Tar Co., Inc-----	500 5th Ave., New York 36, N.Y. (Cambridge and Worcester, Mass.).
OLH	Old Hickory Chemical Co., Inc-----	P.O. Box 1480, Richmond 12, Va. (Old Hickory, Tenn.; and Richmond, Va.).
	Olin Mathieson Chemical Corp.:	
OMB	Blockson Chemical Co. Div-----	Joliet, Ill.
OMC	Chemicals Div-----	10 Light St., Baltimore 3, Md. (Huntsville and McIntosh, Ala.; Brandenburg, Ky.; Lake Charles, La.; Niagara Falls and Rochester, N.Y.).
OMS	E. R. Squibb & Sons Div-----	745 5th Ave., New York 22, N.Y. (New Brunswick, N.J.; and Brooklyn, N.Y.).
ONX	Onyx Chemical Co-----	190 Warren St., Jersey City 2, N.J. (Jersey City, N.J.; and Rossville, Staten Island, N.Y.).
OPC	Orbis Products Corp-----	601 W. 26th St., New York 1, N.Y. (Newark, N.J.).
ORG	Organica, Inc-----	1724 Greenleaf Ave., Chicago 26, Ill.
ORO	Oronite Chemical Co-----	200 Bush St., San Francisco 4, Calif. (Oak Point, La.).
ORT	Ortho Chemical Corp-----	52-20 37th St., Long Island City, N.Y.
OSB	C. J. Osborn Co-----	1301 W. Blanche St., Linden, N.J.
OTT	Ottol Oil Co-----	455 Cortlandt St., Belleville 9, N.J.
PBS	Pabst Brewing Co-----	Merchandise Mart, Chicago 54, Ill. (Peoria, Ill.; and Milwaukee, Wis.).
PAN	Pan American Petroleum Corp-----	P.O. Box 591, Tulsa 2, Okla. (Ulysses, Kans.; Cotton Valley, La.; and Alvin, Frankel City, Katy, Levelland, Pettus, Sundown, and Sweeney, Tex.).
PD	Parke-Davis & Co-----	Jos. Campau at the River, Detroit 32, Mich.
PRP	M. W. Parsons-Plymouth, Inc-----	59 Beekman St., New York 39 (Brooklyn), N.Y.
PAT	Patent Chemicals, Inc-----	335 McLean Blvd., Paterson, N.J.
PUL	Paul-Lewis Laboratories, Inc-----	4215 N. Port Washington Ave., Milwaukee 12, Wis.
PEK	Peck's Products Co-----	610 E. Clarence Ave., St. Louis 15, Mo.
POH	Peerless Chemical Co-----	3850 Oakman Blvd., Detroit 4, Mich.
POC	Peerless Color Co., Inc-----	521 North Avenue, Plainfield, N.J.
PEN	S. B. Penick & Co-----	100 Church St., New York, N.Y. (Jersey City, Lyndhurst, Montville, and Newark, N.J.).
PAS	Pennsalt Chemicals Corp-----	3 Penn Center, Philadelphia 2, Pa. (Calvert City, Ky.; Wyandotte, Mich.; and Houston, Tex.).
PAI	Pennsylvania Industrial Chemical Corp-----	120 State Street, Box 240, Clairton (Chester), Pa.
PAR	Pennsylvania Refining Co-----	Butler Savings & Trust Bldg., Butler (Karns City), Pa.
PCU	Perkins Glue Co-----	632 Cannon Ave., Lansdale, Pa. (W. Memphis, Ark.; High Point, N.C.; and Shawano, Wis.).
PER	Perry & Derrick Co-----	2510 Highland Ave., Cincinnati 12, Ohio (Dayton, Ky.).
PET	Petroleum Chemicals, Inc-----	P.O. Box 6, 821 Gravier St., New Orleans 6 (Lake Charles), La.
PTT	Petro-Tex Chemical Corp-----	P.O. Box 2584, Houston 1, Tex.
PFN	Pfanstiel Laboratories, Inc-----	104 Lakeview Ave., Waukegan, Ill.
PRM	Pfandler Permutit, Inc., Permutit Co. Div.	50 West 44th St., New York 36, N.Y. (Birmingham, N.J.).
PCW	Pfiater Chemical Works, Inc-----	Ridgefield, N.J.
PFZ	Chas. Pfizer & Co., Inc-----	11 Bartlett St., Brooklyn 6, N.Y.
PPF	Phelan-Faust Paint Manufacturing Co-----	932 Loughborough Ave., St. Louis 11, Mo.
PLC	Phillips Chemical Co-----	Bartlesville, Okla. (Borger and Pasadena, Tex.).

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
PLP	Phillips Petroleum Co-----	Bartlesville, Okla. (Phillips, Tex.).
PNX	Phoenix Oil Co-----	9505 Cassius Ave., Cleveland 5, Ohio.
PIL	Pilot Chemical Co. of California-----	11756 Burke St., Santa Fe Springs, Calif.
PIT	Pitt-Consol Chemical Co-----	191 Doremus Ave., Newark 5, N.J.
PCG	Pittsburgh Coke & Chemical Co-----	2100 Grant Bldg., Pittsburgh 19, Pa.
PPG	Pittsburgh Plate Glass Co-----	1 Gateway Center, Pittsburgh 22, Pa. (Torrance, Calif.; Atlanta, Ga.; Detroit, Mich.; Newark, N.J.; Barborton and Cleveland, Ohio; Springdale, Pa.; Houston, Tex.; New Martinsville, W. Va.; and Milwaukee, Wis.).
PLS	Plastics Engineering Co-----	1607 Geele Ave., Sheboygan, Wis.
PYL	Polychemical Laboratories, Inc-----	490 Hunts Point Ave., New York 59, N.Y.
PYR	Poly Resins, Inc-----	11655 Wicks St., Sun Valley, Calif.
PYZ	Polyrez Co., Inc-----	So. Columbia St. & Railroad, Woodbury, N.J.
PDC	Poughkeepsie Dyestuff Corp-----	77 N. Water St., Poughkeepsie, N.Y.
PRT	Pratt & Lambert, Inc-----	75 Tonawanda St., Buffalo 7, N.Y.
PRE	Premium Chemicals, Inc-----	113 Marine St., Farmingdale, N.Y.
PRS	Presto Plastic Products Co., Inc-----	5410 Avenue U, Brooklyn 34, N.Y.
PCS	Process Chemicals Co-----	8733 S. Dice Rd., Santa Fe Springs, Calif.
PG	Procter & Gamble Manufacturing Co-----	301 E. 6th St., Cincinnati 2, Ohio (Long Beach and Sacramento, Calif.; Chicago, Ill.; Iowa City, Iowa; Kansas City, Kans.; Quincy, Mass.; Baltimore, Md.; St. Louis, Mo.; Cincinnati, Ohio; Staten Island, N.Y.; and Dallas, Tex.).
PC	Procter Chemical Co., Inc-----	P.O. Box 399, Salisbury, N.C.
PRD	Productol Co-----	417 South Hill St., Los Angeles 13 (Santa Fe Springs), Calif.
PUB	Publicker Industries, Inc-----	1429 Walnut St., Philadelphia 2, Pa.
PSP	Puget Sound Pulp & Timber Co-----	300 Laurel St., Bellingham, Wash.
PRO	Pure Oil Co-----	35 East Wacker Dr., Chicago 1, Ill.
PRX	Purex Corp., Ltd-----	9300 Rayo Avenue, South Gate, Calif.
QCF	Quaker Chemical Products Corp-----	Elm, Lime, and Sandy Sts., Conshohocken, Pa.
QKO	Quaker Oats Co-----	Merchandise Mart Plaza, Chicago 54, Ill. (Cedar Rapids, Iowa; Omaha, Nebr.; and Memphis, Tenn.).
RSA	R. S. A. Corp-----	690 Saw Mill River Rd., Ardsley, N.Y.
RET	Raybestos-Manhattan, Inc-----	P.O. Box 102L, Bridgeport (Stratford), Conn.
RAB	Rayette, Inc., Chemical Div-----	261 E. 5th St., St. Paul 1, Minn.
RED	Red Spot Paint & Varnish Co., Inc-----	110 Main St., Evansville 8, Ind.
TEK	Refined Products Corp-----	624 Schuyler Ave., Lyndhurst, N.J.
RCI	Reichhold Chemicals, Inc-----	525 North Broadway, White Plains, N.Y. (Tuscaloosa, Ala.; Azusa and San Francisco, Calif.; Jacksonville, Fla.; Argo, Ill.; Kansas City, Kans.; Ballardvale, Mass.; Ferndale, Mich.; Charlotte, N.C.; Elizabeth, N.J.; Brooklyn, N.Y.; Hampton, S.C.; Houston, Tex.; and Seattle and Tacoma, Wash.).
AKL	Alkydol Laboratories Div-----	3242 S. 50th Ave., Cicero, Ill.
VAR	Varcum Chemical Corp. Div-----	Niagara Falls, N.Y.
RIL	Reilly Tar & Chemical Corp-----	1615 Merchants Bank Bldg., Indianapolis 4, Ind.
REL	Reliance Varnish Co., Inc-----	4730 Crittenden Dr., Louisville 9, Ky.
REM	Remington Arms Co., Inc-----	939 Barnum Ave., Bridgeport 2, Conn.
REP	Republic Creosoting Co-----	1615 Merchants Bank Bldg., Indianapolis 4, Ind.
REZ	Rezolin, Inc-----	1651 18th St., Santa Monica, Calif.
RCD	Richardson Co-----	27th Ave. and Lake St., Melrose Park, Ill.
RIC	Richfield Oil Corp-----	555 S. Flower St., Los Angeles 17 (Watson), Calif.
RIK	Riker Laboratories, Inc-----	19901 Nordhoff St., Northridge, Calif.
RMC	Rinshed-Mason Co-----	5935 Milford Ave., Detroit 10, Mich. (Anaheim, Calif.).
RT	F. Ritter & Co-----	4001 Goodwin Avenue, Los Angeles 39, Calif.
RTC	Ritter Chemical Co., Inc-----	403 W. Main St., Amsterdam, N.Y.
RIV	Riverdale Chemical Co-----	220 E. 17th St., Chicago Heights, Ill.
RB	Robert & Co., Inc-----	92 Liberty St., New York 6, N.Y. (Newark, N.J.).
RBC	Roberts Chemicals, Inc-----	P.O. Box 446, Nitro, W. Va.
ROC	Rock Hill Printing & Finishing Co-----	Rock Hill, S. C.
RGC	Rogers Corp-----	Rogers (Manchester), Conn.
RH	Rohm & Haas Co-----	222 W. Washington Sq., Philadelphia 5, Pa. (Bristol and Philadelphia, Pa.; Knoxville, Tenn.; and Deer Park, Tex.).
ROM	Roma Chemical Corp-----	900 Passaic Ave., E. Newark, N.J.
ROS	Rosett Chemicals, Inc-----	84 Waydell St., Newark 5, N.J.
ROY	Royce Chemical Co-----	Carlton Ave., Carlton Hill, N.J.
RUB	Rubber Corp. of America-----	New South Rd., Hicksville, N.Y.
RUR	Ruberoid Co-----	500 5th Ave., New York 36, N.Y. (Joliet, Ill.; Baltimore, Md.; and Erie, Pa.).
SWC	S & W Chemical Co., Inc-----	P.O. Box 995, LaPorte, Tex.
LKY	St. Regis Paper Co., Lake States Yeast & Chemical Div-----	603 W. Davenport St., Rhinelander, Wis.
SAL	Dr. Salsbury's Laboratories-----	500 Gilbert St., Charles City, Tex.
SLV	Salvo Chemical Corp-----	Rothschild, Wis.
SAN	Sandoz, Inc-----	P.O. Box 357, Fair Lawn, N.J.

TABLE 23. --Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
SCF	Schaefer Varnish Co., Inc-----	15th & Magnolia Sts., Louisville 10, Ky.
SCN	Schenectady Varnish Co., Inc-----	Congress St. & 9th Ave., Schenectady 1 (Rotterdam Jct.), N.Y.
SCR	R. P. Scherer Corp-----	9425 Grinnell Ave., Detroit 13, Mich.
SCH	Schering Corp-----	60 Orange St., Bloomfield (Union), N.J.
SCO	Scholler Bros., Inc-----	Collins & Westmoreland Sts., Philadelphia 34, Pa.
FMF	Schuykill Chemical Co-----	2346 Segley Ave., Philadelphia 32, Pa.
SBR	Schwarz BioResearch, Inc-----	230 Washington St., Mt. Vernon, N.Y.
SEM	Seamco Chemical Co-----	3 Hanover St., Holyoke, Mass.
SRL	G. D. Searle & Co-----	P.O. Box 5110, Chicago 80, Ill.
SED	Seidlitz Paint & Varnish Co-----	18th & Garfield, Kansas City, Mo.
SHW	Shawinigan Resins Corp-----	644 Monsanto Ave., Springfield 1, Mass. (Trenton, Mich.).
SHC	Shell Chemical Corp-----	50 W. 50th St., New York 20, N.Y. (Dominguez, Martinez, Pittsburg, Torrance, and Ventura, Calif.; Denver, Colo.; Norco, La.; and Houston, Tex.).
SHO	Shell Oil Co-----	50 W. 50th St., New York 20, N.Y. (Martinez and Wilmington, Calif.; Roxana, Ill.; Norco, La.; Deer Park, Tex.; and Anacortes, Wash.).
SHP	Shepherd Chemical Co-----	2803 Highland Ave., Cincinnati 12, Ohio.
SW	Sherwin-Williams Co-----	101 Prospect Ave. NW, Cleveland 1, Ohio (Chicago, Ill.; Detroit, Mich.; Cleveland and Dayton, Ohio; and Philadelphia and Pittsburgh, Pa.).
SHL	Shulton, Inc-----	697 Route 46, Clifton, N.J.
SID	George F. Siddall Co., Inc-----	P.O. Box 925, Spartanburg, S.C. (Cranston, R.I.; and Spartanburg, S.C.).
SIM	Simpson Redwood Co-----	2301 N. Columbia Blvd., Portland 17, Oreg.
SIN	Sinclair Refining Co-----	600 5th Ave., New York 20, N.Y. (E. Chicago, Ind.; Sand Springs, Okla.; Marcus Hook, Pa.; and Houston, Tex.).
SIP	James B. Sipe & Co-----	Box 8010, Pittsburgh 10 (Bridgeville), Pa.
SK	Smith, Kline & French Laboratories-----	1500 Spring Garden St., Philadelphia 1, Pa.
SM	Socoony Mobil Oil Co., Inc-----	612 S. Flower St., Los Angeles 54, Calif.; and Beaumont, Tex.
SPP	Socoony Paint Products Co-----	Metuchen, N.J.
SOH	Sohio Chemical Co-----	550A Guildhall Bldg., Cleveland 15 (Lima), Ohio.
SOL	Solar Chemical Corp-----	29 Fuller St., Leominster, Mass.
SIL	Soluol Chemical Co., Inc-----	Green Hill & Market Sts., W. Warwick, R.I.
SVT	Solvent Chemical Co., Inc-----	341 Commercial St., Malden 48, Mass.
SON	L. Sonneborn Sons, Inc-----	300 Park Ave. S., New York 10, N.Y.
SNC	Sonoco Products Co-----	Hartsville, S. C.
SOR	Southern Resin Glue Co-----	P.O. Box 352, Fayetteville (Vander), N.C.
SOS	Southern Sizing Co-----	3056 SE. Main St., East Point, Ga.
SPL	Spaulding Fibre Co., Inc-----	310 Wheeler St., Tonawanda, N.Y.
SPR	Specialty Resins Co-----	2801 Lynwood Rd., Lynwood, Calif.
SPC	Specific Pharmaceuticals, Inc-----	331 4th Ave., New York 10, N.Y. (Bayonne, N.J.).
SPN	Spencer Chemical Co-----	610 Dwight Bldg., Kansas City 5, Mo. (Calumet City, Ill.; Pittsburg, Kans.; Henderson, Ky.; Vicksburg, Miss.; and Orange, Tex.).
STA	A. E. Staley Manufacturing Co-----	N. 22d St., Box 151, Decatur, Ill.
SAC	Standard Agricultural Chemicals, Inc-----	1301 Jefferson St., Hoboken, N.J.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div-----	Clinton, Iowa.
SCP	Standard Chemical Products, Inc-----	1301 Jefferson St., Hoboken, N.J.
SCC	Standard Chlorine Chemical Co., Inc-----	115 Jacobus Ave., S. Kearny, N.J.
STD	Standard Dyestuff Corp-----	5th St. & 5th Ave., Paterson 4, N.J.
STN	Standard Naphthalene Products Co., Inc-----	115 Jacobus Ave., S. Kearny, N.J.
SOC	Standard Oil Co. of California-----	225 Bush St., San Francisco 20 (Bakersfield, El Segundo, and Richmond), Calif.
SOI	Standard Oil Co. of Indiana-----	910 S. Michigan Ave., Chicago 80, Ill. (Wood River, Ill.; Whiting, Ind.; Neodesha, Kans.; and Sugar Creek, Mo.).
STT	Standard-Toch Chemicals, Inc-----	2600 Richmond Terrace, Staten Island 3, N.Y.
SUC	Standard Ultramarine & Color Co-----	P.O. Box 2166, Huntington 18, W. Va.
STG	Wm. J. Stange Co-----	342 N. Western Ave., Chicago 12, Ill.
STS	Stansbury Chemical Co., Inc-----	1929 Aurora Ave., Seattle 9, Wash.
SF	Stauffer Chemical Co-----	380 Madison Ave., New York 17, N.Y. (LaMoynne, Ala.; Richmond and Torrance, Calif.; Louisville, Ky.; Henderson, Nev.; Brooklyn, Chauncey, and Niagara Falls, N.Y.; Perry, Ohio; Chester, Pa.; Lowland, Tenn.; and Bentonville and Roanoke, Va.).
SFA	Anderson Chemical Co. Div-----	Weston, Mich.
CHO	Calbio Chemicals, Inc. Div-----	380 Madison Ave., New York 17, N.Y. (Perry, Ohio).
VIC	Victor Chemical Works Div-----	155 N. Wacker Dr., Chicago 6, Ill.
SH	Stein, Hall & Co., Inc-----	285 Madison Ave., New York 17, N.Y. (Charlotte, N.C.).
STP	Stepan Chemical Co-----	427 W. Randolph St., Chicago 6, Ill.
	Sterling Drug, Inc.:	
SDG	Glenbrook Laboratories Div-----	1450 Broadway, New York 18, N.Y. (Trenton, N.J.)
SDH	Hilton-Davis Chemical Co. Div-----	2235 Langdon Farm Rd., Cincinnati 13, Ohio.
SDW	Winthrop Laboratories Div-----	1450 Broadway, New York 18 (Rensselaer), N.Y.

TABLE 23.--Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
SRR	Fred'k A. Stresen-Reuter, Inc-----	400 W. Roosevelt Ave., Bensenville, Ill.
SUM	Summit Chemical Products Corp----- Sun Chemical Corp.:	11 William St., Belleville 9, N.J.
SNM	Ampruf Paint Co. Div-----	416 Boulevard, E. Paterson, N.J.
SNA	Ansbacher-Siegle Corp. Div-----	92 Chestnut Ave., Rosebank, Staten Island 5, N.Y.
SNP	Pigment Div-----	750 3d Ave., New York 17, N.Y. (Harrison, N.J.).
SNW	Warwick Chemical Co. Div-----	1040 44th Ave., Long Island City, N.Y. (Wood River Jct., R.I., and Rockhill, S.C.).
SUN	Sun Oil Co-----	1608 Walnut St., Philadelphia 3 (Marcus Hook), Pa.
SNT	Suntide Refining Co-----	P.O. Box 658, Corpus Christi (Viola), Tex.
SWT	Swift & Co-----	4115 S. Packers Ave., Chicago 9, Ill.
SYR	Synco Resins, Inc-----	Henry St., Bethel, Conn.
SYC	Synthetic Chemicals, Inc-----	335 McLean Blvd., Paterson, N.J.
SYX	Synthetic Products Co-----	1636 Wayside Rd., Cleveland 20, Ohio.
SYV	Synvar Corp-----	P.O. Box 1752, 726 King St., Wilmington 99, Del.
CST	Charles S. Tanner Co-----	250 S. Water St., Providence 3, R.I.
TAR	Tar Distilling Co., Inc-----	500 5th Ave., New York 36, N.Y. (Cleveland, Ohio).
TAY	Taylor Fibre Co-----	Norristown (Betzwood), Pa.
TN	Tennessee Corp-----	61 Broadway, New York 6, N.Y. (Copperhill, Tenn.).
TNP	Tennessee Products & Chemical Corp-----	2611 West End Ave., Nashville 5 (Chattanooga), Tenn.
TXC	Tex Chemical Co-----	20-21 Wagaraw Rd., Fair Lawn, N.J.
TX	Texaco, Inc-----	135 E. 42d St., New York 17, N.Y. (Port Arthur, Tex.).
TXB	Texas Butadiene & Chemical Corp-----	440 Bank of the Southwest Bldg., Houston (Channelview), Tex.
TUS	Texas-U.S. Chemical Co-----	P.O. Box 667, Port Neches, Tex.
TKL	Thiokol Chemical Corp-----	P.O. Box 27, Bristol, Pa. (Moss Point, Miss.; and Trenton, N.J.).
TMS	Thomasset Colors, Inc-----	120 Lister Ave., Newark 5, N.J.
THC	Thompson Chemical Co-----	90 Mendor Ave., Pawtucket, R.I. (Hebronville, Mass.; and Pawtucket, R.I.).
TMC	Thompson Chemicals Corp-----	3028 Locust St., St. Louis 3, Mo.
TMH	Thompson-Hayward Chemical Co-----	2915 Southwest Blvd., Kansas City 8, Mo.
TRC	Toms River-Cincinnati Chemical Corp-----	P.O. Box 71, Toms River, N.J.
TV	Tousey Varnish Co-----	520 W. 25th St., Chicago 16, Ill.
ACT	Arthur C. Trask Co-----	327 S. LaSalle St., Chicago 4, Ill.
TRP	Trepol Chemical Co-----	59 Camden St., Paterson, N.J.
TGL	Triangle Chemical Co-----	206 Lower Elm St., Macon, Ga.
TRJ	Trojan Powder Co-----	17 N. 7th St., Allentown (Seiple), Pa.
TBK	Trubek Laboratories-----	State Highway 17, E. Rutherford, N.J.
JTC	Joseph Turner & Co-----	P.O. Box 88, Pleasantview Terrace, Ridgfield, N.J.
UBS	U B S Chemical Corp-----	491 Main St., Cambridge, Mass.
UHL	Paul Uhlich & Co., Inc-----	90 West St., New York 6, N.Y.
UNG	Ungerer & Co-----	161 Avenue of the Americas, New York 13 (Totowa), N.Y.
UCC	Union Carbide Corp.: Union Carbide Chemicals Co. Div-----	30 E. 42d St., New York 17, N.Y. (Torrance, Calif.; Whiting, Ind.; Niagara Falls, N.Y.; Port Lavaca and Texas City, Tex.; and Institute and S. Charleston, W. Va.).
UCP	Union Carbide Plastics Co. Div-----	30 E. 42d St., New York 17, N.Y. (Ottawa, Ill.; Wyandotte, Mich.; Bound Brook, N.J.; and Marietta, Ohio).
UCS	Silicones Div-----	30 E. 42d St., New York 17, N.Y. (Sistersville, W. Va.).
UOC	Union Oil Co. of California-----	461 S. Boylston St., Los Angeles 17, Calif. (Contra Costa County, Los Angeles, San Luis Obispo County, and Santa Barbara County, Calif.; Glacier County, Mont.; and Snohomish County, Wash.).
UNC	United Cork Companies-----	Central Ave., Kearny (Jamesburg), N.J.
URC	United Rubber & Chemical Co-----	P.O. Box 149, Baytown, Tex.
USB	U.S. Borax Research Corp-----	630 Shatto Pl., Los Angeles 5 (Boron), Calif.
USO	U.S. Oil Co-----	P.O. Box 1345, Providence, R.I.
UPF	United States Pipe & Foundry Co-----	3300 1st Ave. N., Birmingham 2, Ala.
USP	U.S. Plastics Products Corp-----	Lake & Whitman Aves., Metuchen, N.J.
USR	United States Rubber Co., Naugatuck Chemical Div.	1230 Avenue of the Americas, New York 20, N.Y. (Naugatuck, Conn.).
UDI	Universal Detergents, Inc. and Petro- chemicals Co.	1825 E. Spring St., Long Beach 6, Calif.
UPM	Universal Oil Products Co., Universal Polychem Manufacturing Div.	30 Algonquin Rd., Des Plaines (McCook), Ill.
UWS	Universal Western Chemical Corp-----	12800 E. Imperial Hwy., P.O. Box 487, Norwalk, Calif.
UPJ	Upjohn Co-----	301 Henrietta St., Kalamazoo 99, Mich.
VAL	Valchem-----	1407 Broadway, New York 18, N.Y. (Langley, S.C.).
VNC	Vanderbilt Chemical Corp-----	230 Park Ave., New York 17, N.Y. (Bethel, Conn.).
VND	Van Dyk & Co., Inc-----	11 William St., Belleville 9, N.J.
VEL	Velsicol Chemical Corp-----	330 E. Grand Ave., Chicago 11, Ill. (Marshall, Ill.; and Memphis, Tenn.).
VLY	Verley Chemical Co., Inc-----	200 Pulaski St., Newark 5, N.J.
VPC	Verona-Pharma Chemical Corp-----	Iorio Ct., Union (Bayonne and Newark), N.J.
VPT	Vickers Petroleum Co., Inc-----	P.O. Box 2240, Wichita (Potwin), Kans.

TABLE 23.--Synthetic organic chemicals: Directory of manufacturers, 1959--Continued

Code	Name of company	Office address (location of plant given in parentheses if not in same city as office)
VIN	Vineland Chemical Co-----	W. Wheat Rd., Vineland, N.J.
VC	Virginia-Carolina Chemical Corp-----	401 E. Main St., Richmond 8, Va. (Charleston, S.C.).
VIS	Visco Products Co-----	1020 Holcombe Blvd., Houston 6 (Sugar Land), Tex.
VIM	Vitamins, Inc-----	809 W. 58th St., Chicago 21, Ill.
VTV	Vita-Var Corp-----	10 Commerce Court, Newark 2, N.J.
FRO	Vulcan Materials Co., Frontier Chemical Co. Div.	P.O. Box 545, Wichita, Kans.
WTM	Wallace & Tiernan, Inc-----	25 Main St., Belleville 9, N.J..
WTH	Harchem Div-----	P.O. Box 178, Newark, N.J. (Dover, Ohio).
WTL	Lucidol Div-----	1740 Military Rd., Buffalo 5 (Genesee and Tonawanda), N.Y.
WRN	Warner-Jenkinson Manufacturing Co-----	2526 Baldwin St., St. Louis 6, Mo.
WPC	Warren Paint and Color Co-----	700 Wedgewood Ave., Nashville 4, Tenn.
WAS	T. F. Washburn Co-----	2244 Elston Ave., Chicago 14, Ill.
WAT	Watertown Manufacturing Co-----	127 Echo Lake Rd., Watertown, Conn.
WEB	R. D. Webb & Co., Inc-----	Stimpson Ave. at Stiles St., Linden, N.J.
WER	Werner Drug & Chemical Co-----	759 Beechwood Ave., Cincinnati 32, Ohio.
WDC	Western Dry Color Co-----	600 W. 52d St., Chicago 9, Ill.
EW	Westinghouse Electric Corp-----	P.O. Box 146, Pittsburgh 30, Pa.
WST	Westville Laboratories, Inc-----	Wheeler Rd., Monroe, Conn.
WVA	West Virginia Pulp and Paper Co., Polychemicals Div.	Charleston, S.C.
WEV	Geo. D. Wetherill Varnish Co-----	Haddon Ave. & White Horse Pike, Camden 3, N.J.
WRS	Wheeler, Reynolds & Stauffer-----	636 California St., San Francisco 8 (Richmond), Calif.
WBG	White & Bagley Co-----	100 Foster St., Worcester 8, Mass.
WHI	White & Hodges, Inc-----	576 Lawrence St., Lowell, Mass.
WEW	Whittemore-Wright Co., Inc-----	62 Alford St., Boston 29, Mass.
WIC	Wica Co., Inc-----	P.O. Box 506, Charlotte 1, N.C.
WLM	Wilmet & Cassidy, Inc-----	108-112 Provost St., Brooklyn 22, N.Y.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.	4221 S. Western Ave., Chicago 9, Ill.
WOC	Wilson Organic Chemicals, Inc-----	P.O. Box 452, Sayreville, N.J.
WTC	Witco Chemical Co., Inc-----	122 E. 42d St., New York 17, N.Y.
WTU	Ultra Chemical Works, Inc. Div-----	2 Wood St., Paterson 6, N.J.
WTT	John H. Witte & Sons, Resin Div-----	Oak St. & Bluff Rd., Burlington, Iowa.
WAW	W. A. Wood Co-----	108 Spring St., Everett 49, Mass.
WON	Woonsocket Color & Chemical Co-----	179 Sonnyside Ave., Woonsocket, R.I.
WYN	Wyandotte Chemicals Corp-----	1609 Biddle Ave., Wyandotte, Mich. (Geismar, La.; and Wyandotte, Mich.).
YAW	Young Aniline Works, Inc-----	2731 Boston St., Baltimore 24, Md.

APPENDICES

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

Table 24 summarizes, for the period 1957-59, U.S. imports of coal-tar products dutiable under paragraphs 27 and 28 of the Tariff Act of 1930. 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.¹

In 1959, general imports of coal-tar chemicals entered under paragraph 27 totaled 28.8 million pounds, with a foreign invoice value of \$14.0 million, compared with imports of 14.4 million pounds, valued at \$10.7 million, in 1958. Most of the coal-tar chemicals imported in 1959 were declared to be competitive (duty based on "American selling price"). Almost half of the total imports of these products in 1959 came from West Germany; imports from that country amounted to 10.8 million pounds, compared with 6.9 million pounds in 1958. Imports from Italy in 1959 amounted to 5.1 million pounds, compared with 1.7 million pounds in 1958. Imports from France totaled 2.7 million pounds in 1959, compared with 567,000 pounds in 1958, and imports from the United Kingdom amounted to 2.4 million pounds in 1959, compared with 1.2 million pounds in 1958. In 1959 sizable quantities of products that are dutiable under paragraph 27 were also imported from Canada (1,377,000 pounds), the Netherlands (1,375,000 pounds), Belgium (1,350,000 pounds), Switzerland (1,227,000 pounds), Japan (782,000 pounds), Denmark (764,000 pounds), Spain (364,000 pounds), Sweden (199,000 pounds), the Union of South Africa (165,000 pounds), and Norway (123,000 pounds). Smaller quantities came from Austria (66,000 pounds) and Australia (14,000 pounds).

TABLE 24.-- Coal-tar intermediates and finished coal-tar products: U.S. general imports, classified by use, 1957-1959

Product	1957		1958		1959	
	Quantity	Foreign invoice value	Quantity	Foreign invoice value	Quantity	Foreign invoice value
	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars
Intermediates ¹ -----	11,869	10,683	14,408	10,654	28,842	14,033
Finished coal-tar products, total-----	6,604	13,278	7,092	15,784	11,259	21,901
Dyes, total-----	3,187	5,586	3,440	6,467	4,251	7,867
Acid-----	700	1,582	947	1,833	1,117	2,391
Azoic compositions-----	11	27	24	45	24	48
Basic-----	211	382	342	666	462	777
Direct-----	674	1,513	716	1,576	917	1,921
Disperse-----	50	115	59	131	94	215
Fiber-reactive-----	(2)	(2)	220	631	170	494
Fluorescent brightening agents-----	(2)	(2)	289	293	280	416
Ingrain-----	(2)	(2)	48	118	64	154
Mordant-----	256	351	175	252	169	312
Solvent-----	164	332	23	74	32	104
Sulfur-----	6	5	18	17	20	15
Vet-----	655	858	575	824	888	987
All other-----	460	421	4	7	14	33
Synthetic organic pigments (toners and lakes)-----	(2)	(2)	209	286	202	401
Medicinals and pharmaceuticals-----	1,349	5,792	1,550	7,185	2,305	10,676
Flavor and perfume materials-----	275	392	391	610	559	865
All other-----	1,793	1,508	1,502	1,236	3,942	2,092

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

² Not separately classified in 1957.

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

¹ U.S. Tariff Commission, *Imports of Coal-Tar Products, 1959, 1960* [processed].

The most important individual intermediates imported in 1959 were phthalic anhydride, gamma acid, refined naphthalene, 2-naphthol, and acetoacetanilide. In 1959, imports of phthalic anhydride, which totaled 12.9 million pounds, came principally from Italy, West Germany, and France; imports of gamma acid, which totaled 609,000 pounds, came from Italy, the Netherlands, West Germany, France, and Japan. Imports of refined naphthalene, which came from Belgium, West Germany, the Netherlands, the United Kingdom, and Japan, totaled 593,000 pounds; and imports of 2-naphthol, which came from West Germany and the United Kingdom, totaled 542,000 pounds. Imports of acetoacetanilide, which came from the United Kingdom, West Germany, and Switzerland, totaled 491,000 pounds. Among the other important individual chemicals imported, anthraquinone came from France and the United Kingdom; cyclohexylamine, from West Germany and Switzerland; 1,4-naphthoquinone, from Japan, Switzerland, and Italy; and H acid, from West Germany and Italy. West Germany was also the source of most of the imports of phenyl isocyanate and 1-naphthol; France, of all the hydroxycinnamic acid, sodium salt; Canada, of all the phthalic acid, diisodecyl ester; and the Netherlands, of all the caprolactam monomer.

Imports in 1959 of all finished coal-tar products that are dutiable under paragraph 28 comprised 1,968 items, with a total weight of 11.3 million pounds and a foreign invoice value of \$21.9 million. In 1958, imports consisted of 1,636 items, with a total weight of 7.1 million pounds and a foreign invoice value of \$15.8 million. In 1959, as in 1957 and 1958, medicinals and pharmaceuticals were the most important group of finished coal-tar products imported. Imports of medicinals and pharmaceuticals in 1959 amounted to \$10.7 million (foreign invoice value), or 49 percent of the total value of all imports under paragraph 28. In 1958, imports of medicinals and pharmaceuticals amounted to \$7.2 million (foreign invoice value), or 46 percent of the total value of all imports under paragraph 28.

Imports of coal-tar dyes, the next most important group of products entered under paragraph 28 in 1959, were 22 percent larger in that year than in 1958 and 47 percent larger than in 1957. In 1959, imports of dyes (excluding synthetic organic pigments) were valued at \$7.9 million (foreign invoice value), or 36 percent of total imports under paragraph 28. In 1958, imports of dyes (excluding synthetic organic pigments) were valued at \$6.5 million, or 41 percent of total imports under paragraph 28. In 1959, imports of synthetic organic pigments (toners and lakes) were valued at \$401,000, compared with \$286,000, in 1958. Imports of flavor and perfume materials in 1959 (\$865,000) were 42 percent greater than those in 1958. In 1959, imports of other coal-tar products entered under paragraph 28 (chiefly synthetic resins), valued at \$2.1 million, were 69 percent greater than those in 1958.

B. Research Workers and Research Expenditures in the Synthetic Organic Chemical Industry

Because the synthetic organic chemical industry has evidenced considerable interest in statistics on chemical research, the Tariff Commission for a number of years has collected and published statistics on the number of technically trained research workers in the industry, their salaries, and the cost of research (see table 25). Such information is not available elsewhere. Many of the companies that produce synthetic organic chemicals also manufacture other products, and the cost of research applicable to synthetic organic chemicals must therefore be allocated; in some instances the allocation is somewhat arbitrary. Moreover, since not all companies report their research activities to the Tariff Commission, the data given in table 25 are only about 60 percent complete. Notwithstanding these limitations, the statistics do indicate general trends in the amount of research conducted in the field of synthetic organic chemicals.

In 1959, 471 companies reported research activities on synthetic organic chemicals. The number of technically trained research workers reported for 1959 was 15,585, compared with the 14,242 reported for 1958. The average salary paid in 1959 was \$9,136, compared with \$8,717 in 1958. Total salaries paid research workers in 1959 amounted to \$142 million, compared with \$124 million in 1958. In 1959 the gross cost of research was \$363 million--\$50 million more than in 1958. Research conducted for the industry outside the facilities of the reporting companies--a cost not included in the gross cost given above--amounted to \$18 million, or about \$4 million more than in 1958. This figure, however, probably does not represent all research projects conducted for the reporting companies in universities and private laboratories, or all consulting services.

TABLE 25.--*Synthetic organic chemical industry: Number of research workers, salaries paid research workers, and cost of research, 1955-59*

Year	Companies reporting	Technically trained research workers ¹	Salaries paid research workers	Total reported cost of research			
				Within the plant		Outside the plant	
				Gross	Net ²		
	Number	Number	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	
1955-----	403	14,191	104,804	252,530	239,511	11,614	
1956-----	409	15,498	117,186	313,430	308,376	12,566	
1957-----	441	14,852	133,005	309,716	305,748	16,687	
1958-----	447	14,242	124,151	313,315	309,070	13,839	
1959-----	471	15,585	142,389	362,971	355,825	18,261	

¹ For the year 1955 a technically trained research worker was defined as a person with technical training engaged in research work and earning not less than \$3,600 per year; for 1956-57 a research worker was defined as such a person earning not less than \$4,500 per year; for 1958-59 a research worker was defined as such a person earning not less than \$5,000 per year.

² The net-cost figure is obtained by deducting from gross cost the credits for salable products obtained in the course of research.

C. 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 originally was 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-Acetoacetochloranilide-----	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''-Bi-acetoacetanilide.
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.
Acetylamino 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 ⁶ -Acetyl-N ² -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 ⁶ -Acetylsulfanilamide-----	N-Sulfanilylacetamide.
N ⁶ -Acetylsulfanilamide-----	4'-Sulfamoylacetanilide.
2-(N ⁶ -Acetylsulfanilamido)thiazole-----	4'-(2-Thiazolylsulfamoyl)acetanilide.
Acetylsulfathiazole-----	4'-(2-Thiazolylsulfamoyl)acetanilide.
N ⁶ -Acetyl-2-sulfo-p-phenylenediamine-----	5-Acetamido-2-aminobenzenesulfonic acid.
N-Acetyl-o-toluidine-----	o-Acetotoluidide.
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 ₂ =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
Aminoazoxylene-toluidine	4-(2,4-Xylylazo)-o-toluidine [NH ₂ =1].
p-Aminobenzenearsonic acid	Arsanilic acid [AsO ₃ H ₂ =1].
3-Aminobenzenesulfonamide	Metanilamide.
4-Aminobenzenesulfonamide	Sulfanilamide.
m-Aminobenzenesulfonic acid	Metanilic acid [SO ₃ H=1].
p-Aminobenzenesulfonic acid	Sulfanilic acid [SO ₃ H=1].
o-Aminobenzoic acid	Anthranilic acid [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-toluidine)anthraquinone.
3-Amino-N-butyl-p-anisolesulfonamide	N ¹ -Butyl-4-methoxymetanilamide [SO ₂ 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 [SO ₃ H=1].
5-Amino-3-chlorobenzenesulfonic acid	5-Chlorometanilic acid [SO ₃ H=1].
5-Amino-4-chlorobenzenesulfonic acid	4-Chlorometanilic acid [SO ₃ H=1].
2-Amino-4-chlorobenzoic acid	4-Chloroanthranilic acid [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 [CH ₃ =1]	6-Chloro-o-toluidine [NH ₂ =1].
2-Amino-4-chlorotoluene [CH ₃ =1]	5-Chloro-o-toluidine [NH ₂ =1].
2-Amino-5-chlorotoluene [CH ₃ =1]	4-Chloro-o-toluidine [NH ₂ =1].
2-Amino-6-chlorotoluene [CH ₃ =1]	3-Chloro-o-toluidine [NH ₂ =1].
2-Amino-5-chlorotoluene hydrochloride	4-Chloro-o-toluidine hydrochloride.
m-Amino-p-cresol [CH ₃ =1]	2-Amino-p-cresol [OH=1].
3-Amino-p-cresol methyl ether [CH ₃ =1]	5-Methyl-o-anisidine [NH ₂ =1].
3-Amino-p-cresyl methyl ether	5-Methyl-o-anisidine [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 ² , N ² -Diethyltoluene-2,5-diamine hydrochloride.
p-Aminocetylaniiline	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	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-Aminoethoxyethylaniiline	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 [AsO ₃ 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 [CH ₃ O=1]	3-Methyl-p-anisidine [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-2-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 ₃ O = 1]-----	5-Nitro-o-anisidine (NH ₂ =1).
2-Amino-5-nitroanisole-----	4-Nitro-o-anisidine (NH ₂ =1).
2-Amino-6-nitroanisole-----	3-Nitro-o-anisidine (NH ₂ =1).
4-Amino-3-nitroanisole-----	2-Nitro-p-anisidine (NH ₂ =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 ₂ H ₅ O=1]-----	o-Phenetidine [NH ₂ =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-Aminosaligenin-2-methyl ether-----	5-Amino-2-methoxybenzyl alcohol.
6-Amino-3-(p-toluenesulfone)amino-4-methoxytoluene--	4'-Amino-5'-methyl-p-toluenesulfon-o-anisidine.
3'-Amino-(p-toluenesulfone)ethoxytoluene-----	3-Methyl-N-(p-toluenesulfono)-p-phenetidine.
2-Aminotoluene-5-sulfonic acid-----	4-Amino-m-toluenesulfonic acid [SO ₃ 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 ₃ H=1].
Aniline-p-sulfonic acid-----	Sulfanilic acid [SO ₃ 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 ₂ =1].
2-Anisidine-4-sulfobutylamide-----	N ¹ -Butyl-4-methoxymetanilamide.
o-Anisidine-p-sulfonic acid-----	4-Methoxymetanilic acid [SO ₃ 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-Anthracyridine-----	Naphtho[2,3-h]quinoline.
Anthraquinonylaminoanthraquinone-----	1,1'-Imindianthraquinone.
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-Anilino benzenediazonium chloride.
Azohydroxyaniline-----	p-(p-Aminophenylazo)phenol.
Azoxyaniline-----	3,3'-Azoxydianiline.
m,m'-Azoxybis(aniline)-----	3,3'-Azoxydianiline.
Benzal chloride-----	α,α -Dichlorotoluene.
Benzaldehydesulfonic 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-methyldiazamino]ethanesulfonic acid.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
N-(4-Benzamido-2,5-diethoxyphenyl)-N-methyldiazotaurine.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
3-(4-Benzamido-2,5-diethoxyphenyl)-3-sulfoethyl-1-methyltriazene.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyldiazamino]acetic acid.	[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]acetic acid.
[3-(4-Benzamido-6-methoxy-m-tolyl)-N-methyldiazoglycine.	[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.
Benzoacaine (nonmedicinal grade)-----	p-Aminobenzoic acid, ethyl ester.
2-Benzofurycyanomethyl ketone-----	2-Benzofuranacetoneitrile.
2H-1-Benzopyran-2-one-----	Coumarin.
1,2-Benzopyrone-----	Coumarin.
Benzo-trichloride-----	α,α,α -Trichlorotoluene.
Benzoylacetonilide-----	2-Benzoylacetonilide.
α -Benzoylacetonilide-----	2-Benzoylacetonilide.
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-nitrodime-thoxybenzene-----	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-Benzylthiophene-----	Phenyl-2-thienyl ketone.
α -Benzylacetamide-----	Hydrocinnamide.
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-nitrosaniline-----	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.
Stilbene-----	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',4''-Biacetoacetanilide.
1,3-Bis(4-biphenyl)-2-thiourea-----	4,4'-Diphenylthiocarbaniide.
N,N-Bis(2-hydroxyethyl)aniline-----	2,2'-(Phenylimino)diethanol.
N,N-Bis(2-hydroxyethyl-m-toluidine)-----	2,2'-(m-Tolylimino)diethanol.
2,2'-(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'-Isopropylidenediphenol.
Bisphenol B-----	2,2'-Bis(4-hydroxyphenyl)butane.
Bisphenol C-----	4,4'-Isopropylidenedi-o-cresol.
Bisphenol G-----	4,4'-Isopropylidenebis[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-Bromoacetamidanthraquinone-----	1-Acetamido-4-bromoanthraquinone.
Bromobenzanthrone-----	3-Bromo-7H-benz[de]anthracen-7-one.
2-Bromobiphenylene oxide-----	2-Bromodibenzofuran.
p-Bromomethylaminanthraquinone-----	4-Bromo-1-methylaminanthraquinone.
4-Bromo-N-methyl-1,9-anthrapyridone-----	6-Bromo-3-methyl-7H-dibenz[f,i,j]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-methylriazene.	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-Chloroacetacetanilide-----	2'-Chloroacetacetanilide.
Chloroacetylarsonic acid-----	N-Acetyl-2-chloroarsenic acid [AsO ₃ H ₂ =1].
5-Chloro-2-aminoanisole [CH ₃ O=1]-----	4-Chloro-o-anisidine [NH ₂ =1].
4-Chloro-2-amino-6-benzenesulfonic acid-----	5-Chlorometanilic acid [SO ₃ H=1].
6-Chloro-3-aminobenzotrifluoride-----	6-Chloro-α,α,α-trifluoro-m-toluidine [NH ₂ =1].
Chloroaminophenol-----	2-Amino-4-chlorophenol.
2-Chloro-4-aminotoluene [CH ₃ =1]-----	3-Chloro-p-toluidine [NH ₂ =1].
3-Chloro-2-aminotoluene [CH ₃ =1]-----	6-Chloro-o-toluidine [NH ₂ =1].
5-Chloro-2-aminotoluene [CH ₃ =1]-----	4-Chloro-o-toluidine [NH ₂ =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 ₃ O=1]-----	5-Chloro-o-anisidine [NH ₂ =1].
5-Chloro-o-anisidine [CH ₃ O=1]-----	4-Chloro-o-anisidine [NH ₂ =1].
3-Chloro-2-anthracenecarboxylic acid-----	3-Chloro-2-anthoic acid.
2-Chloroanthraquinone-3-carboxylic acid-----	3-Chloro-2-anthraquinonecarboxylic acid.
Chloroarsacetin-----	N-Acetyl-2-chloroarsenic acid [AsO ₃ H ₂ =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)acetanilide.
1-Chloro-2-carboxyanthraquinone-----	1-Chloro-2-anthraquinonecarboxylic acid.
p-Chloro-m-cresol [CH ₃ =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-diphenylaminocarboxylic 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.
α -Chloro-2-methoxy-5-nitrotoluene-----	2-(Chloromethyl)-4-nitroanisole [CH ₃ O=1].
[3-(5-Chloro-2-methoxyphenyl)-1-methyldiazamino]-	N-(5-Chloro-2-methoxyphenylazo)-N-methylglycine.
acetic acid.	
Chloromethylanthraquinone-----	1-Chloro-2-methylanthraquinone.
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- α , α , α -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 [SO ₃ H=1].
4-Chlorotoluene-2-sulfonic acid-----	5-Chloro-o-toluenesulfonic acid [SO ₃ H=1].
m-Chlorotoluene thioglycolic acid-----	(4-Chloro-o-tolythio)acetic acid.
4-Chloro-o-toluidine [CH ₃ =1]-----	5-Chloro-o-toluidine [NH ₂ =1].
5-Chloro-2-toluidine [CH ₃ =1]-----	4-Chloro-o-toluidine [NH ₂ =1].
5-Chloro-o-toluidine [CH ₃ =1]-----	4-Chloro-o-toluidine [NH ₂ =1].
o-Chloro-m-toluidine-p-sulfonic acid-----	2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1].
2-Chloro-p-toluidine-5-sulfonic acid-----	6-Amino-4-chloro-m-toluenesulfonic acid [SO ₃ H=1].
2-Chloro-5-toluidine-4-sulfonic acid-----	2-Amino-5-chloro-p-toluenesulfonic acid [SO ₃ H=1].
4-Chloro-o-tolylmercaptoacetic acid-----	(4-Chloro-o-tolythio)acetic acid.
1-(5-Chloro-o-tolyl)-3-methyl-3-triazeneacetic acid--	N-(5-Chloro-o-tolyl)-N-methylglycine.
Chlorotylthioglycolic acid-----	(4-Chloro-o-tolythio)acetic acid.
Chloro-sym-xylene-----	4-Chloro-3,5-xylene.
Chloroxyldenesulfonic acid-----	6-Amino-3-chloro-2,5-xylenesulfonic acid [SO ₃ H=1].
4-Chloro-2,5-xyllylmercaptoacetic acid-----	(4-Chloro-2,5-xyllythio)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 [NH ₂ =1].
Cresidine or p-Cresidine-----	5-Methyl-o-anisidine [NH ₂ =1].
m-Cresol methyl ether-----	m-Methylanisole [CH ₃ O=1].
m-Cresolsulfonic acid-----	5-Hydroxy-m-toluenesulfonic acid [SO ₃ 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 [CH ₃ O=1].
Cumaldehyde-----	p-Isopropylbenzaldehyde.
psi-Cumene-----	1,2,4-Trimethylbenzene.
psi-Cumidine-----	2,4,5-Trimethylaniline.
Cuminaldehyde-----	p-Isopropylbenzaldehyde.
2-Cyanopyridine-----	Picolonitrile.
3-Cyanopyridine-----	Nicotinitrile.
4-Cyanopyridine-----	Isonicotinitrile.
Dahl's acid-----	6-Amino-1-naphthalenesulfonic acid.
Dehydrothio-p-toluidine-----	2-(p-Aminophenyl)-6-methylbenzothiazole.
Desoxyanisole-----	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'-iminodanthraquinone.
1,4-Diamino-2,3-dihydroxyanthraquinone-----	1,4-Diaminohydroxatazarin.
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'-Diamino-carbanilide.
Di(p-aminophenyl)sulfide-----	4,4'-Thiodianiline.
1,3-Di(m-aminophenyl)urea-----	3,3'-Diamino-carbanilide.
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.
α,β -Diansylglycol-----	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'-Iminodanthraquinone.
1,1'-Dianthraquinonylamine-----	1,1'-Iminodanthraquinone.
Dianthrimide-----	1,1'-Iminodanthraquinone.
Diazoaminobenzene-----	1,3-Diphenyltriazene.
Diazobenzene chloride-----	Benzenediazonium chloride.
4,5'-Dibenzamido-1,1'-aminodanthraquinone-----	4,5'-Dibenzamido-1,1'-iminodanthraquinone.
5,5'-Dibenzamido-1,1'-iminodanthraquinone-----	1,1'-Iminobis[5-benzamidoanthraquinone].
Dibenzanthrone-----	Violanthrone.
2,2'-Dibenzanthronyl-----	(4,4'-Bi-7H-benz[de]anthracen)-7,7'-dicene.
13,13-Dibenzanthronyl-----	(3,3'-Bi-7H-benz[de]anthracen)-7,7'-dicene.
Dibenzopyran-----	Xanthene.
Dibenzopyrrole-----	Carbazole.
Dibenzoyl-----	Benzil.
4,5-Dibenzoylamidodanthraquinonylamine-----	4,5'-Dibenzamido-1,1'-iminodanthraquinone.
4,4'-Dibenzoyldiamino-1,1'-dianthrimide-----	1,1'-Iminobis[4-benzamidoanthraquinone].
Dibenzyl-----	Bibenzyl.
Dibenzylaniline-----	N-Phenyldibenzylamine.
Dibenzyl disulfide-----	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-Dibromodanthrene.
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 ₃ =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-----	$\alpha,2,4$ -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-toluenesulfonamide [SO ₂ NH ₂ =1].
Dicresyldisulfide-----	p-Tolyl disulfide.
Dicyclohexyl-----	Bicyclohexyl.
Diethanolamine-----	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 [SO ₃ H=1].
Diformyl-m-tolylenediamine-----	N ² ,N ² -Diformyltoluene-2,5-diamine [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-----	Anthrarufin.
1,8-Dihydroxyanthraquinone-----	Chrysozin.
2,6-Dihydroxyanthraquinone-----	Anthraflavic acid.
2,4-Dihydroxybenzoic acid-----	β-Resorcylic acid.
Dihydroxybiphenyl-----	Biphenol.
2,3-Dihydroxy-1,4-diaminoanthraquinone-----	1,4-Diaminohyostazarin.
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].
Dihydroxyethylamine-----	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.
8-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',3'-Dimethoxy-4,4'-biphenylenebisazo)bis(N-methylaurine).	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-methylidiazomino))di(ethanesulfonic acid).	3,3'-Dimethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazene-1-yl]biphenyl.
1,3'-(3,3'-Dimethoxy-4,4'-biphenylene)bis(3-methyl-3-sulfoethyltriazene).	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-----	Acetoxyllide.
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)-ceroxenone.
Dimethyldianthraquinonyl-----	2,2'-Dimethyl-1,1'-bianthraquinone.
2,2'-Dimethyl-1,1-dianthraquinonylamine-----	1,1'-Iminobis[2-methylanthraquinone].
Dimethylhydroresorcinol-----	Dimethyl-1,3-cyclohexanedione.
3,3'-Dimethyl-4,4'-methylenediphenyl isocyanate-----	Isocyanic acid, 2,2'-dimethyl-4,4'-methylenediphenylene ester.
Dimethyl- α -naphthylamine-----	N,N-Dimethyl-1-naphthylamine.
2,3-Dimethyl-5-oxo-1-phenyl-3-pyrazoline-4-carboxylic acid-----	Antipyric acid.
2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one-----	Antipyridine.
2,7-Dimethylquinoline-----	m-Toluquinidine.
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 ₃ 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].
Dinitrodibenzanthronyl-----	Dinitro(3,3'-bi-7H-benz[de]anthracene)-7,7'-dione.
Dinitrohydroxydiphenylamine-----	p-(2,4-Dinitroamino)phenol.
Dinitrotetramethyldiaminodiphenylmethane-----	4,4'-Methylenbis[N,N-dimethyl-2-nitroaniline].
2,4-Dinitrotoluenesulfonic acid-----	3,5-Dinitro-o-toluenesulfonic acid [SO ₃ H=1].
1,2-Dioxoacenaephthene-----	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.
Diphenylcarbamide-----	1,5-Diphenylcarbonylhydrazide.
Diphenyleneimine-----	Carbazole.
Diphenylene oxide-----	Dibenzofuran.
Diphenyl epsilon acid-----	3-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 ₂ =1].
4-Ethoxyaniline-----	p-Phenetidine [NH ₂ =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-----	α -(N-Ethylanilino)-p-toluenesulfonic acid [SO ₃ H=1].
Ethylbenzyl-m-toluidine-----	N-Benzyl-N-ethyl-m-toluidine [NH ₂ =1].
Ethylbenzyl-m-toluidino-o-sulfonic acid-----	4-(N-Benzyl-N-ethylamino)-o-toluenesulfonic acid [SO ₃ H=1].
Ethyleneglycol monophenylether-----	2-Phenoxyethanol.
Ethyl hydrol-----	4,4'-Bis[diethylamino]benzhydrol.
N-Ethyl-N-(β -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)triazen-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-Nitrobenzoylacetic acid, ethyl ester.
Ethyl phenyl ether-----	Phenetole.
Ethylsulfobenzylaniline-----	α -(N-Ethylanilino)-p-toluenesulfonic acid [SO ₃ H=1].
N-Ethyl-o-toluidine-p-sulfonic acid-----	3-Ethylamino-p-toluenesulfonic acid [SO ₃ H=1].
Fast red TR base-----	4-Chloro-o-toluidine [NH ₂ =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-----	α -Carboxy-o-toluic acid.
α -m-Homosalicylic acid-----	2,4-Cresotic acid [COOH=1].
p-Homosalicylic 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)acetoneitrile.
Homoveratrylamine-----	3,4-Dimethoxyphenethylamine.
1,2-1,2-Hydrazinedibromoanthraquinone-----	7,16-Dibromindanthrene.
Hydrol-----	4,4'-Bis(dimethylamino)benzhydrol.
Hydroquinone dimethyl ether-----	p-Dimethoxybenzene.
1-Hydroxy-4-aminanthraquinone-----	1-Amino-4-hydroxyanthraquinone.
7-Hydroxycoumarin-----	Umbelliferone.
4-Hydroxydiphenol-----	p-Phenylphenol.
β -Hydroxyethyl-o-chloroaniline-----	2-(o-Chloroanilino)ethanol.
Hydroxyethylethylaniline-----	2-(N-Ethylanilino)ethanol.
Hydroxyethylmethylaniline-----	2-(N-Methylanilino)ethanol.
N-(β -Hydroxyethyl)-N-methylaniline-----	2-(N-Methylanilino)ethanol.
Hydroxyethyl-3-toluidine-----	2-(m-Toluidino)ethanol.
2-Hydroxymetanic acid-----	6-Amino-1-phenol-2-sulfonic acid.
4-Hydroxymetanic 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-nitrometanic acid-----	6-Amino-4-nitro-1-phenol-2-sulfonic acid.
4-Hydroxy-5-nitrometanic acid-----	2-Amino-6-nitro-1-phenol-4-sulfonic acid.
2-Hydroxyphenetole-----	o-Ethoxyphenol.
p-Hydroxyphenylarsonic acid-----	p-Hydroxybenzenearsonic acid [AsO ₃ H ₂ =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-----	α -Phenylphloretic acid.
N-(p-Hydroxyphenyl)-2-naphthylamine-----	p-2-Naphthylaminophenol.
β -(p-Hydroxyphenyl)- α -phenylpropionic acid-----	α -Phenylphloretic acid.
3-(p-Hydroxyphenyl)-2-phenylpropionic acid-----	α -Phenylphloretic acid.
4-Hydroxypyridine-2,6-dicarboxylic acid-----	Cheilidamic acid.
8-Hydroxyquinoline-----	8-Quinololinol.
m-Hydroxytoluene-----	m-Cresol [OH=1].
o-Hydroxytoluene-----	o-Cresol [OH=1].
p-Hydroxytoluene-----	p-Cresol [OH=1].
6-Hydroxy-m-toluidine [NH ₂ =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 ₃ 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 ₃ 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-naphthol acid].
o-Methoxyacetanilide-----	o-Acetanilide.
p-Methoxyacetanilide-----	p-Acetanilide.
4-Methoxy-4'-aminodiphenylamine-----	N-(p-Methoxyphenyl)-p-phenylenediamine.
2-Methoxy-4-aminodiphenylamine-2'-sulfonic acid-----	o-(4-Amino-2-ansidino)benzenesulfonic acid [SO ₃ H=1].
Methoxyaniline-----	Anisidine [NH ₂ =1].
o-Methoxyanilinemethanesulfonic 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 ₃ 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 ₃ H=1].
2-[3-(2-Methoxy-4-nitrophenyl)-1-methyltriazeno]-5-sulfobenzoic acid.	2-[3-(2-Methoxy-4-nitrophenyl)-1-methyltriazen-3-yl]-5-sulfobenzoic acid.
4-Methoxy-m-toluidine [CH ₃ =1]-----	5-Methyl-o-anisidine [NH ₂ =1].
6-Methoxy-m-toluidine [NH ₂ =1]-----	5-Methyl-o-anisidine [NH ₂ =1].
[3-(6-Methoxy-m-tolyl)-1-methyltriazeno]acetic acid-----	[3-(6-Methoxy-m-tolyl)-1-methyltriazen-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 ₂ =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)benzenesulfonic acid.	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO ₃ H=1].
3-Methyl-1-(2-methyl-4-sulfophenyl)-5-pyrazolone-----	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid.
N-(5-Methyl-4-nitro-o-anisyl)-p-toluenesulfonamide-----	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluenesulfonamide.
2-Methyl-5-nitrodiphenylamine-----	5-Nitro-N-phenyl-o-toluidine [NH ₂ =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 ₃ 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-Naphthazalone-----	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.
Naphthylacetone trile-----	Naphthaleneacetone trile.
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-----	Naphthonic 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.
α -Naphthyl isocyanate-----	Isocyanic acid, 1-naphthyl ester.
2-Naphthylmercaptoacetic acid-----	(2-Naphthylthio)acetic acid.
Naphthylmethanesulfonic acid-----	1-Naphthalenemethanesulfonic acid.
β -Naphthylthioglycolic acid-----	(2-Naphthylthio)acetic acid.
Neville & Winter's acid-----	1-Naphthol-4-sulfonic acid.
3-Nitro-4-aminoanisole [CH ₃ O=1]-----	2-Nitro-p-anisidine [NH ₂ =1].
4-Nitro-2-aminoanisole [CH ₃ O=1]-----	5-Nitro-o-anisidine [NH ₂ =1].
5-Nitro-2-aminoanisole [CH ₃ O=1]-----	4-Nitro-o-anisidine [NH ₂ =1].
6-Nitro-2-aminoanisole [CH ₃ O=1]-----	3-Nitro-o-anisidine [NH ₂ =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'-aminophenol-2-sulfodiphenylamine-----	2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid.
5-Nitro-2-aminotoluene [CH ₃ =1]-----	4-Nitro-o-toluidine [NH ₂ =1].
p-Nitroaniline-o-sulfonic acid-----	2-Amino-5-nitrobenzenesulfonic acid.
m-Nitro-p-anisidine [CH ₃ O=1]-----	2-Nitro-p-anisidine [NH ₂ =1].
3-Nitro-p-anisidine [CH ₃ O=1]-----	2-Nitro-p-anisidine [NH ₂ =1].
4-Nitro-2-anisidine [CH ₃ O=1]-----	5-Nitro-o-anisidine [NH ₂ =1].
5-Nitro-2-anisidine [CH ₃ O=1]-----	4-Nitro-o-anisidine [NH ₂ =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 ₃ H=1].
2-Nitrobenzenesulfonic acid-----	o-Nitrobenzenesulfonic acid [SO ₃ H=1].
3-Nitrobenzenesulfonic acid-----	m-Nitrobenzenesulfonic acid [SO ₃ H=1].
3-Nitrobenzenesulfonyl chloride-----	m-Nitrobenzenesulfonyl chloride [SO ₃ 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 ₃ =1]-----	2-Nitro-p-cresol [OH=1].
Nitrocresyl methyl ether-----	4-Methyl-2-nitroanisole [CH ₃ 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 ₃ H=1].
4-Nitrodiphenylamino-2-sulfonic acid-----	2-Anilino-5-nitrobenzenesulfonic acid [SO ₃ 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 ₃ =1]-----	5-Methyl-4-nitro-o-anisidine [NH ₂ =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 ₂ =1].
1-Nitro-2-methylanthraquinone-----	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 ₃ H=1].
4-Nitrotolueneanilide-----	5-Nitro-n-phenyl-o-toluidine [NH ₂ =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-toluenesulfone-o-toluide.
o-Nitrotoluenesulfonic acid-----	3-Nitro-p-toluenesulfonic acid [SO ₃ H=1].
p-Nitrotoluene-o-sulfonic acid-----	5-Nitro-o-toluenesulfonic acid [SO ₃ H=1].
m-Nitro-o-toluidine [CH ₃ =1]-----	4-Nitro-o-toluidine [NH ₂ =1].
m-Nitro-p-toluidine [CH ₃ =1]-----	2-Nitro-p-toluidine [NH ₂ =1].
p-Nitro-o-toluidine [CH ₃ =1]-----	5-Nitro-o-toluidine [NH ₂ =1].
3-Nitro-4-toluidine [CH ₃ =1]-----	2-Nitro-p-toluidine [NH ₂ =1].
4-Nitro-2-toluidine [CH ₃ =1]-----	5-Nitro-o-toluidine [NH ₂ =1].
5-Nitro-2-toluidine [CH ₃ =1]-----	4-Nitro-o-toluidine [NH ₂ =1].
Nitrotoluidine sulfone-----	4'-Nitro-p-toluenesulfone-o-toluide.
6-Nitro-o-toluidine-4-sulfonic acid-----	4-Amino-5-nitro-m-toluenesulfonic acid [SO ₃ H=1].
N-(4-Nitro-o-tolyl)-p-toluenesulfonamide-----	4'-Nitro-p-toluenesulfone-o-toluide.
5-Nitro-1,2,4-trichlorobenzene-----	1,2,4-Trichloro-5-nitrobenzene.
Nitroviolanthrene-----	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 ₃ 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-aminolanthraquinone.

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 merol 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 ₃ H=1].
Phenylhydrazine-2-sulfonic acid-----	o-Hydrazinobenzenesulfonic acid [SO ₃ H=1].
Phenylhydrazine-3-sulfonic acid-----	m-Hydrazinobenzenesulfonic acid [SO ₃ 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-Phenylphloreic acid.
Phenyl peri acid-----	8-Anilino-1-naphthalenesulfonic acid.
N-Phenyl-p-phenylenediaminesulfonic acid-----	5-Amino-2-anilino-benzenesulfonic acid [SO ₃ 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 ₂ =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 ₃ 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[dimethylamino]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 ₃ H=1].
p,p'-Thiobis(4-amino-o-benzenesulfonic acid)-----	6,6'-Thiodimetanilic acid [SO ₃ H=1].
Thiosalicilic 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 ₂ Cl=1].
4-Toluenesulfonamido-1-aminoanthraquinonesulfonic acid-----	1-Amino-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic acid.
β-Toluenesulfonic acid-----	p-Toluenesulfonic acid, methyl ester [SO ₃ 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 ₃ H=1].
m-Toluidine-p-sulfonic acid-----	2-Amino-p-toluenesulfonic acid [SO ₃ H=1].
o-Toluidine-m-sulfonic acid-----	4-Amino-m-toluenesulfonic acid [SO ₃ H=1].
o-Toluidine-omega-sulfonic acid-----	(o-Toluidino)methanesulfonic acid [SO ₃ H=1].
p-Toluidine-m-sulfonic acid-----	6-Amino-m-toluenesulfonic acid [SO ₃ H=1].
p-Toluidine-o-sulfonic acid-----	5-Amino-o-toluenesulfonic acid [SO ₃ H=1].
p-Toluidine-o-sulfonic acid, isopropyl ester-----	5-Amino-o-toluenesulfonic acid, isopropyl ester [SO ₃ H=1].
3-Toluidine-6-sulfonic acid-----	4-Amino-o-toluenesulfonic acid [SO ₃ H=1].
6-(p-Toluidino)metanilic acid-----	5-Amino-2-(p-toluidino)benzenesulfonic acid.
α-Tolunitrile-----	Phenylacetnitrile.
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.
Tolylene diamine-----	Toluenediamine.
p-m-Tolylene diamine-----	Toluene-2,5-diamine.
4-m-Tolylene diamine-----	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 ₃ H=1].
m-Tolylene diisocyanates-----	Isocyanic acid, 4(and2)-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'-Diaminocarbonilide.
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 ₃ H=1].
Xylol chloride-----	4-Chloro-m-xylene.

D. Cross-Reference List of *Colour Index* and Common Names of Toners and Lakes

In previous reports in this series, individual toners and lakes were identified by the names by which they were most commonly known in the literature and in the trade. In this report, they are identified by the names used in the second edition of *Colour Index*.

To facilitate comparison of the statistics shown in this report and those given in the reports for earlier years, the following cross-reference list has been compiled. The list gives, for each *Colour Index* name used in tables 11A, 12, and 11B of this report, the corresponding name by which the pigment was identified in earlier reports.

Toners and lakes: Cross-reference list of Colour Index and common names

<i>Colour Index name</i>	<i>Common name</i>
Natural Black 3-----	Logwood black.
Pigment Blue 1-----	Victoria pure blue B.
Pigment Blue 9-----	Setoglaucine.
Pigment Blue 14-----	Ethyl violet.
Pigment Blue 15-----	Phthalocyanine blue B, BG.
Pigment Blue 19-----	Alkali blue.
Pigment Blue 24-----	Peacock blue, fugitive.
Pigment Blue 25-----	Dianisidine blue.
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 Orange 2-----	o-Nitroaniline orange.
Pigment Orange 5-----	2,4-Dinitroaniline orange.
Pigment Orange 13-----	Benzidine orange.
Pigment Orange 16-----	Dianisidine orange.
Acid Red 26-----	Scarlet 2R.
Pigment Red 1-----	Para red.
Pigment Red 2-----	Naphthol AS and dca.
Pigment Red 3-----	Toluidine red.
Pigment Red 4-----	o-Chloro-p-nitroaniline red.
Pigment Red 5-----	Naphthol AS-ITR and ITR base.
Pigment Red 17-----	Naphthol AS-D and pnot.
Pigment Red 18-----	Toluidine maroon.
Pigment Red 22-----	Naphthol AS and pnot.
Pigment Red 23-----	Naphthol AS-BB and pnoaa.
Pigment Red 38-----	Pyrazolone red.
Pigment Red 41-----	Dianisidine red.
Pigment Red 48-----	Permanent red 2B.
Pigment Red 49-----	Lithol red R.
Pigment Red 52-----	Lithol red 2G.
Pigment Red 53-----	Red lake C.
Pigment Red 57-----	Lithol rubine B.
Pigment Red 60-----	Pigment scarlet 3B.
Pigment Red 63-----	B. O. N. maroon.
Pigment Red 81-----	Rhodamine 6G.
Pigment Red 83-----	Alizarin red B.
Pigment Red 90-----	Eosine.
Pigment Violet 1-----	Rhodamine B.
Pigment Violet 3-----	Methyl violet B.
Pigment Violet 5-----	Helio fast rubine 4BL.
Acid Yellow 23-----	Tartrazine.
Basic Yellow 2-----	Auramine.
Pigment Yellow 1-----	Hansa yellow G.
Pigment Yellow 3-----	Hansa yellow 10G.
Pigment Yellow 12-----	Benzidine yellow (dcb and aaa).
Pigment Yellow 13-----	Benzidine yellow (dcb and aamx).
Pigment Yellow 14-----	Benzidine yellow (dcb and aao).

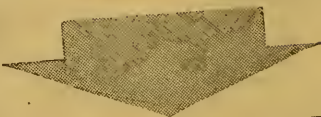
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