

1969S

UNITED STATES TARIFF COMMISSION

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**SYNTHETIC  
ORGANIC CHEMICALS**

**United States Production  
and Sales, 1967**

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TC Publication 295



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**UNITED STATES TARIFF COMMISSION**

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**SYNTHETIC  
ORGANIC CHEMICALS**

**United States Production  
and Sales, 1967**

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

**U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1969**

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**TC Publication 295**

**UNITED STATES TARIFF COMMISSION**

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**BRUCE E. CLUBB**

**WILL E. LEONARD, Jr.**

**HERSCHEL D. NEWSOM**

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**Address all communications**

**UNITED STATES TARIFF COMMISSION**

**Washington, D.C. 20436**

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## Introduction

This is the fifty-first 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 1967 on crude organic chemicals derived from coal, natural gas, and petroleum; on intermediates; and on finished synthetic organic chemical products. The finished products are grouped according to their principal use--dyes, synthetic organic pigments, medicinal chemicals, flavor and perfume materials, plastics and resin materials, rubber-processing chemicals, elastomers, plasticizers, surface-active agents, pesticides and related products, and miscellaneous chemicals. The use classifications of finished synthetic organic chemicals are based principally on the manufacturers' annual reports to the Tariff Commission; other sources include trade associations, the chemical literature, chemical dictionaries, encyclopedias, and consultants in the chemical industry. With a few exceptions, the report does not cover organic chemicals (such as wood-distillation products, essential oils, and naval stores) that are derived from natural (vegetable) sources by simple extraction or distillation. The Commission has compiled the statistics given in this report from information supplied by the 819 primary manufacturers listed in part III.

The first section of the report includes the statistics on all products and groups of products for which information can be published. The second section lists all the chemicals and chemical products on which data are reported and identifies the manufacturers of each. Each reporting company has been assigned an identification symbol consisting of a combination of not more than three capital letters, selected in most instances with the approval of the manufacturer, and usually bearing some relationship to the company name. The identification symbols are permanent and, except for such changes as may be necessary, will be used in all future reports in this series. This report includes data on only those individual chemicals for which the volume of production or sales in the year covered exceeded 1,000 pounds or for which the value of sales exceeded \$1,000.

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

In this report the statistics on production of the individual chemicals reported by manufacturers include the total output of the companies' plants, i. e., the quantities produced for consumption within the producing plants, as well as the quantities produced for domestic and foreign sale. The quantities reported as produced, therefore, generally exceed the quantities reported as sold. Some of these differences, however, are attributable to changes in inventories. As specified in the reporting instructions that the Commission sends to manufacturers, and as used in this report, production and sales (unless otherwise specifically indicated) are defined as follows:

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

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

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

## Production excludes--

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

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

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

## Sales exclude--

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

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

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

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

Statistics are presented in as great detail as is possible without revealing the operations of individual producers. Statistics for an individual chemical or group of chemicals are given only where there are three or more producers no one or two of which may be predominant. Moreover, even when there are three or more producers, statistics are not given if there is any possibility that their publication would violate the statutory provisions relating to unlawful disclosure of information accepted in confidence by the Commission.<sup>2</sup>

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

Statistics on U.S. general imports in 1967 of benzenoid intermediates and finished benzenoid products that entered under schedule 4, parts 1B and 1C, of the Tariff Schedules of the United States are given in the appendix.

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

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



## Summary

Combined production of all synthetic organic chemicals, tars, tar crudes, and crude products from petroleum and natural gas in 1967 was 176,541 million pounds--an increase of 4.4 percent over the output in 1966 (see table 1). Sales of these materials in 1967, which totaled 94,309 million pounds, valued at \$11,466 million, were 4.6 percent larger than in 1966 in terms of quantity and 4.2 percent larger in terms of value. These figures include data on production and sales of chemicals measured at several successive steps in the manufacturing process, and therefore they necessarily reflect some duplication.

In 1967, production of all synthetic organic chemicals, including cyclic intermediates and finished chemical products, totaled 104,711 million pounds, or 4.1 percent more than the output in 1966 (see table 1). Production of cyclic intermediates (20,793 million pounds) was 6.8 percent larger in 1967 than in 1966; that of surface-active agents (3,479 million pounds) was 4.8 percent larger; that of plasticizer chemicals (1,263 million pounds) was 4.4 percent larger.

The output of other groups of synthetic organic chemicals which increased in 1967 compared to 1966 were miscellaneous chemicals and synthetic organic pigments (both 4.3 percent) and pesticides and related products (3.6 percent). Plastics and resin materials increased by 1.5 percent while flavor and perfume materials showed the smallest percentage gain in 1966 over 1967 (.8 percent).

TABLE 1.--Synthetic organic chemicals and their raw materials: U.S. production and sales, 1966 and 1967

Chemical	Production			Sales					
				Quantity			Value		
	1966	1967	Increase or decrease (-), 1967 over 1966 <sup>1</sup>	1966	1967	Increase or decrease (-), 1967 over 1966 <sup>1</sup>	1966	1967	Increase or decrease (-), 1967 over 1966 <sup>1</sup>
	Million pounds	Million pounds	Percent	Million pounds	Million pounds	Percent	Million dollars	Million dollars	Percent
Grand total <sup>2</sup> -----	169,174	176,541	4.4	90,175	94,309	4.6	10,999	11,466	4.2
Tar-----	8,019	7,803	-2.7	3,613	3,547	-1.8	35	34	-2.6
Tar crudes-----	10,062	9,588	-4.7	6,348	6,132	-3.4	140	136	-3.1
Crude products from petroleum and natural gas-----	50,467	54,438	7.9	27,494	29,453	7.1	865	858	-.8
Synthetic organic chemicals, total <sup>2</sup>	100,627	104,711	4.1	52,720	55,177	4.7	9,958	10,438	4.8
Intermediates-----	19,467	20,793	6.8	8,852	9,461	6.9	925	1,000	8.1
Dyes-----	219	206	-5.9	204	199	-2.7	331	332	.2
Synthetic organic pigments-----	51	53	4.3	43	43	-1.0	108	108	.7
Medicinal chemicals-----	185	180	-2.9	136	127	-7.0	398	385	-3.3
Flavor and perfume materials-----	111	112	.8	98	97	-1.8	93	93	.8
Plastics and resin materials-----	13,585	13,793	1.5	11,472	11,977	4.4	2,740	2,673	-2.5
Rubber-processing chemicals-----	283	264	-6.8	209	201	-4.0	138	132	-4.6
Elastomers (synthetic rubbers)---	3,929	3,823	-2.7	3,411	3,262	-4.4	918	874	-4.8
Plasticizers-----	1,209	1,263	4.4	1,156	1,162	.5	246	261	6.1
Surface-active agents-----	3,321	3,479	4.8	1,766	1,750	-.9	315	317	.6
Pesticides and related products--	1,013	1,050	3.6	822	897	9.1	584	787	34.8
Miscellaneous chemicals-----	57,253	59,696	4.3	24,549	26,001	5.9	3,162	3,476	9.9

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

<sup>2</sup> Because of rounding, figures may not add to the totals shown.



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

**Tars**

Coal tar is produced chiefly by the steel industry as a byproduct of the manufacture of coke; water-gas tar and oil-gas tar are produced by the fuel-gas industry. Production of coal tar, therefore, depends on the demand for steel; production of water-gas tar and oil-gas tar reflects the consumption of manufactured gas for industrial and household use. Water-gas and oil-gas tars have properties intermediate between those of petroleum asphalts and coal tars. Petroleum asphalts are not usually considered to be raw materials for chemicals.

The quantity of tar produced from coal in the United States in 1967 was 780 million gallons, or 2.7 percent less than the 802 million gallons produced in 1966. U. S. production of water-gas and oil-gas tar was not reported to the Commission for 1966 or 1967; production of these tars amounted to 19 million gallons in 1962, the last year for which production was reported to the Tariff Commission.

Total consumption of tar in 1967 amounted to 747 million gallons, of which 595 million gallons was consumed by distillation, 129 million gallons as fuel, and 23 million gallons in miscellaneous uses (table 2).

TABLE 2.--Tar: U.S. production and consumption, 1966 and 1967

[In thousands of gallons]

Product	1966	1967
PRODUCTION		
Coal tar from coke-oven byproduct plants, total <sup>1</sup> -----	801,867	780,334
CONSUMPTION		
Total-----	762,904	746,590
Tar consumed by distillation, total-----	604,582	594,621
Coal tar distilled or topped by coke-oven operators <sup>1</sup> -----	302,873	291,624
Coal tar and water-gas tar distilled by producers and tar distillers <sup>2</sup> -----	301,709	302,997
Tar consumed chiefly as fuel <sup>1</sup> -----	131,890	129,009
Tar consumed otherwise than by distillation or as fuel, total-----	26,432	22,960
Coal tar consumed at coke-oven plants for roads and upkeep <sup>1</sup> -----	2,192	2,468
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-----	24,240	20,492

<sup>1</sup> Reported to the U.S. Bureau of Mines.

<sup>2</sup> Reported to U.S. Tariff Commission. Represents tar purchased from companies operating coke ovens and gas-retort plants and distilled by companies operating tar-distillation plants.

**Tar Crudes**

Tar crudes are obtained from coke-oven gas and by distilling coal tar, water-gas tar, and oil-gas tar. The most important tar crudes are benzene, toluene, xylene, naphthalene, creosote oil, and pitch of tar. Some of the products produced from coal tar are identical with those produced from petroleum. Data for materials derived from petroleum are included, for the most part, with the statistics for materials derived from coal tar, which are shown in tables 3 and 4A.<sup>1</sup>

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

Domestic production of industrial and specification grades of benzene reported by coke-oven operators and petroleum refinery operators<sup>2</sup> in 1967 amounted to 969 million gallons--1.5 percent more than the 955 million gallons reported for 1966. These statistics include data for benzene produced from light oil and petroleum. Sales of benzene by coke-oven operators and petroleum operators in 1967 amounted to 564 million gallons, valued at \$135 million, compared with 606 million gallons, valued at \$147 million, in 1966. In 1967 the output of toluene<sup>2</sup> (including material produced for use in blending in aviation fuel) amounted to 644 million gallons--10.3 percent more than the 584 million gallons reported for 1966. Sales of toluene in 1967 were 385 million gallons, valued at \$72 million, compared with 361 million gallons, valued at \$62 million, in 1966. The output of xylene<sup>2</sup> in 1967 (including that produced for blending in motor fuels) was 455 million gallons, compared with 329 million gallons in 1966. About 99 percent of the 455 million gallons of xylene produced in 1967 was obtained from petroleum sources.

Production of crude naphthalene in 1967 (including 377 million pounds of petroleum-derived naphthalene) amounted to 898 million pounds, compared with 848 million pounds in 1966. In 1967 the output of creosote oil for wood preservation was 126 million gallons (100-percent creosote basis), compared with 133 million gallons in 1966. Production of road tar in 1967 was 50 million gallons, compared with 55 million gallons in 1966.

Some of the products included in the statistics in table 4A are derived from other products for which data are also included in the table. The statistics, therefore, involve considerable duplication, and for this reason no group totals or grand totals are given. It is estimated that, after duplication has been eliminated insofar as possible, the net value of the output of these products and of tar burned as fuel was \$597 million in 1967, compared with \$552 million in 1966 and \$500 million in 1965.

TABLE 3.--Tar and tar crudes: Summary of U.S. production of specified products, average 1957-59, annual 1966 and 1967

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

Chemical	Unit of quantity	Average 1957-59	1966	1967	Increase, or decrease (-)	
					1976 over 1957-59	1967 over 1966
					Percent	Percent
Tar <sup>1</sup> -----	1,000 gal--	760,816	801,867	780,334	2.6	-2.7
Benzene:						
Tar distillers <sup>2</sup> -----	1,000 gal--	27,130	...	...	...	...
Coke-oven operators-----	1,000 gal--	139,121	113,932	90,642	-34.8	-20.4
Petroleum operators-----	1,000 gal--	155,694	841,340	878,704	464.4	4.4
Total-----	1,000 gal--	321,945	955,272	969,346	201.1	1.5
Toluene:						
Tar distillers-----	1,000 gal--	4,162	...	...	...	...
Coke-oven operators-----	1,000 gal--	31,007	22,791	19,357	-37.6	-15.1
Petroleum operators-----	1,000 gal--	204,421	561,103	624,454	205.5	11.3
Total-----	1,000 gal--	239,590	583,894	643,811	168.7	10.3
Xylene:						
Tar distillers-----	1,000 gal--	795	...	...	...	...
Coke-oven operators-----	1,000 gal--	8,908	6,124	5,488	-38.4	-10.4
Petroleum operators-----	1,000 gal--	180,021	<sup>3</sup> 322,560	<sup>3</sup> 449,349	149.6	39.3
Total-----	1,000 gal--	189,724	328,684	454,837	139.7	38.4
Naphthalene:						
Crude <sup>4</sup> -----	1,000 lb--	396,882	493,634	520,991	31.3	5.5
Petroleum naphthalene, all grades-----	1,000 lb--	...	354,068	376,679	...	6.4
Total-----	1,000 lb--	396,882	847,702	897,670	126.2	5.9
Creosote oil (Dead oil): <sup>5</sup>						
Distillate as such (100% creosote basis)-----	1,000 gal--	90,913	114,725	108,832	19.7	-5.1
Creosote content of coal-tar solution (100% creosote basis)-----	1,000 gal--	14,172	18,141	17,402	22.8	-4.1
Total-----	1,000 gal--	105,085	132,866	126,234	20.1	-5.0

<sup>1</sup> Includes data for oil-gas, water-gas, and gas-retort tar reported to the American Gas Association for 1957-59 only, and for coal tar reported to the Division of Bituminous Coal, U.S. Bureau of Mines.

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

<sup>3</sup> Includes data for material produced for use in blending motor fuels. Statistics are not comparable with monthly figures, which included some o-xylene (see table 7A).

<sup>4</sup> Naphthalene solidifying at less than 79°C. Figures include production by tar distillers and coke-oven operators and represent combined data for the commercial grades of naphthalene to avoid disclosure of the operations of individual companies. Because of conversion between grades, the figures may include some duplication.

<sup>5</sup> Includes data for creosote oil produced by tar distillers and coke-oven operators and used only in wood preserving.

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

TABLE 4A.--Tar crudes: U.S. production and sales, 1967

[Listed below are all tar crudes for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 4B in pt. III lists separately all products for which data on production or sales were reported and identifies the manufacturers reporting to the U.S. Tariff Commission]

Product	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value <sup>1</sup>
Crude light oil: Coke-oven operators-----	1,000 gal--	252,138	94,504	13,229	\$0.14
Intermediate light oil: Coke-oven operators-----	1,000 gal--	5,558	1,566	127	.08
Light-oil distillates:					
Benzene, specification and industrial grades, total <sup>2 3</sup> -----	1,000 gal--	969,346	563,867	135,240	.24
Coke-oven operators-----	1,000 gal--	90,642	88,169	20,941	.24
Petroleum operators-----	1,000 gal--	878,704	475,698	114,299	.24
Toluene, all grades, total <sup>2 3</sup> -----	1,000 gal--	643,811	384,550	71,897	.19
Coke-oven operators-----	1,000 gal--	19,357	18,619	3,693	.20
Petroleum operators-----	1,000 gal--	624,454	365,931	68,204	.19
Xylene, all grades, total <sup>2 3</sup> -----	1,000 gal--	454,837	274,419	49,887	.18
Coke-oven operators-----	1,000 gal--	5,488	5,763	1,239	.21
Petroleum operators-----	1,000 gal--	449,349	268,656	48,648	.18
Solvent naphtha: <sup>2</sup> Coke-oven operators-----	1,000 gal--	3,633	2,558	411	.16
All other light-oil distillates, total-----	1,000 gal--	10,681	4,327	763	.18
Coke-oven operators-----	1,000 gal--	8,397	2,068	239	.12
Tar distillers <sup>2</sup> -----	1,000 gal--	2,284	2,259	524	.23
Naphthalene, crude (tar distillers and coke-oven operators), total <sup>6</sup> -----	1,000 lb--	520,991	302,593	13,081	.04
Solidifying at--					
Less than 74° C-----	1,000 lb--	84,202	...	...	...
74° C. to less than 79° C-----	1,000 lb--	436,789	...	...	...
Crude tar-acid oils: <sup>2</sup> Coke-oven operators-----	1,000 gal--	28,089	27,565	4,514	.16
Creosote oil (Dead oil) (tar distillers and coke-oven operators) (100% creosote basis), total <sup>7</sup> ----	1,000 gal--	126,234	116,184	<sup>8</sup> 24,788	<sup>8</sup> .21
Distillate as such (100% creosote basis)-----	1,000 gal--	108,832	98,824	19,766	.20
Creosote content of coal-tar solution (100% creosote basis)-----	1,000 gal--	17,402	17,360	<sup>8</sup> 5,022	<sup>8</sup> .29
All other distillate products, total <sup>9</sup> -----	1,000 gal--	...	14,229	2,531	.18
Coke-oven operators-----	1,000 gal--	3,241	3,192	323	.10
Tar distillers-----	1,000 gal--	...	11,037	2,208	.20
Tar, road-----	1,000 gal--	50,059	50,688	6,887	.14
Tar (crude and refined) for other uses <sup>10</sup> -----	1,000 gal--	9,408	9,406	2,048	.22
Pitch of tar (coke-oven operators and tar distillers):					
Hard (water softening point above 160° F.)-----	1,000 tons	941	701	26,800	38.23
Other <sup>11</sup> -----	1,000 tons	935	427	14,160	33.16

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

<sup>2</sup> Data reported by tar distillers are not included because publication would disclose the operations of individual companies. Production of benzene and toluene by tar distillers decreased in 1967, compared with 1966; production of xylene increased. The annual production statistics for petroleum operators on benzene, toluene, and xylene are not comparable with the combined monthly production figures, due to fiscal year revisions.

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

<sup>4</sup> Revised.

<sup>5</sup> Includes solvent naphtha and rubber-reclaiming oils.

<sup>6</sup> Statistics represent combined data for the commercial grades of naphthalene. Because of conversion of naphthalene from one grade to another, the figures may include some duplication.

<sup>7</sup> Statistics include only data for creosote oil sold for, or used in, wood preserving. In 1967, production of creosote in coal-tar solution (100% solution basis) amounted to 27,420 thousand gallons; sales were 27,355 thousand gallons, valued at 5,022 thousand dollars, with a unit value of \$0.18 per gallon.

<sup>8</sup> Includes value of coal tar used in preparing creosote in coal-tar solution.

<sup>9</sup> Includes data for pyridine crude bases, crude cresylic acid, and neutral oil produced by tar distillers, and for crude sodium phenolate produced by coke-oven operators.

<sup>10</sup> Includes data for tar used for paint, pipe covering, saturating, and other uses.

<sup>11</sup> Includes soft and medium pitch of tar (water softening points less than 110° F., and 110° F. to 160° F.), pitch of tar coke, and pitch emulsion.

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

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

Crude products that are derived from petroleum and natural gas<sup>3</sup> 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 (table 5A<sup>4</sup>). Notwithstanding these duplications, the statistics are sufficiently accurate to indicate trends in the industry and to serve as a basis for general comparison. Many of the crude products for which data are included in the statistics may be used either as fuel or as basic materials from which to derive other chemicals, depending on prevailing economic conditions; but in this report every effort has been made to exclude data on materials that are used as fuel. However, data are included on toluene and xylene which are not used directly as fuel but in blending aviation and motor-grade gasolines.

The output of crude products derived from petroleum and natural gas as a group amounted to 54,438 million pounds in 1967, or 7.9 percent more than the 50,467 million pounds reported for 1966. The larger output in 1967 is accounted for chiefly by increased production of propylene, xylenes, ethylene, toluene, and benzene. Sales of crude chemicals from petroleum in 1967 amounted to 29,453 million pounds, valued at \$858 million, compared with 27,494 million pounds, valued at \$865 million, in 1966.

The output of aromatic and naphthenic products from petroleum amounted to 16,455 million pounds in 1967, compared with 14,799 million pounds in 1966. Sales in 1967, which amounted to

TABLE 5A.--Crude products from petroleum and natural gas for chemical conversion; U.S. production and sales, 1967

[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	Sales	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	54,438,232	29,453,233	858,071	\$0.029
AROMATICS AND NAPHTHENES <sup>2</sup>				
Total-----	16,455,333	9,952,387	266,556	.027
Benzene (1° and 2°), total-----	6,484,836	3,510,651	114,299	.033
Benzene, 1°-----	5,597,280	...	...	...
Benzene, 2°-----	887,556	...	...	...
Naphthalene, all grades-----	376,679	280,920	13,772	.049
Naphthenic acids, total-----	24,498	12,771	1,330	.104
Acid number 150-199-----	6,355	...	...	...
All other-----	18,143	...	...	...
Toluene, all grades, total-----	4,539,781	2,660,318	68,204	.026
Nitration grade, 1°-----	2,846,896	1,794,876	48,093	.027
Pure commercial grade, 2°-----	600,400	272,712	6,311	.023
Solvent grade, 90%-----	131,013	79,897	1,851	.023
All other <sup>3</sup> -----	961,472	512,833	11,949	.023
Xylenes, mixed, total-----	3,239,807	1,937,010	48,648	.025
Xylene, 3°-----	934,106	895,648	21,478	.024
All other <sup>3</sup> -----	2,305,701	1,041,362	27,170	.026
All other aromatics and naphthenes <sup>4</sup> -----	1,789,732	1,550,717	20,303	.013

See footnotes at end of table.

<sup>3</sup> Statistics on aromatic chemicals from coal tar are given in table 4A, (Tar Crudes: U.S. production and sales, 1967).

<sup>4</sup> See also table 5B, pt. III, which lists these products and identifies the manufacturers.

TABLE 5A.--Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1967--Continued

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
ALIPHATIC HYDROCARBONS				
Total-----	1,000 pounds 37,982,899	1,000 pounds 19,500,846	1,000 dollars 591,515	Per pound \$0.030
C <sub>2</sub> hydrocarbons, total-----	13,841,364	...	...	...
Acetylene <sup>2</sup> -----	429,464	...	...	...
Ethane-----	1,557,385	848,799	7,013	.008
Ethylene-----	11,854,515	3,353,371	132,560	.040
C <sub>3</sub> hydrocarbons, total-----	10,512,743	7,129,438	115,428	.016
Propane-----	4,123,574	3,903,796	49,431	.013
Propane-propylene mixture-----	617,354	...	...	...
Propylene-----	5,771,815	63,225,642	665,997	.020
C <sub>4</sub> hydrocarbons, total-----	8,226,160	5,156,664	231,759	.045
1,3-Butadiene, grade for rubbers (elastomers)-----	2,660,273	1,620,806	154,266	.095
Butadiene and butylene fractions-----	894,218	238,578	6,997	.029
n-Butane-----	2,031,069	1,384,780	15,149	.011
1-Butene-----	41,053	36,060	1,918	.053
1-Butene and 2-butene mixture <sup>7</sup> -----	1,391,717	1,125,019	31,856	.028
Isobutane-----	648,569	300,286	4,078	.014
Isobutylene-----	...	168,816	11,481	.068
All other <sup>8</sup> -----	559,261	282,319	6,014	.021
C <sub>5</sub> hydrocarbons, total-----	784,429	158,778	6,194	.039
Isoprene-----	196,302	27,605	3,884	.141
n-Pentane-----	4,989	4,960	223	.045
All other <sup>9</sup> -----	583,138	126,213	2,087	.016
All other aliphatic hydrocarbons and derivatives, total---	4,618,203	2,853,796	98,561	.034
Alpha olefins <sup>10</sup> -----	328,834	234,156	12,120	.052
Diisobutylene (Diisobutene)-----	...	35,033	1,837	.052
Heptenes, mixed-----	288,158	195,828	7,665	.039
Hexane-----	212,187	...	...	...
Nonene (Tripropylene)-----	286,278	203,439	7,010	.034
Polybutene <sup>11</sup> -----	176,176	158,861	12,534	.079
Tetrapropylene-----	433,903	251,887	8,326	.033
Hydrocarbon derivatives <sup>12</sup> -----	34,140	21,674	5,717	.264
All other <sup>13</sup> -----	2,858,527	1,752,918	43,352	.025

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

<sup>2</sup> The chemical raw materials designated as aromatics are in some cases identical with those obtained from the distillation of coal tar; however, the statistics given in the table above relate only to such materials as are derived from petroleum and natural gas. Statistics on aromatic chemicals from all sources are given in table 4A, "Tar Crudes."

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

<sup>4</sup> Includes data for 90-percent benzene, crude cresylic acid, crude sodium carbolate and phenate, alkyl aromatics, distillates, solvents, and miscellaneous cyclic hydrocarbons.

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

<sup>6</sup> Includes data for a small amount of propane-propylene mixture.

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

<sup>8</sup> Includes data for 2-butene, mixed butylenes, and mixed olefins.

<sup>9</sup> Includes data for pentanes, pentenes, and C<sub>5</sub> hydrocarbon mixtures.

<sup>10</sup> Includes data for the following molecular weight ranges: C<sub>6</sub>-C<sub>7</sub>; C<sub>8</sub>-C<sub>10</sub>; C<sub>11</sub>-C<sub>15</sub>; C<sub>16</sub>-C<sub>20</sub>; and C<sub>16</sub>-C<sub>30</sub>.

<sup>11</sup> Includes compounds having a molecular weight of 3,000 or less.

<sup>12</sup> Includes data for tert-butylene mercaptan, di-tert-butylsulfide and miscellaneous mercaptans.

<sup>13</sup> Includes data for ethane-ethylene mixture, heptane, methane, octanes, n-paraffins, and hydrocarbon mixtures.

9,952 million pounds, valued at \$267 million, were 77 million pounds smaller, and valued at \$6 million more, than those in 1966. Naphthalene was produced from petroleum sources in substantially greater quantities in 1967 than in 1966. The output of 1<sup>o</sup> and 2<sup>o</sup> benzene from petroleum amounted to 6,485 million pounds in 1967--4.4 percent more than the 6,209 million pounds produced in 1966. The output of toluene in 1967 was 4,540 million pounds--11.3 percent more than the 4,079 million pounds produced in 1966. Production of xylene was 3,240 million pounds in 1967, compared with 2,326 million pounds in 1966. These figures include toluene and xylene used in blends in aviation and motor-grade gasolines. The output of naphthenic acids amounted to 24.5 million pounds in 1967, about the same as that produced in 1966.

## SYNTHETIC ORGANIC CHEMICALS, 1967

Production of all aliphatic hydrocarbons and derivatives from petroleum and natural gas was 37,983 million pounds in 1967, compared with 35,668 million pounds in 1966. Sales of these products were 19,501 million pounds, valued at \$592 million, in 1967, compared with 17,465 million pounds, valued at \$605 million, in 1966. The statistics on production of acetylene (table 5A) include only acetylene produced from hydrocarbons and used as a raw material in the production of other chemicals. Total production of acetylene for chemical synthesis is reported to the U.S. Bureau of the Census. In 1967, production of acetylene from hydrocarbon sources, amounted to 429 million pounds. Production of ethylene was 11,855 million pounds in 1967--5.5 percent more than the 11,241 million pounds produced in 1966. The output of propylene was 5,772 million pounds in 1967--23.4 percent more than the 4,677 million pounds produced in 1966. Production of 1,3-butadiene, one of the principal ingredients of S-type synthetic rubber, was 2,660 million pounds in 1967, compared with 2,922 million pounds in 1966. The output of 1,3-butadiene in 1966 was the largest on record.

The following tabulation shows the number of companies that reported production of organic chemical crudes in 1967:

<i>Chemical group</i>	<i>Number of companies and company divisions</i>
Tar crudes-----	13
Petroleum crudes-----	71



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

**General**

On the basis of their principal uses, the synthetic organic chemicals covered in this report are classified either as intermediates or as finished products. Finished products, in turn, are grouped as follows: Dyes, synthetic organic pigments, medicinal chemicals, flavor and perfume materials, plastics and resin materials, rubber-processing chemicals, elastomers (synthetic rubbers), plasticizers, surface-active agents, pesticides and related products, and miscellaneous synthetic organic chemicals. Most of these groups are further subdivided, according to chemical classes, into cyclic and acyclic compounds. As most of the intermediates are used in the manufacture of finished products, aggregate figures that cover both intermediates and finished products necessarily include considerable duplication.

Total production of synthetic organic chemicals (intermediates and finished products combined) in 1967 was 104,711 million pounds, or 4.1 percent more than the output of 100,627 million pounds reported for 1966 (see table 6). Sales of synthetic organic chemicals in 1967 amounted to 55,177 million pounds, valued at \$10,438 million, compared with 52,720 million pounds, valued at \$9,958 million, in 1966. Production of all cyclic products (intermediates and finished products combined) in 1967 totaled 33,479 million pounds, or 4.2 percent more than the 32,133 million pounds produced in 1966. The output of acyclic organic chemicals in 1967 amounted to 71,232 million pounds-- 4.0 percent more than the 68,494 million pounds reported for 1966.

**TABLE 6.--Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1966 and 1967**

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

Chemical	Average 1957-59	1966	1967	Increase, or decrease (-)	
				1967 over 1957-59	1967 over 1966
Organic chemicals, cyclic and acyclic, grand total:				<i>Percent</i>	<i>Percent</i>
Production-----	45,598,853	100,626,696	104,711,357	129.6	4.1
Sales-----	23,744,812	52,719,594	55,176,823	132.4	4.7
Sales value-----	5,743,764	9,958,383	10,438,453	81.7	4.8
Cyclic, total:					
Production-----	14,381,651	32,132,902	33,479,469	132.8	4.2
Sales-----	8,829,037	18,867,433	19,328,628	118.9	2.4
Sales value-----	2,785,100	4,328,963	4,610,293	65.5	6.5
Acyclic, total:					
Production-----	31,217,202	68,493,794	71,231,888	128.2	4.0
Sales-----	14,915,775	33,852,161	35,848,195	140.3	5.9
Sales value-----	2,958,664	5,629,420	5,828,160	97.0	3.5
1. Intermediates, Cyclic					
Production-----	7,343,167	19,466,775	20,793,132	183.2	6.8
Sales-----	2,919,264	8,852,033	9,461,180	224.1	6.9
Sales value-----	481,920	925,092	1,000,359	107.6	8.1
2. Dyes, Cyclic					
Production-----	150,830	219,194	206,240	36.7	-5.9
Sales-----	141,731	204,135	198,592	40.1	-2.7
Sales value-----	182,513	331,453	332,049	81.9	.2
3. Synthetic Organic Pigments, Cyclic					
Production-----	38,603	51,128	53,322	38.1	4.3
Sales-----	30,218	43,316	42,867	41.8	-1.0
Sales value-----	58,648	107,594	108,354	84.8	.7

TABLE 6.--Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1966 and 1967--Continued

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

Chemical	Average 1957-59	1966	1967	Increase, or decrease (-)	
				1967 over 1957-59	1967 over 1966
<i>4. Medicinal Chemicals</i>					
Cyclic:				Percent	Percent
Production-----	70,654	116,164	110,129	55.9	-5.2
Sales-----	54,151	76,842	70,120	( <sup>1</sup> )	-8.8
Sales value-----	535,297	356,646	348,873	( <sup>1</sup> )	-2.2
Acyclic:					
Production-----	31,592	69,305	69,941	121.4	0.9
Sales-----	28,738	59,621	56,804	( <sup>1</sup> )	-4.7
Sales value-----	35,660	41,762	36,402	( <sup>1</sup> )	-12.8
<i>5. Flavor and Perfume Materials</i>					
Cyclic:					
Production-----	27,312	61,406	57,978	112.3	-5.6
Sales-----	22,446	49,597	47,285	110.7	-4.7
Sales value-----	33,903	60,915	52,866	55.9	-13.2
Acyclic:					
Production-----	19,033	49,264	53,558	181.4	8.7
Sales-----	19,958	48,717	49,311	147.1	1.2
Sales value-----	21,912	31,719	40,495	84.8	27.7
<i>6. Plastics and Resin Materials</i>					
Cyclic:					
Production-----	2,278,862	5,066,571	5,033,497	120.9	-.7
Sales-----	1,900,032	4,254,211	4,224,121	122.3	>.7
Sales value-----	518,501	988,001	1,036,940	100.0	5.0
Acyclic:					
Production-----	2,628,779	8,518,301	8,759,452	233.2	2.8
Sales-----	2,438,853	7,217,427	7,753,242	217.9	7.4
Sales value-----	864,523	1,752,080	1,635,690	89.2	-6.6
<i>7. Rubber-Processing Chemicals</i>					
Cyclic:					
Production-----	159,182	241,248	220,139	38.3	-8.8
Sales-----	115,704	182,790	169,970	46.9	-7.0
Sales value-----	74,479	123,581	116,318	56.2	-5.9
Acyclic:					
Production-----	29,150	42,087	43,994	50.9	4.5
Sales-----	22,127	26,495	30,878	39.5	16.5
Sales value-----	14,289	14,622	15,477	8.3	5.8
<i>8. Elastomers (Synthetic Rubbers)</i>					
Cyclic:					
Production-----	1,938,732	2,482,375	2,297,637	18.5	-7.4
Sales-----	1,726,757	2,108,089	1,940,099	12.4	-8.0
Sales value-----	404,897	463,222	439,580	8.6	-5.1
Acyclic:					
Production-----	521,811	1,446,812	1,524,908	192.2	5.4
Sales-----	509,262	1,303,169	1,321,945	159.6	1.4
Sales value-----	199,627	454,796	434,657	117.7	-4.4
<i>9. Plasticizers</i>					
Cyclic:					
Production-----	348,210	897,249	929,871	167.0	3.6
Sales-----	297,423	873,109	865,084	190.8	-.9
Sales value-----	83,509	156,967	167,827	101.0	6.9
Acyclic:					
Production-----	118,118	311,742	332,908	181.8	6.8
Sales-----	100,984	282,577	296,767	193.9	5.0
Sales value-----	38,772	89,034	93,142	140.2	4.6

See footnote at end of table.

TABLE 6.--*Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1957-59, annual 1966 and 1967--Continued*

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

Chemical	Average 1957-59	1966	1967	Increase, or decrease (-)	
				1967 over 1957-59	1967 over 1966
<b>10. Surface-Active Agents</b>					
Cyclic:				Percent	Percent
Production-----	852,314	1,385,217	1,418,444	66.4	2.4
Sales-----	800,432	879,235	852,238	( <sup>1</sup> )	-3.1
Sales value-----	127,936	97,187	95,810	( <sup>1</sup> )	-1.4
Acyclic:					
Production-----	502,715	1,936,100	2,060,851	( <sup>1</sup> )	6.4
Sales-----	432,135	886,818	897,786	( <sup>1</sup> )	1.2
Sales value-----	113,215	217,726	220,877	( <sup>1</sup> )	1.4
<b>11. Pesticides and related products</b>					
Cyclic:					
Production-----	440,384	776,909	823,158	86.9	6.0
Sales-----	375,627	605,229	681,532	81.4	12.6
Sales value-----	150,837	446,946	627,742	316.2	40.4
Acyclic:					
Production-----	105,080	236,201	226,505	115.6	-4.1
Sales-----	91,938	217,027	215,831	134.8	-6
Sales value-----	49,049	136,856	159,301	224.8	16.4
<b>12. Miscellaneous</b>					
Cyclic:					
Production-----	733,401	1,368,666	1,535,922	109.4	12.2
Sales-----	445,252	738,847	775,540	74.2	5.0
Sales value-----	132,660	271,359	283,575	113.8	4.5
Acyclic:					
Production-----	27,260,924	55,883,982	58,159,771	113.3	4.1
Sales-----	11,271,780	23,810,310	25,225,631	123.8	5.9
Sales value-----	1,621,617	2,890,825	3,192,119	96.8	10.4

<sup>1</sup>Data for 1967 are not comparable with those for average 1957-59.

The following tabulation shows, by chemical groups, the number of companies that reported production in 1967 of one or more of the chemicals included in the groups listed in table 6:

<i>Chemical group</i>	<i>Number of companies</i>	<i>Chemical group</i>	<i>Number of companies</i>
Intermediates -----	220	Rubber-processing chemicals -----	32
Dyes -----	50	Elastomers (synthetic rubbers) -----	31
Synthetic organic pigments -----	34	Plasticizers -----	57
Medicinal chemicals -----	108	Surface-active agents -----	213
Flavor and perfume materials -----	54	Pesticides and related products -----	90
Plastics and resin materials -----	291	Miscellaneous chemicals -----	330

## Cyclic Intermediates

Cyclic intermediates are synthetic organic chemicals derived principally from coal-tar crudes produced by destructive distillation (pyrolysis) of coal and from petroleum and natural gas. Most cyclic intermediates are used in the manufacture of more advanced synthetic organic chemicals and finished products, such as dyes, medicinal chemicals, elastomers (synthetic rubbers), pesticides, and plastics and resin materials. Some intermediates, however, are sold as end products without further processing. For example, refined naphthalene may be used as a raw material in the manufacture of 2-naphthol or of other more advanced intermediates, or it may be packaged and sold as a moth repellent or as a deodorant. In 1967 nearly half 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 1967--20,793 million pounds--was the largest on record, and was 6.8 percent larger than the output of 19,467 million pounds reported for 1966. The larger output of cyclic intermediates in 1967 was attributable to increased demand by the chemical products industries, particularly those industries that produce pesticides, pigments, and plasticizers, and to an increase in exports. Sales of cyclic intermediates in 1967 amounted to 9,461 million pounds, valued at \$1,000 million, compared with 8,852 million pounds, valued at \$925 million, in 1966. In terms of quantity, sales of cyclic intermediates in 1967 were 6.9 percent larger than those in 1966 and in terms of value, 8.1 percent larger.

Production of ethylbenzene was 3,347 million pounds in 1967, or 3.2 percent larger than the 3,245 million pounds reported for 1966. Output of styrene in 1967 was 3,278 million pounds, an increase of 2.7 percent over the 3,192 million pounds in 1966. Other intermediates whose production exceeded 1 billion pounds in 1967 were cyclohexane (1,777 million pounds), phenol (1,356 million pounds), and cumene (1,134 million pounds). The output of other large-volume intermediates in 1967 compared with production in 1966 was as follows: Terephthalic acid, dimethyl ester, 936 million pounds (17.4 percent larger than in 1966); p-xylene, 757 million pounds (46.0 percent larger); phthalic anhydride, 727 million pounds (7.7 percent larger); terephthalic acid, 694 million pounds (35.0 percent larger); alkylbenzenes, 684 million pounds (4.3 percent smaller); o-xylene, 493 million pounds (22.3 percent larger); and chlorobenzene, 483 million pounds (16.2 percent smaller). Production of isocyanates amounted to 257 million pounds (15.0 percent larger than in 1966), and production of aniline was 226 million pounds, a decrease of 5.6 percent from 1966.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1967

[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]

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	20,793,132	9,461,180	1,000,359	\$0.11
Acetanilide, tech-----	5,540	...	...	...
o-Acetoacetanisidide-----	523	...	...	...
Acetophenone, tech-----	1,773	1,191	287	.24
Alkylbenzenes <sup>2</sup> -----	684,416	641,895	59,238	.09
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	590	...	...	...
5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	4	...	...	...
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	18	...	...	...
1-Aminoanthraquinone and salt-----	1,289	...	...	...
2-Aminoanthraquinone and salt-----	738	...	...	...
6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9)-----	22	...	...	...
1-Amino-4-benzamidoanthraquinone-----	37	...	...	...
1-Amino-5-benzamidoanthraquinone-----	112	...	...	...
2-Amino-p-benzenedisulfonic acid [SO <sub>3</sub> H=1]-----	26	...	...	...
1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid and sodium salt-----	144	...	...	...
1-Amino-2-bromo-4-hydroxyanthraquinone-----	208	...	...	...
1-Amino-2-bromo-4-p-toluidinoanthraquinone-----	10	...	...	...

See footnotes at end of table.

## CYCLIC INTERMEDIATES

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TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1967--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1-Amino-5-chloroanthraquinone-----	78	...	...	...
6-Amino-4-chloro-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	1,081	263	313	\$1.19
1-Amino-2,4-dibromoanthraquinone-----	333	...	...	...
4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4-acid)-----	459	...	...	...
6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt-----	278	...	...	...
7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt-----	488	...	...	...
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide-----	20	...	...	...
4'-Amino-N-methylacetanilide-----	21	...	...	...
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	807	...	...	...
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	637	...	...	...
4-Amino-1-naphthalenesulfonic acid (Naphthionic acid)-----	141	...	...	...
5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	65	...	...	...
5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed)---	53	...	...	...
6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	115	...	...	...
8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	134	...	...	...
8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	98	...	...	...
2-Amino-5-nitrobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	33	...	...	...
2-Amino-4-nitrophenol-----	102	...	...	...
4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	145	...	...	...
p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	217	...	...	...
4-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	239	...	...	...
6-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	399	209	192	.92
Aniline (Aniline oil)-----	225,556	117,627	12,799	.11
7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid)---	58	...	...	...
Anilinomethanesulfonic acid and salt-----	321	...	...	...
8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)-----	225	...	...	...
o-Anisidine-----	2,279	755	549	.73
o-Anisidinomethanesulfonic acid-----	442	...	...	...
Anthra [1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)-----	32	...	...	...
N,N'-(1,5-Anthraquinonylene)dianthranilic acid-----	22	...	...	...
Benzaldehyde, tech-----	4,475	...	...	...
1-Benzamido-5-chloroanthraquinone-----	112	...	...	...
7H-Benz[de]anthracen-7-one (Benzanthrone)-----	1,754	338	450	1.33
1,2,4,5-Benzenetetracarboxylic-1,2:4,5-dianhydride-----	...	56	239	4.27
Benzoic acid, tech-----	22,339	10,173	1,762	.17
2-Benzothiazolethiol (2-Mercaptobenzothiazole), sodium salt-----	23,160	...	...	...
o-Benzoylbenzoic acid-----	5,107	...	...	...
[3,3'-Bianthra [1,9-cd]pyrazole]-6,6'-(2H,2'H)dione (Pyrazole-anthrone yellow)-----	24	...	...	...
[4,4'-Bi-7H-benz [de]anthracene]-7,7'-dione-----	523	...	...	...
1,4-Bis[1-anthraquinonylamino]anthraquinone-----	99	...	...	...
4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)-----	75	...	...	...
3-Bromo-7H-benz [de]anthracen-7-one (3-Bromobenzanthrone)-----	163	...	...	...
1-Bromo-4-(methylamino)anthraquinone-----	53	...	...	...
6-Bromo-3-methyl-7H-dibenz [f,i,j]isoquinoline-2,7-(3H)-dione-----	5	...	...	...
1-Chloroanthraquinone-----	184	...	...	...
2-Chloroanthraquinone-----	793	...	...	...
Chlorobenzene, mono-----	483,294	67,857	4,145	.06
o-(p-Chlorobenzoyl)benzoic acid-----	933	...	...	...
1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	6,257	1,768	272	.15
6-Chlorometanilic acid-----	17	...	...	...
1-Chloro-2-methylantraquinone-----	225	...	...	...
2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	275	221	206	.93
4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	503	463	379	.82
1-Chloro-5-nitroanthraquinone-----	84	...	...	...
1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	34,226	12,402	951	.08
1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)-----	101,508	...	...	...
4-Chloro-3-nitrobenzenesulfonamide-----	420	...	...	...
2-Chloro-5-nitrobenzenesulfonic acid and sodium salt-----	368	...	...	...
4-Chloro-3-nitrobenzenesulfonyl chloride-----	553	...	...	...
o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	147	...	...	...
α-Chlorotoluene (Benzyl chloride)-----	66,390	10,789	1,927	.18
[(4-Chloro-o-tolyl)thio]acetic acid-----	58	...	...	...
Cinnamoyl chloride-----	86	...	...	...

See footnotes at end of table.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1967--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Cresols, total <sup>3</sup> -----	78,068	70,456	14,041	\$0.20
o-Cresol-----	16,945	17,860	2,393	.13
(m,p)-Cresol-----	35,972	31,685	4,715	.15
All other <sup>4</sup> -----	25,151	20,911	6,933	.33
Cresylic acid, refined <sup>3</sup> -----	42,386	51,808	7,376	.14
Cumene-----	1,134,334	...	...	...
Cyclohexane-----	1,776,620	1,801,949	69,014	.04
Cyclohexanol-----	...	3,384	803	.24
Cyclohexanone-----	429,457	17,422	3,088	.18
Cyclohexylamine-----	11,571	5,148	1,358	.26
1,4-Diaminoanthraquinone-----	47	...	...	...
2,6-Diaminoanthraquinone-----	193	...	...	...
1,4-Diamino-2,3-dihydroanthraquinone-----	500	...	...	...
4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	8,523	...	...	...
4,5'-Dibenzamido-1,1'-iminodianthraquinone-----	149	...	...	...
1,5-Dibenzoylnaphthalene-----	330	...	...	...
3,9-Dibromo-7H-benz[de]anthracen-7-one-----	367	...	...	...
1,5-Dichloroanthraquinone-----	106	...	...	...
o-Dichlorobenzene-----	50,366	45,970	4,721	.10
p-Dichlorobenzene-----	66,482	64,719	5,782	.09
3,3'-Dichlorobenzidine base and salts-----	3,025	2,783	3,454	1.24
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	389	25	59	2.36
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	623	32	7	.22
2,5-Dichlorosulfanilic acid [SO <sub>2</sub> H=1]-----	96	...	...	...
Dicyclopentadiene (includes cyclopentadiene)-----	66,562	40,801	2,285	.06
p-(Diethylamino)benzaldehyde-----	28	...	...	...
N,N-Diethylaniline-----	1,617	959	491	.51
9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid, potassium salt-----	282	...	...	...
9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt-----	421	...	...	...
9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt)-----	3,253	...	...	...
9,10-Dihydro-5-nitro-9,10-dioxo-1-anthracenesulfonic acid-----	108	...	...	...
1,4-Dihydroxyanthraquinone (Quinizarin)-----	2,068	216	257	1.19
1,5-Dihydroxyanthraquinone (Anthrarufin)-----	172	...	...	...
2,6-Dihydroxyanthraquinone (Anthraflavic acid)-----	7	...	...	...
1,5-Dihydroxy-4,8-dinitroanthraquinone-----	76	...	...	...
1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitrochrysazin)-----	247	...	...	...
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	405	...	...	...
3,3'-Dimethoxybenzidine (o-Dianisidine)-----	370	343	578	1.69
N,N-Dimethylaniline-----	15,145	...	...	...
N,N-Dimethylbenzylamine-----	93	87	108	1.24
2,4-Dinitroaniline-----	187	94	69	.73
2,4-Dinitrophenol, tech-----	775	...	...	...
4,4'-Dinitrostilbene-2,2'-disulfonic acid-----	11,443	...	...	...
Diphenylamine-----	28,244	24,498	5,327	.22
1,4-Di-p-toluidinoanthraquinone-----	145	...	...	...
Divinylbenzene-----	2,661	1,977	1,523	.77
p-Dodecylphenol-----	13,610	...	...	...
N-Ethylaniline, refined-----	1,185	...	...	...
α-(N-Ethylanilino)-p-toluenesulfonic acid-----	116	...	...	...
Ethylbenzene <sup>5</sup> -----	3,347,308	469,781	18,800	.04
N-Ethyl-N-phenylbenzylamine-----	427	...	...	...
3-(N-Ethyl-m-toluidino)propionitrile-----	71	...	...	...
Hydroquinone, tech-----	14,206	10,516	7,450	.71
p-Hydroxybenzenesulfonic acid-----	5,088	5,034	729	.14
4-Hydroxymetanilamide-----	78	...	...	...
4-Hydroxymetanilic acid-----	64	...	...	...
3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt-----	1,301	...	...	...
6-Hydroxy-2-naphthalenesulfonic acid and sodium salt-----	447	217	172	.79
N-(7-Hydroxy-1-naphthyl)acetamide-----	22	...	...	...
1,1'-Iminobis[4-aminoanthraquinone]-----	129	...	...	...
1,1'-Iminobis[5-benzamidoanthraquinone]-----	24	...	...	...

See footnotes at end of table.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1967--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]-----	10	...	...	...
1,1'-Iminobis[4-nitroanthraquinone]-----	116	...	...	...
1,1'-Iminodianthraquinone (1,1'-Dianthrimide)-----	114	...	...	...
Isocyanic acid derivatives, total-----	257,096	217,260	69,371	\$0.32
Diphenylmethane 4,4'-diisocyanate (MDI)-----	5,578	3,228	3,255	1.01
Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)-----	199,695	183,206	53,832	.29
Other isocyanic acid derivatives-----	51,823	30,826	12,284	.40
4,4'-Isopropylidenediphenol (Bisphenol A)-----	130,352	50,555	10,410	.21
Isoviolanthrone (Isodibenzanthrone)-----	41	...	...	...
Leuco quinizarin (1,4,9,10-Anthratetrol)-----	172	...	...	...
Melamine-----	78,082	49,981	12,233	.24
dl-p-Mentha-1,8-diene (Limonene)-----	7,920	7,042	448	.06
o-Mercaptobenzoic acid (Thiosalicylic acid)-----	22	...	...	...
Metanilic acid(m-Aminobenzenesulfonic acid)-----	1,124	...	...	...
1-(Methylamino)anthraquinone-----	639	...	...	...
4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	992	432	247	.57
2-Methyl-1-nitroanthraquinone-----	77	...	...	...
p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	126	...	...	...
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	12	...	...	...
3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	127	95	153	1.61
α-Methylstyrene-----	15,941	10,468	904	.09
Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude)-----	2,280	...	...	...
2,7-Naphthalenedisulfonic acid-----	38	...	...	...
1,4,5,8-Naphthalenetetracarboxylic acid-----	72	...	...	...
Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid-----	328	...	...	...
p-Nitroaniline-----	9,001	...	...	...
5-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	119	...	...	...
Nitrobenzene-----	347,700	12,623	1,136	.09
m-Nitrobenzenesulfonic acid and sodium salt-----	3,090	2,551	919	.36
7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid-----	278	...	...	...
p-Nitrophenol and sodium salt-----	15,370	15,145	5,868	.39
3-Nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	67	...	...	...
5-Nitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	10,419	...	...	...
2-Nitro-p-toluidine [NH <sub>2</sub> =1]-----	864	...	...	...
5-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	156	192	269	1.40
Nonylphenol-----	55,681	26,445	2,944	.11
1-[(7-Oxo-7H-benz[de]anthracen-3-yl)amino]anthraquinone-----	391	...	...	...
1,1'-[(7-Oxo-7H-benz[de]anthracen-3,9-ylene)diimino]dianthra- quinone-----	578	...	...	...
3,4,9,10-Perylenetetracarboxylic-3,4:9,10-diimide-----	202	...	...	...
Phenol, grand total <sup>3</sup> -----	1,356,331	547,352	48,774	.09
Natural, total-----	59,108	53,858	5,140	.10
From coal tar-----	40,823	40,261	3,735	.09
From petroleum-----	18,285	13,597	1,405	.10
Synthetic, total-----	1,297,223	493,494	43,634	.09
From cumene-----	721,339	313,150	27,209	.09
Other synthetic-----	575,884	180,344	16,425	.09
Phenylacetoneitrile (α-Tolunitrile)-----	...	349	178	.51
p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochloride-----	271	...	...	...
p-Phenylenediamine-----	642	...	...	...
1-Phenyl-1,2-propanedione, 2-oxime-----	266	...	...	...
Phthalic anhydride-----	727,472	403,455	48,180	.12
Picolines, total <sup>3</sup> -----	4,540	4,144	1,864	.45
2-Picoline (α-Picoline)-----	3,221	3,172	1,593	.50
Other picolines-----	1,319	972	271	.28
Piperidine-----	382	...	...	...
Primuline base-----	31	...	...	...

See footnotes at end of table.

TABLE 7A.--Cyclic intermediates: U.S. production and sales, 1967--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Propiophenone-----	342	...	...	...
8,16-Pyranthredione-----	29	...	...	...
2° Pyridine <sup>3</sup> -----	5,363	5,126	3,049	\$0.59
Salicylaldehyde-----	3,444	2,166	2,137	.99
Salicyclic acid, tech-----	30,149	5,333	1,852	.35
Styrene, all grades-----	3,278,137	1,551,343	119,543	.08
Terephthalic acid-----	693,981	...	...	...
Terephthalic acid, dimethyl ester-----	936,152	353,470	69,365	.20
1,4,5,8-Tetrachloroanthraquinone-----	107	...	...	...
1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative-----	167	...	...	...
3,3'-Thiobis[7H-benz[de]anthracen-7-one]-----	54	...	...	...
Toluene-2,4-diamine (4-m-Tolylenediamine)-----	62,792	...	...	...
o-(p-Toluoyl)benzoic acid-----	240	...	...	...
4-(o-Tolylazo)-o-toluidine (C.I. Solvent Yellow 3)-----	306	26	32	1.23
2,4,6-Trichloro-s-triazine (Cyanuric chloride)-----	...	5,091	1,620	.32
1,3,3-Trimethyl-Δ <sup>2</sup> ,α-indolineacetaldehyde-----	172	...	...	...
1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)-----	393	...	...	...
7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J acid urea)-----	342	...	...	...
Violanthrone (Dibenzanthrone)-----	254	...	...	...
o-Xylene-----	493,219	464,947	13,909	.03
p-Xylene-----	757,347	635,229	51,966	.08
All other cyclic intermediates-----	2,694,055	1,606,134	301,698	.19

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

<sup>2</sup> Principally straight-chain dodecylbenzene, tridecylbenzene and other straight-chain alkylbenzenes, but includes lesser amounts of branched-chain compounds.

<sup>3</sup> Includes data for coke ovens and gas-retort ovens, reported to the Division of Bituminous Coal, U.S. Bureau of Mines, Department of the Interior, and for tar refineries and other producers, reported to the U.S. Tariff Commission.

<sup>4</sup> Figures include (o,m,p)-cresol from coal tar and some m-cresol and p-cresol.

<sup>5</sup> Does not include ethylbenzene produced and consumed in continuous-process styrene manufacture.

Table 7A<sup>1</sup> gives statistics on production and sales of cyclic intermediates in 1967. In general, the classification of a given chemical as an intermediate is determined by the way in which the greater part of its output is consumed. Individual statistics given in the table represent more than 87 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.

<sup>1</sup> See also table 7B, pt. III, which lists these products alphabetically and identifies the manufacturers, and (table 23) in the appendix, which shows imports of intermediates and related products during 1966-67.



## Dyes

This report covers domestic production and sales of synthetic dyes (table 8A<sup>2</sup>), all of which are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textile industry to dye natural and synthetic fibers or fabrics; about one-sixth are used for coloring paper; and the rest are used chiefly in the production of organic pigments and in the dyeing of leather and plastics. Of the several thousand different synthetic dyes that are known; more than one thousand are manufactured by one or more domestic producers. The large number of dyes results from the many different types of materials to which dyes are applied, the different conditions of service for which dyes are required, and costs that a particular use can bear. Dyes are sold as pastes, powders, lumps, and solutions; concentrations vary from 6 percent to 100 percent. The concentration, form, and purity of a dye are determined largely by the use for which it is intended.

Total domestic production of dyes in 1967 amounted to 206 million pounds, or 5.9 percent less than the 219 million pounds produced in 1966. Sales of dyes in 1967 amounted to 199 million pounds, valued at \$332 million, compared with 204 million pounds, valued at \$331 million, in 1966. In terms of quantity, sales of dyes in 1967 were 2.7 percent smaller than in 1966 and in terms of value, 0.2 percent larger. The average unit value of sales of all dyes in 1967 was \$1.67 a pound, or 3.1 percent greater than the \$1.62 a pound reported in 1966.

Although the output and sales of dyes declined slightly in 1967 compared with 1966, the output of many individual dyes was cut back substantially during 1967. The output of a number of important medium- and low-priced dyes was much smaller in 1967 than in 1966. Production of Mordant Black 11 was 359,000 pounds in 1967, or 83.0 percent less than the 2.1 million pounds produced in 1966; that of Mordant Black 17 was 178,000 pounds, or 72.9 percent less than the 656,000 pounds produced in 1966; and that of Acid Blue 9 was 426,000 pounds, or 71.9 percent less than the 1.5 million pounds produced in 1966. Other important dyes whose output was substantially smaller in 1967 than in 1966 were Direct Black 80 (44.0 percent), Direct Blue 2 (43.2 percent), Acid Black 1 (42.7 percent), Vat Green 9 (32.5 percent), Vat Blue 20 (32.6 percent), Vat Green 8 (29.9 percent), Vat Black 27 (25.8 percent), and Vat Green 3 (21.7 percent).

Conversely, the output of a number of important dyes was larger in 1967 than in 1966. Production of Vat Yellow 2 was 2.9 million pounds, or 22.3 percent more than the 2.4 million pounds produced in 1966; that of Vat Green 1 was 4.7 million pounds, or 16.1 percent more than the 4.1 million pounds produced in 1966. Other important dyes whose output was larger in 1967 than in 1966 were Basic Orange 21 (110.8 percent), Basic Yellow 11 (41.3 percent), Direct Yellow 106 (40.4 percent), Vat Orange 1 (33.1 percent), Vat Orange 15 (28.3 percent), and Direct Yellow 11 (16.1 percent).

<sup>2</sup> See also table 8B, pt. III, which lists these products and identifies the manufacturers, and the appendix (table 23), which shows imports of dyes during the years 1966-67.

TABLE 8A. --Benzenoid dyes: U.S. production and sales, 1967

[Listed below are all benzenoid dyes for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 8B in pt. III lists all dyes for which data on production or sales were reported and identifies the manufacturer of each]

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	206,240	198,592	332,049	\$1.67
ACID DYES				
Total-----	17,546	17,495	38,641	2.21
Acid yellow dyes, total-----	3,912	3,586	8,607	2.40
Acid Yellow 3-----	40	37	123	3.32
Acid Yellow 11-----	58	53	126	2.38
Acid Yellow 17-----	506	539	1,127	2.09
Acid Yellow 23-----	452	332	771	2.32
Acid Yellow 36-----	213	208	322	1.55
Acid Yellow 40-----	257	231	650	2.81
Acid Yellow 42-----	62	56	97	1.73
Acid Yellow 44-----	39	42	130	3.10
Acid Yellow 54-----	82	77	163	2.12
Acid Yellow 73-----	...	78	174	2.23
Acid Yellow 99-----	51	78	178	2.28
Acid Yellow 124-----	116	110	268	2.44
Acid Yellow 151-----	259	278	674	2.42
All other-----	1,777	1,467	3,804	2.59
Acid orange dyes, total-----	2,677	2,828	4,641	1.64
Acid Orange 1-----	59	59	152	2.58
Acid Orange 7-----	556	570	600	1.05
Acid Orange 8-----	417	393	473	1.20
Acid Orange 10-----	284	319	405	1.27
Acid Orange 24-----	383	498	689	1.38
Acid Orange 60-----	90	85	208	2.45
Acid Orange 74-----	56	...	...	...
Acid Orange 116-----	282	307	689	2.24
All other-----	550	597	1,425	2.39
Acid red dyes, total-----	3,080	2,582	5,062	1.96
Acid Red 1-----	381	463	422	.91
Acid Red 4-----	100	100	179	1.79
Acid Red 14-----	95	88	123	1.40
Acid Red 18-----	77	94	106	1.13
Acid Red 26-----	111	114	139	1.22
Acid Red 37-----	33	43	124	2.88
Acid Red 73-----	285	241	561	2.33
Acid Red 85-----	141	152	271	1.78
Acid Red 87-----	646	...	...	...
Acid Red 88-----	91	120	162	1.35
Acid Red 89-----	26	22	30	1.36
Acid Red 99-----	70	63	134	2.13
Acid Red 114-----	94	102	230	2.25
Acid Red 137-----	139	140	424	3.03
Acid Red 151-----	169	174	364	2.09
Acid Red 182-----	54	51	153	3.00
Acid Red 186-----	22	19	54	2.84
All other-----	546	596	1,586	2.66
Acid violet dyes, total-----	303	387	846	2.19
Acid Violet 1-----	39	49	77	1.57
Acid Violet 3-----	38	78	158	2.03
Acid Violet 7-----	38	53	72	1.36
Acid Violet 12-----	...	22	39	1.77
Acid Violet 49-----	77	63	161	2.56
All other-----	111	122	339	2.78

See footnotes at end of table.

TABLE 8A.--Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
ACID DYES--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Acid blue dyes, total-----	3,105	3,289	10,151	\$3.09
Acid Blue 7-----	49	70	237	3.39
Acid Blue 9-----	426	598	842	1.41
Acid Blue 25-----	169	153	842	5.50
Acid Blue 40-----	43	46	197	4.28
Acid Blue 41-----	63	59	210	3.56
Acid Blue 43-----	....	17	139	8.18
Acid Blue 45-----	637	528	1,621	3.07
Acid Blue 62-----	25	29	186	6.41
Acid Blue 78-----	29	36	270	7.50
Acid Blue 90-----	...	9	114	12.67
Acid Blue 113-----	532	533	938	1.76
Acid Blue 158 and 158A-----	133	158	350	2.22
All other-----	999	1,053	4,205	3.99
Acid green dyes, total-----	800	914	2,690	2.94
Acid Green 3-----	102	149	204	1.37
Acid Green 9-----	...	20	84	4.20
Acid Green 16-----	102	98	411	4.19
Acid Green 20-----	42	37	64	1.73
Acid Green 25-----	305	316	927	2.93
All other-----	249	294	1,000	3.40
Acid brown dyes, total-----	693	742	1,604	2.16
Acid Brown 14-----	337	330	466	1.41
All other-----	356	412	1,138	2.76
Acid black dyes, total-----	2,976	3,167	5,040	1.59
Acid Black 1-----	722	815	1,047	1.28
Acid Black 24-----	61	95	165	1.74
Acid Black 48-----	15	22	127	5.77
Acid Black 52-----	697	728	1,207	1.66
Acid Black 60-----	74	85	297	3.49
Acid Black 107-----	179	159	423	2.66
All other-----	1,228	1,263	1,774	1.40
AZOIC DYES AND COMPONENTS				
<i>Azoic Compositions</i>				
Total-----	1,740	1,887	3,381	1.79
Azoic Yellow 1-----	28	24	39	1.62
Azoic Orange 3-----	72	82	144	1.76
Azoic Red 1-----	149	147	270	1.84
Azoic Red 2-----	79	79	134	1.70
Azoic Red 6-----	179	177	298	1.68
Azoic Blue 3-----	131	119	246	2.07
Azoic Brown 9-----	181	181	567	3.13
Azoic black dyes-----	595	777	1,115	1.44
All other azoic compositions-----	326	301	568	1.89
<i>Azoic Diazo Components, Bases (Fast Color Bases)</i>				
Total-----	797	752	1,104	1.47
Azoic Diazo Component 4, base-----	11	...	...	...
Azoic Diazo Component 5, base-----	...	6	17	2.83
Azoic Diazo Component 10, base-----	...	8	21	2.62
Azoic Diazo Component 12, base-----	124	127	127	1.00
Azoic Diazo Component 32, base-----	207	203	286	1.41
All other azoic diazo components, bases-----	455	408	653	1.60

See footnotes at end of table.

TABLE 8A. --Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
AZOIC DYES AND COMPONENTS--Continued				
<i>Azoic Diazo Components, Salts (Fast Color Salts)</i>				
Total-----	1,814	1,890	1,717	\$0.91
Azoic Diazo Component 1, salt-----	...	13	14	1.08
Azoic Diazo Component 3, salt-----	570	544	284	.52
Azoic Diazo Component 5, salt-----	41	58	60	1.03
Azoic Diazo Component 6, salt-----	66	67	68	1.01
Azoic Diazo Component 8, salt-----	39	50	48	.96
Azoic Diazo Component 9, salt-----	123	150	95	.63
Azoic Diazo Component 10, salt-----	30	37	40	1.08
Azoic Diazo Component 11, salt-----	30	23	29	1.26
Azoic Diazo Component 12, salt-----	53	57	58	1.02
Azoic Diazo Component 13, salt-----	226	257	177	.69
Azoic Diazo Component 28, salt-----	255	278	241	.87
Azoic Diazo Component 44, salt-----	17	...	...	...
Azoic Diazo Component 48, salt-----	...	10	13	1.30
Azoic Diazo Component 49, salt-----	102	104	271	2.61
All other azoic diazo components, salts-----	262	242	319	1.32
<i>Azoic Coupling Components (Naphthol AS and Derivatives)</i>				
Total-----	1,945	1,617	2,707	1.67
Azoic Coupling Component 2-----	348	...	...	...
Azoic Coupling Component 3-----	11	12	34	2.83
Azoic Coupling Component 4-----	8	8	16	2.00
Azoic Coupling Component 5-----	...	10	27	2.70
Azoic Coupling Component 7-----	303	311	523	1.68
Azoic Coupling Component 14-----	186	147	268	1.82
Azoic Coupling Component 17-----	87	...	...	...
Azoic Coupling Component 18-----	482	415	460	1.11
Azoic Coupling Component 19-----	10	9	43	4.78
Azoic Coupling Component 20-----	62	41	75	1.83
Azoic Coupling Component 21-----	71	56	103	1.84
Azoic Coupling Component 29-----	...	8	17	2.12
Azoic Coupling Component 43-----	17	16	44	2.75
All other azoic coupling components-----	360	584	1,097	1.88
BASIC DYES				
Total-----	11,896	11,623	30,123	2.59
Basic yellow dyes, total-----	2,701	2,701	8,295	3.07
Basic Yellow 2-----	397	433	940	2.17
Basic Yellow 11-----	865	757	2,917	3.85
Basic Yellow 13-----	273	257	914	3.56
All other-----	1,166	1,254	3,524	2.81
Basic orange dyes, total-----	1,563	1,643	3,251	1.98
Basic Orange 1-----	352	370	395	1.07
Basic Orange 2-----	477	591	747	1.26
Basic Orange 21-----	565	508	1,480	2.91
All other-----	169	174	629	3.61
Basic red dyes, total-----	1,584	1,383	4,370	3.16
Basic Red 9-----	...	8	27	3.38
Basic Red 14-----	385	395	1,189	3.01
All other-----	1,199	980	3,154	3.22
Basic violet dyes, total-----	3,103	2,889	6,022	2.08
Basic Violet 1-----	971	858	1,102	1.28
Basic Violet 4-----	33	29	98	3.38
Basic Violet 10-----	330	310	1,130	3.65
Basic Violet 16-----	136	119	402	3.38
All other-----	1,633	1,573	3,290	2.09

See footnotes at end of table.

TABLE 8A. --Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
BASIC DYES--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Basic blue dyes, total-----	1,588	1,503	5,166	\$3.44
Basic Blue 1-----	77	56	185	3.30
Basic Blue 5-----	34	23	109	4.74
Basic Blue 9-----	...	386	846	2.19
Basic Blue 26-----	53	53	172	3.25
All other-----	1,424	985	3,854	3.91
Basic Green 1-----	89	86	285	3.31
Basic Green 4-----	503	605	1,516	2.51
Basic Brown 1-----	171	189	309	1.63
Basic Brown 4-----	525	558	722	1.29
All other basic dyes-----	69	66	187	2.83
DIRECT DYES				
Total-----	32,264	32,549	49,138	1.51
Direct yellow dyes, total-----	9,383	9,116	14,150	1.55
Direct Yellow 4-----	457	434	887	2.04
Direct Yellow 5-----	138	174	511	2.94
Direct Yellow 6-----	514	564	822	1.46
Direct Yellow 11-----	1,074	984	978	.99
Direct Yellow 12-----	327	300	785	2.62
Direct Yellow 26-----	...	6	18	3.00
Direct Yellow 28-----	239	270	540	2.00
Direct Yellow 44-----	697	646	1,155	1.79
Direct Yellow 50-----	309	347	772	2.22
Direct Yellow 105-----	244	241	565	2.34
Direct Yellow 106-----	1,137	1,089	1,863	1.71
All other-----	4,247	4,061	5,254	1.29
Direct orange dyes, total-----	2,201	2,169	5,110	2.36
Direct Orange 1-----	18	23	49	2.13
Direct Orange 8-----	142	145	225	1.55
Direct Orange 15-----	226	204	220	1.08
Direct Orange 26-----	54	60	129	2.15
Direct Orange 29-----	125	119	289	2.43
Direct Orange 34-----	111	105	241	2.30
Direct Orange 37-----	48	50	132	2.64
Direct Orange 39-----	217	222	445	2.00
Direct Orange 72-----	412	402	886	2.20
Direct Orange 73-----	114	104	405	3.89
Direct Orange 81-----	76	80	242	3.02
Direct Orange 102-----	246	238	639	2.68
All other-----	412	417	1,208	2.90
Direct red dyes, total-----	3,572	3,130	6,672	2.13
Direct Red 1-----	186	169	296	1.75
Direct Red 2-----	245	248	450	1.81
Direct Red 4-----	37	24	67	2.79
Direct Red 10-----	20	18	29	1.61
Direct Red 13-----	72	75	124	1.65
Direct Red 16-----	77	61	117	1.92
Direct Red 23-----	217	219	534	2.44
Direct Red 24-----	182	184	377	2.05
Direct Red 26-----	317	126	297	2.36
Direct Red 28-----	249	212	297	1.40
Direct Red 31-----	23	17	77	4.53
Direct Red 37-----	97	87	236	2.71
Direct Red 39-----	43	50	142	2.84
Direct Red 72-----	319	283	566	2.00
Direct Red 75-----	22	17	60	3.53
Direct Red 79-----	139	130	326	2.51
Direct Red 80-----	354	379	667	1.76
Direct Red 81-----	429	368	916	2.49

See footnotes at end of table.

TABLE 8A. -- Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
DIRECT DYES--Continued				
Direct red dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Direct Red 83-----	106	97	168	\$1.73
Direct Red 122-----	...	7	30	4.29
Direct Red 149-----	...	20	55	2.75
All other-----	438	339	841	2.48
Direct violet dyes, total-----	224	178	509	2.86
Direct Violet 9-----	131	100	239	2.39
All other-----	93	78	270	3.46
Direct blue dyes, total-----	6,316	6,249	9,736	1.56
Direct Blue 1-----	369	363	737	2.03
Direct Blue 2-----	1,035	1,148	1,036	.90
Direct Blue 6-----	518	439	271	.62
Direct Blue 8-----	32	47	95	2.02
Direct Blue 15-----	...	20	20	1.00
Direct Blue 22-----	20	22	40	1.82
Direct Blue 24-----	16	13	15	1.15
Direct Blue 25-----	48	41	105	2.56
Direct Blue 67-----	35	32	132	4.12
Direct Blue 71-----	35	52	135	2.60
Direct Blue 76-----	176	179	269	1.50
Direct Blue 78-----	118	113	331	2.93
Direct Blue 80-----	537	529	794	1.50
Direct Blue 86-----	1,111	1,107	1,723	1.56
Direct Blue 98-----	115	125	236	1.89
Direct Blue 120 and 120A-----	111	121	265	2.19
Direct Blue 126-----	130	156	439	2.81
Direct Blue 151-----	...	15	21	1.40
Direct Blue 218-----	911	828	1,560	1.88
All other-----	999	899	1,512	1.68
Direct green dyes, total-----	1,115	1,125	2,411	2.14
Direct Green 1-----	314	290	365	1.26
Direct Green 6-----	417	387	544	1.41
Direct Green 8-----	31	37	51	1.38
All other-----	353	411	1,451	3.53
Direct brown dyes, total-----	1,660	1,751	2,377	1.36
Direct Brown 1-----	91	89	121	1.36
Direct Brown 1A-----	95	93	132	1.42
Direct Brown 2-----	190	172	270	1.57
Direct Brown 6-----	77	89	99	1.11
Direct Brown 31-----	110	115	352	3.06
Direct Brown 74-----	69	65	103	1.58
Direct Brown 95-----	573	628	599	.95
Direct Brown 111-----	...	41	146	3.56
Direct Brown 154-----	277	331	306	.92
All other-----	178	128	249	1.95
Direct black dyes, total-----	7,793	8,831	8,173	.93
Direct Black 4-----	147	143	153	1.07
Direct Black 9-----	26	41	61	1.49
Direct Black 19-----	74	93	148	1.59
Direct Black 22-----	312	481	472	.98
Direct Black 38-----	5,304	6,101	4,802	.79
Direct Black 51-----	71	79	256	3.24
Direct Black 80-----	1,079	1,105	1,008	.91
All other-----	780	788	1,273	1.62
DISPERSE DYES				
Total-----	18,309	16,577	40,981	2.47
Disperse yellow dyes, total-----	4,814	4,500	8,298	1.84
Disperse Yellow 3-----	1,959	1,840	2,720	1.48

See footnotes at end of table.

TABLE 8A.--Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
DISPERSE DYES--Continued				
Disperse yellow dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Disperse Yellow 5-----	140	70	247	\$3.53
Disperse Yellow 8-----	...	31	113	3.65
Disperse Yellow 23-----	368	296	602	2.03
Disperse Yellow 33-----	353	278	436	1.57
Disperse Yellow 34-----	335	246	423	1.72
Disperse Yellow 42-----	650	747	1,122	1.50
Disperse Yellow 54-----	172	224	861	3.84
All other-----	837	768	1,774	2.31
Disperse orange dyes, total-----	1,765	1,486	2,720	1.83
Disperse Orange 3-----	157	114	195	1.71
Disperse Orange 5-----	148	126	291	2.31
Disperse Orange 17-----	192	146	235	1.61
Disperse Orange 25-----	...	49	92	1.88
All other-----	1,268	1,051	1,907	1.81
Disperse red dyes, total-----	2,232	1,993	6,575	3.30
Disperse Red 1-----	227	214	361	1.69
Disperse Red 5-----	71	74	131	1.77
Disperse Red 11-----	...	45	286	6.36
Disperse Red 13-----	...	16	23	1.44
Disperse Red 15-----	62	65	202	3.11
Disperse Red 17-----	138	136	146	1.07
Disperse Red 60-----	220	167	578	3.46
Disperse Red 65-----	39	42	86	2.05
All other-----	1,475	1,234	4,762	3.86
Disperse violet dyes, total-----	259	240	839	3.50
Disperse Violet 1-----	42	42	145	3.45
Disperse Violet 4-----	44	18	65	3.61
Disperse Violet 27-----	65	69	114	1.65
All other-----	108	111	515	4.64
Disperse blue dyes, total-----	7,143	6,337	19,393	3.06
Disperse Blue 1-----	330	243	971	4.00
Disperse Blue 3-----	1,892	1,495	2,475	1.66
Disperse Blue 7-----	549	510	3,196	6.27
Disperse Blue 64-----	80	46	105	2.28
All other-----	4,292	4,043	12,646	3.13
Disperse black dyes, total-----	1,777	1,772	2,321	1.31
Disperse Black 1-----	102	115	164	1.43
All other-----	1,675	1,657	2,157	1.30
All other disperse dyes-----	319	249	835	3.35
FIBER-REACTIVE DYES				
Fiber-reactive dyes, total-----	2,033	2,067	8,967	4.34
Reactive blue dyes-----	707	674	3,482	5.17
All other reactive dyes-----	1,326	1,393	5,485	3.94
FLUORESCENT BRIGHTENING AGENTS				
Total-----	27,622	24,944	51,991	2.08
Fluorescent Brightening Agent 9-----	318	343	448	1.31
Fluorescent Brightening Agent 28-----	1,410	1,396	2,178	1.56
All other fluorescent brightening agents-----	25,894	23,205	49,365	2.13
FOOD, DRUG, AND COSMETIC COLORS				
Total-----	3,234	3,224	11,750	3.64

See footnotes at end of table.

TABLE 8A. --Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
FOOD, DRUG, AND COSMETIC COLORS--Continued				
<i>Food, Drug, and Cosmetic Dyes</i>				
Total-----	1,000 pounds 2,959	1,000 pounds 2,998	1,000 dollars 10,437	Per pound <sup>1</sup> \$3.48
FD&C Blue No. 1-----	65	59	666	11.29
FD&C Blue No. 2-----	...	29	278	9.59
FD&C Red No. 2-----	969	970	2,599	2.68
FD&C Red No. 3-----	98	119	1,525	12.82
FD&C Yellow No. 5-----	922	839	2,478	2.95
FD&C Yellow No. 6-----	761	817	2,118	2.59
All other food, drug, and cosmetic dyes-----	144	165	773	4.68
<i>Drug and Cosmetic and External Drug and Cosmetic Dyes</i>				
Total-----	275	226	1,313	5.81
D&C Orange No. 4-----	5	3	18	6.00
D&C Red No. 7-----	...	11	40	3.64
D&C Red No. 19-----	8	12	64	5.33
D&C Red No. 21-----	33	26	89	3.42
D&C Red No. 36-----	9	10	35	3.50
D&C Yellow No. 5-----	22	16	39	2.44
All other drug and cosmetic and external drug and cosmetic dyes-----	198	148	1,028	6.95
MORDANT DYES				
Total-----	1,465	2,095	3,379	1.61
Mordant yellow dyes, total-----	208	223	393	1.76
Mordant Yellow 1-----	...	35	52	1.49
Mordant Yellow 8-----	10	13	25	1.92
All other-----	198	175	316	1.81
Mordant orange dyes, total-----	93	127	210	1.65
Mordant Orange 1-----	...	20	30	1.50
Mordant Orange 6-----	54	78	94	1.21
All other-----	39	29	86	2.97
Mordant red dyes-----	122	112	309	2.76
Mordant blue dyes-----	58	62	168	2.71
Mordant brown dyes, total-----	211	213	522	2.45
Mordant Brown 1-----	74	37	86	2.32
Mordant Brown 33-----	...	34	68	2.00
Mordant Brown 40-----	...	13	35	2.69
All other-----	137	129	333	2.58
Mordant black dyes, total-----	760	1,342	1,732	1.29
Mordant Black 3-----	...	32	48	1.50
Mordant Black 11-----	359	807	972	1.20
Mordant Black 13-----	...	26	60	2.31
Mordant Black 17-----	178	293	305	1.04
All other-----	223	184	347	1.89
All other mordant dyes-----	13	16	45	2.81
SOLVENT DYES				
Total-----	11,049	10,652	18,130	1.70
Solvent yellow dyes, total-----	1,100	1,005	2,238	2.23
Solvent Yellow 2-----	25	30	54	1.80
Solvent Yellow 3-----	27	41	63	1.54

See footnotes at end of table.



TABLE 8A.--Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
SOLVENT DYES--Continued				
Solvent yellow dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Solvent Yellow 14-----	737	638	621	\$0.97
All other-----	311	296	1,500	5.07
Solvent orange dyes, total-----	524	468	899	1.92
Solvent Orange 3-----	41	20	41	2.05
Solvent Orange 7-----	...	115	148	1.29
All other-----	483	333	710	2.13
Solvent red dyes, total-----	1,549	1,482	3,272	2.21
Solvent Red 24-----	312	291	563	1.93
Solvent Red 26-----	301	292	569	1.95
Solvent Red 33-----	17	...	...	...
Solvent Red 49-----	...	47	301	6.40
All other-----	919	852	1,839	2.16
Solvent violet dyes, total-----	713	733	1,050	1.43
Solvent Violet 8-----	428	458	563	1.23
All other-----	285	275	487	1.77
Solvent blue dyes, total-----	1,407	1,322	5,338	4.04
Solvent Blue 38-----	...	124	693	5.59
All other-----	1,407	1,198	4,645	3.88
Solvent brown dyes, total-----	58	59	214	3.63
Solvent Brown 12-----	14	10	29	2.90
All other-----	44	49	185	3.78
All other solvent dyes-----	5,698	5,583	5,119	.92
SULFUR DYES <sup>2</sup>				
Sulfur dyes-----	...	16,892	10,737	.64
VAT DYES				
Total-----	56,805	53,849	58,025	1.08
Vat yellow dyes, total-----	5,397	5,696	8,136	1.43
Vat Yellow 2, 8-1/2%-----	2,941	3,007	2,678	.89
Solubilized Vat Yellow 4-----	...	6	55	9.17
All other-----	2,456	2,683	5,403	2.01
Vat orange dyes, total-----	3,854	3,342	8,429	2.52
Vat Orange 1, 20%-----	1,290	1,035	2,899	2.80
Solubilized Vat Orange 1, 26%-----	8	8	74	9.25
Vat Orange 2, 12%-----	423	388	790	2.04
Vat Orange 3, 13-1/2%-----	72	50	132	2.64
Vat Orange 4, 6%-----	74	82	259	3.16
Vat Orange 5, 10%-----	...	82	136	1.66
Solubilized Vat Orange 5, 30%-----	4	5	53	10.60
Vat Orange 9, 12%-----	239	184	382	2.08
Vat Orange 15, 10%-----	639	655	1,329	2.03
All other-----	1,105	853	2,375	2.78
Vat red dyes, total-----	2,150	1,044	2,535	2.43
Vat Red 1, 13%-----	352	370	639	1.73
Solubilized Vat Red 1, 37%-----	...	4	35	8.75
Vat Red 13, 11%-----	154	100	297	2.97
Vat Red 15, 10%-----	...	187	210	1.12
Vat Red 32, 20%-----	101	69	263	3.81
All other-----	1,543	314	1,091	3.47
Vat violet dyes, total-----	689	669	1,497	2.24
Vat Violet 1, 11%-----	213	234	619	2.65
Vat Violet 2, 20%-----	36	...	...	...

See footnotes at end of table.

TABLE 8A. -- Benzenoid dyes: U.S. production and sales, 1967--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
VAT DYES--Continued				
Vat violet dyes--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Vat Violet 9, 12% -----	110	...	...	...
Vat Violet 13, 6-1/4% -----	266	248	338	\$1.36
All other-----	64	187	540	2.89
Vat blue dyes, total-----	18,777	18,458	11,397	.62
Vat Blue 6, 8-1/3% -----	2,852	2,897	3,153	1.09
Vat Blue 20, 14% -----	733	631	856	1.36
All other-----	15,192	14,930	7,388	.49
Vat green dyes, total-----	12,764	12,205	9,348	.77
Vat Green 1, 6% -----	4,706	4,950	3,062	.62
Vat Green 3, 10% -----	4,206	3,673	2,802	.76
Vat Green 8, 8-1/2% -----	2,489	2,092	1,897	.91
Vat Green 9, 12-1/2% -----	926	1,057	943	.89
All other-----	437	433	644	1.49
Vat brown dyes, total-----	3,825	3,937	7,072	1.80
Vat Brown 1, 11% -----	763	706	1,153	1.63
Vat Brown 3, 11% -----	1,181	1,263	2,296	1.82
Vat Brown 5, 13% -----	87	93	147	1.58
All other-----	1,794	1,875	3,476	1.85
Vat black dyes, total-----	9,349	8,498	9,611	1.13
Solubilized Vat Black 1, 27-1/2% -----	...	3	24	8.00
Vat Black 9, 16% -----	169	178	442	2.48
Vat Black 25, 12-1/2% -----	5,249	4,642	3,185	.69
Vat Black 27, 12-1/2% -----	1,130	1,087	3,340	3.07
All other-----	2,801	2,588	2,620	1.01
All other dyes <sup>3</sup> -----	17,721	479	1,278	2.67

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

<sup>2</sup> Production and sales quantities of C.I. Leuco Sulfur and C.I. Solubilized Sulfur dyes are reported in terms of the usual commercial concentration of the C.I. Sulfur dyes.

<sup>3</sup> Includes oxidation bases, ingrain dyes, miscellaneous dyes, and production data for sulfur dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

Table 9 summarizes production and sales of dyes in 1967, by class of application. Four application classes of dyes accounted for approximately two-thirds of all the dyes produced. Vat dyes accounted for 27.5 percent of the total; direct dyes, for 15.6 percent; fluorescent brighteners, for 13.4 percent; and acid dyes, for 8.5 percent. Of these four classes of dyes, the output of fluorescent brighteners was 19.0 percent larger in 1967 than in 1966, but the output of acid dyes was 24.4 percent smaller in 1967 than in 1966; direct dyes, 13.6 percent smaller; and vat dyes, 1.1 percent smaller.

Of the remaining classes, the output of the disperse dyes was 18.3 million pounds in 1967, or 9.7 percent more than the 16.7 million pounds produced in 1966. Production of basic dyes was 6.8 percent larger in 1967 than in 1966; fiber-reactive dyes, 6.5 percent larger; and solvent dyes, 2.6 percent larger. On the other hand, the output of mordant dyes was 65.8 percent smaller in 1967 than in 1966; azoic dyes and components, 32.9 percent smaller, and food, drug, and cosmetic colors, 3.8 percent smaller.

Table 10 shows production and sales of dyes, by chemical class. In 1967, three chemical classes of dyes accounted for more than two-thirds of all the dyes produced: Azo dyes accounted for 28.7 percent of the total; anthraquinone dyes, for 25.1 percent; and stilbene dyes, for 13.9 percent. The output of the stilbene dyes was 16.8 percent larger in 1967 than in 1966, but that of azo dyes was 14.9 percent smaller and anthraquinone dyes, 4.7 percent smaller. Of the remaining chemical classes for which statistics are published, the output of methine dyes was 67.5 percent larger in 1967 than in 1966; quinoline dyes, 48.8 percent larger; cyanine dyes, 28.8 percent larger; nitro dyes, 25.1 percent larger; and phthalocyanine dyes, 16.3 percent larger. On the other hand, the output of thiazole dyes was 24.1 percent smaller in 1967 than in 1966; triarylmethane dyes, 13.6 percent smaller; and ketone imine dyes, 11.8 percent smaller.

TABLE 9.--Benzenoid dyes: U.S. production and sales, by class of application, 1967

Class of application	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	206,240	198,592	332,049	\$1.67
Acid-----	17,546	17,495	38,641	2.21
Azoic dyes and components:				
Azoic compositions-----	1,740	1,887	3,381	1.79
Azoic diazo components, bases (Fast color bases)-----	797	752	1,104	1.47
Azoic diazo components, salts (Fast color salts)-----	1,814	1,890	1,717	.91
Azoic coupling components (Naphthol AS and derivatives)-----	1,945	1,617	2,707	1.67
Basic-----	11,896	11,623	30,123	2.59
Direct-----	32,264	32,549	49,138	1.51
Disperse-----	18,309	16,577	40,981	2.47
Fiber-reactive-----	2,033	2,067	8,967	4.34
Fluorescent brightening agents-----	27,622	24,944	51,991	2.08
Food, drug, and cosmetic colors-----	3,234	3,224	11,750	3.64
Mordant-----	1,465	2,095	3,379	1.61
Solvent-----	11,049	10,652	18,130	1.70
Sulfur <sup>2</sup> -----	...	16,892	10,737	.64
Vat-----	56,805	53,849	58,025	1.08
All other <sup>3</sup> -----	17,721	479	1,278	2.67

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

<sup>2</sup> Production and sales quantities of C.I. Leuco Sulfur and C.I. Solubilized Sulfur dyes are reported in terms of the usual commercial concentration of the C.I. Sulfur dyes.

<sup>3</sup> Includes oxidation bases, ingrain dyes, and miscellaneous dyes, and production data for sulphur dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

TABLE 10.--Benzenoid dyes: U.S. production and sales, by chemical class, 1967

Chemical class	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Total-----	206,240	198,592	332,049	\$1.67
Acridine-----	...	9	26	2.89
Anthraquinone-----	51,704	48,486	86,671	1.79
Azo, total-----	59,304	59,648	111,181	1.86
Monoazo-----	23,576	23,357	49,537	2.12
Disazo-----	18,639	18,148	33,534	1.85
Trisazo-----	9,963	10,878	11,835	1.09
Polyazo-----	1,854	2,121	3,729	1.76
Not specified-----	5,272	5,144	12,546	2.44
Azoic-----	6,296	6,146	8,909	1.45
Cyanine-----	662	657	2,119	3.23
Ketone imine-----	443	510	1,149	2.25
Methine-----	2,146	1,831	6,103	3.33
Nitro-----	1,788	1,729	2,891	1.67
Oxazine-----	...	239	1,009	4.22
Phthalocyanine-----	2,073	1,966	5,236	2.66
Quinoline-----	778	799	2,539	3.18
Stilbene-----	28,648	25,944	44,780	1.73
Sulfur <sup>2</sup> -----	...	16,892	10,737	.64
Thiazine-----	...	386	847	2.19
Thiazole-----	445	478	1,071	2.24
Triarylmethane-----	6,855	6,740	14,942	2.22
Xanthenes-----	1,770	885	4,502	5.09
All other <sup>3</sup> -----	43,328	25,247	27,337	1.08

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

<sup>2</sup> Production and sales quantities of C.I. Leuco Sulfur and C.I. Solubilized Sulfur dyes are reported in terms of the usual commercial concentration of the C.I. Sulfur dyes.

<sup>3</sup> Includes production and sales of aminoketone, azine, coumarin, hydroxyketone, indigoid, nitroso, oxidation bases, vat sulfur, and miscellaneous dyes; and production of acridine, oxazine, sulfur, and thiazine dyes. Statistics for these groups of dyes may not be published separately because publication would disclose information received in confidence.

## Pigments

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

Statistics on production and sales of all benzenoid pigments in 1967 are given in table 11A<sup>3</sup>. Statistics on sales of a few selected pigments by commercial forms (dry full-strength form, dry extended form, dry dispersions, aqueous dispersions, and flushed colors) are given in table 12. Prior to 1961, statistics for toners included the quantities and values of extenders and diluents. Beginning in 1961, data were collected for both the full-strength and extended toners on a full-strength-toner-content basis. Individual toners and lakes are identified in this report by the names used in the second edition of the *Colour Index*.

Total production of benzenoid pigments in 1967 was 53.3 million pounds--4.3 percent more than the 51.1 million pounds produced in 1966 and 11.0 percent more than the 48.0 million pounds produced in 1965. Total sales of benzenoid pigments in 1967 amounted to 42.9 million pounds, valued at \$108.4 million, compared with 43.3 million pounds, valued at \$107.6 million, in 1966 and 38.0 million pounds, valued at \$93.6 million, in 1965. In terms of quantity, sales of benzenoid pigments in 1967 were 1.0 percent smaller than in 1966 and 12.7 percent larger than in 1965; in terms of value, sales in 1967 were 0.7 percent larger than in 1966 and 15.7 percent larger than in 1965.

Production of toners in 1967 amounted to 49.2 million pounds--5.4 percent more than the 46.6 million pounds reported for 1966. Sales in 1967 were 39.0 million pounds, valued at \$104.7 million, compared with 39.1 million pounds, valued at \$103.6 million, in 1966. Sales in 1967 were thus 0.3 percent smaller than those in 1966 in terms of quantity, and 1.0 percent larger in terms of value. The individual toners listed in the report which were produced in the largest quantities in 1967 were Pigment Blue 15, alpha form, 5.0 million pounds; Pigment Green 7, 4.5 million pounds; Pigment Yellow 12, 4.4 million pounds; Pigment Red 49, barium toner, 3.7 million pounds; Pigment Blue 15, beta form, 3.2 million pounds; Pigment Blue 19, 2.9 million pounds; and Pigment Red 48, 2.5 million pounds.

Production of lakes totaled 4.2 million pounds in 1967--7.7 percent less than the 4.5 million pounds reported for 1966. Sales of lakes in 1967 amounted to 3.9 million pounds, valued at \$3.7 million, compared with sales in 1966 of 4.2 million pounds, valued at \$4.0 million. Sales in 1967 were thus 8.0 percent smaller than those in 1966 in terms of quantity, and 7.4 percent smaller in terms of value.

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

<sup>3</sup> See also table 11B, pt. III, which lists these products and identifies the manufacturers, and (table 23) in the appendix, which shows imports of benzenoid pigments during the years 1966-67.

TABLE 11A.--Benzenoid pigments: U.S. production and sales, 1967

[Listed below are all toners and lakes for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 11B in pt. III lists all toners and lakes for which data on production or sales were reported and identifies the manufacturer of each]

Pigment	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	53,322	42,867	108,354	\$2.53
TONERS				
Total-----	49,168	39,000	104,680	2.68
Yellow toners, total-----	8,790	5,909	16,110	2.73
Hansa yellows, total-----	1,334	1,046	2,586	2.47
Pigment Yellow 1, C.I. 11 680-----	655	465	874	1.88
Pigment Yellow 3, C.I. 11 710-----	153	87	194	2.23
Pigment Yellow 73-----	292	...	...	...
Pigment Yellow 74, C.I. 11 741-----	142	127	438	3.45
Other Hansa yellows-----	92	367	1,080	2.94
Benzidine yellows, total-----	7,145	4,731	12,085	2.55
Pigment Yellow 12, C.I. 21 090-----	4,430	2,605	5,756	2.21
Pigment Yellow 13, C.I. 21 100-----	291	190	601	3.16
Pigment Yellow 14, C.I. 21 095-----	1,749	1,412	3,469	2.46
Pigment Yellow 17, C.I. 21 105-----	326	239	728	3.05
Other benzidine yellows-----	349	285	1,531	5.37
All other-----	311	132	1,439	10.90
Orange toners, total-----	997	861	3,006	3.49
Pigment Orange 2, C.I. 12 060-----	59	52	79	1.52
Pigment Orange 5, C.I. 12 075-----	263	230	367	1.60
Pigment Orange 13, C.I. 21 110-----	152	147	478	3.25
Pigment Orange 16, C.I. 21 160-----	307	252	669	2.65
All other-----	216	180	1,413	7.85
Red and violet toners, total-----	21,886	18,285	43,628	2.39
Naphthol reds, total-----	776	522	2,128	4.08
Pigment Red 2, C.I. 12 310-----	60	29	75	2.59
Pigment Red 5, C.I. 12 490-----	81	56	285	5.09
Pigment Red 13, C.I. 12 395-----	5	4	17	4.25
Pigment Red 17, C.I. 12 390-----	100	84	256	3.05
Pigment Red 18, C.I. 12 350-----	11	...	...	...
Pigment Red 22, C.I. 12 315-----	90	68	204	3.00
Pigment Red 23, C.I. 12 355-----	155	141	478	3.39
Other naphthol reds-----	274	140	813	5.81
Pigment Red 1, C.I. 12 070, dark-----	153	117	145	1.24
Pigment Red 1, C.I. 12 070, light-----	212	173	214	1.24
Pigment Red 3, C.I. 12 120-----	1,724	1,545	2,344	1.52
Pigment Red 4, C.I. 12 085-----	270	209	305	1.46
Pigment Red 6, C.I. 12 090-----	38	26	41	1.58
Pigment Red 38, C.I. 21 120-----	218	166	735	4.43
Pigment Red 48, C.I. 15 865-----	2,525	2,283	4,275	1.87
Pigment Red 49, C.I. 15 630:				
Barium toner-----	3,674	3,085	3,161	1.02
Calcium toner-----	1,467	1,354	1,450	1.07
Sodium toner-----	220	265	284	1.07
Pigment Red 52, C.I. 15 860-----	1,477	1,434	2,175	1.52
Pigment Red 53, C.I. 15 585, barium toner-----	2,183	1,773	2,372	1.34
Pigment Red 54, C.I. 14 830, calcium toner-----	72	61	141	2.31
Pigment Red 57, C.I. 15 850, calcium toner-----	1,051	873	1,313	1.50
Pigment Red 63, C.I. 15 880-----	56	52	97	1.87
Pigment Red 81, C.I. 45 160, PMA-----	363	316	1,917	6.07
Pigment Red 81, C.I. 45 160, PTA-----	135	119	784	6.59
Pigment Red 90, C.I. 45 380-----	1,770	930	1,731	1.86
(Vat Red 29), C.I. 71 140-----	31	...	...	...
Pigment Violet 1, C.I. 45 170, PMA-----	100	95	302	3.18
Pigment Violet 1, C.I. 45 170, PTA-----	75	66	442	6.70
Pigment Violet 3, C.I. 42 535, fugitive-----	542	537	762	1.42
Pigment Violet 3, C.I. 42 535, PMA-----	433	359	1,050	2.92

See footnotes at end of table.

TABLE 11A. --Benzenoid pigments: U.S. production and sales, 1967--Continued

Pigment	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
TONERS--Continued				
Red and violet toners--Continued				
Pigment Violet 3, C.I. 42 535, PTA-----	1,000 pounds 43	1,000 pounds 37	1,000 dollars 164	Per pound \$4.43
Pigment Violet 23-----	85	66	1,205	18.26
All other-----	2,193	1,822	14,091	7.73
Blue toners, total-----	11,819	9,595	28,196	2.94
Pigment Blue 1, C.I. 42 595, PMA-----	172	146	746	5.11
Pigment Blue 1, C.I. 42 595, PTA-----	25	16	92	5.75
Pigment Blue 9, C.I. 42 025, PTA-----	...	6	32	5.33
Pigment Blue 14, C.I. 42 600, PMA-----	56	60	523	8.72
Pigment Blue 15, C.I. 74 160, alpha form-----	5,049	3,692	10,474	2.84
Pigment Blue 15, C.I. 74 160, beta form-----	3,166	2,510	7,903	3.15
Pigment Blue 19, C.I. 42 750A-----	2,899	2,867	6,748	2.35
Pigment Blue 22, C.I. 69 810-----	26	27	464	17.19
Pigment Blue 25, C.I. 21 180-----	218	106	322	3.04
All other-----	208	165	892	5.41
Green toners, total-----	5,251	3,980	13,083	3.29
Pigment Green 1, C.I. 42 040, PTA-----	9	7	45	6.43
Pigment Green 2, C.I. 42 040 and 49 005, PMA-----	75	68	359	5.28
Pigment Green 2, C.I. 42 040 and 49 005, PTA-----	57	50	214	4.28
Pigment Green 4, C.I. 42 000, PTA-----	7	8	31	3.88
Pigment Green 7, C.I. 74 260-----	4,483	3,353	10,792	3.22
Pigment Green 8, C.I. 10 006-----	193	166	196	1.18
Pigment Green 36, C.I. 74 265-----	196	167	576	3.45
All other-----	231	161	870	5.40
Brown toners, total-----	181	149	428	2.87
Pigment Brown 5, C.I. 15 800-----	119	96	152	1.58
All other-----	62	53	276	5.21
Black toners-----	244	221	229	1.04
LAKES				
Total-----	4,154	3,867	3,674	.95
Red lakes:				
Pigment Red 60, C.I. 16 105-----	189	210	319	1.52
Pigment Red 83, C.I. 58 000-----	82	61	223	3.66
(Acid Red 26), C.I. 16 150-----	565	580	268	.46
Violet lakes: Pigment Violet 5, C.I. 58 055-----	201	143	320	2.24
All other lakes <sup>2</sup> -----	3,117	2,873	2,544	.89

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

<sup>2</sup> Includes all black, blue, brown, orange, and yellow lakes, "all other" red, and "all other" violet lakes.

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

The abbreviation PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

TABLE 12.--U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1967

Selected pigments by commercial forms	Sales		
	Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 dollars	Per pound
Pigment Yellow 12, C.I. 21 090, total-----	2,605	5,857	\$2.25
Dry full-strength toner-----	569	1,197	2.10
Dry extended toner, dry dispersions, and aqueous dispersions <sup>3 4</sup> -----	180	384	2.13
Flushed color-----	1,856	4,276	2.30
Pigment Yellow 13, C.I. 21 100; Pigment Yellow 14, C.I. 21 095; Pigment Yellow 17, C.I. 21 105; and other benzidine yellows, total-----	2,126	6,374	3.00
Dry full-strength toner-----	1,395	4,362	3.13
Dry extended toner and dry dispersions <sup>4</sup> -----	71	196	2.76
Aqueous dispersions <sup>3</sup> -----	423	1,109	2.62
Flushed color-----	237	707	2.98
Pigment Red 3, C.I. 12 120, total-----	1,545	2,399	1.55
Dry full-strength toner and dry extended toner <sup>4</sup> -----	984	1,477	1.50
Aqueous dispersions <sup>3</sup> -----	101	130	1.29
Flushed color-----	460	792	1.72
Pigment Red 48, C.I. 15 865, total-----	2,283	4,275	1.87
Dry full-strength toner-----	2,110	3,931	1.86
Dry extended toner and dry dispersions <sup>4</sup> -----	78	146	1.87
Aqueous dispersions <sup>3</sup> -----	31	81	2.61
Flushed color-----	64	117	1.83
Pigment Red 49, C.I. 15 630, barium toner, total-----	3,085	3,261	1.06
Dry full-strength toner-----	2,280	2,346	1.03
Dry extended toner and aqueous dispersions <sup>3 4</sup> -----	90	91	1.01
Flushed color-----	715	824	1.15
Pigment Red 49, C.I. 15 630, calcium toner, total-----	1,354	1,574	1.16
Dry full-strength toner and dry dispersions <sup>4</sup> -----	1,123	1,204	1.07
Aqueous dispersions <sup>3</sup> and flushed color <sup>4</sup> -----	231	370	1.60
Pigment Red 49, C.I. 15 630, sodium toner <sup>4</sup> -----	265	298	1.12
Pigment Red 53, C.I. 15 585, barium toner, total-----	1,773	2,422	1.37
Dry full-strength toner, dry extended toner, and dry dispersions <sup>4</sup> -----	1,089	1,446	1.33
Aqueous dispersions <sup>3</sup> and flushed color <sup>4</sup> -----	684	976	1.43
Pigment Red 90, C.I. 45 380, total-----	930	1,845	1.98
Dry full-strength toner-----	16	34	2.12
Dry extended toner, dry dispersions, and aqueous dispersions <sup>3 4</sup> -----	13	25	1.92
Flushed color-----	901	1,786	1.98
Pigment Violet 3, C.I. 42 535, fugitive, total-----	537	762	1.42
Dry full-strength toner and dry extended toner <sup>4</sup> -----	270	398	1.47
Flushed color-----	267	364	1.36
Pigment Violet 3, C.I. 42 535, permanent (PMA and PTA), total-----	396	1,253	3.16
Dry full-strength toner-----	277	827	2.99
Dry extended toner, dry dispersions and aqueous dispersions <sup>3 4</sup> -----	34	166	4.88
Flushed color-----	85	260	3.06
Pigment Blue 15, C.I. 74 160, alpha form, total-----	3,692	10,495	2.84
Dry full-strength toner-----	1,441	4,039	2.80
Dry extended toner-----	719	2,389	3.32
Dry dispersions-----	184	507	2.76
Aqueous dispersions <sup>3</sup> -----	1,138	2,902	2.55
Flushed color-----	210	658	3.13

See footnotes at end of table.

TABLE 12.--U.S. sales of selected dry full-strength colors, dry extended colors, dry dispersions, aqueous dispersions, and flushed colors, 1967--Continued

Selected pigments by commercial forms	Sales		
	Quantity <sup>1</sup>	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 dollars	Per pound
Pigment Blue 15, C.I. 74 160, beta form, total-----	2,510	7,907	\$3.15
Dry full-strength toner-----	1,027	3,345	3.26
Dry extended toner and dry dispersions <sup>4</sup> -----	334	1,162	3.48
Aqueous dispersions <sup>3</sup> -----	499	1,373	2.75
Flushed color-----	650	2,027	3.12
Pigment Blue 19, C.I. 42 750A, total-----	2,867	6,748	2.35
Dry full-strength toner and dry extended toner <sup>4</sup> -----	212	525	2.48
Aqueous dispersions <sup>3</sup> and flushed color <sup>4</sup> -----	2,655	6,223	2.34
Pigment Green 7, C.I. 74 260, total-----	3,353	10,792	3.22
Dry full-strength toner-----	1,342	4,337	3.23
Dry extended toner-----	440	1,660	3.77
Dry dispersions-----	323	1,009	3.12
Aqueous dispersions <sup>3</sup> -----	988	2,872	2.91
Flushed color-----	260	914	3.52

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

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

<sup>3</sup> Includes presscake.

<sup>4</sup> Separate data on these commercial forms may not be published without revealing the operations of individual companies.

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

The abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

## Medicinal Chemicals

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

Table 13A shows statistics for production and sales of medicinal chemicals grouped by pharmacological class.<sup>4</sup> The statistics are for bulk chemicals only; finished pharmaceutical preparations and products put up in pills, capsules, tablets, or other measured doses are excluded.<sup>5</sup> The difference between production and sales reflects inventory changes, processing losses, and captive consumption of medicinal chemicals processed into ethical and proprietary pharmaceutical products by the primary manufacturer. In some instances, the difference may also include quantities of medicinal grade products used as intermediates, e. g., penicillin G salts used as intermediates in the manufacture of semisynthetic penicillins. All quantities are given in terms of 100-percent content of the pure bulk drug.

Sales of antibiotics for the years 1965-67 cannot be compared with those for earlier years because the reporting instructions were changed in 1965 to exclude sales of antibiotics in mixtures, formulations, capsules, pills, tablets, etc. For the years prior to 1965, sales data for antibiotics represented all sales by the primary producers, including finished pharmaceutical preparations.

<sup>4</sup> See also table 13B, pt. III, which lists these products and identifies the manufacturers, and table 23 in the appendix, which shows imports of benzenoid medicinal chemicals and pharmaceuticals during the years 1966-67.

<sup>5</sup> Complementary statistics on the dollar value of manufacturers' shipments of finished pharmaceutical preparations, except biologicals, are published annually by the U.S. Department of Commerce, Bureau of the Census, in Current Industrial Reports, Series MA-M28G. Many pharmaceutical manufacturers who report to the Bureau of the Census are excluded from the Tariff Commission report because they are not primary producers of medicinal chemicals, that is, they do not themselves produce the bulk drugs which go into their pharmaceutical products but purchase their drug requirements from domestic or foreign producers.



MEDICINAL CHEMICALS

TABLE 13A.--Medicinal chemicals: U.S. production and sales, 1967

[Listed below are all synthetic organic medicinal chemicals for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 13B in pt. III lists all medicinal chemicals for which data on production or sales were reported and identifies the manufacturer of each]

Chemical	Production <sup>1</sup>	Sales <sup>1</sup>		
		Quantity	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	180,070	126,924	385,275	\$3.04
Acyclic-----	69,941	56,804	36,402	.64
Benzenoid <sup>3</sup> -----	91,651	58,305	263,656	4.52
Cyclic nonbenzenoid <sup>4</sup> -----	18,478	11,815	85,217	7.21
Antibiotics, total <sup>5</sup> -----	9,464	4,744	96,586	20.36
For medicinal use, total-----	5,223	2,390	65,056	27.22
Antifungal and antitubercular antibiotics-----	1,034	718	10,754	14.98
Bacitracin-----	20	20	969	48.45
Penicillin G, potassium <sup>6</sup> -----	569	...	...	...
Other antibiotics for medicinal use-----	3,600	1,652	53,333	32.28
For other uses, total-----	4,241	2,354	31,530	13.39
Bacitracin-----	241	187	2,571	13.75
All other-----	4,000	2,167	28,959	13.36
Anticoagulants, total-----	9	4	1,092	273.00
Sodium heparin-----	3	2	1,008	504.00
All other-----	6	2	84	42.00
Antihistamines, total-----	391	199	4,847	24.36
Antinauseants-----	50	...	...	...
Chlorpheniramine maleate-----	37	13	219	16.85
Pheniramine maleate-----	20	23	340	14.78
All other-----	284	163	4,288	26.31
Anti-infective agents, total-----	31,399	20,501	84,263	4.11
Arsenic and bismuth compounds-----	3,970	...	...	...
Caprylates and undecylenates-----	397	379	454	1.20
Mercury compounds, total-----	55	...	...	...
Thimerosal-----	...	4	184	46.00
All other-----	55	...	...	...
Phenolic antiseptics and disinfectants-----	320	210	384	1.83
Piperazine base and salts, total-----	8,913	5,393	3,917	.73
Piperazine-----	4,017	994	904	.91
All other-----	4,896	4,399	3,013	.68
Quinoline derivatives, total-----	805	396	1,785	4.51
Diodohydroxyquin-----	29	23	99	4.30
Oxyquinoline sulfate-----	...	8	30	3.75
All other-----	776	365	1,656	4.54
Sulfonamides-----	5,046	...	...	...
Groups listed above for which separate sales data may not be shown-----	...	4,000	11,412	2.85
Other anti-infective agents, total-----	11,893	10,119	66,127	6.53
Anthelmintic and antifungal agents-----	5,412	...	...	...
Antiprotozoan and antiviral agents-----	3,595	...	...	...
Urinary antiseptics-----	798	722	1,376	1.91
All other-----	2,088	9,397	64,751	6.89
Antineoplastic agents and local anesthetics, total-----	899	...	...	...
Lidocaine-----	...	5	161	32.20
All other-----	899	...	...	...

See footnotes at end of table.

TABLE 13A. --Medicinal chemicals: U.S. production and sales, 1967--Continued

Chemical	Production <sup>1</sup>	Sales <sup>1</sup>		
		Quantity	Value	Unit value <sup>2</sup>
		1,000 pounds	1,000 dollars	Per pound
Autonomic drugs, total-----	546	344	6,665	\$19.38
Parasympatholytic (anticholinergic) agents (except tropine derivatives), total-----	91	52	2,486	47.81
Quaternary ammonium compounds-----	41	24	1,014	42.25
Tertiary amines-----	50	28	1,472	52.57
Sympathomimetic (adrenergic) agents, total-----	446	287	3,954	13.78
Isoproterenol salts-----	...	(7)	15	40.65
Phenylpropanolamine hydrochloride-----	198	203	1,322	6.51
All other-----	248	84	2,617	31.15
Other autonomic drugs-----	9	5	225	45.00
Cardiovascular agents, total-----	723	519	16,291	31.39
Cardiac drugs-----	...	11	189	17.18
Rauwolfia and veratrum alkaloids-----	(8)	...	...	...
Vasodilators-----	54	...	...	...
Other cardiovascular agents-----	669	508	16,102	31.70
Central depressants and stimulants, total-----	43,477	27,701	56,710	2.05
Amphetamines, total-----	86	74	581	7.85
Amphetamine base and sulfate (racemic)-----	39	35	150	4.29
Dextroamphetamine sulfate-----	25	...	...	...
All other-----	22	39	431	11.05
Analgesics and antipyretics, total-----	37,669	23,746	34,302	1.44
Salicylates, total-----	33,105	20,300	12,381	.61
Aspirin-----	30,383	...	...	...
All other-----	2,722	20,300	12,381	.61
Other analgesics and antipyretics-----	4,564	3,446	21,921	6.36
Antidepressants-----	116	...	...	...
Barbiturates, total-----	668	456	2,078	4.56
Butobarbital, sodium-----	...	44	319	7.25
Phenobarbital, sodium-----	5	...	...	...
All other-----	663	412	1,759	4.27
Hypnotics and sedatives (except barbiturates) <sup>9</sup> -----	481	...	...	...
Skeletal muscle relaxants, total-----	268	117	634	5.42
Succinylcholine chloride-----	7	...	...	...
All other-----	261	117	634	5.42
Tranquilizers, total-----	1,704	998	4,658	4.67
Meprobamate-----	1,260	913	2,329	2.55
Other tranquilizers <sup>9</sup> -----	444	85	2,329	27.40
Other central depressants and stimulants-----	2,485	2,310	14,457	6.26
Dermatological agents, total-----	12,996	9,388	4,167	.44
Bismuth subgallate-----	23	...	...	...
Salicylic acid-----	11,479	8,057	3,093	.38
All other-----	1,494	1,331	1,074	.81
Expectorants and mucolytic agents, total-----	2,231	1,345	2,254	1.68
Guaiacol and its derivatives-----	...	855	1,450	1.70
All other-----	2,231	490	804	1.64
Gastrointestinal agents, total-----	52,237	48,014	17,661	.37
Betaine base, hydrate, and hydrochloride-----	53	39	66	1.69
Choleretics and hydrocholeretics-----	116	...	...	...
Choline chloride (all grades)-----	38,649	34,404	5,232	.15
Methionine and its hydroxy analogue-----	10,998	12,150	9,245	.76
Other gastrointestinal agents-----	2,421	1,421	3,118	2.19
Hormones and synthetic substitutes, total-----	1,783	328	17,205	52.45
Synthetic hypoglycemic agents-----	1,538	241	848	3.52
Other hormones and synthetic substitutes-----	245	87	16,357	188.01
Renal-acting and edema-reducing agents, total-----	1,390	168	4,204	25.02
Mercurial diuretics-----	10	1	38	38.00
Theobromine and theophylline derivatives, total-----	104	88	259	2.94
Aminophylline-----	32	...	...	...
All other-----	72	88	259	2.94
Other renal-acting and edema-reducing agents-----	1,276	79	3,907	49.46

See footnotes at end of table.

TABLE 13A. -- Medicinal chemicals: U.S. production and sales, 1967 -- Continued

Chemicals	Production <sup>1</sup>	Sales <sup>1</sup>		
		Quantity	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Therapeutic nutrients, total-----	3,142	1,470	1,832	\$1.25
Amino acids and salts-----	1,301	819	1,157	1.41
Calcium gluconate-----	...	332	211	.64
Other therapeutic nutrients-----	1,841	319	464	1.45
Vitamins, total-----	17,568	11,108	65,847	5.93
Vitamin A alcohol and esters, total <sup>10</sup> -----	1,053	716	16,720	23.35
Vitamin A palmitate (feed grade)-----	667	527	10,410	19.75
All other-----	386	189	6,310	33.39
Vitamin B-complex, total-----	6,504	4,469	24,586	5.50
Niacin (all grades)-----	2,306	...	...	...
Niacinamide-----	867	742	1,505	2.03
Pantothenic acid and derivatives, total-----	1,820	926	3,014	3.25
Calcium pantothenate (racemic) (feed grade)-----	1,256	511	1,546	3.03
All other-----	564	415	1,468	3.54
Riboflavin (all grades)-----	878	776	6,071	7.82
Other B-complex vitamins-----	633	2,025	13,996	6.91
Vitamin C, total-----	9,160	5,282	11,350	2.15
Ascorbic acid-----	7,379	...	...	...
All other-----	1,781	5,282	11,350	2.15
Vitamin D <sub>2</sub> (Ergocalciferol) <sup>10</sup> -----	1	1	124	124.00
Vitamin E <sup>10</sup> -----	638	547	9,742	17.81
Vitamin K:				
Menadione-----	85	...	...	...
Menadione sodium bisulfite-----	99	56	517	9.23
Other vitamins-----	28	37	2,808	75.89
Miscellaneous medicinal chemicals <sup>11</sup> -----	1,815	1,086	5,490	5.06

<sup>1</sup> The data on production and sales are for bulk medicinal chemicals only; they exclude finished preparations and dosage-form products which are manufactured from bulk chemicals. All quantities are given in terms of 100% active ingredient.

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

<sup>3</sup> The term "benzenoid", as used in this report, describes any cyclic medicinal chemical whose molecule contains either a six-membered carbocyclic ring with conjugated double bonds (e.g., the benzene ring or the quinone ring) or a six-membered heterocyclic ring with 1 or 2 hetero atoms and conjugated double bonds, except the pyrimidine ring (e.g., the pyridine ring or the pyrazine ring).

<sup>4</sup> Includes antibiotics of unknown structure.

<sup>5</sup> With the exception of bacitracin, the penicillins, and a few other antibiotics which were reported in terms of U.S.P. units, all quantities for antibiotics were reported as grams of antibiotic base. (Thus production of 480,900 grams of tetracycline hydrochloride, for example, would have been reported as 444,430 grams of tetracycline base.) For inclusion in the main statistical table all quantities were converted from grams of antibiotic base to pounds of antibiotic base (453.6 grams = 1 pound) or from U.S.P. units to pounds (22.7 million units of bacitracin, 458 million units of procaine penicillin G, 723 million units of potassium penicillin G, etc. = 1 pound). The following tabulation shows statistics for all individually publishable antibiotics in terms of kilograms of antibiotic base (Kg.) or billions of U.S.P. units (BU):

Antibiotic	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
				1,000 dollars	
Bacitracin, total-----	---BU---	5,922	4,707 <sup>3</sup>	3,540	\$752.07
For medicinal use-----	---BU---	446	454	969	2,134.36
For other uses-----	---BU---	5,476	4,253	2,571	604.51
Neomycin, for all uses-----	---Kg---	151,668	52,286	2,498	47.78
Penicillins, for all uses, total-----	---BU---	1,424,566	851,778	25,175	29.56
Penicillin G, potassium, for medicinal use-----	---BU---	411,613	...	...	...
Penicillin G, procaine for all uses---	---BU---	727,972	541,744	9,918	18.31
All other, for all uses-----	---BU---	284,981	310,034	15,257	49.21
Tetracyclines, for all uses-----	---Kg---	1,522,767	616,780	32,019	51.91

## SYNTHETIC ORGANIC CHEMICALS, 1967

## Footnotes for table 13A--Continued

<sup>6</sup> Production of all penicillins, for all uses, amounted to 2,574 thousand pounds; sales amounted to 1,618 thousand pounds, valued at 25,175 thousand dollars.

<sup>7</sup> Sales of isoproterenol salts amounted to 369 pounds.

<sup>8</sup> Production of rauwolfia and veratrum alkaloids amounted to 225 pounds.

<sup>9</sup> Includes 2 or more of the following 6 drugs which are subject to Federal control under the Drug Abuse Control Act: Chlordiazepoxide hydrochloride, diazepam, ethchlorvynol, ethinamate, glutethimide, and methylprylon. U.S. production of these 6 drugs amounted to 474 thousand pounds in 1967.

<sup>10</sup> All quantities for vitamins A, B<sub>12</sub>, D<sub>2</sub>, D<sub>3</sub>, and E were reported in terms of grams or units, but were converted to pounds for inclusion in the main statistical table (1.317 billion units of vitamin A acetate, 0.824 billion units of vitamin A palmitate, 453.6 grams of vitamin B<sub>12</sub>, 18.14 billion units of vitamins D<sub>2</sub> and D<sub>3</sub>, 617,000 units of d-alpha tocopheryl acetate, 454,000 units of dl-alpha tocopheryl acetate, etc. = 1 pound). The following tabulation shows statistics for these vitamins, except for B<sub>12</sub> and D<sub>3</sub>, which were not separately publishable, in terms of millions of international units (MU), or billions of U.S.P. units (BU):

Vitamin	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value
Vitamin A alcohol and esters, total	-----BU-----	970,254	622,048	16,720	\$26.88
Vitamin A palmitate (feed grade)---	-----BU-----	550,153	434,128	10,410	23.98
All other-----	-----BU-----	420,101	187,920	6,310	33.58
Vitamin D <sub>2</sub> (Ergocalciferol)-----	-----BU-----	20,433	18,451	124	6.72
Vitamin E-----	-----MU-----	343,974	301,123	9,742	32.35

<sup>11</sup>Includes production and sales of diagnostic agents, hematological agents (except anticoagulants), smooth-muscle relaxants, and miscellaneous unclassified medicinal chemicals; also includes sales of all other anti-neoplastic agents and local anesthetics.

Total U.S. production of bulk medicinal chemicals in 1967 amounted to 180 million pounds, or 2.9 percent less than the 185 million pounds produced in 1966, and 12.9 percent more than the 160 million pounds produced in 1965. Total sales of bulk medicinal chemicals in 1967 amounted to 127 million pounds, valued at \$385 million, compared with sales in 1966 of 136 million pounds, valued at \$398 million. Sales in 1967 were thus 7.0 percent smaller than in 1966, in terms of quantity, and 3.3 percent smaller, in terms of value.

Production of the more important groups of medicinal chemicals in 1967 was as follows: Antibiotics, 9.5 million pounds (2 percent smaller than in 1966), of which 5.2 million pounds was for medicinal use and 4.2 million pounds was for other uses; anti-infective agents other than antibiotics, 31.4 million pounds (6 percent smaller than in 1966); central depressants and stimulants, 43.5 million pounds (10 percent smaller); and vitamins, 17.6 million pounds (0.1 percent larger). Production of some of the more important individual products listed in the table was as follows: Choline chloride, 38.6 million pounds (7 percent larger than in 1966); aspirin, 30.4 million pounds (11 percent smaller); salicylic acid, 11.5 million pounds (0.1 percent larger); methionine and its hydroxy analogue, 11 million pounds (21 percent smaller); piperazine base and salts, 8.9 million pounds (3 percent larger); ascorbic acid, 7.4 million pounds (3 percent smaller); anti-infective sulfonamides, 5.0 million pounds (7 percent smaller); penicillins, 1,425 trillion units (15 percent smaller); tetracyclines, 1.5 million kilograms (9 percent smaller); vitamin A, 970 trillion units (3 percent larger); and vitamin E, 344 billion units (24 percent larger).

## Flavor and Perfume Materials

This report covers domestic production and sales of organic chemicals used to impart flavors and odors to foods, beverages, cosmetics, and soaps (table 14A).<sup>6</sup> These aromatic chemicals are also utilized to neutralize or mask unpleasant odors in industrial processes and products as well as in consumer products.

Total domestic production of flavor and perfume materials in 1967 amounted to 111.5 million pounds, or 0.8 percent more than the 110.7 million pounds produced in 1966. Sales of these materials in 1967 amounted to 96.6 million pounds, valued at \$93.4 million, compared with 98.3 million pounds valued at \$92.6 million, in 1966.

<sup>6</sup> See also table 14B, pt. III, which lists these products and identifies the manufacturers, and (table 23) in the appendix, which shows imports of benzenoid flavor and perfume materials during the years 1966-67.

TABLE 14A.--Flavor and perfume materials: U.S. production and sales, 1967

[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 all flavor and perfume materials for which data on production or sales were reported and identifies the manufacturer of each]

Material	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	111,536	96,596	93,361	\$0.97
FLAVOR AND PERFUME MATERIALS, CYCLIC				
Total-----	57,978	47,285	52,866	1.12
<i>Benzenoid and Naphthalenoid</i>				
Total-----	48,068	39,231	36,993	.94
4-Allyl-2-methoxyphenol (Eugenol)-----	304	309	598	1.93
4-Allyl-1,2-(methylenedioxy)-benzene (Safrole)-----	...	66	57	.86
p-Anisaldehyde-----	805	844	1,176	1.39
Anisyl acetate-----	...	4	14	3.86
Benzophenone <sup>2</sup> -----	261	132	141	1.06
Benzyl acetate-----	1,411	1,184	530	.45
Benzyl alcohol <sup>2</sup> -----	6,123	5,098	2,083	.41
Benzyl butyrate-----	...	6	8	1.29
Benzyl glyceryl acetal-----	3	4	10	2.31
Benzyl phenylacetate-----	2	3	7	2.61
Benzyl propionate-----	12	13	14	1.07
Benzyl salicylate-----	408	372	468	1.26
Cinnamyl acetate-----	...	3	9	2.64
Cinnamyl alcohol-----	208	180	248	1.38
Cinnamyl anthranilate-----	1	1	5	9.80
Cinnamyl propionate-----	...	1	4	5.32
Coumarin-----	1,146	1,125	2,221	1.98
Ethyl phenylglycidate-----	...	2	9	4.75
Hydratropaldehyde, dimethyl acetal-----	...	1	8	5.69
Hydrocoumarin-----	39	35	142	4.04
Isobutyl phenylacetate-----	27	27	25	.89
Isobutyl salicylate-----	57	62	52	.83
Isopentyl salicylate-----	466	484	332	.69
4'-Methoxyacetophenone (Acetanisole)-----	13	13	29	2.25
2-Methoxy-4-propenylphenol (Isoeugenol)-----	133	142	388	2.74
Methyl anthranilate-----	...	209	351	1.68
α-Methylbenzyl acetate (Styralyl acetate)-----	...	45	40	.88
α-Methylcinnamaldehyde-----	7	...	...	...
Methyl salicylate-----	4,612	4,595	2,211	.48
α-Pentylcinnamaldehyde-----	432	440	553	1.26
Phenethyl acetate-----	112	90	91	1.02
Phenethyl isobutyrate-----	6	7	16	2.27
2-Phenethyl phenylacetate-----	...	23	62	2.69
2-Phenoxyethyl isobutyrate-----	...	2	7	3.82
3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	33	21	40	1.91
Piperonal (Heliotropin)-----	222	182	436	2.39
p-Propenylanisole (Anethole)-----	2,280	2,307	1,121	.49
Sweeteners, synthetic-----	17,501	12,669	8,152	.64
p-Tolyl acetate (p-Cresyl acetate)-----	7	4	16	4.41
All other benzenoid and naphthalenoid materials-----	11,437	8,526	15,319	1.80
<i>Terpenoid, Heterocyclic, and Alicyclic</i>				
Total-----	9,910	8,054	15,873	1.97
Cedryl acetate-----	158	158	434	2.75
Ionones-----	342	...	...	...
Isobornyl acetate-----	1,002	939	355	.38
p-Menthan-3-one (Menthone)-----	8	9	30	3.28
Menthol, synthetic, tech. & U.S.P.-----	652	557	2,147	3.85
Methylionones-----	482	500	1,971	3.94
Terpineols-----	3,140	3,060	996	.33

See footnotes at end of table.

TABLE 14A.--Flavor and perfume materials: U.S. production and sales, 1967--Continued

Material	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued				
<i>Terpenoid, Heterocyclic, and Alicyclic--Continued</i>				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
$\alpha$ -Terpinyl acetate-----	524	530	324	\$0.61
Vetivenyl acetate-----	26	25	599	23.64
All other terpenoid, heterocyclic and alicyclic materials--	3,576	2,276	9,017	3.96
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
Total-----	53,558	49,311	40,495	.82
Allyl hexanoate-----	18	...	...	...
Citral (Geranial and Neral)-----	308	71	263	3.71
Citronellyl acetate-----	28	29	48	1.68
Citronellyl formate-----	7	19	37	1.95
Citronellyl isobutyrate-----	4	...	...	...
3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	1,310	1,113	1,221	1.10
3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	590	554	811	1.46
Ethyl butyrate-----	371	352	237	.67
Ethyl hexanoate (Ethyl caproate)-----	14	...	...	...
Ethyl nonanoate-----	...	3	9	3.11
Geranyl acetate-----	92	81	136	1.68
Geranyl formate-----	...	9	21	2.34
Glutamic acid, monosodium salt (Monosodium glutamate)-----	45,211	42,175	29,589	.70
Hydroxycitronellal-----	531	522	2,001	3.83
Hydroxycitronellal, dimethyl acetal-----	5	7	32	4.81
Isopentyl butyrate-----	54	64	51	.80
Isopentyl formate-----	2	4	5	1.45
Rhodinol-----	17	14	390	28.22
All other acyclic materials-----	4,996	4,294	5,644	1.31

<sup>1</sup> Calculated from the unrounded figures.

<sup>2</sup> Includes some technical grade.

Production of cyclic flavor and perfume materials in 1967 amounted to 58.0 million pounds; sales amounted to 47.3 million pounds, valued at \$52.9 million. The individual chemical in the cyclic group produced in the greatest volume in 1967 again was benzyl alcohol (6.1 million pounds). Production of synthetic sweeteners amounted to 17.5 million pounds in 1967, compared with 17.3 million pounds in 1966.

U.S. output of acyclic flavor and perfume materials in 1967 amounted to 53.6 million pounds; sales of these materials amounted to 49.3 million pounds, valued at \$40.5 million. Monosodium glutamate was by far the most important of the acyclic chemicals, and the individual flavor and perfume chemical produced in the greatest volume; output of this chemical totaled 45.2 million pounds in 1967, slightly less than the 45.7 million pounds reported in 1966.

In 1967, many of the flavor and perfume materials were reclassified; as a result, 1967 production and sales totals for individual groups are not comparable with totals for groups in previous years.

### Plastics and Resin Materials

Plastics and resin materials are condensation and polymerization products of organic chemicals, containing necessary plasticizers, fillers, extenders, stabilizers, and coloring agents. At some stage in their manufacture they exist in such physical condition that they can be shaped or otherwise processed by the application of heat and pressure. Some types of plastics materials may be molded, cast, or extruded into semifinished or finished forms. Other types are used as adhesives, for the treatment of textiles and paper, and for protective coatings. Statistics on U.S. production and sales of synthetic plastics and resin materials for 1967 are given in table 15A.<sup>7</sup> In general, the statistics follow the outline of the Tariff Commission's monthly report on the production and sales of synthetic plastics and resin materials (S. O. C. Series P-67). However, the data given include some companies which are not covered in the

<sup>7</sup> See also table 15B, pt. III, which lists these products by chemical types and by end uses, and identifies the manufacturers.

TABLE 15A.--Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1967

[Quantities and values are given in terms of the total weight of the materials (dry basis). Listed below are all plastics and resin materials for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 15B in pt. III lists all plastics and resin materials for which data on production or sales were reported and identifies the manufacturer of each]

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds, dry basis <sup>2</sup>	1,000 pounds, dry basis <sup>2</sup>	1,000 dollars	Per pound
Grand total-----	13,792,949	11,977,363	2,672,630	\$0.22
Plastics and resin materials, benzenoid-----	5,033,497	4,224,121	1,036,940	.25
Plastics and resin materials, nonbenzenoid-----	8,759,452	7,753,242	1,635,690	.21
THERMOSETTING RESINS				
Total-----	3,514,928	2,791,537	716,338	.26
Alkyd resins, total-----	638,478	<sup>3</sup> 313,293	86,130	.27
Domestic:				
Phthalic anhydride type-----	549,775	262,429	72,172	.27
Polybasic acid type-----	88,703	50,864	13,958	.27
Coumarone-indene and petroleum polymer resins, total-----	284,162	286,601	31,413	.11
Floor tile-----	47,268	45,993	...	...
Rubber compounding-----	66,899	65,119	...	...
All other uses-----	169,995	148,881	...	...
Sales for export-----	...	26,608	...	...
Epoxy resin:				
Unmodified, total-----	131,424	130,349	65,867	.51
Bonding and adhesives-----	...	16,488	...	...
Protective coatings-----	...	54,996	...	...
Reinforced plastics-----	...	26,256	...	...
All other uses-----	...	17,922	...	...
Sales for export-----	...	14,687	...	...
Modified-----	5,868	4,484	3,552	.79
Polyester resins, <sup>4</sup> total-----	513,492	449,183	125,139	.28
Reinforced plastics:				
Sheets, flat and corrugated-----	...	45,817	...	...
All other-----	...	278,943	...	...
Surface coatings-----	...	5,839	...	...
All other uses-----	...	108,702	...	...
Sales for export-----	...	9,882	...	...
Phenolic and other tar acid resins, total-----	983,413	789,661	186,230	.24
Molding materials-----	275,967	244,683	...	...
Bonding and adhesive resins for:				
Laminating-----	119,738	68,112	...	...
Coated and bonded abrasives-----	27,336	19,281	...	...
Friction materials-----	35,837	33,231	...	...
Thermal insulation-----	116,546	55,068	...	...
Foundry or shell molding-----	65,749	62,020	...	...
Plywood-----	175,235	157,179	...	...
Fibrous and granulated wood-----	35,330	27,654	...	...
Protective coatings, unmodified and modified-----	36,387	26,600	...	...
All other uses-----	95,288	79,406	...	...
Sales for export-----	...	16,427	...	...
Polyurethane and diisocyanate resins-----	88,604	65,944	35,294	.54
Rosin modifications, total-----	133,889	122,002	22,337	.18
Rosin and rosin esters, unmodified (ester gums)-----	27,313	25,901	5,331	.21
All other-----	106,576	96,101	17,006	.18

See footnotes at end of table.

TABLE 15A.--Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1967--Continued

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
THERMOSETTING RESINS--Continued				
Urea and melamine resins, total-----	1,000 pounds, dry basis <sup>2</sup> 690,062	1,000 pounds, dry basis <sup>2</sup> 585,236	1,000 dollars 135,769	Per pound \$0.23
Textile treating and coating resins-----	74,633	66,295	...	...
Paper treating and coating resins-----	60,007	39,780	...	...
Bonding and adhesive resins for:				
Laminating-----				
Plywood-----	57,856	35,313	...	...
Fibrous and granulated wood-----	128,471	115,157	...	...
Protective coatings-----	190,043	176,370	...	...
All other uses (including molding)-----	55,962	37,020	...	...
Sales for export-----	123,090	101,546	...	...
.....	...	13,755	...	...
All other thermosetting resins <sup>5</sup> -----	45,536	44,784	24,607	.55
THERMOPLASTIC RESINS				
Total-----	10,278,021	9,185,826	1,956,292	.21
Cellulose plastics materials, total-----	171,380	167,185	109,237	.65
Sheets, continuous:				
Under 0.003 gage-----	16,632	16,778	...	...
0.003 gage and over-----	43,184	44,175	...	...
All other sheets, rods, and tubes-----	5,067	6,213	...	...
Molding and extrusion materials-----	106,497	100,019	...	...
Polyamide resins: Nylon type-----	63,089	53,782	51,636	.96
Polyolefin plastics materials:				
Polyethylene, density 0.940 and below: <sup>6</sup>				
Production and sales-----	2,716,380	2,538,688	373,897	.15
Sales and use, total-----	...	2,572,780	...	...
Injection molding-----	...	352,669	...	...
Blow molding-----	...	44,689	...	...
Film and sheet-----	...	1,094,354	...	...
Extrusion coating on paper and other substrates-----	...	307,430	...	...
Wire and cable-----	...	264,950	...	...
All other extruded products, including pipe and conduit-----	...	37,258	...	...
All other domestic uses-----	...	214,264	...	...
Export sales-----	...	257,166	...	...
Polyethylene, density over 0.940:				
Production and sales-----	71,082,176	919,960	155,465	.17
Sales and use, total-----	...	976,411	...	...
Injection molding-----	...	217,172	...	...
Blow molding-----	...	402,619	...	...
Film and sheet-----	...	38,485	...	...
Extrusion coating on paper and other substrates-----	...	6,506	...	...
Wire and cable-----	...	34,561	...	...
Pipe and conduit-----	...	38,236	...	...
Other extruded products-----	...	20,685	...	...
All other domestic uses-----	...	130,220	...	...
Export sales-----	...	87,927	...	...
Polypropylene:				
Production and sales-----	662,276	599,035	128,086	.21
Sales and use, total-----	...	650,146	...	...
Injection and blow molding <sup>8</sup> -----	...	281,598	...	...
Film and sheet-----	...	56,139	...	...
Fibers and filaments-----	...	159,912	...	...
Other extruded products <sup>9</sup> -----	...	39,763	...	...
All other uses-----	...	39,026	...	...
Export sales-----	...	73,708	...	...

See footnotes at end of table.



TABLE 15A.--Plastics and resin materials: U.S. production and sales, by chemical classes and uses, 1967--Continued

Kind and use	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
THERMOPLASTIC RESINS--Continued				
Styrene type plastics materials, total-----	1,000 pounds, dry basis <sup>2</sup>	1,000 pounds, dry basis <sup>2</sup>	1,000 dollars	Per pound
ABS and SAN resins: <sup>10</sup>	2,391,103	2,161,466	447,760	\$0.21
Production and sales-----	371,203	347,572	114,072	.33
Sales and use, total-----	...	367,030	...	...
Molding-----	...	184,204	...	...
Extrusion-----	...	99,180	...	...
All other domestic uses-----	...	51,973	...	...
Export sales-----	...	31,673	...	...
Styrene and styrene copolymer resins:				
Production <sup>11</sup> and sales-----	2,019,900	1,813,894	333,688	.18
Sales and use, total-----	...	2,000,325	...	...
Molding-----	...	1,003,361	...	...
Textile and paper treating and coating-----	...	214,091	...	...
Emulsion paint-----	...	37,196	...	...
Extrusion-----	...	250,781	...	...
All other domestic uses (including foam and foamable materials)-----	...	420,103	...	...
Export sales-----	...	74,793	...	...
Vinyl resins (resin content):				
Polyvinyl chloride and copolymers:				
Production and sales, total-----	2,142,438	1,927,942	302,110	.16
Suspension homopolymers-----	1,303,459	...	...	...
Suspension copolymers-----	550,139	...	...	...
Dispersions (paste)-----	288,840	...	...	...
Sales and use, total-----	...	2,112,276	...	...
Calendering, except flooring-----	...	394,952	...	...
Flooring:				
Calendered-----	...	265,229	...	...
Coated-----	...	52,294	...	...
Paper and textile coating, and other paper and textile uses-----	...	101,341	...	...
Protective coatings and adhesives-----	...	72,445	...	...
Wire and cable-----	...	195,801	...	...
Extruded film and sheet-----	...	102,502	...	...
Other extruded products-----	...	297,014	...	...
Sound records-----	...	105,247	...	...
Injection and blow molding-----	...	71,782	...	...
Plastisol formulating and molding-----	...	77,770	...	...
All other domestic uses-----	...	305,149	...	...
Export sales-----	...	70,750	...	...
Polyvinyl acetate:				
Production and sales, total-----	342,370	251,200	73,369	.29
Latexes-----	223,375	...	...	...
Resins-----	118,995	...	...	...
Sales and use, total-----	...	310,525	...	...
Emulsion paints-----	...	95,461	...	...
Adhesives-----	...	116,971	...	...
Paper treating-----	...	24,661	...	...
Textile treating-----	...	7,695	...	...
All other domestic uses-----	...	63,270	...	...
Export sales-----	...	2,467	...	...
Polyvinyl alcohol-----	43,484	37,008	16,236	.44
Other vinyl resins <sup>12</sup> -----	143,635	95,788	44,494	.46
All other thermoplastic resins <sup>13</sup> -----	519,690	433,772	254,002	.59

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

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

<sup>3</sup> Includes 3,532 thousand pounds sold for export.

<sup>4</sup> The term "polyester resins" includes unsaturated alkyds copolymerized with a monomer such as styrene, and polyallyl resins such as diallyl phthalate and allyl diglycol carbonate.

*Footnotes for table 15A--Continued*

<sup>5</sup> Includes data for acetone-formaldehyde resins, styrene-alkyd polyesters, toluenesulfonamide resins, silicone resins, and other thermosetting resins which were produced in small quantities. Also included are saturated polyesters for urethanes.

<sup>6</sup> Represents data for polyethylene produced by the high-pressure process and for ethylene copolymers.

<sup>7</sup> Represents production of polyethylene by the low-pressure process.

<sup>8</sup> Principally for injection molding.

<sup>9</sup> Includes data for extrusion coating, wire and cable coating, pipe and conduit, and other extruded products.

<sup>10</sup> ABS resins are polymers of acrylonitrile, styrene, and butadiene. SAN resins are polymers of styrene and acrylonitrile.

<sup>11</sup> Includes straight polystyrene, 850 million pounds; rubber-modified polystyrene, 746 million pounds; styrene-butadiene copolymers, 289 million pounds; and all other, 135 million pounds.

<sup>12</sup> Includes data for polyvinyl butyral, polyvinyl formal, and polyvinylidene chloride.

<sup>13</sup> Includes data for acrylic, fluorocarbon, non-nylon type polyamide, polycarbonate, polyoxymethylene, polyterpene, and other thermoplastic resins.

monthly reports, and also some adjusted figures supplied by the original reporting companies. Consequently, many of the figures given in table 15A are revised from those shown in the Commission's monthly release dated March 15, 1968, which contained year-end cumulative monthly totals for 1967. The end use breakdowns shown were developed with the advice of representatives of the plastics industry, and the data reported are the producers' determination of the use categories for their materials.

Total U. S. production of synthetic plastics and resin materials in 1967 amounted to 13,793 million pounds--slightly more than the 13,585 million pounds reported for 1966. Sales in 1967 were 11,977 million pounds, valued at \$2,673 million. Production of benzenoid plastics and resin materials in 1967 amounted to 5,033 million pounds and that of nonbenzenoid materials to 8,759 million pounds. These figures compare with the benzenoid production in 1966 of 5,067 million pounds, and nonbenzenoid production of 8,518 million pounds.

The 1967 output of all types of thermosetting resins totaled 3,515 million pounds, compared with 3,647 million pounds in 1966. In 1967 phenolic and other tar acid resins were produced in the largest quantity in the thermosetting group. Output of phenolic resins amounted to 983 million pounds in 1967, compared with 1,047 million pounds in 1966. Production of urea and melamine resins in 1967 was 690 million pounds, and that of alkyd resins was 638 million pounds. Other thermosetting resins produced in significant amounts in 1967 were polyester resins (513 million pounds); coumarone-indene resins (284 million pounds); epoxy resins (131 million pounds); and polyurethane resins (89 million pounds).

The total output of thermoplastic resins in 1967 amounted to 10,278 million pounds, compared with 9,938 million pounds in 1966. In 1967, as in previous years, polyethylene, polystyrene, and polyvinyl chloride were the resins produced in the largest volume. The output of high-pressure polyethylene in 1967 was 2,716 million pounds, which corresponds to the output of 2,648 million pounds reported for 1966. Production of low-pressure polyethylene in 1967 was 1,082 million pounds, corresponding to the 910 million pounds produced in 1966.

### Rubber-Processing Chemicals

Rubber-processing chemicals are organic compounds that are added to natural and synthetic rubbers to give them qualities necessary for their conversion into finished rubber goods. In this report, statistics are given for cyclic and acyclic compounds, by use--such as accelerators, antioxidants, blowing agents, and peptizers. Statistics on production and sales of rubber-processing chemicals in 1967 are given in table 16A.<sup>8</sup>

Production of rubber-processing chemicals as a group in 1967 amounted to 264 million pounds, or 6.8 percent less than the 283 million pounds reported for 1966. The decreased output of rubber-processing chemicals in 1967 is attributable principally to a lengthy strike in the rubber industry during the year. Sales of rubber-processing chemicals in 1967 amounted to 201 million pounds, valued at \$132 million, compared with 209 million pounds, valued at \$138 million, in 1966.

The output of cyclic rubber-processing chemicals in 1967 amounted to 220 million pounds, 8.8 percent less than the 241 million pounds reported for 1966. Sales in 1967 were 170 million pounds, valued at \$116 million, compared with 183 million pounds, valued at \$124 million, in 1966. Of the total output of cyclic rubber-processing chemicals in 1967, accelerators accounted for 31.4 percent and antioxidants for 63.2 percent. Production of antioxidants, which amounted to 139.1 million pounds in 1967, included 108.0 million pounds of amino compounds and 31.1 million pounds of phenolic and phosphite compounds. Sales of amino antioxidants in 1967

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

TABLE 16A. --Rubber-processing chemicals: U.S. production and sales, 1967

[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 16B in pt. III lists separately all rubber-processing chemicals for which data on production or sales were reported and identifies the manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	264,133	200,848	131,795	\$0.66
RUBBER-PROCESSING CHEMICALS, CYCLIC				
Total-----	220,139	169,970	116,318	.68
Accelerators, activators, and vulcanizing agents, total---	69,161	55,619	34,035	.61
Aldehyde-amine reaction products-----	1,217	1,014	919	.91
Dithiocarbamic acid derivatives-----	238	199	455	2.29
Thiazole derivatives, total-----	56,674	43,427	24,100	.55
N-Cyclohexyl-2-benzothiazolesulfenamide-----	4,686	3,446	2,134	.62
2,2'-Dithiobis(benzothiazole)-----	21,934	10,571	5,967	.56
2-Mercaptobenzothiazole-----	4,665	...	...	...
All other thiazole derivatives-----	25,389	29,410	15,999	.54
All other accelerators-----	11,032	10,979	8,561	.78
Antioxidants, antiozonants, and stabilizers, total-----	139,083	103,374	72,461	.70
Amino compounds, total-----	108,017	80,351	55,613	.69
Octyldiphenylamine-----	2,844	2,775	1,463	.53
N-Phenyl-2-naphthylamine-----	5,478	...	...	...
Substituted p-phenylenediamines, total-----	47,711	33,794	30,944	.92
N,N'-Diphenyl-p-phenylenediamine-----	3,151	1,308	1,413	1.08
All other substituted p-phenylenediamines-----	44,560	32,486	29,531	.91
All other amino antioxidants, antiozonants, and stabilizers-----	51,984	43,782	23,206	.53
Phenolic and phosphite antioxidants and stabilizers, total-----	31,066	23,023	16,848	.73
Phenol, alkylated-----	9,953	6,282	3,402	.54
Polyphenolics (including bisphenols)-----	8,188	7,095	8,273	1.17
All other phenolic and phosphite antioxidants and stabilizers-----	12,925	9,646	5,173	.54
Blowing agents-----	3,237	3,364	5,156	1.53
Peptizers-----	5,731	5,309	3,236	.61
All other cyclic rubber-processing chemicals <sup>2</sup> -----	2,927	2,304	1,430	.62
RUBBER-PROCESSING CHEMICALS, ACYCLIC				
Total-----	43,994	30,878	15,477	.50
Accelerators, activators, and vulcanizing agents, total---	21,493	15,316	9,285	.61
Dithiocarbamic acid derivatives, total <sup>3</sup> -----	6,796	5,880	4,508	.77
Dibutyldithiocarbamic acid, sodium salt-----	919	...	...	...
Dibutyldithiocarbamic acid, zinc salt-----	1,555	1,417	1,392	.98
Diethyldithiocarbamic acid, zinc salt-----	1,135	913	537	.59
Dimethyldithiocarbamic acid, zinc salt-----	1,644	1,588	752	.47
All other dithiocarbamic acid derivatives-----	1,543	1,962	1,827	.93
Thiurams, total <sup>4</sup> -----	14,310	9,184	4,474	.49
Bis(diethylthiocarbamoyl) disulfide-----	3,157	685	405	.59
Bis(dimethylthiocarbamoyl) disulfide-----	8,681	6,704	2,736	.41
Bis(dimethylthiocarbamoyl) sulfide-----	2,251	1,571	1,220	.78
All other thiurams-----	221	224	113	.50
All other accelerators, activators, and vulcanizing agents-----	387	252	303	1.20
Dimethyldithiocarbamic acid, sodium salt-----	5,483	1,651	784	.47
Dodecyl mercaptans-----	12,659	11,248	4,205	.37
All other acyclic rubber-processing chemicals <sup>5</sup> -----	4,359	2,663	1,203	.45

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

<sup>2</sup> Includes retarders, tackifiers, and physical-property improvers.

<sup>3</sup> Data on dithiocarbamates included in this table are for materials used chiefly in the processing of natural and synthetic rubbers. Data on dithiocarbamates which are used chiefly as fungicides are included in table 20A, "Pesticides and Related Products".

<sup>4</sup> Includes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural and synthetic rubbers.

<sup>5</sup> Includes blowing agents, polymerization regulators, shortstops, and conditioning and lubricating agents.

were 80.4 million pounds, valued at \$55.6 million; sales of phenolic and phosphite antioxidants were 23.0 million pounds, valued at \$16.8 million.

Production of acyclic rubber-processing chemicals in 1967 amounted to 44.0 million pounds, an increase of 4.5 percent over the 42.1 million pounds reported for 1966. Sales in 1967 totaled 30.9 million pounds, valued at \$15.5 million, compared with 26.5 million pounds, valued at \$14.6 million, in 1966. Accelerators, principally dithiocarbamic acid derivatives and tetramethylthiuram sulfides, accounted for 48.9 percent of the output of acyclic rubber-processing chemicals for 1967. Dodecyl mercaptans accounted for 28.8 percent. Blowing agents, modifiers, shortstops, and lubricating and conditioning agents accounted for the remainder of the output of acyclic compounds.

### Elastomers (Synthetic Rubbers)

Elastomers are a group of high polymeric materials which have properties similar to those found in natural rubber. The term "elastomers", as used in this report, is specifically defined as substances in bale, crumb, powder, latex, and other crude forms, which can be vulcanized or similarly processed into materials that can be stretched to at least twice their original length and, after having been so stretched and the stress removed, will return with force to approximately their original length. Statistics on production and sales of elastomers are given in table 17A.<sup>9</sup>

The total domestic output of all types of synthetic elastomers in 1967 was 3,823 million pounds, compared with 3,929 million pounds reported for 1966. Sales of these elastomers amounted to 3,262 million pounds, valued at \$874 million, in 1967, compared with 3,411 million pounds, valued at \$918 million, in 1966.

Production of cyclic elastomers in 1967 amounted to 2,298 million pounds, compared with 2,482 million pounds in 1966. Sales of cyclic elastomers in 1967 were 1,940 million pounds, valued at \$440 million, compared with 2,108 million pounds, valued at \$463 million, in the

TABLE 17A. --Elastomers (synthetic rubbers):<sup>1</sup> U.S. production and sales, 1967

[Listed below are all elastomers (synthetic rubbers) for which reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 17B in pt. III lists all elastomers for which data on production or sales were reported and identifies the manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value <sup>2</sup>
Grand total-----	1,000 pounds 3,822,545	1,000 pounds 3,262,044	1,000 dollars 874,237	Per pound \$0.27
ELASTOMERS, CYCLIC				
Total-----	2,297,637	1,940,099	439,580	.23
Polybutadiene-styrene type (S-type) <sup>3</sup> -----	2,263,337	<sup>4</sup> 1,918,267	422,065	.22
Polybutadiene-styrene-vinylpyridine type-----	21,185	10,353	6,040	.58
Polyurethane type-----	13,115	11,479	11,475	1.00
ELASTOMERS, ACYCLIC				
Total-----	1,524,908	1,321,945	434,657	.33
Polybutadiene-acrylonitrile type (N-type)-----	138,290	128,953	59,789	.46
Polyisobutylene-isoprene type (Butyl)-----	255,117	...	...	...
Silicone elastomers-----	9,518	8,447	28,384	3.36
Stereo elastomers, total-----	688,609	533,004	109,535	.21
Stereo polybutadiene-----	451,503	354,544	68,067	.19
All other stereo elastomers-----	237,106	178,460	41,468	.23
All other acyclic elastomers <sup>5</sup> -----	* 433,374	651,541	236,949	.36

<sup>1</sup> The term *elastomers* is defined as substances in bale, crumb, powder, latex, and other crude forms which can be vulcanized or similarly processed into materials that can be stretched at 68° F. to at least twice their original length and, after having been so stretched and the stress removed, will return with force to approximately their original length. <sup>2</sup> Calculated from rounded figures. <sup>3</sup> Elastomer-content basis. <sup>4</sup> Partly estimated. <sup>5</sup> Includes data for polyacrylate, polyalkylene sulfide, polychloroprene, polyisobutylene and other elastomers, and for sales of polyisobutylene-isoprene elastomers.

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

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

previous year. Of the total U.S. production of cyclic elastomers in 1967, the polybutadiene-styrene type (including vinylpyridine) accounted for 2,285 million pounds, and the polyurethane type for 13 million pounds.

The U.S. production of acyclic elastomers in 1967 was 1,525 million pounds, compared with 1,447 million pounds in 1966. Sales of these products in 1967 amounted to 1,322 million pounds, valued at \$435 million. Of the 1967 production of acyclic elastomers, stereo elastomers were produced in the largest amount (689 million pounds), followed by the polyisobutylene-isoprene type (255 million pounds), and the polybutadiene-acrylonitrile type (N-type) (138 million pounds). The stereo elastomers are composed principally of polybutadiene, polyisoprene, and ethylene-propylene rubber. Production of silicone elastomers in 1967 was 9.5 million pounds and of other acyclic elastomers was 433 million pounds. The latter figure includes polyacrylate, polyalkalene sulfide, polychloroprene, polyisobutylene, and types of other elastomers of lesser importance.

### 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

TABLE 18A.--Plasticizers.<sup>1</sup> U.S. production and sales, 1967

[Listed below are all plasticizers for which reported data may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 18B in pt. III lists all plasticizers for which data on production or sales were reported and identifies the manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>2</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	1,262,779	1,161,851	260,969	\$0.22
PLASTICIZERS, CYCLIC				
Total-----	929,871	865,084	167,827	.19
Phosphoric acid esters:				
Cresyl diphenyl phosphate-----	18,229	18,483	5,190	.28
Tricresyl phosphate-----	42,885	40,335	12,679	.31
Triphenyl phosphate-----	8,741	...	...	...
Phthalic anhydride esters, total-----	783,876	733,620	125,240	.17
Butyl octyl phthalates (including butyl 2-ethylhexyl phthalate)-----	16,482	15,678	2,761	.18
Dibutyl phthalate-----	25,238	22,801	4,310	.19
Dicyclohexyl phthalate-----	4,981	...	...	...
Diethyl phthalate-----	20,830	16,262	3,033	.19
Diisodecyl phthalate-----	123,133	109,852	18,011	.16
Di(2-methoxyethyl) phthalate-----	6,754	5,504	1,495	.27
Dimethyl phthalate-----	4,549	4,059	829	.20
Dioctyl phthalates, total-----	405,414	387,059	60,843	.16
Di(2-ethylhexyl) phthalate-----	293,243	277,741	43,107	.16
Diiso-octyl phthalate-----	98,066	97,308	15,646	.16
Mixed dioctyl phthalates (including dicapryl phthalate and dioctyl isophthalates)-----	14,105	12,010	2,090	.17
Di-tridecyl phthalate-----	18,209	18,399	4,333	.24
Glycolate phthalate esters-----	4,939	4,637	1,819	.39
n-Octyl n-decyl phthalate-----	40,721	33,229	6,190	.19
All other phthalic anhydride esters-----	112,626	116,140	21,616	.19
Trimellitic acid esters, total-----	6,252	5,693	2,544	.45
Trioctyl trimellitate-----	2,180	2,050	860	.42
All other trimellitic acid esters-----	4,072	3,643	1,684	.46
All other cyclic plasticizers <sup>3</sup> -----	69,888	66,953	22,174	.33

See footnotes at end of table.

TABLE 18A.--Plasticizers:<sup>1</sup> U.S. production and sales, 1967--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>2</sup>
PLASTICIZERS, ACYCLIC				
Total-----	1,000 pounds 332,908	1,000 pounds 296,767	1,000 dollars 93,142	Per pound \$0.31
Adipic acid esters, total-----	65,694	57,628	15,812	.27
Di(2-(2-butoxyethoxy)ethyl) adipate-----	1,610	1,554	734	.47
Di(2-ethylhexyl) adipate-----	31,496	24,834	6,054	.24
Diisodecyl adipate-----	10,871	9,879	2,670	.27
n-Octyl n-decyl adipate-----	8,911	9,002	2,193	.24
All other-----	12,806	12,359	4,161	.34
Azelaic acid esters-----	17,543	17,419	4,966	.29
Complex linear polyesters and polymeric plasticizer <sup>4</sup> -----	44,954	43,256	16,386	.38
Epoxidized esters, total-----	91,517	83,247	22,261	.27
Epoxidized soya oils-----	62,164	56,422	14,960	.26
2-Ethylhexyl epoxytallates-----	...	9,666	2,369	.24
Octyl epoxytallates-----	15,074	14,010	3,631	.26
All other-----	14,279	3,149	1,301	.41
Isopropyl myristate-----	1,051	1,400	606	.43
Isopropyl palmitate-----	720	811	305	.38
Oleic acid esters, total-----	11,008	8,414	2,063	.25
Butyl oleate-----	2,716	1,801	389	.22
Glyceryl trioleate (Triolein)-----	...	2,797	668	.24
Methyl oleate-----	2,410	...	...	...
Propyl oleates (including normal and iso)-----	1,189	852	183	.21
All other-----	4,693	2,964	823	.28
Phosphoric acid esters-----	18,069	15,446	6,558	.42
Ricinoleic acid esters:				
Butyl ricinoleate-----	987	...	...	...
Glyceryl monoricinoleate-----	214	209	84	.40
Sebacic acid esters:				
Dibutyl sebacate-----	4,684	3,306	1,959	.59
Di(2-ethylhexyl) sebacate-----	6,914	6,299	3,124	.50
Stearic acid esters, total-----	7,313	6,603	1,662	.25
n-Butyl stearate-----	3,893	3,337	793	.24
All other-----	3,420	3,266	869	.27
Triethylene glycol di(caprylate-caprate)-----	1,144	1,149	415	.36
All other acyclic plasticizers <sup>5</sup> -----	61,096	51,580	16,941	.33

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

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

<sup>3</sup> Includes data for alkylated naphthalene, glycol dibenzoates, hydrogenated terphenyls, phosphate esters (including sales of triphenyl phosphate), toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.

<sup>4</sup> Adipic acid polyesters account for most of the production of complex linear polyesters and polymeric plasticizers.

<sup>5</sup> Includes data for citric and acetylcitric, lauric, myristic, palmitic, pelargonic, ricinoleic, sebacic, and tartaric acid esters, glyceryl and glycol esters, and other acyclic plasticizers.

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

temperatures and pressures. They also impart flexibility and other desirable properties to the finished product. Statistics on production and sales of plasticizers are given in table 18A<sup>10</sup>.

Total U.S. production of plasticizers in 1967 amounted to 1,263 million pounds--representing an increase of 4.4 percent over the output of 1,209 million pounds reported for 1966. Sales in 1967 of the plasticizers covered by this report amounted to 1,162 million pounds, valued at \$261 million, compared with 1,156 million pounds, valued at \$246 million in 1966--increases of 0.5 percent in quantity and 6.1 percent in value.

Production of cyclic plasticizers in 1967, which consisted chiefly of the esters of phthalic anhydride and phosphoric acid, amounted to 930 million pounds, compared with 897 million pounds in 1966.

Sales of cyclic plasticizers in 1967 amounted to 865 million pounds, valued at \$168 million, compared with 873 million pounds, valued at \$157 million, in the previous year. This represents a decrease in sales quantity of 0.9 percent, and an increase in sales value of 7.0 percent.

Production of acyclic plasticizers in 1967 amounted 333 million pounds, compared with 312 million pounds in 1966. Sales of acyclic plasticizers in 1967 amounted to 297 million pounds, valued at \$93 million, compared with 283 million pounds, valued at \$89 million, in 1966. Production of complex linear polyesters in 1967 amounted to 45 million pounds, and that of epoxidized esters, to 92 million pounds. Among the other products included in the acyclic class are the esters of adipic, azelaic, oleic, sebacic, and stearic acids.

### Surface-Active Agents

The surface-active agents included in this report are organic chemicals that reduce the surface tension of water or other solvents and are used chiefly as detergents, dispersing agents, emulsifiers, foaming agents, or wetting agents in either aqueous or nonaqueous systems. Waxes and products used chiefly as plasticizers are excluded. Surface-active agents are produced from natural fats and oils; from silvichemicals such as lignin, rosin, and tall oil; and from chemical intermediates derived from coal-tar and petroleum. A major part of the output of the bulk chemicals shown in this report is consumed in the form of packaged soaps and detergents for household and industrial use. The remainder is used in the processing of textiles and leather, in ore flotation and oil-drilling operations, and in the manufacture of agricultural sprays, cosmetics, elastomers, foods, lubricants, paints, pharmaceuticals, and many other products.

TABLE 19A. --Surface-active agents: U.S. production and sales, 1967

[Listed below are all surface-active agents for which reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 19B in pt. III lists all surface-active agents for which data on production or sales were reported and identifies the manufacturer of each].

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	3,479,295	1,750,024	316,687	\$0.18
Benzenoid <sup>4</sup> -----	964,779	414,179	79,144	.19
Nonbenzenoid <sup>5</sup> -----	2,514,516	1,335,845	237,543	.18
Amphoteric Surface-Active Agents -----	6,639	6,510	4,014	.62
Anionic Surface-Active Agents -----				
Total-----	2,614,456	1,087,783	148,950	.14
Carboxylic acids (and salts thereof), total-----	1,044,035	...	...	...
Amine salts of fatty, rosin, and tall oil acids-----	923	346	147	.42
Carboxylic acids having amide, ester, or ether link- ages, total-----	22,476	6,283	4,006	.64
N-Lauroylsarcosine, sodium salt-----	3,079	...	...	...
All other-----	19,397	6,283	4,006	.64
Potassium and sodium salts of fatty, rosin, and tall oil acids, total-----	1,020,636	...	...	...
Coconut oil acids, potassium and sodium salts-----	127,098	2,804	1,146	.41
Corn oil acids, potassium salt-----	452	456	151	.33
Corn oil acids, sodium salt-----	725	720	214	.30
Mixed vegetable fatty acids, potassium salt-----	2,859	2,702	2,077	.77
Oleic acid, potassium salt-----	1,149	476	110	.23
Oleic acid, sodium salt-----	1,806	1,535	303	.20
Stearic acid, potassium and sodium salts-----	3,183	681	245	.36
Tall oil acids, potassium and sodium salts, total----	21,700	13,327	2,754	.21
Potassium salt-----	11,734	...	...	...
Sodium salt-----	9,966	...	...	...
Tallow acids, potassium salt-----	45,174	...	...	...
Tallow acids, sodium salt-----	533,126	27,095	3,606	.13
All other-----	283,364	...	...	...

See footnotes at end of table.

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

TABLE 19A. --Surface-active agents: U.S. production and sales, 1967--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
<i>Anionic Surface-Active Agents--Continued</i>				
Phosphoric and polyphosphoric acid esters (and salts thereof), total-----	15,110	12,306	6,446	\$0.52
Alcohols and phenols, ethoxylated and phosphated, total	9,183	7,854	3,725	.47
Mixed linear alcohols, ethoxylated and phosphated----	449	386	116	.30
Nonylphenol, ethoxylated and phosphated-----	3,418	2,442	850	.35
Tridecyl alcohol, ethoxylated and phosphated-----	392	368	157	.43
All other-----	4,924	4,658	2,602	.56
Alcohols, phosphated or polyphosphated, total-----	5,927	4,452	2,721	.61
2-Ethylhexyl phosphate, sodium salt-----	164	124	37	.30
Octyl phosphates-----	2,720	2,607	1,494	.57
All other-----	3,043	1,721	1,190	.69
Sulfonic acids (and salts thereof), total-----	...	664,117	63,174	.10
Alkylbenzenesulfonates, total-----	651,492	139,229	23,809	.17
Dodecylbenzenesulfonates, total-----	537,541	128,218	22,229	.17
Dodecylbenzenesulfonic acid-----	101,877	31,994	4,426	.14
Dodecylbenzenesulfonic acid, calcium salt-----	9,724	6,840	2,572	.38
Dodecylbenzenesulfonic acid, isopropanolamine salt--	423	...	...	...
Dodecylbenzenesulfonic acid, isopropylamine salt----	2,507	2,985	901	.30
Dodecylbenzenesulfonic acid, sodium salt-----	416,982	81,781	13,044	.16
Dodecylbenzenesulfonic acid, triethanolamine salt---	3,568	3,038	825	.27
All other-----	2,460	1,580	461	.29
Other alkylbenzenesulfonates, total-----	113,951	11,011	1,580	.14
Tridecylbenzenesulfonic acid-----	703	444	56	.13
All other-----	113,248	10,567	1,524	.14
Benzene-, cumene-, toluene-, and xylenesulfonates, total	59,096	53,462	4,765	.09
Xylenesulfonic acid, ammonium salt-----	11,325	13,277	1,017	.08
Xylenesulfonic acid, sodium salt-----	26,841	15,522	1,512	.10
All other-----	20,930	24,663	2,236	.09
Ligninsulfonates, total-----	453,665	438,059	16,666	.04
Ligninsulfonic acid, calcium salt-----	284,246	268,713	6,661	.02
Ligninsulfonic acid, chromium salt-----	19,975	20,267	1,850	.09
Ligninsulfonic acid, sodium salt-----	45,378	45,417	3,604	.08
All other-----	104,066	103,662	4,551	.04
Naphthalenesulfonates, total-----	10,615	7,027	2,729	.39
Butylnaphthalenesulfonic acid, sodium salt-----	201	176	43	.24
Diisopropyl-naphthalenesulfonic acid and sodium salt---	482	441	256	.58
All other-----	9,932	6,410	2,430	.38
Sulfonic acids having amide linkages, total-----	4,762	3,953	2,393	.61
N-Methyl-N-oleoyltaurine, sodium salt-----	2,587	2,675	1,449	.54
Sulfosuccinamic acid derivatives-----	1,030	775	642	.83
All other-----	1,145	503	302	.60
Sulfosuccinic acid esters, total-----	8,035	7,641	4,092	.54
Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt-----	5,350	5,124	2,845	.56
All other-----	2,685	2,517	1,247	.50
All other sulfonic acids-----	...	14,746	8,720	.59
Sulfuric acid esters (and salts thereof):				
Acids, amides, and esters, sulfated, total-----	23,469	15,768	4,347	.28
Coconut oil acids - ethanolamine condensate, sulfated, potassium salt-----	...	20	23	1.15
Esters of sulfated oleic acid, total-----	7,861	4,960	1,394	.28
Butyl oleate, sulfated, sodium salt-----	4,164	2,658	646	.24
Isopropyl oleate, sulfated, sodium salt-----	391	348	125	.36
Propyl oleate, sulfated, sodium salt-----	538	524	188	.36
All other-----	2,768	1,430	435	.30
Oleic acid, sulfated, disodium salt-----	9,712	...	...	...
Tall oil, sulfated, sodium salt-----	841	772	183	.24
All other-----	5,055	10,016	2,747	.27

See footnotes at end of table.



TABLE 19A. -- Surface-active agents: U.S. production and sales, 1967--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
<i>Anionic Surface-Active Agents--Continued</i>				
Sulfuric acid esters (and salts thereof)--Continued	1,000 pounds	1,000 pounds	Per pound	1,000 dollars
Alcohols and phenols, sulfated, total-----	...	29,990	12,981	\$0.43
Coconut and sperm oil alkyl sulfate, sodium salt-----	908	821	426	.52
Dodecyl sulfate salts, total-----	42,048	...	...	...
Dodecyl sulfate, ammonium salt-----	2,407	...	...	...
Dodecyl sulfate, magnesium salt-----	246	...	...	...
Dodecyl sulfate, sodium salt-----	16,410	...	...	...
Dodecyl sulfate, triethanolamine salt-----	8,931	...	...	...
All other-----	14,054	...	...	...
Hexadecyl sulfate, sodium salt-----	117	122	68	.56
Mixed linear alcohol sulfate salts-----	967	986	189	.19
Octadecyl sulfate salts-----	...	264	173	.66
All other-----	...	27,797	12,125	.44
Ethers, sulfated, total-----	132,758	...	...	...
Alkylphenols, ethoxylated and sulfated-----	3,696	3,416	1,133	.33
Dodecyl alcohol, ethoxylated and sulfated, ammonium salt-----	1,139	...	...	...
Dodecyl alcohol, ethoxylated and sulfated, sodium salt-----	3,423	1,304	669	.51
Mixed linear alcohols, ethoxylated and sulfated, sodium salt-----	2,770	2,407	504	.21
Tridecyl alcohol, ethoxylated and sulfated, sodium salt-----	832	832	287	.34
All other-----	120,898	...	...	...
Natural fats and oils, sulfated, total-----	32,296	19,928	3,857	.19
Animal (including fish) oils, sulfated, total-----	20,669	14,678	2,186	.15
Cod oil, sulfated, sodium salt-----	1,940	1,592	215	.14
Neat's-foot oil, sulfated, sodium salt-----	1,172	473	97	.20
Sperm oil, sulfated, sodium salt-----	6,510	4,065	672	.17
Tallow, sulfated, sodium salt-----	10,004	7,566	990	.13
All other-----	1,043	982	212	.22
Vegetable oils, sulfated, total-----	11,627	5,250	1,671	.32
Castor oil, sulfated, sodium salt-----	6,998	4,079	1,351	.33
Coconut oil, sulfated, sodium salt-----	2,350	708	167	.24
Ricebran oil, sulfated, sodium salt-----	151	...	...	...
Soybean oil, sulfated, sodium salt-----	257	136	49	.36
All other-----	1,871	327	104	.32
Other anionic surface-active agents <sup>6</sup> -----	135,083	281,290	40,793	.15
<i>Cationic Surface-Active Agents</i>				
Total-----	154,021	122,672	48,017	.39
Amine oxides and oxygen-containing amines (except those having amide linkages), total-----	39,445	17,690	7,445	.42
Acyclic, total-----	32,700	12,571	5,391	.43
(Coconut oil alkyl)amine, ethoxylated-----	2,734	2,720	932	.34
(Mixed alkyl)amine, ethoxylated-----	3,741	...	...	...
(Soybean oil alkyl)amine, ethoxylated-----	936	989	366	.37
(Tallow alkyl)amine, ethoxylated-----	1,342	1,415	785	.55
All other-----	23,947	7,447	3,308	.44
Imidazoline and oxazoline derivatives, total-----	4,040	3,091	1,513	.49
2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline---	175	...	...	...
2-Heptadecyl-1-(2-hydroxyethyl)-2-imidazoline-----	155	...	...	...
All other-----	3,700	3,091	1,513	.49
Cyclic products (except imidazoline and oxazoline derivatives), total-----	2,705	2,028	541	.27
Rosin amine, ethoxylated-----	1,037	...	...	...
All other-----	1,668	2,028	541	.27

See footnotes at end of table.

TABLE 19A. --Surface-active agents: U.S. production and sales, 1967--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
<i>Cationic Surface-Active Agents--Continued</i>				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Amines and amine oxides having amide linkages, total-----	13,975	12,776	5,912	\$0.46
Carboxylic acid - diamine and polyamine condensates, total-----	8,092	9,211	3,079	.33
Coconut oil acids - diethylenetriamine condensate-----	...	95	50	.53
Coconut oil acids - N,N-dimethyltrimethylenediamine condensate-----	92	78	35	.45
Stearic acid - diethylenetriamine condensate-----	394	...	...	...
All other-----	7,606	9,038	2,994	.33
Stearic acid - ethylenediamine condensate, mono- ethoxylated-----	2,081	1,112	1,004	.90
Other amines and amine oxides having amide linkages-----	3,802	2,453	1,829	.75
Amines, not containing oxygen (and salts thereof), total--	48,509	42,422	14,418	.34
Amine salts-----	2,907	2,959	1,192	.40
Diamines and polyamines, total-----	11,689	10,241	3,069	.30
N-(Coconut oil alkyl)trimethylenediamine-----	1,105	1,134	525	.46
N-(9-Octadecenyl)trimethylenediamine-----	1,611	1,525	569	.37
N-(Tallow alkyl)trimethylenediamine-----	3,625	3,324	1,010	.30
All other-----	5,348	4,258	965	.23
Primary monoamines, total-----	21,633	19,601	6,443	.33
(Coconut oil alkyl)amine-----	1,687	1,432	667	.47
(Hydrogenated tallow alkyl)amine <sup>7</sup> -----	2,583	2,727	766	.28
9-Octadecenylamine-----	1,588	...	...	...
Octadecylamine-----	695	731	319	.44
(Tall oil alkyl)amine-----	...	47	19	.40
(Tallow alkyl)amine-----	5,165	4,625	1,127	.24
All other-----	9,915	10,039	3,545	.35
Secondary and tertiary monoamines, total-----	12,280	9,621	3,714	.39
N,N-Dimethyl(coconut oil alkyl)amine-----	2,045	2,072	835	.40
N,N-Dimethyloctadecylamine-----	300	301	157	.52
N-Methylbis(hydrogenated tallow alkyl)amine-----	...	2,762	743	.27
All other-----	9,935	4,486	1,979	.44
Oxygen-containing quaternary ammonium salts (except those having amide linkages), total-----	2,792	2,172	1,992	.92
Acyclic-----	1,196	947	571	.60
Cyclic-----	1,596	1,225	1,421	1.16
Quaternary ammonium salts having amide linkages-----	4,726	4,383	1,939	.44
Quaternary ammonium salts, not containing oxygen, total---	44,574	43,229	16,311	.38
Acyclic, total-----	34,885	34,565	10,347	.30
Bis(coconut oil alkyl)dimethylammonium chloride-----	1,149	1,178	414	.35
Bis(hydrogenated tallow alkyl)dimethylammonium chloride-----	20,675	20,577	4,879	.24
(Coconut oil alkyl)trimethylammonium chloride-----	...	96	64	.67
Hexadecyltrimethylammonium salts-----	668	554	380	.69
All other-----	12,393	12,160	4,610	.38
Benzenoid, total-----	9,689	8,664	5,964	.69
Benzyl(coconut oil alkyl)dimethylammonium chloride---	288	290	254	.88
Benzyltrimethyl(mixed alkyl)ammonium chloride-----	4,078	4,040	2,939	.73
Benzyltrimethylammonium chloride-----	568	546	366	.67
(3,4-Dichlorobenzyl)dodecyltrimethylammonium chloride--	42	29	21	.72
All other-----	4,713	3,759	2,384	.63
<i>Nonionic Surface-Active Agents</i>				
Total-----	704,179	533,059	115,706	.22
Carboxylic acid amides, total <sup>8</sup> -----	91,545	58,036	14,843	.26
Carboxylic acid - alkanolamine condensates, total-----	91,151	57,669	14,663	.25
Diethanolamine condensates (amine/acid ratio=2/1), total-----	26,945	19,199	5,522	.29
Capric acid-----	106	...	...	...
Coconut oil acids-----	12,821	9,905	3,056	.31

See footnotes at end of table.

TABLE 19A. -- Surface-active agents: U.S. production and sales, 1967--Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
<i>Nonionic Surface-Active Agents--Continued</i>				
Carboxylic acid amides--Continued				
Carboxylic acid - alkanolamine condensates--Continued				
Diethanolamine condensates (amine/acid ratio = 2/1)--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Coconut oil and tallow acids-----	...	1,622	195	\$0.12
Lauric acid-----	6,926	4,340	1,205	.28
Oleic acid-----	1,465	1,237	372	.30
Stearic acid-----	692	509	200	.39
Tall oil acids-----	423	...	...	...
All other-----	4,512	1,586	494	.31
Diethanolamine condensates (other amine/acid ratios), total-----	38,116	...	...	...
Coconut oil acids (amine/acid ratio=1/1)-----	18,384	17,015	4,240	.25
Lauric acid (amine/acid ratio=1/1)-----	15,315	...	...	...
Oleic acid (amine/acid ratio=1/1)-----	525	455	294	.65
Stearic acid (amine/acid ratio=1/1)-----	788	763	325	.43
All other-----	3,104	...	...	...
Ethanolamine condensates, total-----	21,838	...	...	...
Lauric acid (amine/acid ratio=2/1)-----	37	23	9	.39
All other-----	21,801	...	...	...
Isopropanolamine condensates, total-----	4,252	...	...	...
Lauric acid-----	...	194	64	.33
All other-----	4,252	...	...	...
Groups listed above for which separate sales data may not be shown-----	...	20,020	4,209	.21
Carboxylic acid - alkanolamine condensates, ethoxylated-----	394	367	180	.49
Carboxylic acid esters, total-----	163,863	126,498	40,232	.32
Anhydrosorbitol esters, total-----	15,892	10,594	3,950	.37
Anhydrosorbitol monoester of tall oil acids-----	562	...	...	...
Anhydrosorbitol mono-oleate-----	...	3,848	1,465	.38
Anhydrosorbitol monostearate-----	3,798	2,713	918	.34
Anhydrosorbitol trioleate-----	...	596	234	.39
Anhydrosorbitol tristearate-----	...	111	39	.35
All other-----	11,532	3,326	1,294	.39
Ethoxylated anhydrosorbitol esters, total-----	17,688	14,365	5,928	.41
Ethoxylated anhydrosorbitol monolaurate-----	...	3,380	1,412	.42
Ethoxylated anhydrosorbitol mono-oleate-----	6,679	...	...	...
Ethoxylated anhydrosorbitol monopalmitate-----	...	382	171	.45
Ethoxylated anhydrosorbitol monostearate-----	3,689	3,033	1,261	.42
Ethoxylated anhydrosorbitol trioleate-----	...	578	239	.41
Ethoxylated anhydrosorbitol tristearate-----	814	1,278	522	.41
All other-----	6,506	5,714	2,323	.41
Ethylene glycol and diethylene glycol esters, total-----	4,780	4,477	1,379	.31
Diethylene glycol monolaurate-----	289	310	107	.35
Diethylene glycol mono-oleate-----	109	108	31	.29
Diethylene glycol monostearate-----	756	579	161	.28
Ethylene glycol monostearate-----	965	853	329	.39
All other-----	2,661	2,627	751	.29
Glycerol esters, total-----	73,750	59,543	17,209	.29
Complex glycerol esters-----	4,306	3,273	1,360	.42
Glycerol esters of chemically defined acids, total-----	17,013	12,092	4,689	.39
Glycerol monolaurate-----	66	62	21	.34
Glycerol mono-oleate-----	2,523	2,319	842	.36
Glycerol monostearate <sup>9</sup> -----	13,287	8,713	3,341	.38
All other-----	1,137	998	485	.49
Glycerol esters of mixed acids, total-----	52,431	44,178	11,160	.25
Glycerol monoester of hydrogenated soybean oil acids-----	7,644	5,977	1,521	.25
All other-----	44,787	38,201	9,639	.25
Natural fats and oils, ethoxylated, total-----	4,836	3,775	1,291	.34
Castor oil, ethoxylated-----	4,319	3,498	1,169	.33
Lanolin, ethoxylated-----	207	...	...	...
All other-----	310	277	122	.44

See footnotes at end of table.

TABLE 19A. -- Surface-active agents: U.S. production and sales, 1967 --Continued

Chemical	Production <sup>1</sup>	Sales <sup>2</sup>		
		Quantity <sup>1</sup>	Value	Unit value <sup>3</sup>
<i>Nonionic Surface-Active Agents--Continued</i>				
Carboxylic acid esters--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Polyethylene glycol esters, total-----	32,980	22,238	6,659	\$0.30
Polyethylene glycol esters of chemically defined acids, total-----	23,039	13,002	4,845	.37
Polyethylene glycol dilaurate-----	752	692	231	.33
Polyethylene glycol dioleate-----	3,104	819	273	.33
Polyethylene glycol distearate-----	300	292	102	.35
Polyethylene glycol monolaurate-----	5,134	2,373	931	.39
Polyethylene glycol mono-oleate-----	3,713	2,906	1,010	.35
Polyethylene glycol monostearate-----	9,308	5,801	2,246	.39
All other-----	728	119	52	.44
Polyethylene glycol esters of rosin and tall oil acids, total-----	8,517	8,073	1,362	.17
Polyethylene glycol sesquiester of tall oil acids---	8,107	7,681	1,229	.16
All other-----	410	392	133	.34
Polyethylene glycol esters of other mixed acids, total-	1,424	1,163	452	.39
Polyethylene glycol sesquiester of coconut oil acids-	474	407	86	.21
All other-----	950	756	366	.48
Polyglycerol esters-----	631	312	149	.48
Propanediol esters, total-----	5,039	3,474	951	.27
1,2-Propanediol monostearate-----	3,836	2,280	549	.24
All other-----	1,203	1,194	402	.34
Other carboxylic acid esters-----	8,267	7,720	2,716	.35
Ethers, total-----	443,741	343,767	58,432	.17
Benzenoid ethers, total-----	210,912	185,759	31,631	.17
Dodecylphenol, ethoxylated-----	13,609	13,320	1,943	.15
Iso-octylphenol, ethoxylated-----	1,584	1,001	241	.24
Nonylphenol, ethoxylated-----	111,680	99,337	14,579	.15
Phenol, ethoxylated-----	8,042	...	...	...
All other-----	75,997	72,101	14,868	.21
Nonbenzenoid ethers, total-----	232,829	158,008	26,801	.17
Linear alcohols, alkoxyated, total-----	186,887	118,684	17,235	.15
Decyl alcohol, ethoxylated-----	1,046	...	...	...
Dodecyl alcohol, ethoxylated-----	...	2,041	883	.43
Hexadecyl alcohol, ethoxylated-----	378	389	219	.56
Mixed linear alcohols, ethoxylated-----	124,281	109,051	13,325	.12
Mixed linear alcohols, ethoxylated and propoxylated--	...	2,494	453	.18
9-Octadecenyl alcohol, ethoxylated-----	3,607	2,560	1,336	.52
Octadecyl alcohol, ethoxylated-----	431	207	194	.94
All other-----	57,144	1,942	825	.42
Other ethers and thioethers, total-----	45,942	39,324	9,566	.24
Tridecyl alcohol, ethoxylated-----	6,851	5,943	1,354	.23
All other-----	39,091	33,381	8,212	.25
Other nonionic surface-active agents-----	5,030	4,758	2,199	.46

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

<sup>2</sup> Sales include products sold as bulk surface-active agents only.

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

<sup>4</sup> The term "benzenoid," as used in this report, describes any surface-active agent, except lignin derivatives, whose molecular structure includes 1 or more 6-membered carbocyclic or heterocyclic rings with conjugated double bonds (e.g., the benzene ring or the pyridine ring).

<sup>5</sup> Includes the ligninsulfonates, which were classed as benzenoid in 1965 and earlier years.

<sup>6</sup> Includes production of "all other" sulfonic acids and of "all other" sulfated alcohols and phenols; also includes sales of "all other" potassium and sodium salts of fatty, rosin, and tall oil acids and of "all other" sulfated ethers.

<sup>7</sup> Production and sales of (hydrogenated tallow alkyl)amine were overstated in 1965 and 1966 because of erroneous reporting by one producer.

<sup>8</sup> The nonionic carboxylic acid - diamine and polyamine condensates, formerly reported under this heading, have been transferred to the section on Miscellaneous Chemicals.

<sup>9</sup> Some products previously reported as glycerol monostearate are now reported as glycerol esters of mixed acids.

Table 19A shows statistics for production and sales of surface-active agents grouped by ionic class and by chemical class and subclass.<sup>11</sup> All quantities are reported in terms of 100-percent organic surface-active ingredient and thus exclude all inorganic salts, water, and other diluents. Sales statistics reflect sales of bulk surface-active agents only; sales of formulated products are excluded.

Total U.S. production of surface-active agents in 1967 amounted to 3,479 million pounds, or 4.8 percent more than the 3,321 million pounds reported for 1966 and 9.7 percent more than the 3,170 million pounds reported for 1965. Sales of bulk surface-active agents in 1967 amounted to 1,750 million pounds, valued at \$317 million, compared with sales in 1966 of 1,766 million pounds, valued at \$315 million. Sales in 1967 were thus 0.9 percent smaller than in 1966 in terms of quantity but were 0.6 percent larger in terms of value.

Production of anionic surface-active agents in 1967 amounted to 2,614 million pounds, or 75.1 percent of the total reported for 1967 and 5.9 percent more than the anionic output reported for 1966. Sales of anionics in 1967 amounted to 1,088 million pounds, valued at \$149 million. Of the total anionic output, 1,021 million pounds consisted of potassium and sodium salts of fatty, rosin, and tall oil acids, of which 533 million pounds was the sodium salt of tallow acids; 651 million pounds consisted of alkylbenzenesulfonates, of which 417 million pounds was the sodium salt of dodecylbenzenesulfonic acid and 102 million pounds was the free acid; and 454 million pounds consisted of ligninsulfonic acid salts, of which 284 million pounds was the calcium salt and 45 million pounds was the sodium salt.

Production of nonionic surface-active agents in 1967 amounted to 704 million pounds, or 20.2 percent of the total reported for 1967 and 2.7 percent more than the nonionic output reported for 1966. Sales of nonionics in 1967 amounted to 533 million pounds, valued at \$116 million. Of the total nonionic output, 211 million pounds consisted of alkylphenol ethoxylates and other benzenoid ethers, of which 112 million pounds was nonylphenol ethoxylate; 233 million pounds consisted of alcohol ethoxylates and other nonbenzenoid ethers, of which 124 million pounds was mixed linear alcohol ethoxylate; 91 million pounds consisted of alkanolamides, of which 18 million pounds was coco diethanolamide (made with a 1/1 ratio of diethanolamine to coconut oil acids); 15 million pounds was lauric diethanolamide (1/1 ratio); and 13 million pounds was coco diethanolamide (2/1 ratio); and 74 million pounds consisted of glycerol esters, of which 13 million pounds was glycerol monostearate.

Production of cationic surface-active agents in 1967 amounted to 154 million pounds, or 4.4 percent of the total reported for 1967 and 4.8 percent less than the cationic output reported for 1966. Sales of cationics in 1967 amounted to 123 million pounds, valued at \$48 million. Of the total output of cationics, 45 million pounds consisted of quaternary ammonium salts not containing oxygen, of which 21 million pounds was bis(hydrogenated tallow alkyl)dimethylammonium chloride; and 22 million pounds consisted of primary monoamines not containing oxygen.

Production of amphoteric surface-active agents in 1967 amounted to 6.6 million pounds, or approximately 0.2 percent of the total reported for 1967 and 31.4 percent more than the amphoteric output reported for 1966. Sales in 1967 amounted to 6.5 million pounds, valued at \$4.0 million.

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

### Pesticides and Related Products

This section of the report covers pesticides (fungicides, herbicides, insecticides, and rodenticides) and related products such as plant hormones, seed disinfectants, soil conditioners, soil fumigants and synergists. The data are given in terms of 100-percent active material; they thus exclude such materials as diluents, emulsifiers, and wetting agents. Statistics on production and sales of pesticides and related products in 1967 are given in table 20A.<sup>12</sup>

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

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

TABLE 20A.--Pesticides and related products: U.S. production and sales, 1967

[Listed below are all pesticides and related products for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 20B in pt. III lists all pesticides and related products for which data on production or sales were reported and identifies the manufacturer of each]

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
Grand total-----	1,000 pounds 1,049,663	1,000 pounds 897,363	1,000 dollars 787,043	Per pound \$0.88
PESTICIDES AND RELATED PRODUCTS, CYCLIC				
Total-----	823,158	681,532	627,742	.92
Fungicides, total-----	103,891	80,885	29,651	.37
3,5-Dimethyl-1,3,5,2H-tetrahydrothiadiazine-2-thione (DMTT)-----	1,046	1,035	548	.53
Mercury fungicides, total-----	1,430	1,196	6,098	5.10
Phenylmercuric acetate (PMA)-----	518	341	2,477	7.26
Other mercury fungicides-----	912	855	3,621	4.24
Naphthenic acid, copper salt-----	3,473	3,385	996	.29
Pentachlorophenol (PCP)-----	44,239	37,959	6,430	.17
8-Quinolinol (8-Hydroxyquinoline), copper salt-----	193	194	472	2.43
2,4,5-Trichlorophenol and salts-----	25,254	...	...	...
All other cyclic fungicides <sup>2</sup> -----	28,256	37,116	15,107	.41
Herbicides and plant hormones, total-----	366,298	248,892	385,523	1.55
Dinitrobutylphenol, ammonium salt-----	58	66	119	1.80
1-Naphthaleneacetic acid and esters and salts-----	28	30	128	4.27
Phenoxyacetic acid derivatives:				
2,4-Dichlorophenoxyacetic acid (2,4-D)-----	77,139	34,021	10,854	.32
2,4-Dichlorophenoxyacetic acid esters and salts, total-----	83,750	64,595	28,824	.45
2,4-Dichlorophenoxyacetic acid, n-butyl ester-----	25,402	19,559	11,292	.58
2,4-Dichlorophenoxyacetic acid, dimethylamine salt-----	19,139	15,631	6,534	.42
2,4-Dichlorophenoxyacetic acid, iso-octyl ester-----	9,804	10,065	3,905	.39
2,4-Dichlorophenoxyacetic acid, isopropyl ester-----	3,836	3,070	1,098	.36
All other (2,4-D) esters and salts-----	25,569	16,270	5,995	.38
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)-----	14,552	1,670	2,095	1.25
2,4,5-Trichlorophenoxyacetic acid esters and salts, total-----	27,189	25,699	20,565	.80
2,4,5-Trichlorophenoxyacetic acid, n-butyl ester-----	19,422	19,021	12,937	.68
2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester-----	4,653	4,759	5,532	1.16
All other (2,4,5-T) esters and salts-----	3,114	1,919	2,096	1.09
All other cyclic herbicides and plant hormones <sup>3</sup> -----	163,582	122,811	322,938	2.63
Insecticides and rodenticides, total-----	352,969	351,755	212,568	.60
Aldrin-toxaphene group <sup>4</sup> -----	120,183	134,318	71,492	.53
$\alpha$ -Bis(p-chlorophenyl)- $\beta,\beta,\beta$ -trichloroethane (DDT)-----	103,411	88,701	13,696	.15
Hexachlorocyclohexane (Benzene hexachloride)-----	...	6,042	1,148	.19
Organophosphorus insecticides, total-----	63,924	62,730	71,190	1.13
O,O-Diethyl O-p-nitrophenyl phosphorothioate (Parathion)	11,361	14,573	8,217	.56
O,O-Dimethyl O-p-nitrophenyl phosphorothioate (Methyl parathion)-----	33,344	31,919	19,803	.62
All other organophosphorus insecticides <sup>5</sup> -----	19,219	16,238	43,170	2.66
All other insecticides and rodenticides <sup>6</sup> -----	65,451	59,964	55,042	.92
PESTICIDES AND RELATED PRODUCTS ACYCLIC				
Total-----	226,505	215,831	159,301	.74
Fungicides, total-----	40,521	39,528	26,682	.68
Dimethyldithiocarbamic acid, ferric salt (Ferbam)-----	2,331	2,002	882	.44
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)-	1,361	2,196	921	.42
Ethylene bis(dithiocarbamic acid), zinc salt (Zineb)-----	3,055	3,528	1,527	.43
All other acyclic fungicides <sup>7</sup> -----	33,774	31,802	23,352	.73
Herbicides and plant hormones <sup>8</sup> -----	43,149	38,690	44,457	1.15

See footnotes at end of table.

TABLE 20A.--Pesticides and related products: U.S. production and sales, 1967--Continued

Product	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Insecticides, rodenticides, and soil conditioners and fumigants, total-----	142,835	137,613	88,162	\$0.64
1,2-Dibromo-3-chloropropane (DBCP)-----	5,240	4,358	2,122	.49
Methyl bromide (Bromoethane)-----	19,665	17,206	6,766	.39
All other acyclic insecticides (including acyclic organophosphorus insecticides), rodenticides, and soil conditioners and fumigants <sup>9 10</sup> -----	117,930	116,049	79,274	.68

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

<sup>2</sup> Includes captan, dinocap, folpet, glyodin, pentachloronitrobenzene, sodium pentachlorophenate, tri- and tetrachlorophenols, and others.

<sup>3</sup> Includes barban, 2-chloro-N-isopropyl acetanilide, dicamba, dimethylurea compounds, dinitrophenol compounds, endothal, isopropyl phenylcarbamates (IPC and CIPC), maleic hydrazide, picloram, propanil, triazines, trifluralin, uracils, and others.

<sup>4</sup> Includes aldrin, chlordan, dieldrin, endrin, heptachlor, terpene polychlorinates, and toxaphene.

<sup>5</sup> Includes carbophenothion, coumaphos, diazinon, dioxathion, ronnel, and other phosphorothioates and phosphorodithioates, and others.

<sup>6</sup> Includes chlorobenzilate, DDD, dicofol, endosulfan, methoxychlor, and other chlorinated insecticides, carbaryl, insect attractants, DEET and other insect repellents, hexachlorocyclohexane (production only), lindane (production and sales), small amounts of rodenticides, synergists, and others.

<sup>7</sup> Includes dithiocarbamates, including dodine, maneb, mercury compounds, PETD, and others.

<sup>8</sup> Includes CDAA, dalapon, methanearsonic acid's disodium salt and sodium salt, thiocarbamate, thiolcarbamate, and organophosphorus herbicides, sodium TCA, and others.

<sup>9</sup> Includes DDVP, disulfoton, ethion, malathion, naled, phorate, TEPP, and other organophosphorus insecticides, soil conditioners and fumigants, metaldehyde (which is a molluscicide), small quantities of rodenticides, and others.

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

Production of pesticides and related products in 1967 amounted to 1,050 million pounds--about 4 percent more than the 1,013 million pounds reported for 1966. Sales in 1967 were 897 million pounds, valued at \$787 million, compared with 822 million pounds, valued at \$584 million, in 1966.

The output of cyclic pesticides and related products included in the cyclic group amounted to 823 million pounds in 1967--about 6 percent more than the 777 million pounds produced in 1966. Sales in 1967 were 682 million pounds, valued at \$628 million, compared with 605 million pounds, valued at \$447 million, in 1966.

Production of acyclic pesticides and related products declined in 1967, amounting to 227 million pounds, compared with the 236 million pounds reported for 1966. Sales in 1967 were 216 million pounds, a slight decline as compared with 217 million pounds, in 1966; however, the value of sales increased to \$159 million in 1967, compared with \$137 million in 1966.

### Miscellaneous Chemicals

The term miscellaneous chemicals comprises those synthetic organic products that are not included in the use groups covered in the preceding sections of the report. They include products that are employed in a great variety of uses, the number of chemicals used exclusively for only one purpose is not large. Among the products covered are those used for gasoline and lubricating oil additives, paintdriers, photographic chemicals, tanning materials, flotation reagents, refrigerants, textile polymers, sequestering agents, organic fertilizers, antifreeze chemicals, solvents, and acyclic intermediates. Statistics on production and sales of miscellaneous chemicals in 1967 are given in table 21A.<sup>13</sup>

Production of miscellaneous cyclic and acyclic chemicals in 1967 totaled 59.7 billion pounds, or 4 percent more than the output of 57.3 billion pounds reported for 1966. Sales of miscellaneous chemicals in 1967 amounted to 26.0 billion pounds, valued at \$3.5 billion, compared with 24.5 billion pounds, valued at \$3.2 billion, in 1966.

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

Table 21A.--Miscellaneous chemicals: U.S. production and sales, 1967

[Listed below are all miscellaneous chemicals for which any reported data on production or sales may be published. (Leaders are used where the reported data are accepted in confidence and may not be published or where no data were reported.) Table 21B in pt. III lists alphabetically all miscellaneous chemicals for which data on production or sales were reported and identifies the manufacturer of each.]

Chemical	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Grand total-----	59,695,693	26,001,171	3,475,694	\$0.13
MISCELLANEOUS CHEMICALS, CYCLIC				
Total-----	1,535,922	775,540	283,575	.37
Benzoic acid salts: Sodium benzoate, tech. and U.S.P.-----	15,923	12,649	3,869	.31
Benzoyl peroxide-----	5,929	5,700	5,726	1.00
Butyl benzoate-----	1,842	1,313	357	.27
4-tert-Butylpyrocatechol-----	...	539	958	1.78
Cyclohexanone peroxide-----	24	24	32	1.33
2,6-Di-tert-butyl-p-cresol:				
Food grade-----	4,152	4,961	3,032	.61
Tech-----	14,508	14,506	8,106	.56
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)-----	545	547	673	1.23
Flotation reagents-----	5,282	...	...	...
Gasoline additives, total <sup>2</sup> -----	12,499	7,734	7,783	1.01
N,N'-Di-sec-butyl-p-phenylenediamine-----	1,902	1,489	1,372	.92
N,N'-Disalicylidene-1,2-propanediamine-----	1,218	...	...	...
All other-----	9,379	6,245	6,411	1.03
Hexamethylenetetramine, tech-----	84,255	69,150	11,470	.17
p-Hydroxybenzoic acid esters:				
Methyl p-hydroxybenzoate-----	693	620	1,000	1.61
Propyl p-hydroxybenzoate-----	202	200	425	2.12
Lubricating oil and grease additives, total-----	406,655	250,091	55,774	.22
Oil-soluble petroleum sulfonate, barium salt-----	25,335	...	...	...
Oil-soluble petroleum sulfonate, calcium salt-----	147,347	65,438	16,006	.24
Oil-soluble petroleum sulfonate, sodium salt-----	96,501	60,497	11,100	.18
All other-----	137,472	124,156	28,668	.23
Morpholine-----	22,913	17,641	7,546	.43
Naphthenic acid salts, total <sup>3 4</sup> -----	21,085	18,967	6,498	.34
Calcium naphthenate-----	1,174	1,220	508	.42
Cobalt naphthenate-----	3,300	2,757	1,845	.67
Iron naphthenate-----	223	115	39	.34
Lead naphthenate-----	13,370	12,239	2,876	.23
Manganese naphthenate-----	1,357	1,146	415	.36
Zinc naphthenate-----	980	930	305	.33
All other-----	681	560	510	.91
Photographic chemicals:				
3-Chloro-4-diethylaminobenzenediazonium salts-----	...	7	36	5.14
2,5-Dibutoxy-4-morpholinobenzenediazonium salts-----	...	3	35	11.67
2,5-Diethoxy-4-morpholinobenzenediazonium salts-----	19	19	198	10.42
p-Diethylaminobenzenediazonium (p-Diazo-N,N-diethylani- line) salts-----	96	91	218	2.40
N,N-Diethyltoluene-2,5-diamine, monohydrochloride-----	307	254	667	2.63
Pinene ( $\alpha$ - and $\beta$ -)-----	114,157	55,896	6,492	.12
Propyl gallate-----	105	...	...	...
Rosin acid salts-----	452	...	...	...

See footnotes at end of table.



TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1967--Continued

Chemicals	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
<b>MISCELLANEOUS CHEMICALS, CYCLIC--Continued</b>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 dollars</i>	<i>Per pound</i>
Tall oil salts, total <sup>3</sup> -----	7,836	7,872	2,485	\$0.32
Calcium tallate-----	709	678	220	.32
Cobalt tallate-----	2,268	2,251	1,080	.48
Lead tallate-----	3,583	3,545	825	.23
Manganese tallate-----	746	826	216	.26
All other-----	530	572	144	.25
Tanning materials, synthetic, total-----	33,820	33,673	7,544	.22
2-Naphthalenesulfonic acid, formaldehyde condensate and salts-----	30,469	30,228	5,806	.19
1-Phenol-2-sulfonic acid, formaldehyde condensate-----	...	2,168	721	.33
All other-----	3,351	1,277	1,017	.80
Textile chemicals, other than surface-active agents-----	1,810	768	888	1.16
All other miscellaneous cyclic chemicals-----	780,813	272,315	151,763	.56
<b>MISCELLANEOUS CHEMICALS, ACYCLIC</b>				
Total-----	58,159,771	25,225,631	3,192,119	.13
<i>Cellulose Esters and Ethers</i>				
Total-----	1,030,138	300,366	120,489	.40
Cellulose esters, total-----	926,222	207,879	69,087	.33
Cellulose acetate-----	743,160	...	...	...
All other-----	183,062	207,879	69,087	.33
Cellulose ethers, total-----	103,916	92,487	51,402	.56
Sodium carboxymethylcellulose, 100%-----	54,750	50,816	21,290	.42
All other-----	49,166	41,671	30,112	.72
<i>Lubricating Oil Additives</i>				
Total-----	417,514	160,848	33,550	.21
Phosphorodithioates (Dithiophosphates)-----	102,001	37,411	10,312	.28
Sulfurized lard oil-----	3,635	2,869	446	.16
All other-----	311,878	120,568	22,792	.19
<i>Nitrogenous Compounds</i>				
Total <sup>5</sup> -----	9,424,828	5,091,940	604,199	.12
Acrylonitrile-----	670,764	270,454	31,875	.12
Amines, total-----	785,135	226,140	61,213	.27
Butylamines:				
n-Butylamine, mono-----	1,142	805	373	.46
Di-n-butylamine-----	2,785	2,038	845	.41
Ethylamines:				
Diethylamine-----	11,759	4,721	1,342	.28
Ethylamines, mono- and tri-----	22,798	18,862	4,019	.21
1,6-Hexanediamine (Hexamethylenediamine)-----	497,900	...	...	...
Methylamines:				
Dimethylamine-----	71,259	35,894	4,763	.13
Monomethylamine-----	17,200	13,640	1,665	.12
Trimethylamine-----	20,407	12,784	1,427	.11
Propylamines:				
Diisopropylamine-----	1,968	1,074	286	.27
Di-n-propylamine-----	7,254	6,595	2,231	.34
Monoisopropylamine-----	17,837	17,170	2,880	.17
All other-----	112,826	112,557	41,382	.37

See footnotes at end of table.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1967--Continued

Chemicals	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Nitrogenous Compounds--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
1,1'-Azobisformamide-----	3,505	2,584	2,973	\$1.15
Caprolactam (2-Oxohexamethylenimine)-----	328,564	164,689	33,677	.20
2-Dimethylaminoethanol-----	1,789	1,771	1,109	.63
Erucamide-----	1,125	866	1,085	1.25
Ethanolamines, total-----	226,818	176,346	27,527	.16
2-Aminoethanol (Monoethanolamine)-----	74,585	59,259	9,903	.17
2,2'-Iminodiethanol (Diethanolamine)-----	85,878	57,978	7,517	.13
2,2',2''-Nitrilotriethanol (Triethanolamine)-----	66,355	59,109	10,107	.17
2-Methylacetonitrile (Acetone cyanohydrin)-----	364,137	...	...	...
Nitriloacids and salts, total-----	58,698	39,282	12,326	.31
(Ethylenedinitrilo)tetraacetic acid-----	...	1,581	795	.50
(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt---	27,529	14,541	4,739	.33
(Ethylenedinitrilo)tetraacetic acid, trisodium salt----	652	600	253	.42
(N-Hydroxyethylethylenedinitrilo)triacetic acid, trisodium salt-----	3,960	3,669	1,410	.38
All other-----	26,557	18,891	5,129	.27
Nylon polymer for fiber-----	1,092,159	...	...	...
Pentaerythritol tetranitrate-----	...	3,025	2,341	.77
Sarcosine and salt-----	2,035	1,569	721	.46
Stearamide-----	821	...	...	...
Urea in compounds or mixtures (100% basis), total-----	6 4,182,447	3,792,606	7 138,282	.04
In feed compounds-----	461,807	465,725	16,237	.03
In liquid fertilizer-----	1,649,577	1,500,032	54,652	.04
In solid fertilizer-----	1,751,132	1,592,491	58,673	.04
All other-----	319,931	234,358	8,720	.04
All other nitrogenous compounds-----	1,706,831	412,608	291,070	.71
Acids, Acyl Halides and Anhydrides				
Total-----	5,209,604	1,028,648	157,051	.15
Acetic acid, synthetic, 100%-----	1,559,991	341,146	23,209	.07
Acetic anhydride, 100%-----	1,556,148	134,416	13,589	.10
Acrylic acid-----	64,710	14,035	3,771	.27
Adipic acid-----	970,927	93,530	17,545	.19
Butyric acid-----	...	935	228	.24
Chloroacetic acid, mono-----	66,359	...	...	...
Decanoyl chloride-----	1,439	...	...	...
Formic acid, 90%-----	26,840	23,142	2,514	.11
Fumaric acid-----	48,015	36,984	4,690	.13
Gluconic acid, tech-----	4,641	4,083	1,214	.30
Lauroyl chloride-----	4,418	...	...	...
Maleic anhydride-----	168,207	114,117	15,116	.13
Palmitoyl chloride-----	360	...	...	...
Propionic acid-----	43,916	22,479	2,311	.10
All other acids, acyl halides and anhydrides-----	693,633	243,781	72,864	.30
Salts of Organic Acids				
Total-----	237,713	188,811	68,206	.36
Acetic acid salts, total-----	27,689	26,695	6,517	.24
Ammonium acetate-----	400	493	189	.38
Sodium acetate-----	14,476	13,695	2,280	.17
Zinc acetate-----	553	609	212	.35
Zirconium acetate-----	189	180	104	.58
All other-----	12,071	11,718	3,732	.32

See footnotes at end of table.





TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1967--Continued

Chemicals	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
Salts of Organic Acids--Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid) salts, total--	4,234	3,117	2,390	\$0.77
Calcium 2-ethylhexanoate-----	...	396	164	.41
Cobalt 2-ethylhexanoate-----	858	735	733	1.00
Lead 2-ethylhexanoate-----	187	221	85	.38
Manganese 2-ethylhexanoate-----	99	69	32	.46
Zinc 2-ethylhexanoate-----	285	297	153	.52
All other-----	2,805	1,399	1,223	.87
Formic acid salts-----	22,508	21,980	1,160	.05
Gluconic acid, sodium salt, tech-----	12,603	13,249	3,488	.26
Linoleic acid salts: Cobalt linoleate-----	28	30	17	.57
Mercaptoacetic (Thioglycolic) acid, salts-----	2,469	2,259	3,139	1.39
Oleic acid salts <sup>8</sup> -----	464	435	338	.78
Palmitic acid, aluminum salt-----	101	...	...	...
Polyacrylic acid salts-----	2,379	3,324	3,851	1.16
Propionic acid salts:				
Calcium propionate-----	13,521	9,121	1,789	.20
Sodium propionate-----	7,463	...	...	...
Stearic acid salts, total <sup>9</sup> -----	43,902	37,716	11,926	.32
Aluminum stearates, total-----	5,123	4,478	1,637	.37
Aluminum distearate-----	3,793	3,300	1,192	.36
Aluminum monostearate-----	791	670	266	.40
Aluminum tristearate-----	539	508	179	.35
Calcium stearate-----	20,805	19,429	5,080	.26
Lithium stearate-----	...	482	235	.49
Magnesium stearate-----	2,519	2,212	829	.37
Zinc stearate-----	10,148	9,476	3,415	.36
All other-----	5,307	1,639	730	.45
All other salts of organic acids-----	100,352	70,885	33,591	.47
Aldehydes and Ketones				
Total-----	8,507,842	3,268,392	192,275	.59
Acetaldehyde-----	1,408,596	...	...	...
Acetone, total-----	1,283,978	827,739	42,858	.05
From isopropyl alcohol-----	792,168	414,598	22,491	.05
All other-----	491,810	413,141	20,367	.05
2-Butanone (Methyl ethyl ketone)-----	400,424	381,782	40,608	.11
Chloral (Trichloroacetaldehyde)-----	54,401	...	...	...
Formaldehyde (37% by weight)-----	3,707,093	1,289,720	33,633	.03
4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	...	31,643	3,970	.13
4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	199,274	155,294	19,662	.13
All other aldehydes and ketones-----	1,454,076	582,214	51,544	.09
Alcohols, Monohydric, Unsubstituted				
Total-----	9,418,590	4,410,569	293,073	.07
Alcohols, C <sub>9</sub> or lower, unmixed, total-----	8,819,204	4,010,461	242,352	.06
Butyl alcohols:				
n-Butyl alcohol (n-Propylcarbinol)-----	424,644	257,522	27,225	.11
Isobutyl alcohol (Isopropylcarbinol)-----	93,078	73,718	5,455	.07
Ethyl alcohol, synthetic <sup>10</sup> -----	1,918,558	1,135,482	69,025	.06
2-Ethyl-1-hexanol-----	351,976	156,674	20,258	.13
Hexyl alcohol-----	15,612	3,728	527	.14
Hexynol-----	35	...	...	...
Iso-octyl alcohols-----	122,189	108,620	13,290	.12
Isopropyl alcohol-----	2,069,215	739,176	45,238	.06

See footnotes at end of table.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1967--Continued

Chemicals	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
<i>Alcohols, Monohydric, Unsubstituted--Continued</i>				
Alcohols, C <sub>9</sub> or lower, unmixed--Continued	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Methanol, synthetic-----	3,432,078	1,393,984	43,589	\$0.03
1-(and 2-)Octanol-----	14,629	6,040	1,189	.20
All other-----	377,190	135,517	16,556	.12
Alcohols, C <sub>10</sub> and higher, unmixed, total-----	205,358	123,017	19,560	.16
Decyl alcohols-----	137,411	77,354	9,456	.12
1-Hexadecanol (Cetyl alcohol)-----	1,414	1,696	438	.26
All other-----	66,533	43,967	9,666	.22
Mixtures of alcohols, total-----	394,028	277,091	31,161	.11
C <sub>9</sub> and lower, only-----	61,248	...	...	...
C <sub>10</sub> and higher, only-----	230,953	...	...	...
C <sub>6</sub> to C <sub>12</sub> and others-----	101,827	...	...	...
<i>Polyhydric Alcohols and Their Esters and Ethers</i>				
Total-----	4,313,541	3,105,423	399,387	.13
Polyhydric alcohols, total-----	2,889,029	2,037,761	224,607	.11
Ethylene glycol-----	1,988,769	1,305,151	98,345	.08
Pentaerythritol-----	85,717	70,950	15,964	.22
Propylene glycol (1,2-Propanediol)-----	302,528	276,143	26,529	.10
Sorbitol-----	74,642	63,295	12,567	.20
All other-----	437,373	322,222	71,202	.22
Polyhydric alcohol esters-----	154,903	155,181	33,037	.21
Polyhydric alcohol ethers, total-----	1,269,609	912,481	141,743	.16
2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	79,062	71,923	12,245	.17
Diethylene glycol-----	180,353	121,713	11,496	.09
Dipropylene glycol-----	31,276	27,611	3,218	.12
2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	...	51,401	8,264	.16
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether)-----	39,216	24,399	4,167	.17
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether)-----	...	4,271	508	.12
2-Methoxyethanol (Ethylene glycol monomethyl ether)-----	109,932	82,890	13,500	.16
2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether)-----	18,043	7,387	1,148	.16
Polyethylene glycol-----	38,401	35,477	8,636	.24
Polypropoxy ethers, total-----	328,517	242,414	36,659	.15
Glycerol tri(polyoxypropylene) ether-----	184,002	146,324	21,203	.14
All other-----	144,515	96,090	15,456	.16
Polypropylene glycol-----	135,060	118,475	17,924	.15
Triethylene glycol-----	65,121	53,232	9,362	.18
All other ethers of polyhydric alcohols-----	243,728	71,288	14,616	.20
<i>Esters of Monohydric Alcohols</i>				
Total-----	1,877,551	910,741	157,756	.17
Butyl acetates, total-----	119,559	115,329	12,126	.11
n-Butyl acetate, unmixed-----	64,647	66,158	7,344	.11
All other-----	54,912	49,171	4,782	.10
Butyl acrylate-----	31,945	21,820	4,721	.22
Dibutyl fumarate-----	4,327	3,716	702	.19
Dibutyl maleate-----	10,493	5,876	1,125	.19
Dilauryl 3,3'-thiodipropionate-----	1,160	1,167	1,145	.98
Dioctyl maleate-----	2,221	1,961	409	.21

See footnotes at end of table.

TABLE 21A.--Miscellaneous chemicals: U.S. production and sales, 1967--Continued

Chemicals	Production	Sales		
		Quantity	Value	Unit value <sup>1</sup>
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued				
<i>Esters of Monohydric Alcohols</i> —Continued				
	1,000 pounds	1,000 pounds	1,000 dollars	Per pound
Distearyl 3,3'-thiodipropionate-----	405	438	490	\$1.12
Ethyl acetate, 85%-----	137,026	131,393	12,527	.10
Ethyl acrylate-----	140,937	49,761	10,494	.21
Ethyl chloroacetate-----	...	163	71	.44
Isobutyl acrylate-----	2,229	...	...	...
Iso-octyl mercaptoacetate-----	2,608	2,331	1,492	.64
Isopropyl acetate-----	41,929	41,433	4,538	.11
Methyl esters of tallow-----	627	623	80	.13
Methyl methacrylate-----	302,277	...	...	...
Phosphorus acid esters, not elsewhere specified-----	52,437	35,391	13,948	.39
Vinyl acetate-----	602,765	230,827	25,776	.11
All other-----	424,606	268,512	68,112	.25
<i>Halogenated Hydrocarbons</i>				
Total-----	12,019,632	4,748,895	555,600	.12
2-Bromopentane (1-Methylbutyl bromide)-----	259	...	...	...
Carbon tetrachloride-----	713,599	605,563	37,256	.06
Chlorinated paraffins-----	56,693	54,596	6,787	.12
Chlorodifluoromethane-----	...	58,506	35,989	.62
Chloroethane (Ethyl chloride)-----	618,183	284,644	19,166	.07
Chloroform-----	190,886	135,771	10,108	.07
Chloromethane (Methyl chloride)-----	275,617	118,031	7,970	.07
Dichlorodifluoromethane-----	309,668	289,905	78,901	.27
1,2-Dichloroethane (Ethylene dichloride)-----	3,970,756	324,031	12,636	.04
Dichloromethane (Methylene chloride)-----	262,285	226,913	20,037	.09
1,2-Dichloropropane (Propylene dichloride)-----	86,275	28,843	740	.03
Dichlorotetrafluoroethane-----	...	21,965	11,981	.55
Iodomethane (Methyl iodide)-----	11	9	30	3.33
Tetrachloroethylene (Perchloroethylene)-----	532,980	468,663	35,864	.08
1,1,1-Trichloroethane (Methylchloroform)-----	...	269,702	30,614	.11
Trichloroethylene-----	489,964	472,723	38,762	.08
Trichlorofluoromethane-----	182,216	155,233	29,433	.19
Vinyl chloride, monomer (Chloroethylene)-----	2,423,572	951,695	50,172	.05
All other halogenated hydrocarbons-----	1,906,668	282,102	129,154	.46
<i>All Other Miscellaneous Acyclic Chemicals</i>				
Total-----	5,702,818	2,010,998	610,533	.30
2-Butanone peroxide-----	1,921	1,860	2,746	1.48
tert-Butyl peroxide (Di-tert-butyl peroxide)-----	1,436	1,270	1,427	1.12
Carbon disulfide-----	693,638	519,974	20,414	.04
Decanoyl peroxide-----	928	940	1,208	1.29
<i>Epoxides, ethers, and acetals:</i>				
Ethylene oxide-----	2,307,831	301,705	26,931	.09
Ethyl ether, all grades-----	90,081	75,967	5,901	.08
Isopropyl ether-----	...	5,411	468	.09
Methyl ether (Dimethyl ether)-----	12,714	...	...	...
Propylene oxide-----	813,967	75,847	7,247	.10
Lauroyl peroxide-----	2,195	2,375	2,317	.98
Organo-silicon polymers-----	32,329	28,818	63,271	2.20
Phosgene (Carbonyl chloride)-----	372,043	12,357	1,387	.11
Sodium formaldehyde sulfoxylate-----	4,277	4,397	1,052	.24
Sodium methoxide (Sodium methylate)-----	4,917	4,304	1,321	.31
Tetraethyllead-----	554,759	528,568	278,671	.53
Tetramethyllead <sup>11</sup> -----	94,971	97,587	44,420	.46
Tetra(methyl-ethyl)leads-----	203,706	197,923	103,270	.52
Zinc formaldehyde sulfoxylate-----	1,166	1,170	577	.49
All other-----	509,939	150,525	47,905	.32

See footnotes on following page.

## Footnotes for table 21A

- <sup>1</sup> Calculated from rounded figures.
- <sup>2</sup> Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are given in the section "Plasticizers."
- <sup>3</sup> Quantities are given on the basis of solid naphthenate, tallate, or linoleate content.
- <sup>4</sup> Statistics exclude production and sales of copper naphthenate. Statistics on copper naphthenate are given in the section "Pesticides and Related Products."
- <sup>5</sup> Statistics exclude production and sales of fatty amines. Statistics on fatty amines are given in the section "Surface-Active Agents."
- <sup>6</sup> Production of urea in primary solution totaled 4,359,500 thousand pounds.
- <sup>7</sup> Includes estimated values for sales of urea in nitrogen compounds.
- <sup>8</sup> Statistics exclude production and sales of potassium and sodium oleate. Statistics on these oleates are included in the section "Surface-Active Agents."
- <sup>9</sup> Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearates are included in the section "Surface-Active Agents."
- <sup>10</sup> Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Alcohol Tax Unit, U.S. Internal Revenue Service.
- <sup>11</sup> Includes production and sales for use in synthesis of tetra(methyl-ethyl)leads.

The total output of miscellaneous cyclic chemicals in 1967 was 1.5 billion pounds, or 12 percent more than the output of 1.4 billion pounds reported for 1966. Sales in 1967 totaled 776 million pounds, valued at \$284 million, compared with 739 million pounds, valued at \$271 million, in 1966. In 1967 the most important groups of cyclic compounds were the lubricating oil additives, the output of which was 407 million pounds, and synthetic tanning materials, the output of which was 34 million pounds.

Total production of miscellaneous acyclic chemicals in 1967 was 58.2 billion pounds, or 4 percent more than the output of 55.9 billion pounds reported for 1966. Sales in 1967 totaled 25.2 billion pounds, valued at \$3.2 billion, compared with 23.8 billion pounds, valued at \$2.9 billion, in 1966. The statistics for acyclic chemicals were regrouped in 1966 primarily by chemical function. The order of precedence of these functional groups is generally that used in naming and indexing chemical compounds by *Chemical Abstracts*, but other important considerations are comparability with statistics for earlier years and the need for groupings that will not reveal the operations of individual producers. Some of the groupings, by use, found in earlier reports have been omitted for 1967, as such groupings are difficult to maintain due to the variety of uses and frequent shifts in principal usage for many important items.

In 1967, the most important groups of acyclic chemicals were the halogenated hydrocarbons, the nitrogenous compounds, monohydric alcohols, and aldehydes and ketones. Production of halogenated hydrocarbons, which are used as solvents, intermediates, refrigerants, and aerosol propellants, totaled 12.0 billion pounds. The most important chemicals in this group were dichloroethane (production of 4.0 billion pounds in 1967 compared with 3.6 billion pounds in 1966) and vinyl chloride (2.4 billion pounds compared with 2.5 billion pounds). Output of nitrogenous compounds totaled 9.4 billion pounds. The most important chemical in this group was urea (used principally in fertilizers and as a feed additive), production of which was 4.2 billion pounds in 1967 compared with 3.4 billion pounds in 1966.

Monohydric alcohols, which are used largely as solvents and intermediates, were the third largest group in 1967, with production of 9.4 billion pounds. The most important items in this group, in terms of production were synthetic methanol (3.4 billion pounds in 1967 compared with 3.3 billion pounds in 1966), synthetic ethyl alcohol (1.9 billion pounds in 1967, the same as in 1966), and isopropyl alcohol (2.1 billion pounds in 1967, compared with 1.7 billion pounds in 1966). Aldehydes and ketones, which are also used largely as solvents and intermediates, were the next largest group, with production of 8.5 billion pounds. The most important items in this group in 1967 were formaldehyde (3.7 billion pounds), acetaldehyde (1.4 billion pounds), and acetone (1.3 billion pounds).



### PART III. 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 and 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 the individual items in each group for which data on production or sales were reported for 1967. The tables include data on only those chemicals for which the volume of production or sales in 1967 exceeded 1,000 pounds or for which the value of sales exceeded \$1,000. Where separate statistics for an item are given in the tables in part I or part II, an asterisk (\*) precedes the name of the item in the tables in part III. The manufacturers of each product are indicated by identification codes which are listed in the Directory of Manufacturers (table 22). A few companies, however, have specifically requested that they not be identified as having produced or sold certain items. These manufacturers are indicated by a small letter "x" in the tables.

#### Tar Crudes

**TABLE 4B.--Tar crudes for which U.S. production or sales were reported, identified by manufacturer, 1967**

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

Product	Manufacturers' identification codes (according to list in table 22)
*Crude light oil <sup>1</sup> -----	CBT. <sup>2</sup>
Light-oil distillates:	
*Benzene, specification and industrial grades <sup>1 3</sup> -----	ACY, KPP.
*Toluene, specification and other grades <sup>1 3</sup> -----	ACY, KPP.
*Xylene, all grades <sup>1 3</sup> -----	ACY, KPP.
*Solvent naphtha <sup>1</sup> -----	ACY, NEV, PAI.
*All other light-oil distillates <sup>1</sup> -----	ACP, PAI.
Pyridine crude bases <sup>1</sup> -----	ACP, KPT.
*Naphthalene, crude, solidifying at--	
*Less than 74° C <sup>1</sup> -----	COP.
*74° C. to less than 79° C: <sup>1</sup>	
74° C. to less than 76° C-----	KPT.
76° C. to less than 79° C-----	ACP, KPT, PRD, RIL.
*Crude tar-acid oils: <sup>1</sup>	
Tar-acid content 5% to less than 24% <sup>3</sup> -----	ACP, COP, KPT, RIL.
Tar-acid content 24% to 51% <sup>3</sup> -----	ACP, RIL.
Cresylic acid, crude-----	ACP, KPT, PRD.
*Creosote oil (Dead oil):	
*Distillate as such <sup>1</sup> -----	ACP, CBT, COP, HUS, KPT, RIL, WTC.
*Creosote in coal-tar solution <sup>1</sup> -----	ACP, JEN, KPT, RIL.
*All other distillate products <sup>1</sup> -----	ACP, KPT, PAI.
*Tar, road-----	ACP, KPT, RIL, WTC.
*Tar for other uses:	
Crude-----	KPT, RIL.
Refined-----	ACP, KPT, RIL.
Pitch of tar:	
Soft and medium (water softening points less than 110° F., and 110° F. to 160° F.). <sup>1</sup>	ACP, CBT, COP, KPT, RIL.
*Hard (water softening point above 160° F.) <sup>1</sup> -----	ACP, HUS, JEN, KPT, RIL.
Pitch-of-tar coke and pitch emulsion-----	JEN, RIL.

<sup>1</sup> Does not include manufacturers' identification codes for producers that report to the Division of Bituminous Coal, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Mineral Industry Survey, February 4, 1969, entitled "Coke Producers in the U.S. in 1967."

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

<sup>3</sup> Statistics on production or sales of these items by tar distillers could not be published separately or in any meaningful combination without disclosing the operations of individual companies.

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

TABLE 5B.--Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1967

[Crude products from petroleum and natural gas for chemical conversion for which separate statistics are given in table 5A are marked below with an asterisk (\*); products not so marked do not appear in table 5A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
AROMATICS AND NAPHTHENES	
*Benzene (except motor grade):	
*Benzene, 1°-----	ACU, APR, ASH, ATR, CCP, CO, COR, CSD, CSP, DLH, DXS, ENJ, GOC, GRS, MOC, MON, PLC, SHO, SKO, SM, SNT, SOG, SUN, TOC, TX, UOC, VEL, VPT.
*Benzene, 2°-----	ACC, DOW, SHO, SOC, UCC.
Cresylic acid, crude-----	PRD, SHO.
*Naphthalene, all grades-----	ASH, COL, MON, SUN, TID.
*Naphthenic acids:	
Acid number lower than 150-----	ATR, SUN.
*Acid number 150-199-----	ATR, PRD, SOC, SUN.
Acid number 200-224-----	ATR, PRD, SOC.
Acid number 225-249-----	PRD, SOC, TX.
Sodium carbolate and phenate, crude-----	ATR, GOC, SIN.
*Toluene:	
*Nitration grade, 1°-----	ASH, ATR, COR, CSD, DLH, DXS, ENJ, GOC, MOC, MON, PLC, SHO, SIN, SNT, SOG, SUN, TOC, TX, UCC, UOC, VEL, VPT.
*Pure commercial grade, 2°-----	ATR, CSP, DOW, ENJ, LEN, MON.
*Solvent grade, 90%-----	CO, FG, SKO.
All other-----	ACC, ATR, COR, CSO, DXS, ELP, GRS, PLC, SHO, SM, SOC, TOC, TX, VPT.
*Xylenes, mixed:	
Aviation grade-----	CSD, CSO, SOG.
*3° grade-----	ATR, COR, DLH, ENJ, MOC, MON, SNT, UOC.
5° grade-----	ASH, SIN, TX.
All other-----	ATR, CCP, CSD, CSO, CSP, ENJ, GRS, LEN, MON, SHO, SM, SOC, SUN, TOC.
*All other aromatics, naphthenes, distillates and solvents.	ACC, DUP, ELP, ENJ, FG, GOC, JCC, LEN, MOC, MON, PLC, SHC, SOC, SOI, TX, USI, VPT.
ALIPHATIC HYDROCARBONS	
C <sub>1</sub> hydrocarbon: Methane-----	CCP, MON, UCC.
*C <sub>2</sub> hydrocarbons:	
*Acetylene-----	DOW, DUP, MNO, MON, UCC, x.
*Ethane-----	ACU, CCP, ENJ, MON, PAN, PLC, SHO, SM, SOI, TX, UCC, USI.
*Ethylene-----	ATR, BFG, CBN, CCP, DOW, DUP, EKX, ELP, ENJ, GOC, JCC, KPP, MON, CMC, PLC, SHC, SM, SNO, TX, UCC, USI.
C <sub>2</sub> and C <sub>3</sub> hydrocarbons, mixed-----	COR, CSO, GYR, MON, PLC, SM.
*C <sub>3</sub> hydrocarbons:	
*Propane-----	AMO, APR, ASH, CCP, CSD, CSO, DXS, ENJ, GOC, GRS, MOC, CMC, PAN, PLC, SHO, SIN, SM, SNT, SOG, SOI, SPI, UCC, UOC, USI.
*Propane-propylene mixture-----	GOC, MOC, TX.
*Propylene-----	AMO, ASH, ATR, BFG, CBN, CCP, CSO, DOW, EKX, ELP, ENJ, GOC, JCC, KPP, MOC, MON, PLC, SHC, SHO, SIN, SIO, SM, SNT, SOG, SOI, SPI, SUN, UCC, UOC.
*C <sub>4</sub> hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)-----	CBN, CPY, DOW, DUP, ELP, ENJ, FRS, GGC, ILC, MON, PLC, PTT, SHC, SHO, SM, SOC, SPI, TID, TUS, UCC.
*Butadiene and butylene fractions-----	DOW, GOC, GYR, KPP, MOC, PLC, PTT, SHO, SIN, SM, SOC, SPI

TABLE 5B.--Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
ALIPHATIC HYDROCARBONS--Continued	
*C <sub>4</sub> hydrocarbons--Continued	
*n-Butane-----	COR, CSD, DXS, GRS, OMC, PAN, PLC, SHO, SM, SNT, SOC, SOG, UCC, USI.
*1-Butene-----	GOC, PLC, PTT.
2-Butene-----	MON, PLC, PTT.
*1-Butene and 2-butene mixture-----	CSO, ENJ, GOC, PLC, PTT, SHO, SOC, SPI, TX, UOC.
*Isobutane-----	DXS, ELP, GRS, OMC, PAN, PLC, SHO, SOI, UCC, USI, x.
*Isobutylene-----	ENJ, PTT, SHC, SIN, UOC.
All other-----	APR, BFG, JCC, MON, PLC, UCC, USI.
*C <sub>5</sub> hydrocarbons:	
Isopentane (2-Methylbutane)-----	PAN, PLC, SHO, SM.
*Isoprene (2-Methyl-1,3-butadiene)-----	ENJ, GYR, MON, SHC.
*n-Pentane-----	APR, ASH, MOC, PLC.
All other-----	ENJ, GYR, MON, PLC, SHC, UCC, USI.
C <sub>6</sub> hydrocarbons:	
*Hexane-----	ATR, ENJ, PLC, SOG, UOC.
Neohexane (2,2-Dimethylbutane)-----	PLC.
All other-----	APR, PLC.
C <sub>7</sub> hydrocarbons:	
n-Heptane-----	EKX, PLC, UOC.
*Heptenes, mixed-----	CSD, ENJ, GOC, HOU, SIN, SOI, TID.
All other-----	PLC.
C <sub>8</sub> hydrocarbons:	
*Diisobutylene (Diisobutene)-----	ATR, PTT, TX.
n-Octane-----	PLC.
2,2,4-Trimethylpentane (Iso-octane)-----	ENJ, GRS, PLC.
All other-----	PLC.
Hydrocarbons, C <sub>9</sub> and above:	
*Nonene (Tripropylene)-----	ATR, ENJ, GOC, UOC.
*Polybutene-----	ACC, CSD, SOC, SOI.
*Tetrapropylene-----	ATR, CO, DXS, ENJ, GOC, MOC, SOC, SUN, TX, UOC.
Tridecene concentrate-----	ENJ.
Triisobutylene-----	ATR.
All other-----	CO, COR, ENJ, GOC, HOU, KEN, PLC, SHC, SOC, SPI, SUN, TID, UCC, x.
*All other aliphatic hydrocarbons and derivatives:	
Hydrocarbons:	
*Alpha olefins--Molecular weight ranges:	
C <sub>6</sub> -C <sub>7</sub> -----	GOC, GYR, PLC, SOC.
C <sub>8</sub> -C <sub>10</sub> -----	GOC, SOC.
C <sub>11</sub> -C <sub>15</sub> -----	ENJ, GOC, SOC.
All other-----	EKX, GOC, KPP, SOC.
*Hydrocarbon derivatives:	
1-Butanethiol-----	PAS.
tert-Butyl-mercaptan (2-Methyl-2-propanethiol)-----	PAS, PLC.
Di-tert-butyl disulfide-----	PAS, PLC.
Ethyl mercaptan (Ethanethiol)-----	PAS, SOC.
Isopropyl mercaptan-----	PAS, SOC.
Methyl mercaptan (Methanethiol)-----	ACC, PAS.
tert-Octyl mercaptan-----	PAS.
n-Propyl mercaptan (1-Propanethiol)-----	PAS.
All other-----	EKX, PAS, PLC, SOC.

## Cyclic Intermediates

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967

[Cyclic intermediates for which separate statistics are given in table 7A are marked with an asterisk (\*); cyclic intermediates not so marked do not appear in table 7A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
Aceanthryleno[2,1-a]aceanthrylene-5,13-dione-----	ICI.
8-Acetamido-1-(4-acetamido-2-hydroxy-5-nitrophenylazo)- 2-naphthol.	TRC.
5-Acetamido-2-aminobenzenesulfonic acid-----	GAF.
3-[(2-Acetamido-4-aminophenyl)azo]-1,5-naphthalenedisul- fonic acid.	TRC.
1-Acetamido-4-bromoanthraquinone-----	AAP.
2-Acetamido-3-chloroanthraquinone-----	ICI.
$\alpha$ -Acetamido-p-toluenesulfonamide-----	SDW.
2,2'-[(5-Acetamido-2-ethoxyphenyl)imino] diethanol-----	AAP.
*Acetanilide, tech-----	CTN, EKT, MRK, SAL, SW.
Acetic acid, phenyl ester-----	UCC.
Acetoacetanilide-----	FMP, UCC.
*o-Acetoacetanilide-----	FMP, SDH, UCC.
o-Acetoacetotoluidide-----	FMP, UCC.
2',4'-Acetoacetoxylidide-----	FMP, UCC.
1'-Acetonaphthone-----	GIV.
Acetone phenylhydrazone-----	DUP.
*Acetophenone, tech-----	ACF, SKO, UCC, UOP.
p-Acetotoluidide-----	ACY.
N-Acetylanthranilic acid-----	DUP.
p-Acetylbenzenesulfonamide-----	LIL.
p-Acetylbenzenesulfonic acid, sodium salt-----	LIL.
p-Acetylbenzenesulfonylurethane-----	LIL.
N-Acetylsulfanilic acid, sodium salt-----	ALL.
N-Acetylsulfanilyl chloride-----	ACY, CTN, MRK, SAL.
Adenine-----	KF.
Adrenosterone-----	UPJ.
*Alkylbenzenes:	
Dodecylbenzene (including tridecylbenzene):	
Straight chain-----	ACS, ATR, CO, MON, PLC, UCC, WCC.
Other-----	ACS, CO, SOC.
Other alkylbenzenes: Straight chain-----	SOC.
Alkylphenols, mixed-----	GAF, ORO.
Alkylpiperazines, mixed-----	HOU.
Alkylpyridine-----	UCC.
[o-(Allylcarbamoyl)phenoxy]acetic acid-----	SDW.
6-Allyl-o-cresol-----	ICO.
$\alpha$ -dl-5-Allyl-6-imino-1-methyl-5-(1-methyl-2-pentynyl)- barbituric acid.	LIL.
Aminoaceanthryleno [2,1-a] aceanthrylene-5,13-dione-----	ICI.
3'-Aminoacetanilide-----	AAP.
*4'-Aminoacetanilide (Acetyl-p-phenylenediamine)-----	AAP, ACS, DUP, GAF, TRC.
3'-Aminoacetophenone-----	CTN, SDH.
*5-Amino-2-(p-aminoanilino)benzenesulfonic acid-----	CMG, GAF, YAW.
1-Amino-4-(3-amino-4-sulfoanilino)-9,10-dihydro-9,10- dioxo-2-anthracenesulfonic acid.	TRC.
1-Amino-4-(4-amino-3-sulfoanilino)-9,10-dihydro-9,10- dioxo-2-anthracenesulfonic acid.	TRC.
*2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid-----	ACS, CMG, TRC.
3-Amino-p-anisanilide-----	PCW.
*1-Aminoanthraquinone and salt-----	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC.
*2-Aminoanthraquinone and salt-----	ACS, ACY, DUP, GAF, TRC.
(and 8)-Amino-1-anthraquinonesulfonic acid-----	ICI.
N-(4-Amino-1-anthraquinonyl)anthranilic acid-----	GAF.
N-(5-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
N-(8-Amino-1-anthraquinonyl)anthranilic acid-----	DUP.
4-Aminoantipyrine-----	SDW.
*6-Amino-3,4'-azodibenzenesulfonic acid (C.I. Acid Yellow 9).	ACS, ACY, CMG, TRC.
p-Aminobenzamide-----	SDH.
*1-Amino-4-benzamidoanthraquinone-----	ACY, MAY, TRC.
*1-Amino-5-benzamidoanthraquinone-----	ACS, GAF, ICI, TRC.
7-[p-(p-Aminobenzamido)benzamido]-4-hydroxy-2-naphtha- lenesulfonic acid.	DUP.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
7-(m-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid---	TRC.
7-(p-Aminobenzamido)-4-hydroxy-2-naphthalenesulfonic acid---	CMG, DUP, GAF.
7-(p-Aminobenzamido)-5-hydroxy-3-naphthalenesulfonic acid---	VPC.
3'-Aminobenzanilide-4'-sulfonic acid-----	TRC.
*2-Amino-p-benzenedisulfonic acid [SO <sub>3</sub> H=1]-----	ACS, DUP, ICC, TRC.
o-Aminobenzenesulfonic acid-----	DUP.
o-Aminobenzenethiol-----	FIS.
2-Aminobenzimidazole-----	EK.
5-Amino-2-benzimidazolinone-----	DUP.
p-Aminobenzoic acid, tech-----	DUP, LEM.
p-Aminobenzoic acid, 2-(dimethylamino)ethyl ester-----	SDW.
2-Amino-6-benzothiazolecarboxylic acid-----	DUP.
p-Amino-N-benzyl-N-ethylbenzenediazonium chlorostannate----	ESA.
p-Amino-N-benzyl-N-ethylbenzenediazonium chlorozincate----	ESA.
N-(4-Amino-3-bromo-1-anthraquinonyl)anthranilic acid-----	TRC.
N-(4-Amino-3-bromo-1-anthraquinonyl)-p-toluidine sulfonic acid.	TRC.
2-Amino-1-bromo-3-chloroanthraquinone-----	ICI.
*1-Amino-4-bromo-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid and sodium salt.	DUP, ICI, TRC.
*1-Amino-2-bromo-4-hydroxyanthraquinone-----	AAP, DUP, GAF, ICC, TRC.
1-Amino-4-bromo-2-methylanthraquinone-----	ICI.
6-Amino-7-bromonaphth[2,3-c]acridan-5,8,14-trione-----	TRC.
*1-Amino-2-bromo-4-p-toluidinoanthraquinone-----	GAF, ICI, TRC.
*1-Amino-5-chloroanthraquinone-----	ACS, ACY, ICI, MAY, TRC.
1-Amino-8-chloroanthraquinone-----	DUP.
2-Amino-1-chloroanthraquinone-----	DUP.
2-Amino-3-chloroanthraquinone-----	GAF, ICI.
4-Amino-6-chloro-m-benzenedisulfonamide-----	ABB.
4-Amino-6-chloro-m-benzenedisulfonamide hydrochloride-----	ABB.
2-Amino-5-chlorobenzophenone-----	LIL.
2-Amino-6-chlorobenzothiazole hydrochloride-----	DUP.
o-(3-Amino-4-chlorobenzoyl)benzoic acid-----	AAP, GAF, ICI.
2-Amino-5-chloro-p-cumenesulfonic acid-----	SW.
2-Amino-5-chloro-4-ethylbenzenesulfonic acid-----	ACY.
3-Amino-5-chloro-2-hydroxybenzenesulfonic acid-----	CMG, TRC.
2-Amino-4-chlorophenol-----	ACS, GAF, MEE.
2-Amino-6-chloropyrazine-----	ACY.
3-Amino-6-chloropyridazine-----	ACY.
2-Amino-5-chloro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACY, HSC, SW.
*6-Amino-4-chloro-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACY, DUP, HSC, SDH, SW.
2-Amino-p-cresol-----	TRC.
*1-Amino-2,4-dibromoanthraquinone-----	AAP, ACS, DUP, GAF, ICC, ICI, TRC.
5(and 8)-Amino-6,8(and 5,7)-dibromo-9,10-dihydro-9,10-dioxo- 1-anthracenesulfonic acid.	ICI.
2-Amino-4,5-dichlorobenzenesulfonic acid-----	SW.
4'-Amino-2',5'-diethoxybenzanilide-----	GAF.
1-Amino-9,10-dihydro-9,10-dioxo-2-anthraic acid-----	DUP.
1-Amino-9,10-dihydro-9,10-dioxo-4-p-toluenesulfonamido-2- anthracenesulfonic acid, sodium salt.	DUP, GAF.
5-Amino-4,5'-dihydroxy-3,4'-[(2-methoxy-5-methyl-p-phenyl- ene)bis(azo)]-di-2,7-naphthalenedisulfonic acid, 5'-benzenesulfonate.	TRC.
2-Amino-4-(α,α-dimethylbenzyl)phenol-----	TRC.
3-Amino-4-ethoxyacetanilide-----	AAP.
3-Amino-9-ethylcarbazole-----	SDC.
3-Amino-α-ethylhydrocinnamic acid-----	SDW.
p-Amino-N-ethyl-N-hydroxyethyl benzenediazonium chloro- zincate.	ESA.
p-Amino-N-ethyl-N-1-naphthylbenzamide-----	GAF.
1-Amino-4-hydroxyanthraquinone-----	DUP, GAF.
2-Amino-3-hydroxyanthraquinone-----	ACS, GAF.
1-Amino-4-hydroxy-2-methoxyanthraquinone-----	TRC.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid, benzene- sulfonate.	TRC.
3-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (2R acid), monosodium salt.	ACS, DUP.
4-Amino-5-hydroxy-1,3-naphthalenedisulfonic acid (Chicago acid), monosodium salt.	ACS, DUP.
4-Amino-5-hydroxy-2,7-naphthalenedisulfonic acid (H acid), monosodium salt.	ACS, DUP, MON.
*4-Amino-3-hydroxy-1-naphthalenesulfonic acid (1,2,4 acid)---	ACS, ACY, GAF, TRC, VPC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
4-Amino-5-hydroxy-1-naphthalenesulfonic acid (S acid), sodium salt.	ACS.
*6-Amino-4-hydroxy-2-naphthalenesulfonic acid (Gamma acid), sodium salt.	ACS, DUP, TRC.
*7-Amino-4-hydroxy-2-naphthalenesulfonic acid (J acid), sodium salt.	ACS, BKS, DUP, TRC.
3'-Amino-2'-hydroxy-5'-nitroacetanilide-----	TRC.
6-Amino-5-[(2-hydroxy-4-nitrophenyl)azo]-2-naphthalenesulfonic acid.	TRC.
2-(2-Amino-5-hydroxy-7-sulfo-1-naphthylazo)-5-nitrobenzoic acid.	TRC.
1-(6-Amino-1-hydroxy-3-sulfo-2-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
5-Aminoisophthalic acid-----	GAF.
4-Amino-3-( $\beta$ -methanesulfanamidoethyl)-N,N-diethylaniline hydrochloride.	EKT.
1-Amino-4-methoxyanthraquinone-----	DUP.
*N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide.	AAP, DUP, GAF.
m-[(4-Amino-3-methoxyphenyl)azo]benzenesulfonic acid-----	DUP, TRC.
8-Amino-6-methoxyquinoline-----	SDW.
4-[(4-Amino-5-methoxy-o-tolyl)azo]-4-hydroxy-2,7-naphthalenedisulfonic acid, benzenesulfonate.	TRC.
3-[(4-Amino-5-methoxy-o-tolyl)azo]-1,5-naphthalenedisulfonic acid.	TRC.
7-[(4-Amino-5-methoxy-o-tolyl)azo]-1,3-naphthalenedisulfonic acid.	TRC.
*4'-Amino-N-methylacetanilide-----	ACS, CMG, GAF.
1-Amino-2-methylanthraquinone-----	DUP, ICI.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
2-Amino-3-methylpyridine-----	RIL.
2-Amino-5-methylpyridine-----	RIL.
2-Amino-6-methylpyridine-----	NEP, RIL.
2-Amino-4-methylpyrimidine (2-Amino-4-methyl-1,3-diazine)--	ACY.
2-Amino-4-(methylsulfonyl)phenol-----	ACS, TRC.
2-Amino-5-methyl-1,3,4-thiadiazole-----	ACY.
1-Amino-2-methyl-4-p-toluidinoanthraquinone-----	ICI.
1-Aminonaphth[2,3-c]acridan-5,8,14-trione-----	DUP.
6-Aminonaphth[2,3-c]acridan-5,8,14-trione-----	GAF.
2-Amino-1,5-naphthalenedisulfonic acid-----	ACY, SDH.
3-Amino-1,5-naphthalenedisulfonic acid (C acid)-----	GAF, TRC.
3-Amino-2,7-naphthalenedisulfonic acid-----	TRC.
4-Amino-1,5-naphthalenedisulfonic acid-----	ACS.
4-Amino-1,6-naphthalenedisulfonic acid-----	DUP.
*6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)-----	ACS, ACY, BKS, DUP, TRC.
*7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)-----	ACS, DUP, TRC.
6-Amino-1-naphthalenesulfonamide-----	VPC.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)----	DUP.
2-Amino-1-naphthalenesulfonic acid (Tobias acid)-----	ACY, SW.
*4-Amino-1-naphthalenesulfonic acid (Naphthionic acid)-----	ACS, ACY, DUP.
4-Amino-1-naphthalenesulfonic acid, sodium salt-----	ACS, DUP.
4 (and 5)-Amino-1-naphthalenesulfonic acid-----	ACY, TRC.
5-Amino-1-naphthalenesulfonic acid (Laurent's acid)-----	ACS, DUP.
*5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)-----	ACS, ALL, DUP, TRC.
*5 (and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed).	ACS, ALL, TRC.
*6-Amino-2-naphthalenesulfonic acid (Broenner's acid)-----	ACS, SNA, TRC.
*8-Amino-1-naphthalenesulfonic acid (Peri acid)-----	ACS, DUP, SDC, TRC.
*8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)-----	ACS, ALL, DUP, TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid-----	DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)----	ACS, DUP.
5 (and 8)-Amino-2-naphthol-----	GAF.
8-Amino-2-naphthol-----	CMG, TRC, VPC.
3-Amino-5-(m-nitrobenzamide)-p-toluenesulfonic acid-----	GAF.
*2-Amino-5-nitrobenzenesulfonic acid [SO <sub>2</sub> H=1]-----	ACS, DUP, GAF, TRC.
*2-Amino-4-nitrophenol-----	ACS, DUP, TRC.
2-Amino-5-nitrophenol-----	MED.
4-Amino-2-nitrophenol-----	ACY.
d-2-Amino-1-(p-nitrophenyl)-1,3-propanediol-----	PD.
l-2-Amino-1-(p-nitrophenyl)-1,3-propanediol-----	PD.
*4-Amino-4'-nitro-2,2'-stilbenedisulfonic acid-----	ACS, GAF, ICI, TRC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Amino-5-nitrothiazole-----	ACY.
3'-Aminooxanilic acid-----	CMG.
4'-Aminooxanilic acid-----	DUP.
5-Amino-2-[(2-oxo-5-benzimidazoliny]amino] benzenesulfonic acid.	DUP.
p-Aminophenethyl alcohol-----	EKT.
5-Amino-2-o-phenetidino benzenesulfonic acid-----	ACS.
o-Aminophenol-----	SDC.
p-Aminophenol-----	DUP, SDC.
m-[(p-Aminophenyl)azo]benzenesulfonic acid-----	DUP, TRC.
*p-[(p-Aminophenyl)azo]benzenesulfonic acid-----	ACS, ACY, CMG, DUP, GAF, TRC.
7-[(4-Aminophenyl)azo]-1,3-naphthalenedisulfonic acid-----	TRC.
8-Amino-5-(phenylazo)-2-naphthol-----	ALL.
5-[(p-Aminophenyl)azo]salicylic acid-----	TRC, VPC.
2,2'-(m-Aminophenylimino)diethanol, diacetate ester-----	DUP.
2-(p-Aminophenyl)-6-methylbenzothiazole-----	ACS, DUP.
2-(p-Aminophenyl)-6-methyl-7-benzothiazolesulfonic acid and salt.	DUP, TRC.
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	TRC, VPC.
l-2-Amino-1-phenyl-1,3-propanediol-----	PD.
3-Aminopyrazole-4-carboxamide sulfate-----	x.
2-Aminopyridine-----	NEP, RIL.
3-Aminopyridine-----	RIL.
4-Aminopyridine-----	NEP, RIL.
2-Aminopyrimidine-----	ACY.
3-Aminoquinoline-----	EK.
5-Aminosalicylic acid-----	AAP.
N-(4-Amino-3-sulfo-1-anthraquinonyl)anthranilic acid-----	GAF.
3'-(3-Amino-4-sulfophenylsulfamoyl)-3''-sulfamoyl-3-phthalocyaninesulfonic acid, copper derivative.	DUP.
1-Amino-2,3,6,7-tetrahydro-4,5,8-trihydroxyanthraquinone---	ACY, MRK.
2-Aminothiazole-----	SDH.
3-Amino-p-toluamide-----	SDW.
α-Amino-p-toluenesulfonamide-----	GAF.
5-Amino-o-toluenesulfonamide-----	ACY, DUP, GAF.
*4-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP, HSC, SNA, SW.
*6-Amino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP, TRC.
5-Amino-2-p-toluidinobenzenesulfonic acid-----	TRC.
m-(4-Amino-m-tolylazo)benzenesulfonic acid-----	TRC.
3-[(4-Amino-o-tolyl)azo]-1,5-naphthalenedisulfonic acid---	TRC.
7-[(4-Amino-o-tolyl)azo]-1,3-naphthalenedisulfonic acid---	GAF.
16-Aminoviolanthrone-----	SDH.
2-Amino-3,5-xylenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP.
5-Amino-2,4-xylenesulfonic acid-----	ARA.
t-Amylcyclopentadienylcyclopentadienyliiron-----	ACS, ACY, DUP, FST, MOB, RUC.
*Aniline (Aniline oil)-----	ACY.
Aniline hydrochloride-----	ACS.
1-Anilino-9,10-dihydro-9,10-dioxo-2-anthraic acid-----	AAP.
1-Anilino-4-hydroxyanthraquinone-----	DUP.
6-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl gamma acid).	ACS, ALT, CMG, DUP, GAF, TRC.
*7-Anilino-4-hydroxy-2-naphthalenesulfonic acid (Phenyl J acid).	AAP, ACS, ACY, ATL, DUP, TRC, VPC.
*Anilinomethanesulfonic acid and salt-----	ACS, CMG, DUP, SDC.
*8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)---	GAF.
m-Anilinophenol-----	SDC.
p-Anilinophenol-----	GAF.
3-Anilinopropionitrile-----	AAP, DUP, MON.
*o-Anisidine-----	DUP, MON.
p-Anisidine-----	AAP.
1-p-Anisidino-4-hydroxyanthraquinone-----	ACS, ATL, DUP, GAF, TRC, VPC.
*o-Anisidinomethanesulfonic acid-----	DUP, LIL.
Anisole, tech-----	ICO.
p-Anisoyl chloride-----	AAP.
4-(o-Anisylazo)-o-anisidine-----	ACP.
Anthracene, refined-----	ACS, DUP, LEM, MEE.
Anthranilic acid (o-Aminobenzoic acid) <sup>1</sup> -----	DUP, GAF, TRC.
*Anthra[1,9-cd]pyrazol-6(2H)-one (Pyrazoleanthrone)-----	ACY, DUP, GAF, TRC.
Anthraquinone, 100%-----	DUP.
1,1'-[1,5(and 1,8)-Anthraquinonylenediamino]bisnaphth[2,3-c]acridan-5,8,14-trione.	GAF, ICI, TRC.
*N,N'-(1,5-Anthraquinonylene)dianthranilic acid-----	

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
N,N'-(1,5-Anthraquinonylene)dioxamic acid----- (1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt.	GAF, MEE. DUP, GAF.
Arsanilic acid and salt, tech-----	ABB, FIM.
Aryldiamines, mixed-----	DA.
4',4'''-Azobis[4-biphenylcarboxylic acid]-----	DUP, GAF, TRC.
3,3'-Azoxydianiline-----	VPC.
Barbituric acid-----	ABB, LIL.
Barbituric acid, sodium derivative-----	ABB, KF.
*Benzaldehyde, tech-----	BPC, HN, VEL.
N-(5-Benzamido-1-anthraquinonyl)-p-toluenesulfonamide-----	ACS, ICI.
1-Benzamido-4-bromoanthraquinone-----	AAP.
1-Benzamido-4-chloroanthraquinone-----	DUP, GAF, TRC.
*1-Benzamido-5-chloroanthraquinone-----	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
1-(4-Benzamido-2,5-diethoxyphenyl)-3-[methyl-3-(2-sulfoethyl) triazene].	GAF.
4-Benzamido-5-hydroxy-2,7-naphthalenedisulfonic acid-----	TRC.
7-Benzamido-4-hydroxy-2-naphthalenesulfonic acid-----	TRC.
N-(4-Benzamido-6-methoxy-m-tolyl)-N-(methylazo)glycine-----	GAF.
Benzanilide-----	DUP.
*7H-Benz[de]anthracen-7-one (Benzanthrone)-----	AAP, ACS, ACY, ATL, CMG, DUP, GAF, ICI, MAY, SDC, TRC.
m-Benzenedisulfonic acid-----	KPT, UPF.
Benzenesulfonamide-----	NES.
Benzenesulfonic acid-----	NES, UPF.
Benzenesulfonyl chloride-----	NES.
1,2,4,5-Benzenetetracarboxylic acid-----	DUP, x.
*1,2,4,5-Benzenetetracarboxylic-1,2:4,5-dianhydride-----	DUP, PCR, x.
1,3,5-Benzenetricarboxylic acid-----	ACC.
1,2,4-Benzenetricarboxylic acid, 1,2-anhydride (Trimellitic anhydride).	ACC.
1,2,4-Benzenetricarboxylic acid, 1,2-anhydride-4-acid chloride.	ICO.
Benzhydrol (Diphenylmethanol)-----	PD, UOP.
Benzidine hydrochloride and sulfate-----	ACS, LAK, x.
Benzil (Bibenzoyl)-----	LEM.
Benzilic acid-----	BPC, LEM.
2-Benzofuranacetone trile-----	EK.
*Benzoic acid, tech <sup>1</sup> -----	HK, HN, MON, PFZ, VEL.
Benzoic acid, hydrazide-----	UPJ.
Benzoic anhydride-----	EK.
Benzoin-----	BPC, LEM.
Benzonitrile-----	VEL.
Benzophenonetetracarboxylic dianhydride-----	GOC.
*2-Benzothiazolethiol (2-Mercaptobenzothiazole), sodium salt.	ACY, GYR, MON, USR.
1H-Benzotriazole-----	MEE.
2H-3,1-Benzoxazine-2,4(1H)-dione-----	MEE.
2-Benzoxazolinone-----	SDC.
Benzoylacetic acid, ethyl ester-----	FMP.
*o-Benzoylbenzoic acid-----	ACY, DUP, GAF.
Benzoyl chloride-----	HK, VEL.
2-Benzoyl-4-sulfobenzoic acid-----	DUP.
2-Benzoyl-4'-(p-toluenesulfonamido)acetanilide-----	EK.
N-Benzylacetamide-----	SDW.
Benzylamine-----	ICO, MLS.
4-(Benzylamino)-6-chloro-m-benzenedisulfonic acid-----	ABB.
2-(Benzylamino)ethanol-----	MLS.
4-Benzyl-6-chloro-3-keto-2-methyl-7-sulfamyl-1,2,4-benzylthiadiazine-1,1-dioxide.	ABB.
4-Benzyl-6-chloro-3-keto-7-sulfamyl-1,2,4-benzylthiadiazine-1,1-dioxide.	ABB.
1-Benzyl-4,5-dimethyl-6-(p-methoxybenzyl)-1,2,3,6-tetrahydropyridine oxalate.	SDW.
Benzyl disulfide-----	CCW.
Benzyl ether (Dibenzyl ether)-----	BPC, UOP.
5-(Benzylethylamino)-o-toluenesulfonic acid-----	ACS.
N-Benzyl-N-ethyl-m-toluidine-----	ACS, DUP.
3-Benzyl-1,2,3,4,5,6-hexahydro-8-hydroxy-cis-6,11-dimethyl-2,6-methano-3-benzazocine hydrobromide.	SDW.
Benzylidene phthalide-----	LIL.
p-(Benzylloxy)phenol-----	EK.
1-Benzyl-4-phenylisonipecotic acid-----	SDW.



TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
1-Benzyl-4-phenylisonipecotonitrile-----	SDW.
Benzyl polysulfide-----	HK.
Benzyl sulfide-----	BPC.
Benzyltrimethylammonium hydroxide-----	MLS.
Benzyltrimethylammonium methoxide-----	MLS.
*[3,3'-Bianthra [1,9-cd] pyrazole]-6,6'-(2H,2' H)dione (Pyrazoleanthrone yellow).	DUP, GAF, TRC.
[3,3'-Bi-7H-benz[de]anthracene]-7,7'-dione-----	DUP.
*[4,4'-Bi-7H-benz[de]anthracene]-7,7'-dione-----	ACS, ACY, DUP, GAF, ICI, MAY.
[1,1'-Binaphthalene]-8,8'-dicarboxylic acid-----	ACS, GAF.
Biphenyl-----	DOW, MON.
2-Biphenylamine-----	NES.
3,3',4,4'-Biphenyltetramine-----	AAP.
2,2'-Biquinoline-----	EK.
*1,4-Bis[1-anthraquinonylamino]anthraquinone-----	ACY, DUP, GAF, MAY, TRC.
1,4-Bis[1-anthraquinonylamino]anthraquinone and 1,4-Bis[5- chloro-1-anthraquinonylamino]anthraquinone (mixed).	TRC.
1,5-Bis[1-anthraquinonylamino]anthraquinone-----	DUP.
Bis[1-anthraquinonylamino]violanthrene-----	GAF.
1,4-Bis[(5-benzamido-1-anthraquinonyl)amino]anthraquinone-- $\alpha^2, \alpha^6$ -Bis[5-tert-butyl-6-hydroxy-m-tolyl] mesitol-----	ICI. ACY.
Bis(chlorosulfonyl)phthalocyaninedisulfonic acid, copper derivative.	TRC.
4,4'-Bis[diethylamino]benzhydrol, 2,6-naphthalenedisul- fonate.	GAF.
4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)----	DSC.
4-Bis[(p-diethylaminophenyl)methyl]-2,7-naphthalenedisul- fonic acid, leuco form.	TRC.
4,4'-Bis(dimethylamino)benzhydrol (Michler's hydrol)-----	SDH.
*4,4'-Bis(dimethylamino)benzophenone (Michler's ketone)-----	ACS, DSC, DUP, SDH.
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.
3'-[Bis(2-hydroxyethyl)amino]benzanilide, diacetate ester-- 3'-[Bis(2-hydroxyethyl)amino]methanesulfonanilide, diacetate ester.	DUP. DUP.
4,4'-Bis[(p-hydroxyphenyl)azo]-2,2'-stilbenedisulfonic acid (C.I. Direct Yellow 4).	TRC.
4,4'-Bis(p-methoxyphenyl)-3-hexanone-----	LIL.
Bis(2-methyl-1-aziridinyl)phenylphosphine oxide-----	ICO.
2,4-Bis(1-methylbutyl)phenol-----	PAS.
1,4-Bis[2-(4-methyl-5-phenyloxazolyl)]benzene (Dimethyl- POPOP).	ARA.
Bis(o-nitrophenyl)sulfide-----	x.
1,4-Bis[2-(5-phenyloxazolyl)]benzene (POPOP)-----	ARA.
2-Bromoacetophenone-----	EK.
m-Bromoaniline-----	EK.
o-Bromoaniline-----	EK, PIC.
p-Bromoaniline-----	EK.
m-Bromoanisole-----	PIC.
p-Bromoanisole-----	EK, OPC.
*3-Bromo-7H-benz[de]anthracen-7-one (3-Bromobenzanthrone)---	ACY, ATL, DUP, GAF, ICI, MAY, TRC.
Bromobenzene, mono-----	DOW.
p-Bromobenzenesulfonyl chloride-----	EK.
4-Bromobenzophenone-----	ICO.
Bromochlorobenzene-----	DOW.
2-Bromo-6-chloro-4-nitroaniline-----	MEE.
Bromocyclopentane-----	LIL.
2-Bromo-4,6-dinitroaniline-----	AAP, SDC, TRC.
Bromoethylbenzene-----	DOW.
2-Bromo-3'-hydroxyacetophenone benzoate-----	SDH.
1-Bromo-4-(N-methylacetamido)anthraquinone-----	GAF.
*1-Bromo-4-(methylamino)anthraquinone-----	AAP, DUP, GAF, ICI.
*6-Bromo-3-methyl-7H-dibenz[f,i]isoquinoline-2,7-(3H)dione- 3-(Bromomethyl)thiophene-----	AAP, GAF, ICI. SDW.
1-Bromonaphthalene-----	EK, RSA.
2-Bromo-4'-nitroacetophenone-----	GAF.
N-(4-Bromopentyl)phthalimide-----	SDW.
o-Bromophenol-----	EK.
p-Bromophenol-----	EK.
(p-Bromophenyl)acetonitrile-----	BPC.
p-Bromophenylhydrazine hydrochloride-----	EK.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Bromopyridine-----	NEP.
$\alpha$ -Bromoresorcylic acid-----	ALL.
$\alpha$ -Bromotoluene-----	EK.
o-Bromotoluene-----	EK.
p-Bromotoluene-----	BPC, EK.
2-Bromo-1,3,5-triethylbenzene-----	DUP.
p-Butoxyphenol-----	ABB.
4-[3-(p-Butoxyphenoxy)propyl]morpholine-----	ABB.
4'-Butoxy-3-piperidinopropiophenone-----	ICO.
N-Butylacetanilide-----	UCC.
1-(Butylamino)anthraquinone-----	AAP.
p-Butylaniline-----	DUP, UCC.
2-tert-Butylanthraquinone-----	DUP.
p-tert-Butylbenzaldehyde-----	GIV.
n-Butylbenzene-----	PLC.
sec-Butylbenzene-----	PLC.
tert-Butylbenzene-----	CTA, PLC.
p-tert-Butylbenzoic acid-----	SHC.
o-(p-tert-Butylbenzoyl)benzoic acid-----	DUP.
6-tert-Butyl-m-cresol-----	KPT, PRD.
2-tert-Butyl-p-cresol-----	ACY.
(n-Butylcyclopentadienyl)cyclopentadienyliron-----	ARA.
2'-tert-Butyl-4',6'-dimethylacetophenone-----	GIV.
4-Butyl- $\alpha$ -(dimethylamino)-o-cresol-----	RH.
2-tert-Butyl-4-ethylphenol-----	ACY.
2-tert-Butyl-5-methylanisole-----	GIV.
o-sec-Butylphenol-----	DOW, TNA.
p-sec-Butylphenol-----	DOW.
o-tert-Butylphenol-----	TNA.
p-tert-Butylphenol-----	DOW, PRD, UCC.
Butylphenols, mixed-----	DOW.
4-Butyl-o-phenylenediamine hemisulfate-----	WAY.
p-tert-Butyltoluene-----	GIV, SHC.
5-tert-Butyl-1,2,3-trimethylbenzene-----	GIV.
5-tert-Butyl-m-xylene-----	GIV.
6-tert-Butyl-2,4-xylene-----	x.
Camphoric acid-----	FIN.
Camphoric anhydride-----	FIN.
d-10-Camphorsulfonic acid-----	OTC.
Camphosulfonic acid-----	LIL.
Carbazole, refined-----	SDC.
5'-(o-Carboxybenzoyl)-2'-chlorooxanilic acid-----	GAF.
N-[(3-Carboxy-4-chlorophenyl)sulfonyl]anthranilic acid-----	TRC.
3-Carboxy-2 (and 4)-hydroxybenzenediazonium sulfate-----	ACS, GAF.
[(o-Carboxyphenyl)thio]ethylmercury-----	LIL.
3-(2-Carboxy-4-sulfoxyphenyl)-3-ethyl-1-(5-nitro-o-anisyl)- triazine.	GAF.
$\alpha$ -Carboxy-o-toluic acid-----	DUP.
Cedrene-----	GIV.
2'-Chloroacetoacetanilide-----	FMP, UCC.
2'-Chloroacetophenone-----	EK.
3'-Chloroacetophenone-----	EK.
4'-Chloroacetophenone-----	LIL.
2-Chloro-2',6'-acetoxyldide-----	SDW.
4'-(Chloroacetyl)acetanilide-----	DUP.
m-Chloroaniline-----	DUP, GAF.
o-Chloroaniline-----	DUP, MON.
p-Chloroaniline-----	DUP, MON.
2-(o-Chloroanilino)ethanol-----	EKT.
3-(o-Chloroanilino)propionitrile-----	DUP, ICC.
5-Chloro-o-anisidine [NH <sub>2</sub> =1] (4-Chloro-o-anisidine [OCH <sub>3</sub> =1]).	BUC.
5-Chloro-o-anisidine hydrochloride-----	BUC.
4-Chloroanthranilic acid-----	DUP.
*1-Chloroanthraquinone-----	ACY, DUP, GAF, ICI, MAY, TRC.
*2-Chloroanthraquinone-----	ACS, ACY, GAF, TRC.
N-(5-Chloro-1-anthraquinonyl)-p-toluenesulfonamide-----	ICI.
o-Chlorobenzaldehyde-----	HN.
p-Chlorobenzaldehyde-----	HN.
Chloro-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)-----	ACY, SCC, TRC.
*Chlorobenzene, mono-----	ACS, DOW, DVC, HK, HKD, MON, MTO, NEV, OMC, PPG.
p-Chlorobenzenesulfonic acid-----	TRC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
p-Chlorobenzenesulfonamide-----	ACY.
p-Chlorobenzenesulfonic acid-----	GAF.
o-Chlorobenzoic acid-----	HN.
5-Chloro-2-benzoxazolinone-----	x.
*o-(p-Chlorobenzoyl)benzoic acid-----	ACS, ACY, DUP, GAF, HN, ICI.
p-Chlorobenzoyl chloride-----	HN.
4,4'-(o-Chlorobenzylidene)di-2,5-xylidine-----	GAF.
α-(p-Chlorobenzyl)-α-phenyl-1-pyrrolidinepropanol hydrochloride.	LIL.
Chloro(p-chlorophenyl)phenylmethane-----	OPC.
Chlorocyclohexane-----	ACY.
1-Chloro-2,5-diethoxy-4-nitrobenzene-----	ALL, GAF.
2-Chloro-N,N-diethyl-4-nitroaniline-----	DUP.
2-Chloro-3',4'-dihydroxyacetophenone-----	SDW.
2-Chloro-1,4-dihydroxyanthraquinone-----	HSH.
4'-Chloro-2',5'-dimethoxyacetoacetanilide-----	PCW.
5-Chloro-2,4-dimethoxyaniline-----	PCW.
5-Chloro-4,7-dimethylbenzo[b]thiophen-3(2H)-one-----	ACS.
4-Chloro-N,N-dimethyl-3-nitrobenzenesulfonamide-----	EKT, GAF.
2-Chloro-4,6-dinitroaniline-----	GAF.
*1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)-----	AAP, ACS, DUP, SDC.
1-Chloro-2,4-dinitrobenzene and 2-chloro-1,3-dinitrobenzene mixture.	DUP.
3-Chloro-4,6-dinitrobenzenesulfonic acid-----	TRC.
3-Chlorodiphenylamine-----	SK.
Chlorodiphenylmethane-----	OPC.
2-Chloroethanol, p-toluenesulfonate-----	GAF.
N-(2-Chloroethyl)-4-(2-Chloro-4-nitrophenylazo)-N-ethyl-aniline.	GAF.
4-[(2-Chloroethyl)ethylamino]-o-tolualdehyde-----	GAF.
N-(2-Chloroethyl)-N-ethylaniline-----	GAF.
p-[(2-Chloroethyl)methylamino] benzaldehyde-----	ACS, GAF.
Chloroformic acid, benzyl ester-----	PIC, RSA.
Chloroformic acid, phenyl ester-----	EK.
4-Chloro-5-hydroxy-2,7-naphthalene disulfonic acid-----	GAF.
5'-Chloro-3-hydroxy-2-naphth-o-anisidide-----	PCW.
3-Chloro-4-hydroxyquinoline-3,4-carbonic acid-----	SDH.
6-Chloroisatoic anhydride-----	MEE.
4-Chlorometanilic acid-----	DUP.
5-Chlorometanilic acid-----	ACS.
*6-Chlorometanilic acid-----	AAP, DUP, GAF, SW.
5-Chloro-2-methoxybenzenediazonium chloride-----	GAF.
N-[(5-Chloro-2-methoxyphenyl)azo] sarcosine-----	ATL.
p-(Chloromethyl)anisole-----	SDW.
*1-Chloro-2-methylanthraquinone-----	ACS, ACY, CMG, DUP, GAF, ICI, TRC.
6-Chloro-4-methyl-1,3,2-benzothiazathiolium chloride-----	AAP.
6-Chloro-4-methylbenzo[b] thiophene-2-ol-----	ACY.
4-(Chloromethyl)-1,2-dimethylbenzene-----	BPC.
4-(Chloromethyl)-1,3-dimethylbenzene-----	BPC.
1-(Chloromethyl)naphthalene-----	BPC.
4-Chloro-N-methyl-3-nitrobenzenesulfonamide-----	TRC.
4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.	DUP.
2-Chloro-5-(N-methylsulfamoyl)sulfanilamide-----	ABB.
5-Chloro-2-(N-methylsulfamyl)-4-sulfamyl-N-benzylaniline-----	ABB.
4-Chloro-3-(methylsulfonyl)nitrobenzene-----	TRC.
Chloronaphthalenes-----	KPS.
*2-Chloro-4-nitroaniline (o-Chloro-p-nitroaniline)-----	DOW, DUP, SDC.
*4-Chloro-2-nitroaniline (p-Chloro-o-nitroaniline)-----	DOW, DUP, SDC, VPC.
*1-Chloro-5-nitroanthraquinone-----	ACS, ACY, DUP, MAY, TRC.
1-Chloro-8-nitroanthraquinone-----	DUP.
*1-Chloro-2-nitrobenzene (Chloro-o-nitrobenzene)-----	AAP, DUP, MON, UPM.
1-Chloro-3-nitrobenzene (Chloro-m-nitrobenzene)-----	DUP, GAF.
*1-Chloro-4-nitrobenzene (Chloro-p-nitrobenzene)-----	AAP, DUP, MON, UPM.
2-Chloro-5-nitrobenzenesulfonic acid-----	TRC.
2-Chloro-5-nitrobenzenesulfonamide-----	AAP.
*4-Chloro-3-nitrobenzenesulfonamide-----	AAP, CMG, DUP, EKT, GAF, ICC, TRC.
4-Chloro-3-nitrobenzenesulfonamide-----	TRC.
*2-Chloro-5-nitrobenzenesulfonic acid-----	AAP, ACS, CMG, TRC.
*2-Chloro-5-nitrobenzenesulfonic acid, sodium salt-----	DUP, GAF.
4-Chloro-3-nitrobenzenesulfonic acid-----	ACS, TRC.
2-Chloro-5-nitrobenzenesulfonyl chloride-----	TRC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*4-Chloro-3-nitrobenzenesulfonyl chloride-----	AAP, DUP, EKT.
2-Chloro-4-nitrobenzoic acid-----	SAL.
2-Chloro-5-nitrobenzoic acid-----	TRC.
*o-(4-Chloro-3-nitrobenzoyl)benzoic acid-----	AAP, ACS, GAF, ICI.
4-Chloro-2-nitrophenol-----	DUP, MEE.
4-Chloro-3-nitrophenyl methyl sulfone-----	TRC.
2-Chloro-4-nitrotoluene-----	DUP.
2-Chloro-6-nitrotoluene-----	DUP.
4-Chloro-2-nitrotoluene-----	DUP.
4-Chloro-3-nitrotoluene-----	AAP, DUP.
$\alpha$ -Chloro-m-nitrotoluene-----	EK.
m-Chlorophenol-----	EK.
o-Chlorophenol-----	DOW, MON.
p-Chlorophenol-----	DOW, MON.
2-Chlorophenothiazine-----	SK.
4-(p-Chlorophenoxy)aniline-----	NES.
4-(p-Chlorophenoxy)nitrobenzene-----	NES.
(p-Chlorophenyl)acetonitrile-----	ICO, OPC.
4-Chloro- $\alpha$ -phenyl-o-cresol-----	MON.
4-Chloro-o-phenylenediamine-----	FMT.
3-(o-Chlorophenyl)-5-methyl-4-isoxazolecarbonyl chloride---	ICO, OTC.
3-(o-Chlorophenyl)-5-methyl-4-isoxazolecarboxylic acid-----	ICO.
1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
1-(p-Chlorophenyl)-3-methyl-2-pyrazolin-5-one-----	DUP.
p-Chlorophenyl methyl sulfone-----	TRC.
2-Chloro-4-phenylphenol-----	DOW.
1-[4-(p-Chlorophenyl)-3-phenyl-2-butenyl] pyrrolidine hydro- bromide.	LIL.
[(o-Chlorophenyl)thio]acetic acid-----	PCW.
4-Chlorophthalic acid and sodium salt-----	DUP, HK, MEE, SW.
(3-Chloropropenyl)benzene (Cinnamyl chloride)-----	SDW.
1-(3-Chloropropyl)-4-methylpiperazine-----	SK.
N <sup>1</sup> -(6-Chloro-3-pyridazinyl)sulfanilamide-----	ACY.
2-Chloropyridine-----	FMT.
6-Chloroquinoline-----	DUP.
7-Chloro-4-quinolinol-----	SDW.
2-(6-Chloro-2-quinonyl)-1,3-indandione-----	DUP.
4-Chlororesorcinol-----	AAP, GAF.
2-Chloro-5-sulfamoylbenzoic acid-----	TRC.
2-Chlorothiophene-----	FIS.
m-Chlorotoluene-----	HK.
o-Chlorotoluene-----	HN.
p-Chlorotoluene-----	HN.
* $\alpha$ -Chlorotoluene (Benzyl chloride)-----	BPC, GRH, HK, HN, MON, VEL.
3-Chloro-o-toluidine [NH <sub>2</sub> =1]-----	DUP.
3-Chloro-p-toluidine [NH <sub>2</sub> =1]-----	BUC, DUP.
4-Chloro-o-toluidine [NH <sub>2</sub> =1] and hydrochloride-----	ACY, BUC, PCW.
5-Chloro-o-toluidine [NH <sub>2</sub> =1] (4-Chloro-o-toluidine [CH <sub>3</sub> =1])	DUP, SDH.
5-Chloro-o-toluidine hydrochloride [NH <sub>2</sub> =1]-----	ATL, SDH.
N-[(5-Chloro-o-tolyl)azo]sarcosine-----	ALL, ATL.
1-(6-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
1-(5-Chloro-o-tolyl)-1-tetrazene-----	GAF.
*[(4-Chloro-o-tolyl)thio]acetic acid-----	ACS, ACY, GAF, PCW.
4-Chloro- $\alpha, \alpha, \alpha$ -trifluoro-3-nitrotoluene-----	AAP, GAF, MEE.
5-Chloro- $\alpha, \alpha, \alpha$ -trifluoro-2-nitrotoluene-----	MEE.
p-Chloro- $\alpha, \alpha, \alpha$ -trifluorotoluene-----	HK.
4-Chloro- $\alpha, \alpha, \alpha$ -trifluoro-o-toluidine-----	MEE.
6-Chloro- $\alpha, \alpha, \alpha$ -trifluoro-m-toluidine-----	AAP.
Chlorotriphenylmethane-----	EK.
$\alpha$ -Chloro-p-xylene-----	BPC.
2-Chloro-p-xylene-----	DUP.
4-Chloro-2,5-xylenesulfonyl chloride-----	ACS.
4-Chloro-3,5-xylenol-----	OTA.
[(4-Chloro-2,5-xyl)thio]acetic acid-----	ACS.
Cholic acid-----	WIL.
*Cinnamoyl chloride-----	ICO, UOP, x.
*Cresols: <sup>2</sup>	
m-Cresol-----	KPT, PRD.
*o-Cresol:	
From coal tar-----	KPT, PRD.
From petroleum-----	KPT, MER, NPC, PRD, SW.
p-Cresol-----	ACY, HPC, SW.

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Cresols, mixed: <sup>2</sup>	
*(m,p)-Cresol:	
From coal tar-----	ACP, KPT, PRD.
From petroleum-----	MER, NPC, PIT, PRD.
(o,m,p)-Cresol-----	ACP, KPT, NPC.
*Cresylic acid, refined: <sup>2</sup>	
From coal tar-----	ACP, KPT.
From petroleum-----	MER, NPC, PIT, SHO.
*Cumene-----	CLK, CSP, DOW, GOC, HPC, MOC, MON, SHC, SKO, SNT, SOC, TX.
2-[p-(Cyanoacetamido)phenyl]-6-methyl-7-benzothiazolesul- fonic acid.	DUP.
α-Cyano-d <sup>1</sup> ,α-cyclohexaneacetic acid, ethyl ester-----	SDW.
α-Cyano-1-cyclohexene-1-acetic acid, ethyl ester-----	SDW.
N-β-Cyanoethyl-N-(β-acetoxyethyl)aniline-----	EKT.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde-----	DUP, GAF.
p-[(2-Cyanoethyl)methylamino]benzaldehyde-----	DUP, GAF.
Cycloaliphatic epoxides-----	UCC.
*Cyclohexane-----	ASH, ATR, CO, COR, CSD, DUP, EKX, ENJ, GOC, GRS, PLC, SOG, TX, UCC.
1,2-Cyclohexanedicarboxylic anhydride-----	ACS.
1,3-Cyclohexanedione-----	PD.
*Cyclohexanol-----	ACS, DBC, DUP, MON.
*Cyclohexanone-----	ACS, CEL, DBC, DUP, MON.
Cyclohexanone oxime-----	ACS, x.
Cyclohexene-----	PLC.
4-Cyclohexene-1-carboxaldehyde-----	UCC.
4-Cyclohexene-1,2-dicarboximide-----	CHO.
4-Cyclohexene-1,2-dicarboxylic anhydride-----	ACS, PTT.
*Cyclohexylamine-----	ABB, MON, VGC, x.
Cyclohexyl-2-propanone-----	GIV.
N-Cyclohexyltaurine, sodium salt-----	GAF.
Cyclopentamine base-----	LIL.
Cyclopentanepropionic acid-----	ARA.
Cyclopentanol-----	LIL.
Cyclopentanonecarboxylic acid-----	ARA.
Cyclopentene-----	ARA, PLC.
Cyclopropanecarboxylic acid-----	HEX.
p-Cymene-----	ACS, HNW, HPC.
Decachlorodicyclopentadiene-----	NES.
Deoxycholic acid-----	WIL.
1,5 (and 1,8)-Diacetamidoanthraquinone-----	AAP.
3,5-Diacetamido-2,4,6-triiodobenzoic acid-----	SDW.
3'-[Di(2-acetoxyethyl)amino]-p-acetophenetidide-----	TRC.
3-(Diallylcarbamoyl)-1,2,2-trimethylcyclopentanecarboxylic acid.	WYT.
N <sup>2</sup> ,N <sup>2</sup> -Diallylmelamine-----	ACY.
*1,4-Diaminoanthraquinone-----	CMG, DUP, GAF, TRC.
1,5-Diaminoanthraquinone-----	DUP, GAF, TRC.
1,5 (and 1,8)-Diaminoanthraquinone-----	AAP, ICI, TRC.
*2,6-Diaminoanthraquinone-----	AAP, ACS, ACY, GAF, ICI, TRC, VPC.
3,4-Diaminobenzanilide-----	TRC.
3',4-Diaminobenzanilide-----	VPC.
2,4-Diaminobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP, TRC.
2,5-Diaminobenzenesulfonic acid [SO <sub>3</sub> H=1]-----	TRC.
4,4'-Diamino-2,2'-biphenyldisulfonic acid-----	AAP, ACS, ACY.
1,5-Diamino-2,6-dibromo-4,8-di-p-toluidinoanthraquinone-----	ICI.
1,4-Diamino-2,3-dichloroanthraquinone-----	CMG, DUP.
*1,4-Diamino-2,3-dihydroanthraquinone-----	ACY, DUP, GAF, HSH, ICC, ICI, MAY, TRC.
4,8-Diamino-9,10-dihydro-1,5-dihydroxy-9,10-dioxo-2,6- anthracenedisulfonic acid.	TRC.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedicar- bonitrile.	DUP.
1,4-Diamino-9,10-dihydro-9,10-dioxo-2,3-anthracenedicar- boximide.	DUP.
1,5-Diamino-4,8-dihydroxyanthraquinone-----	DUP, ICC, VPC.
1,5 (and 1,8)-Diamino-4,8 (and 4,5)-dihydroxyanthraquinone-----	DUP.
4,5-Diamino-1,8-dihydroxyanthraquinone-----	ICI.
4,4'-Diamino-5,5'-dimethyl-2,2'-biphenyldisulfonic acid-----	AAP.
1,4-Diamino-5-nitroanthraquinone-----	GAF.
2,4-Diamino-6-phenyl-s-triazine-----	RH, VEL.
2,6-Diaminopyridine-----	NEP, RIL.

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
6,7-Diamino-2,3-quinoxalinediol hydrochloride-----	BJL.
*4,4'-Diamino-2,2'-stilbenedisulfonic acid-----	ACS, ACY, DUP, GAF, GGY, SDH, TRC, VPC.
1,5-Diamino-2,4,6,8-tetrabromoanthraquinone-----	ICI.
4,6-Diamino-m-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACS.
3,5-Diamino-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	GAF.
3,5-Diamino-2,4,6-triiodobenzoic acid-----	SDW.
1,4:3,6-Dianhydroglucitol-----	APD.
1,5-Dianilino-9,10-dihydro-9,10-dioxo-2,6-anthracenedicarboxylic acid.	ACS.
2,4-Dianilino-1-hydroxyanthraquinone-----	GAF.
6,8-Dianilino-1-naphthalenesulfonic acid-----	ACS.
Diarylguanidine-----	DUP.
p-Diazo-N,N-dimethylaniline-1-amino-8-naphthol-3-sulfonate-6-sulfonic acid, sodium salt.	IDC.
5(and 3)-Diazo-6-oxo-1,3(and 1,4)-cyclohexadiene-1-carboxylic acid.	DUP.
1,5-Dibenzamidoanthraquinone-----	GAF, TRC.
6,11-Dibenzamido-16H-dinaphtho[2,3- $\alpha$ ,2',3'-i]-carbazole-5,10,15,17-tetrone.	ICI.
*4,5'-Dibenzamido-1,1'-iminodianthraquinone-----	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
Dibenzo[b,def]chrysene-7,14-dione-----	ATL, ICI, TRC.
Dibenzothiophene-----	EVN.
*1,5-Dibenzoylnaphthalene-----	ACY, CMG, DUP, GAF, PCW, TRC, VPC.
N,N'-Dibenzylethylenediamine-----	WYT.
N,N'-Dibenzylethylenediamine diacetate-----	WYT.
N,N'-Dibenzylidene-toluene- $\alpha,\alpha$ -diamine-----	SDH.
N,N-Dibenzylsulfanilic acid-----	ICI.
2,4'-Dibromoacetophenone-----	EK.
*3,9-Dibromo-7H-benz[de]anthracen-7-one-----	DUP, GAF, MAY, TRC.
ar-Dibromobenzene-----	DOW.
p-Dibromobenzene-----	DOW.
ar-Dibromodibenzo[b,def]chrysene-7,14-dione-----	ICI.
2,6-Dibromo-1,5-naphthalenediol-----	EK.
2,6-Dibromo-4-nitroaniline-----	SDC.
2,6-Dibromo-4-nitrophenol-----	MEE.
5,13-Dibromo-8,16-pyranthrene-dione-----	DUP, ICI.
Dibromoviolanthrone-----	GAF.
2,5-Dibutoxyaniline-----	BJL.
p-Dibutoxybenzene-----	ALL.
1,4-Dibutoxy-2-chloro-5-nitrobenzene-----	ALL, BJL.
2,5-Dibutoxy-4-morpholinobenzene sulfate diazoniumsulfate salt.	ALL.
4-(2,5-Dibutoxy-4-nitrophenyl)morpholine-----	ALL.
1,1'-Di-n-butylidicyclopentadienyliiron-----	ARA.
2,4-Di-tert-butylphenol-----	DOW.
Dibutyltin bis(cyclohexyl maleate)-----	x.
3,4-Dichloroaniline-----	DUP, MON.
2,5-Dichloroaniline and hydrochloride [NH <sub>2</sub> =1]-----	ACS, BUC, DUP.
3-(2,4-Dichloroanilino)-1-(2,4,6-trichlorophenol)-----	EK.
*1,5-Dichloroanthraquinone-----	ACS, DUP, GAF, ICI, TRC.
1,8-Dichloroanthraquinone-----	GAF, ICI, TRC.
2,6-Dichlorobenzaldehyde-----	DUP.
3-(3,4-Dichlorobenzamido)-1-phenyl-2-pyrazolin-5-one-----	EK.
Dichlorobenzanthrone-----	ACY.
m-Dichlorobenzene-----	EK, OMC.
*o-Dichlorobenzene-----	ACS, CPD, DOW, DUP, DVC, MON, NEV, PPG, SCC, SVT.
o(and p)-Dichlorobenzene-----	HKD, MFO.
*p-Dichlorobenzene-----	ACS, CPD, DOW, DVC, MON, NEV, PPG, SCC, SVT.
4,6-Dichloro-m-benzenedisulfonamide-----	ABB.
4,6-Dichloro-m-benzenedisulfonyl chloride-----	ABB.
*3,3'-Dichlorobenzidine base and salts-----	ACS, ALL, CWN, IAK.
Dichlorobenzil-----	MTO.
2,4-Dichlorobenzoic acid-----	HN.
2,6-Dichlorobenzonitrile-----	x.
2,4-Dichlorobenzoyl chloride-----	HN.
Dichlorobenzyl alcohol-----	UCC.
Dichlorobenzyl chloride-----	UCC.
2,4-Dichloro-m-cresol-----	EKT.
7,16-Dichloro-6,15-dihydro-5,9,14,18-anthrazinetetrone-----	ICI.
4,5-Dichloro-3,6-dioxo-1,4-cyclohexadiene-1,2-dicarbonitrile.	ARA.
Dichlorodiphenylsilane-----	DCC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2',7'-Dichlorofluorescein-----	EK.
1,2-Dichlorohexafluorocyclopentene-----	PIC.
2,5-Dichloro-4-hydrazinobenzenesulfonic acid-----	GAF.
N-(6,8-Dichloro-5-hydroxy-1-naphthyl)-p-toluenesulfonamide-	EK.
5,14-Dichloroisoviolanthrone-----	ICI.
*2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-	ACY, CMG, DUP, GAF, PCW, TRC, VPC.
sulfonic acid.	
Dichloromethylphenylsilane-----	DCC.
2,4-Dichloro-1-naphthol-----	AAP.
2,6-Dichloro-4-nitroaniline-----	AAP, CWN, DUP, HSH, PCW.
1,2-Dichloro-4-nitrobenzene-----	DUP, MON, SDC.
*1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)-----	ACS, ALL, DUP, PCW, SDC, VPC.
2,4-Dichlorophenol-----	DOW, MON.
2,4-Dichlorophenol, benzene sulfonate-----	NES.
3-(2',6'-Dichlorophenyl)-5-methyl-4-isoxazolecarbonyl	ICO, KF, OTC.
chloride.	
3-(2',6'-Dichlorophenyl)-5-methyl-4-isoxazolecarboxylic	ICO.
acid.	
1-(2,5-Dichlorophenyl)-3-triazenecarbonitrile-----	GAF.
2,6-Dichloropyrazine-----	ACY.
3,6-Dichloropyridazine-----	ACY.
4,7-Dichloroquinoline-----	PD, SDW.
2,3-Dichloro-6-quinoxalinecarbonyl chloride-----	DUP.
3,5-Dichlorosalicylic acid-----	ICO.
*2,5-Dichlorosulfonic acid [SO <sub>3</sub> H=1]-----	CMG, DUP, VPC.
2,5-Dichloro-4-sulfobenzenediazonium sulfate-----	TRC.
p,α-Dichlorotoluene-----	HN.
α,α-Dichlorotoluene (Benzal chloride)-----	ACS, HK.
2,6-Dichlorotoluene-----	DUP.
Dichloroxylylene-----	BPC.
2,4-Dichloro-3,5-xyleneol-----	OTA.
Dicyclohexylamine-----	ABB, MON, VGC.
*Dicyclopentadiene (includes cyclopentadiene)-----	ENJ, GOC, UCC, VEL.
Dicyclopentadiene dioxide-----	VEL.
Didodecylbenzene-----	CO.
2,5-Diethoxyaniline-----	ALL.
2',5'-Diethoxybenzanilide-----	ALL.
p-Diethoxybenzene-----	ALL, GAF.
3,4-Diethoxybenzoic acid-----	SDW.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride, zinc	ALL.
chloride.	
2',5'-Diethoxy-4'-nitrobenzanilide-----	ALL.
1,4-Diethoxy-2-nitrobenzene-----	ALL.
4-(2,5-Diethoxy-4-nitrophenyl)morpholine-----	ALL.
*p-(Diethylamino)benzaldehyde-----	ACS, DUP, GAF.
3'-[2-(Diethylamino)ethyl]-4'-hydroxyacetanilide-----	PD.
α-[2-(Diethylamino)ethyl]-α-phenylcyclohexanemethanol	ACY.
hydrochloride.	
m-(Diethylamino)phenol (N,N-Diethyl-3-aminophenol)-----	ACY, DUP.
3-[(4-N,N-Diethylamino)phenylazol-1H-1,2,4-triazole-----	TRC.
3-(Diethylamino)propiophenone-----	ACY.
4-(Diethylamino)-o-tolualdehyde-----	DUP.
*N,N-Diethylaniline-----	ACS, ACY, DSC, DUP, SDH.
N,N-Diethyl-m-anisidine-----	DUP.
Diethylbenzene-----	DOW, KPP.
1,1'-Diethyl-4,4'-carbocyanine iodide (Cryptocyanine)-----	EK.
N,N-Diethylcyclohexylamine-----	DUP.
α,α'-Diethyl-4,4'-dimethoxystilbene-----	LIL.
N <sup>1</sup> ,N <sup>1</sup> -Diethyl-4-methoxymetanilamide-----	PCW.
N,N-Diethyl-p-nitrosoaniline-----	ESA, GAF.
N,N-Diethyl-4-nitroso-m-anisidine hydrochloride-----	DUP.
N,N-Diethyl-4-nitroso-m-phenetidine-----	GAF.
N,N-Diethyl-m-toluidine-----	DUP.
2,4-Difluoroaniline-----	PIC.
6,15-Dihydro-5,9,14,18-anthrazinetetrone-----	TRC.
10,11-Dihydro-5H-dibenzo[a,d]cyclohepten-5-one-----	LIL.
9,10-Dihydro-1,8-dihydroxy-4,5-dinitro-9,10-dioxo-	DUP.
2,6-anthracenedisulfonic acid.	
9,10-Dihydro-1,4-dihydroxy-9,10-dioxo-2-anthracenesulfonic	AAP, HSH, PAT.
acid (2-Quinizarinsulfonic acid).	
N-(5,13-Dihydro-5,13-dioxoaceanthryleno[2,1-α]-	ACS, ICI.
aceanthrylen-7-yl)-9,10-dihydro-1-nitro-9,10-dioxo-2-	
anthramide.	

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid-----	ACY, TRC.
9,10-Dihydro-9,10-dioxo-1,5-anthracenedisulfonic acid, disodium salt.	GAF, ICI, TRC.
9,10-Dihydro-9,10-dioxo-1,5(and 1,8)-anthracenedisulfonic acid and salt.	TRC.
*9,10-Dihydro-9,10-dioxo-1,8-anthracenedisulfonic acid, potassium salt.	GAF, ICI, TRC.
*9,10-Dihydro-9,10-dioxo-2,6-anthracenedisulfonic acid and salt.	AAP, ACS, ACY, GAF, ICI, TRC, VPC.
*9,10-Dihydro-9,10-dioxo-1-anthracenesulfonic acid and salt (Gold salt).	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC.
9,10-Dihydro-9,10-dioxo-2-anthracenesulfonic acid and salt (Silver salt).	DUP.
9,10-Dihydro-9,10-dioxo-2-anthroic acid-----	ACS.
3,4-Dihydro-3,4-dioxo-1-naphthalenesulfonic acid, sodium salt.	EK.
[Dihydrogen 3,3'-phthalocyaninedisulfonato-(2-)]copper----	ICI.
10,11-Dihydro-5-[3-(methylaminopropyl)]-5H-dibenzo[a,d]- cyclohepten-5-ol.	LIL.
*9,10-Dihydro-5-nitro-9,10-dioxo-1-anthracenesulfonic acid--	ACS, DUP, MAY, TRC.
9,10-Dihydro-5(and 8)-nitro-9,10-dioxo-1-anthracenesulfonic acid.	ICI.
9,10-Dihydro-1-nitro-9,10-dioxo-2-anthroic acid-----	DUP, GAF, TRC.
*1,4-Dihydroxyanthraquinone (Quinizarin)-----	AAP, ACS, ACY, CMG, DUP, EKT, GAF, HSH, ICC, ICI, JTC, MAY, TRC.
*1,5-Dihydroxyanthraquinone (Anthrarufin)-----	ACS, ACY, DUP, GAF, TRC.
1,5(and 1,8)-Dihydroxyanthraquinone-----	CMG, TRC.
1,8-Dihydroxyanthraquinone (Chrysazin)-----	GAF, ICI, TRC.
*2,6-Dihydroxyanthraquinone (Anthraflavic acid)-----	ACS, DUP, GAF, TRC.
4,5-Dihydroxy-m-benzenedisulfonic acid, disodium salt-----	SDC, SDW.
2,5-Dihydroxybenzenesulfonic acid, potassium salt-----	NES.
2,4-Dihydroxybenzophenone-----	DUP, DVC, GAF.
*1,5-Dihydroxy-4,8-dinitroanthraquinone-----	ICC, ICI, TRC, VPC.
*1,8-Dihydroxy-4,5-dinitroanthraquinone (4,5-Dinitro- chrysazin).	DUP, EKT, GAF, ICC, TRC.
1,5-Dihydroxy-4,8-dinitro-2,6-anthraquinonedisulfonic acid--	DUP.
17 $\alpha$ ,21-Dihydroxy-9 $\beta$ ,11 $\beta$ -epoxy-16 $\beta$ -methylpregna-1,4-diene- 3,20-dione.	SCH.
10,10'-(Dihydroxyethanediyldene)dianthrone-----	ICI.
3,4-Dihydroxyhydrocinnamic acid (Hydrocaffeic acid)-----	BJL.
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid).	ACS, HSH.
6,7-Dihydroxy-2-naphthalenesulfonic acid-----	GAF, IDC.
11 $\beta$ ,21-Dihydroxypregna-4,17(20)-cis-dien-3-one-----	UPJ.
11 $\beta$ ,21-Dihydroxypregna-1,4,17(20)-cis-trien-3-one-----	UPJ.
4,5-Dihydroxy-3-(p-sulfophenylazo)-2,7-naphthalenedisul- fonic acid, trisodium salt.	EK.
*16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)-----	ACS, ACY, DUP, GAF, ICI, MAY.
m-Diiodobenzene-----	EK.
3,5-Diiodo-4-oxo-1(4H)pyridineacetic acid-----	SDW.
3,5-Diiodo-L-tyrosine-----	EK.
Diisopropylbenzene-----	DOW.
N,N'-Diisopropyl-p-phenylenediamine-----	DUP, USR.
2,5-Dimethoxyaniline-----	ALL, DUP, EKT.
1,5(and 1,8)-Dimethoxyanthraquinone-----	TRC.
2,5-Dimethoxybenzaldehyde-----	CWN.
m-Dimethoxybenzene-----	ACY, ICO.
*3,3'-Dimethoxybenzidine (o-Dianisidine)-----	ALL, CWN, DUP, IAK, SDH.
3,3'-Dimethoxybenzidine hydrochloride-----	ALL, CWN.
2,4-Dimethoxybenzoic acid-----	ACY.
3,5-Dimethoxybenzoic acid-----	ALD, ICO.
N,N'-[(3,3'-Dimethoxy-4,4'-biphenyl)bis-(azo)] bis- (N-methyltaurine).	ALL, GAF.
2,5-Dimethoxy- $\beta$ -methyl- $\beta$ -nitrostyrene-----	x.
2,5-Dimethoxy- $\alpha$ -methylphenethylamine hydrobromide-----	x.
N-(3,4-Dimethoxy- $\alpha$ -methylphenethyl)-2-(4-ethoxy-3-methoxy- phenyl)acetamide.	LIL.
2,5-Dimethoxy-4'-nitrostilbene-----	x.
3,4-Dimethoxyphenethylamine (Homoveratrylamine)-----	LIL.
N-(3,4-Dimethoxyphenethyl)-2-(3,4-dimethoxyphenyl)acetamide	LIL.
(3,4-Dimethoxyphenyl)acetoneitrile-----	LIL.
1-(3',4'-Dimethoxyphenyl)-2-aminopropane-----	LIL.



TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2,5-Dimethoxytetrahydrofuran-----	HEX.
16,17-Dimethoxyviolanthrone-----	GAF, ICI, MAY.
p-Dimethylaminobenzanilide-----	GAF.
m-(Dimethylamino)benzoic acid-----	SDH.
α-(Dimethylamino)-p-cresol-----	TKL.
6-Dimethylamino-2-[2-(2,5-dimethyl-1-phenyl-3-pyrrolyl)- vinyl]-1-methyl-1-quinolinium methyl sulfate.	x.
2-[(2-Dimethylamino)ethyl]aminopyridine-----	SDW.
2-[[2-(Dimethylamino)ethyl]-2-thenylamino]pyridine (nonmedicinal grade).	ABB.
2-[[2-(Dimethylamino)ethyl]-3-thenylamino]pyridine-----	SDW.
m-(Dimethylamino)phenol-----	ACY.
N-(p-Dimethylaminophenyl)-1,4-naphthoquinoneimine-----	ACS.
*N,N-Dimethylaniline-----	ACS, ACY, DSC, DUP, SDH.
7,12-Dimethylbenz[a]anthracene-----	EK.
3,3'-Dimethylbenzidine (o-Tolidine)-----	ALL, CWN, DUP.
3,3'-Dimethylbenzidine hydrochloride-----	CWN, DUP, EK.
*N,N-Dimethylbenzylamine-----	ICO, MLS, RH.
α,α-Dimethylbenzylhydroperoxide-----	ACP, CLK.
4-(α,α-Dimethylbenzyl)-2-phenylazophenol-----	TRC.
2,2'-Dimethyl-1,1'-bianthraquinone-----	AAP, ACS, ACY, CMG, DUP, GAF, ICI, TRC.
5,5-Dimethyl-1,3-cyclohexanedione-----	EKT.
N,N-Dimethylcyclohexylamine-----	DUP, EKT.
2',7'-Dimethylfluoran-----	WIM.
5,5-Dimethylhydantoin-----	GLY.
2,3-Dimethylindole-----	DUP.
2,5-Dimethyl-4(2)-morpholinylmethylphenol hydrochloride-----	IDC.
N,N-Dimethyl-p-nitrosoaniline-----	ACY, ESA.
N,N-Dimethyl-3-nitro-p-toluenesulfonamide-----	GAF.
6,6-Dimethyl-2-norpinene-2-ethanol-----	RDA.
N,N-Dimethyl-p-phenylenediamine-----	EKT.
N,N-Dimethyl-p-phenylenediamine hydrochloride-----	EK.
1,4-Dimethylpiperazine-----	JCC, SEL.
N-[[4-(Dimethylsulfamoyl)-o-tolyl]azo]-N-methyl-5- sulfoanthranilic acid.	GAF.
N,N-Dimethylsulfanilic acid-----	GAF.
N,N-Dimethyl-p-toluidine-----	EK, RSA, SEL.
*2,4-Dinitroaniline-----	AAP, ACY, SDC.
p-(2,4-Dinitroanilino)phenol-----	DUP, GAF.
1,5(and 1,8)-Dinitroanthraquinone-----	AAP, ICC, ICI, TRC.
N,N'-(2,4-Dinitro-1,5-anthraquinonylene)dioxamic acid-----	TRC.
3',4-Dinitrobenzanilide-----	AAP, TRC.
m-Dinitrobenzene-----	ACS, DUP.
2,4-Dinitrobenzenesulfonic acid-----	EK, TRC.
3,5-Dinitrobenzoic acid-----	FIS, SAL.
3,5-Dinitrobenzoyl chloride-----	EK.
10,10'-Dinitro[3,3'-bi-7H-benz[de]anthracene]-7,7'-dione---	DUP, MAY.
3,3'-Dinitro-4,4'-biacetanilide-----	AAP.
Dinitrocarylyphenol-----	RH.
3',5'-Dinitro-2'-hydroxyacetanilide-----	TRC.
1-(3,5-Dinitro-2-hydroxyphenylazo)-2-naphthol-----	TRC.
*2,4-Dinitrophenol, tech-----	AAP, ACS, SDC.
(2,4-Dinitrophenyl)hydrazine-----	EK.
3,5-Dinitrosalicylic acid-----	EK.
*4,4'-Dinitrostilbene-2,2'-disulfonic acid-----	ACS, ACY, DUP, GAF, GGY, SDH, TRC.
2,4-Dinitrotoluene-----	ACS, DUP, RUC.
2,4(and 2,6)-Dinitrotoluene-----	DUP, MOB.
3,5-Dinitro-p-toluenesulfonic acid-----	GAF.
2,4-Di-tert-pentylphenol-----	PAS.
2,4-Di-tert-pentylphenoxyacetyl chloride-----	x.
1,5-Diphenoxyanthraquinone-----	GAF, VPC.
1,5(and 1,8)-Diphenoxyanthraquinone-----	DUP, ICC.
1,8-Diphenoxyanthraquinone-----	EKT.
Diphenylacetic acid-----	ARA.
*Diphenylamine-----	ACY, DOW, DUP, FST, ORO, RUC.
2,8-Diphenylanthra[1,2-d:6,5-d']bisthiazole-6,12-dione-----	ICI.
Diphenylcarbonyl chloride-----	EK.
α-d-1,2-Diphenyl-4-dimethylamino-2-hydroxy-3-methylbutane, camphor sulfonate.	LIL.
1,1-Diphenylethylene-----	EK.
N,N'-Diphenylethylenediamine-----	DOW, RPC.
2,5-Diphenyloxazole-----	ARA.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
1,3-Diphenyl-1,3-propanedione-----	ALD, EK.
Diphenyl-2-propanone-----	BPC.
2,2'-Dithiodibenzoic acid-----	LIL, MEE.
*1,4-Di-p-toluidinoanthraquinone-----	ACS, ATL, GAF, ICI, TRC, VPC.
1,8-Di-p-toluidinoanthraquinone-----	ICI.
1,4-Di(p-toluidino)-5,8-dihydroxyanthraquinone-----	ICI.
*Divinylbenzene-----	DOW, FG, KPP.
Dodecylbenzene. (See Alkylbenzenes.)	
Dodecylbenzyl chloride-----	CO.
Dodecylmethylbenzyl chloride-----	x.
*p-Dodecylphenol-----	GAF, MON, UCC, x.
Eosin (2',4',5',7'-Tetrabromofluorescein)-----	ICC.
1,2-Epoxy-3-(2-biphenyl)propane-----	NES.
(Epoxyethyl)benzene-----	UCC.
o-Ethoxybenzoic acid-----	ACY.
6-Ethoxy-2-benzothiazolethiol-----	FMT.
4-Ethoxy-3-methoxybenzyl alcohol-----	LIL.
1-(4-Ethoxy-3-methoxybenzyl)-6,7-dimethoxy-3-methylisoquinone.	LIL.
(4-Ethoxy-3-methoxyphenyl)acetic acid-----	LIL.
2-Ethoxy-1-naphthoic acid-----	ICO.
2-Ethoxy-1-naphthoyl chloride-----	ICO, WYT.
4-Ethoxy-3-nitroacetanilide-----	AAP.
(p-Ethoxyphenyl)urea (Dulcin)-----	RSA.
3-(Ethylamino)-p-cresol-----	DUP.
3-(Ethylamino)-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	DUP.
*N-Ethylaniline, refined-----	ACS, ACY, DUP, SDH.
2-(N-Ethylanilino)ethanol-----	DUP, EKT.
[2-(N-Ethylanilino)ethyl]trimethylammonium chloride-----	DUP.
3-(N-Ethylanilino)propionitrile-----	EKT.
α-(N-Ethylanilino)-m-toluenesulfonic acid-----	GAF, SDH.
*α-(N-Ethylanilino)-p-toluenesulfonic acid-----	ACS, TRC, WJ.
N-Ethyl-p-anisidine-----	EKT.
N-Ethylanthranilic acid-----	SDH.
2-Ethylanthraquinone-----	ACS, DUP.
*Ethylbenzene-----	CSD, DOW, ENJ, FG, KPP, KPT, MON, SHC, SIN, SKC, SNT, TOC, UCC.
o-(p-Ethylbenzoyl)benzoic acid-----	DUP.
Ethylbenzyl chloride-----	BPC.
9-Ethylcarbazole-----	SDC.
N-Ethyl-1-cyclohexen-1-ylamine-----	UCC, x.
N-Ethylcyclohexylamine-----	ABB.
3,3'-Ethylenedioxydiphenol-----	IDC.
Ethylenimine-----	DOW.
3-Ethyl-2-[3-(3-ethyl-2-benzothiazolinyldene)-pentadienyl]benzothiazolium iodide.	GAF.
2-[N-Ethyl-p-(6-methoxy-2-benzothiazolyl)azo]anilino]ethanol.	TRC.
N-Ethyl-N-(2-methylsulfonamidoethyl)-m-toluidine-----	WAY.
N-Ethyl-1-naphthylamine-----	DSC, DUP.
α-Ethyl-3-nitrocinnamic acid-----	SDW.
p-Ethylphenol-----	ACY.
*N-Ethyl-N-phenylbenzylamine-----	ACS, DUP, SDH.
Ethylphenylmalonic acid, diethyl ester-----	BPC, MAL.
1-(o-Ethylphenyl)-3-methyl-2-pyrazolin-5-one-----	TRC.
5-Ethyl-2-picoline (2-Methyl-5-ethylpyridine) (MEP)-----	UCC.
1-Ethylpiperidine-----	RIL.
2-Ethylpyridine-----	RIL.
6-Ethyl-1,2,3,4-tetrahydro-1,1,4,4-tetramethylnaphthalene-----	GIV.
N-Ethyl-m-toluidine-----	DUP.
N-Ethyl-o-toluidine-----	DUP.
3-(N-Ethyl-m-toluidino)-1,2-propanediol-----	EKT.
*3-(N-Ethyl-m-toluidino)propionitrile-----	DUP, EKT, GAF, ICC.
1-Ethynyl-1-cyclohexanol-----	ACS, CUC, EKT.
Fluoren-9-one-----	EK.
Fluorescein (3',6'-Dihydroxyfluoran)-----	ICC.
1-Fluoro-2,4-dinitrobenzene-----	EK, PIC.
4-Formyl-m-benzenedisulfonic acid-----	GAF, SDH.
o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)-----	GAF, SDH.
Furan-----	DUP, QKO.
Furfuryl alcohol-----	QKO.
Furfurylamine-----	MLS.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Furylmethylketone-----	EK.
N-Glycolylarsanilic acid, sodium salt-----	SDW.
Hexachlorocyclopentadiene-----	HK, VEL.
1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dicarboxylic acid--	HK, VEL.
Hexadecachlorophthalocyanine-----	ICC.
Hexafluorobenzene-----	WHC.
1,2,3,4,5,6-Hexahydro-8-hydroxy-cis-6,11-dimethyl- 2,6-methano-2-benzazocine.	SDW.
Hexa(2-methyl-1-aziridinyl)-1,3,5-phosphotriazine-----	ICO.
Hippuric acid-----	BPC.
p-Hydrazinobenzenesulfonic acid-----	GAF, WJ.
3-Hydrazino-5-nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	STG.
4-Hydrazino-m-toluenesulfonic acid-----	GAF.
Hydrazobenzene-----	HEX.
*Hydroquinone, tech-----	CRS, EKT, MAN.
4'-Hydroxyacetaniline-----	TRC.
3'-Hydroxyacetophenone-----	SDH.
3'-Hydroxyacetophenone benzoate-----	SDH.
p-Hydroxybenzaldehyde-----	DOW.
*p-Hydroxybenzenesulfonic acid-----	DOW, MON, UPF.
p-Hydroxybenzoic acid-----	HN, WSN.
6'-Hydroxy-m-benzotoluidide-----	TRC.
o-(p-Hydroxybenzoyl)benzoic acid-----	LIL.
3'-Hydroxy-2(N-benzyl-N-methylamino)acetophenone-----	SDW.
4-Hydroxycoumarin-----	ABB.
3-[N-(2-Hydroxyethyl)anilino]propionitrile-----	DUP, ICC.
3-[N-(2-Hydroxyethyl)anilino]propionitrile, benzoate ester-	DUP.
N-(2-Hydroxyethyl)cyclohexylamine-----	ABB.
N-β-Hydroxyethyl-2,4-dihydroxybenzamide-----	IDC.
3-Hydroxy-N-(2-hydroxyethyl)-2-naphthamide-----	IDC.
N-[7-Hydroxy-8-[2-hydroxy-5-(methylsulfamoylphenyl)azo]-1- naphthyl]acetamide.	TRC.
6'-Hydroxy-5'-[(2-hydroxy-5-nitrophenyl)azo]-m-aceto- toluidide.	TRC.
N-[7-Hydroxy-8-[(2-hydroxy-5-nitrophenyl)azo]-1-naphthyl]- acetamide.	TRC.
7-Hydroxy-8-[[4'-(p-hydroxyphenyl)azo]-4-biphenyl]azo]- 1,3-naphthalenedisulfonic acid.	TRC.
7-Hydroxy-8-[[4'-(p-hydroxyphenyl)azo]-3,3'-dimethyl-4- biphenyl]azo]-1,3-naphthalenedisulfonic acid.	TRC.
2-Hydroxy-α <sup>1</sup> ,α <sup>3</sup> -mesitylenediol-----	ACY.
*4-Hydroxymetanilamide-----	ACS, CMG, DUP, TRC, VPC.
*4-Hydroxymetanilic acid-----	AAP, ACS, CWN, DUP, TRC.
N-(4-Hydroxymetanilyl)anthranilic acid-----	TRC.
4-Hydroxy-1-methylcarbostyril-----	ICC.
3-Hydroxy-2-methylcinchoninic acid-----	DUP, ICC.
4-Hydroxy-N <sup>1</sup> -methylmetanilamide-----	TRC.
N-(Hydroxymethyl)phthalimide-----	ACY.
3-Hydroxy-N-(3-N-morpholinopropyl)-2-naphthamide-----	IDC.
3-Hydroxy-2,7-naphthalenedisulfonic acid-----	ATL.
*3-Hydroxy-2,7-naphthalenedisulfonic acid, disodium salt----	ACS, ACY, GAF, TRC, WJ.
7-Hydroxy-1,3-naphthalenedisulfonic acid-----	DUP, TRC.
7-Hydroxy-1,3-naphthalenedisulfonic acid, disodium salt----	ACS, ACY.
4-Hydroxy-2-naphthalenesulfonamide-----	GAF.
1-Hydroxy-2-naphthalenesulfonic acid, potassium salt-----	EK.
4-Hydroxy-1-naphthalenesulfonic acid-----	ACS, DUP.
5-Hydroxy-1-naphthalenesulfonic acid-----	ACS.
*6-Hydroxy-2-naphthalenesulfonic acid-----	ACS, SNA, TMS.
*6-Hydroxy-2-naphthalenesulfonic acid, sodium salt-----	ACY, TRC, WJ.
7-Hydroxy-2-naphthalenesulfonic acid (Cassella's acid)-----	DUP.
8-Hydroxy-1-naphthalenesulfonic acid-----	GAF, VPC.
4-Hydroxy-2-naphthalenesulfonic acid, benzene sulfonate, sodium salt.	GAF.
3-Hydroxy-2-naphthanilide (Naphthol AS)-----	ATL, BUC, PCW.
1-Hydroxy-2-naphthoic acid-----	ACS.
3-Hydroxy-2-naphthoic acid (B.O.N.)-----	BUC, DUP, GAF, HN, PCW.
3-Hydroxy-2-naphthoic acid, methyl ester-----	PCW.
1-Hydroxy-2-naphthoic acid, phenyl ester-----	EK.
3-Hydroxy-2-naphtho-o-toluidide-----	ATL, BUC, PCW.
N-(2-Hydroxy-1-naphthyl)acetamide-----	ACY.
*N-(7-Hydroxy-1-naphthyl)acetamide-----	CMG, GAF, TRC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
1-(2-Hydroxy-1-naphthylazo)-6-nitro-2-naphthol-4-sulfonic acid.	TRC.
N-(7-Hydroxy-1-naphthyl)benzamide-----	TRC.
3'-[(7-Hydroxy-1-naphthyl)carbamoyl]acetanilide-----	TRC.
4-Hydroxy-7-[p-(p-nitrobenzamido)benzamido]-2-naphthalene-sulfonic acid.	DUP.
4-Hydroxy-7-(p-nitrobenzamido)-2-naphthalenesulfonic acid--	DUP, GAF.
2-Hydroxy-5-nitrometanilic acid-----	TRC.
1-(2-Hydroxy-4-nitrophenylazo)-2-naphthol-----	TRC.
2-(m-Hydroxyphenoxy)ethanol-----	BJL.
o-[(p-Hydroxyphenyl)azo]benzoic acid-----	PIC.
3-[4-(4'-Hydroxyphenylazo)-2,5-dimethoxyphenylazo]-benzenesulfonic acid.	TRC.
3-Hydroxy-4-(phenylazo)-2-naphthoic acid-----	ICC.
11 $\alpha$ -Hydroxyprogesterone-----	UPJ.
4-Hydroxypropiophenone-----	MLS.
$\alpha$ , $\alpha'$ -[( $\alpha$ -Hydroxy-p-sulfobenzylidene)bis[(3-methyl-p-phenylene)(ethylimino)]]di-m-toluenesulfonic acid.	TRC.
1-Hydroxy-4-p-toluidinoanthraquinone-----	ICI.
2-Imidazolidinone modifications-----	RH.
*1,1'-Iminobis[4-aminoanthraquinone]-----	ACS, ACY, CMG, DUP, GAF, ICI, MAY, TRC.
1,1'-Iminobis[4-benzamidoanthraquinone]-----	ACY, MAY.
*1,1'-Iminobis[5-benzamidoanthraquinone]-----	GAF, ICI, TRC.
*7,7'-Iminobis[4-hydroxy-2-naphthalenesulfonic acid]-----	ATL, DUP, TRC.
*1,1'-Iminobis[4-nitroanthraquinone]-----	ACY, DUP, ICI, MAY, TRC.
*1,1'-Iminodianthraquinone (1,1'-Dianthrimide)-----	ACY, GAF, ICI, MAY, TRC.
1,3-Indandione-----	PIC.
Indanone-----	EK.
Indole-2,3-dione-----	ACS.
5-Iodoanthranilic acid-----	SDW.
Isobutylbenzene-----	PLC.
*Isocyanic acid derivatives:	
Bitolyene diisocyanate (TODI)-----	UPJ.
p-Chlorophenyl isocyanate-----	MOB.
Cyclohexyl isocyanate-----	CWN, OTC.
Dianisidine diisocyanate (DADI)-----	CWN, UPJ.
3,4-Dichlorophenyl ester-----	DUP.
Dicyclohexylmethane 4,4'-diisocyanate-----	DUP.
*Diphenylmethane 4,4'-diisocyanate (MDI)-----	ACS, DUP, MOB, UPJ.
Phenylisocyanate-----	CWN, MOB.
Polyisocyanates (complex)-----	MOB.
Polymethylene polyphenylisocyanate-----	KAI, MOB, UPJ.
Toluene 2,4-diisocyanate-----	DUP, MOB.
Toluene 2,4- and 2,6-diisocyanate (65/35 mixture)-----	DUP, MOB.
*Toluene 2,4- and 2,6-diisocyanate (80/20 mixture)-----	ACS, DUP, MOB, OMC, RUC, UCC.
p-Tolyl ester-----	EK.
Other-----	DUP, EK, MOB, OTC.
Isonicotinic acid, methyl ester-----	RIL.
Isonicotinonitrile-----	RIL.
Isocetylphenol-----	PRD.
Isophthalic acid (Benzene-1,3-dicarboxylic acid)-----	ACC, SOC.
Isophthalic acid, diallyl ester-----	FMP.
Isophthalic acid, dimethyl ester-----	MTR.
Isophthalic acid, diphenyl ester-----	BJL.
Isophthaloyl chloride-----	DUP.
N-Isopropylaniline-----	ACY, EKT.
4,4'-Isopropylidenebis[2,6-dibromophenol] (Tetrabromobisphenol A).	DOW.
4,4'-Isopropylidenebis[2,6-dichlorophenol] (Tetrachlorobisphenol A).	DVC.
5,5'-Isopropylidenebis(2-hydroxy-m-xylene- $\alpha$ , $\alpha'$ -diol)-----	ARK.
*4,4'-Isopropylidenediphenol (Bisphenol A)-----	DOW, GE, MON, SHC, UCC.
4,4'-Isopropylidenediphenol, ethoxylated-----	APD.
4,4'-Isopropylidenediphenol, propoxylated-----	APD.
o-Isopropylphenol-----	TNA.
4-Isopropyl-m-phenylenediamine-----	DUP.
1,3-Isouinolinediol-----	DUP.
Isothiocyanic acid, phenyl ester-----	CFC.
*Isoviolanthrone (Isodibenzanthrone)-----	ACY, DUP, GAF, ICI, MAY, TRC.
*Leuco quinizarin (1,4,9,10-Anthratetrol)-----	AAP, ACS, ACY, EKT, HSH, ICC, TRC.
2,4-Lutidine-----	ACP, KPT.
3,4-Lutidine-----	RIL.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Malondianilide-----	KF.
Mandelonitrile-----	KF.
*Melamine-----	ACP, ACY, FIS, RCI.
*dl-p-Mentha-1,8-diene (Limonene)-----	ARZ, GIV, HNW, NCI.
p-Mentha-1,4(8)-diene-----	GIV.
*O-Mercaptobenzoic acid (Thiosalicylic acid)-----	EVN, LIL, MED.
Metanilamide-----	CMG, VPC.
Metanilanilide-----	GAF.
*Metanilic acid (m-Aminobenzenesulfonic acid)-----	ACY, DUP, TRC.
1-Methoxyanthraquinone-----	DUP, GAF.
4-Methoxymetanilic acid-----	ACY, CMG, GAF.
1-Methoxy-4-nitroanthraquinone-----	DUP.
6-Methoxy-8-nitroquinoline-----	SDW.
(m-Methoxyphenyl)acetic acid-----	SDW.
(p-Methoxyphenyl)acetic acid-----	CTN, UOP.
4-Methoxy-m-phenylenediamine sulfate-----	WAY.
4'-Methoxypropiofenone-----	LIL.
*1-(Methylamino)anthraquinone-----	AAP, ACS, ACY, DUP, GAF, ICI.
1-(Methylamino)-4-p-toluidinoanthraquinone-----	GAF, ICI.
N-Methylaniline-----	ACY, DUP.
3-(N-Methylanilino)propionitrile-----	DUP.
5-Methyl-o-anisidine [NH <sub>2</sub> =1]-----	DUP, SDC.
m-Methylanisole-----	GIV.
N-Methylantranilic acid-----	GIV, ICC.
2-Methylantraquinone-----	ACS, ACY.
3-Methylbenzo[f]quinoline-----	ACY.
2-Methylbenzo[f]quinoline-8,10-disulfonic acid-----	DUP.
2-Methylbenzothiazole-----	FMT.
α-Methylbenzyl alcohol-----	UCC.
N-Methylbenzylamine-----	ABB, MLS, SDW.
Methyl benzyl ether-----	UCC.
5-(1-Methylbutyl)barbituric acid-----	LIL.
3-Methylcholanthrene-----	EK.
Methylcyclohexane-----	PLC.
Methylcyclohexenecarboxaldehyde-----	UCC.
Methylcyclohexene-1,2-dicarboxylic anhydride-----	UCC.
Methylcyclohexene methanol-----	UCC.
4-Methyl-α,α-diphenyl-1-piperazineethanol, dihydrochloride-----	ABB.
N-Methyleneaniline-----	DUP.
4,4'-Methylenebis[2-chloroaniline]-----	DUP.
4,4'-Methylenebis[N,N-diethylaniline]-----	ACY, GAF, SDH, TRC.
*4,4'-Methylenebis[N,N-dimethylaniline] (Methane base)-----	ACS, ACY, DSC, DUP, GAF, SDH, x.
4,4'-Methylenebis[N,N-dimethyl-3-nitroaniline]-----	GAF.
4,4'-Methylenebis[3-hydroxy-2-naphthoic acid], disodium salt-----	PD.
2,2'-Methylenebis(6-nonyl-p-cresol)-----	ACY.
4,4'-Methylenedianiline-----	ACS, DOW, DUP, MOB.
5,5'-Methylenedisalicylic acid-----	HN.
5-Methylene-2-norbornene-----	DOW.
N-Methylformanilide-----	MLS.
Methylhydroquinone-----	EKT.
2-Methylindole-3-carboxaldehyde-----	GAF.
6-Methyl-2-(2-methyl-6-quinolyl)-7-benzothiazolesulfonic acid-----	DUP.
Methylnaphthalene, crude-----	KPT.
N-Methyl-4'-nitroacetanilide-----	ACS, GAF.
N-Methyl-p-nitroaniline-----	ACY, GAF.
5-Methyl-4-nitro-o-anisidine-----	PCW.
*2-Methyl-1-nitroanthraquinone-----	ACS, DUP, GAF, ICI.
2-Methyl-5-nitroimidazole-----	RDA.
N-Methyl-N-nitroso-p-toluenesulfonamide-----	AID, EK.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride-----	VEL.
Methylnorbornene-2,3-dicarboxylic anhydride, isomers-----	ACS.
3'-Methyl-5-[(7-oxo-7H-benz[de]anthracen-3-yl)-amino]-1,2'-iminodiantraquinone-----	DUP.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide-----	CMG, VPC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	TRC.
*p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid-----	AAP, ACY, CMG, DUP, GAF, TRC, VPC.
3-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-1,5-naphthalenedisulfonic acid-----	TRC.
*4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO <sub>3</sub> H=1].-----	CMG, GAF, TRC, VPC.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Methyl-5-phenylbenzoxazole-----	EK.
1-Methyl-2-phenylindole-3-carboxaldehyde-----	GAF.
1-Methyl-4-phenylisonipecotic acid-----	SDW.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid-----	ICO.
5-Methyl-3-phenyl-4-isoxazolecarboxylic acid hydrochloride-----	ICO.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)-----	ACS, ACY, DUP, GAF, SDH, SDW, VPC.
Methylphenylsiloxane tetramer-----	DCC.
Methyl phenyl sulfide (Thioanisole)-----	PTT.
1-Methylpiperazine-----	WTC.
4-Methyl-1-piperazineacetic acid, methyl ester-----	ABB.
2-Methyl-1-piperidinepropanol-----	L.L.L.
3-Methyl-2-pyrazolin-5-one-----	DUP.
* $\alpha$ -Methylstyrene-----	ACP, CLK, DOW, HPC, SKO, WTC.
ar-Methylstyrene (Vinyltoluene)-----	DOW.
N-Methyl-5-sulfoanthranilic acid-----	GAF.
2-(Methylsulfonyl)-4-nitroaniline-----	EKT, TRC.
4-(Methylthio)-m-cresol-----	CRZ.
3-Methylthiophene-----	SDW.
p-(Methylthio)phenol-----	CRZ.
3-Methyl-6-p-toluidino-7H-dibenz[f,i]isoquinoline- 2,7(3H)-dione.	DUP, GAF, ICI.
3-Methyl-1-p-tolyl-2-pyrazolin-5-one-----	VPC.
*Naphthalene, solidifying at 79° C. or above (refined flake) (from domestic crude).	ACS, KPT, RIL.
2,6-Naphthalenedicarboxylic acid-----	NEP.
1,5-Naphthalenedisulfonic acid-----	ACS, TRC.
*2,7-Naphthalenedisulfonic acid-----	ACS, DUP, TRC.
1-Naphthalenesulfonic acid-----	TRC.
1-Naphthalenesulfonic acid, sodium salt-----	TRC.
2-Naphthalenesulfonic acid-----	ACS, ACY.
2-Naphthalenesulfonic acid, sodium salt-----	ACY.
2-Naphthalenesulfonyl chloride-----	DUP.
*1,4,5,8-Naphthalenetetracarboxylic acid-----	GAF, HST, TRC.
1,3,6-Naphthalenetrisulfonic acid-----	GAF.
Naphthalic anhydride-----	DUP.
Naphthalimide-----	ACS, DUP, GAF.
2H-Naphth[1,8-cd]isothiazole-3,5-disulfonic acid, 1,1-dioxide, trisodium salt.	DUP.
1-Naphthol ( $\alpha$ -Naphthol)-----	ACS, DUP, UCC.
2-Naphthol, tech. ( $\beta$ -Naphthol) <sup>1</sup> -----	ACS, ACY, SW.
p-Naphtholbenzein-----	EK.
Naphthostyryl-----	ACS, GAF.
*Naphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid-----	ACS, CMG, GAF, TRC, VPC.
1-Naphthylamine ( $\alpha$ -Naphthylamine)-----	ACS, DUP.
1-Naphthylamine hydrochloride-----	GAF.
p-(2-Naphthylamino)phenol (N-(p-Hydroxyphenol)-2- naphthylamine).	ACS, GAF, SDC.
2-(Naphthylthio)acetic acid-----	ACY.
Nicotinonitrile (3-Cyanopyridine)-----	NEP, RIL.
Nitro-aceanthra[2,1-a]aceanthrylene-5,13-dione-----	ICI.
3'-Nitroacetanilide-----	AAP.
4'-Nitroacetanilide-----	AAP, GAF, TRC.
2'-Nitro-p-acetanilide-----	DUP, SDH.
4'-Nitro-o-acetanilide-----	DUP.
3'-Nitroacetophenone-----	CTN, SDH.
5'-Nitro-o-acetotoluidide-----	DUP.
m-Nitroaniline-----	ACY, x.
o-Nitroaniline-----	AAP, MON.
*p-Nitroaniline-----	AAP, MON, UPM.
2-Nitro-p-anisidine [NH <sub>2</sub> =1]-----	DUP, SDH.
4-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	DUP, SDH.
*5-Nitro-o-anisidine [NH <sub>2</sub> =1]-----	ACY, ALL, BUC, DUP.
o-Nitroanisole-----	DUP, MON.
p-Nitroanisole-----	DUP.
4-Nitroanthranilic acid-----	DUP.
5-Nitroanthranilic acid-----	TRC.
1-Nitroanthraquinone-----	ACY, ICC.
2-(4-Nitro-2-anthraquinonyl)anthra[2,3-d]-oxazole- 5,10-dione.	ACS, GAF.
m-Nitrobenzaldehyde-----	ACS, SDH.
4'-Nitrobenzanilide-----	GAF.
*Nitrobenzene-----	ACS, ACY, DUP, FST, MOB, MON, RUC.

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
3'-Nitrobenzenesulfonanilide-----	GAF.
*m-Nitrobenzenesulfonic acid-----	ACS, ACY, DUP, TRC.
*m-Nitrobenzenesulfonic acid, sodium salt-----	GAF, MON, MRA.
m-Nitrobenzenesulfonyl chloride-----	GAF.
p-Nitrobenzenesulfonyl chloride-----	EK.
5-Nitro-2-benzimidazolinone-----	DUP.
m-Nitrobenzoic acid-----	SDH, WAY.
m-Nitrobenzoic acid, sodium salt-----	WAY.
p-Nitrobenzoic acid-----	DUP.
m-Nitrobenzoyl chloride-----	HK.
p-Nitrobenzoyl chloride-----	HK.
p-Nitrobenzyl alcohol-----	EK.
4'-Nitro-4-biphenylcarboxylic acid-----	TRC.
4-Nitro-sec-butylbenzene-----	WAY.
2-Nitro-p-cresol-----	SW.
Nitrocyclohexane-----	x.
Nitrodiphenylamine-----	ACY, MON.
5-Nitrofuraldehyde diacetate-----	NOR.
5-Nitro-2-furfuraldehyde diacetate-----	NOR.
5-Nitroisophthalic acid-----	FIS, GAF.
1-Nitronaphthalene-----	ACS, DUP.
3-Nitro-1,5-naphthalenedisulfonic acid-----	GAF, TRC.
4-Nitronaphthalic anhydride-----	ACS, GAF.
*7(and 8)-Nitronaphth[1,2-d][1,2,3]oxadiazole-5-sulfonic acid.	ACS, GAF, TRC, VPC.
o-Nitrophenol-----	DUP.
*p-Nitrophenol-----	DUP, MON, SDC, UPM.
*p-Nitrophenol, sodium salt-----	MON, UPM.
(p-Nitrophenyl)acetic acid-----	BPC.
4'-(p-Nitrophenyl)acetophenone-----	DUP.
4-[(p-Nitrophenyl)azo]-o-anisidine-----	AAP.
2-Nitro-p-phenylenediamine-----	FIS, WAY.
4-Nitro-o-phenylenediamine-----	DUP, FMT.
(p-Nitrophenyl)hydrazine-----	EK.
2,2'-(m-Nitrophenylimino)diethanol-----	DUP.
2,2'-(m-Nitrophenylimino)diethanol, diacetate ester-----	DUP.
2-(p-Nitrophenyl)-2H-naphtho[1,2-d]triazole-6,8-disulfonic acid.	TRC.
1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	DUP, VPC.
3-Nitrophthalic acid-----	EK.
3-Nitrophthalic anhydride-----	EK.
5-Nitrosalicylaldehyde-----	EK.
3(and 5)-Nitrosalicylic acid-----	GAF.
p-Nitrosophenol-----	ACS, ACY, DUP, SDC.
4-Nitrostilbene-----	GAF.
$\beta$ -Nitrostyrene-----	CWN.
4-Nitro-4'-(5-sulfo-2H-naphthol[1,2-d]triazol-2-yl)-2,2'-stilbenedisulfonic acid.	TRC.
m-Nitrotoluene-----	ACS, DUP.
o-Nitrotoluene-----	ACS, DUP, FST.
p-Nitrotoluene-----	ACS, DUP, FST.
Nitrotoluene mixtures-----	ACS, DUP, FST.
5-Nitro-o-toluenesulfonanilide-----	GAF.
p-Nitrotoluenesulfonic acid-----	GGY.
*3-Nitro-p-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	AAP, CMG, TRC.
*5-Nitro-o-toluenesulfonic acid [SO <sub>3</sub> H=1]-----	ACS, ACY, DUP, GAF, SDH, TRC.
4'-Nitro-p-toluenesulfo-o-toluidide-----	GAF.
3-Nitro-p-toluic acid, methyl ester-----	SDH.
*2-Nitro-p-toluidine [NH <sub>2</sub> =1]-----	ABB, ACY, DUP, SDH, SW.
4-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	GAF.
*5-Nitro-o-toluidine [NH <sub>2</sub> =1]-----	BUC, DUP, PCW, SDH.
5-Nitro-2-p-toluidinobenzenesulfonic acid-----	TRC.
3-Nitrotolucyl chloride-----	x.
16-Nitroviolanthrone-----	ATL, GAF, ICI.
4-Nitro-m-xylene-----	DUP.
Nitroxylenes, mixed-----	ACS.
Nonyl-dinonylphenol, mixture-----	JCC.
*Nonylphenol-----	GAF, JCC, MON, PRD, RH, STP.
5-Norbornene-2,3-dicarboxylic anhydride-----	VEL.
Octylphenol-----	RH.
Octylphenyl acid phosphate-----	SM.
7-Oxabicyclo[4.1.0]heptane (Cyclohexene oxide)-----	ARA.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Oxalacetic acid, diethyl ester, (p-sulfophenyl)hydrazone-	TRC.
Oxanilide-----	WSN.
*1-[(7-Oxo-7H-benz[de]anthracen-3-yl)aminc]anthraquinone----	ACY, DUP, GAF, ICI, MAY, TRC.
*1,1'-[(7-Oxo-7H-benz[de]anthracen-3,9-ylene)diimino]di-	ACY, DUP, GAF, ICI, MAY, TRC.
anthraquinone.	
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid-----	ACS.
5-Oxo-1-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester-	GAF, SDW, VPC.
5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid	AAP, GAF, VPC.
(Pyrazolone T).	
5-Oxo-1-(p-sulfotolyl)-2-pyrazoline-3-carboxylic acid-----	VPC.
4,4'-Oxydianiline-----	x, x.
4,4'-Oxydiphenol-----	EK.
Penicillin, N-ethylpiperidine salt-----	MRK.
1,1,3,3,5-Pentamethylindan-----	GIV.
Pentyl-naphthalenes (Amylnaphthalenes)-----	PAS.
o-Pentylphenol (o-Amylphenol)-----	PAS.
p-tert-Pentylphenol-----	x.
3,4,9,10-Perylenetetra-carboxylic acid-----	ACS, GAF.
*3,4,9,10-Perylenetetra-carboxylic-3,4:9,10-diimide-----	ACS, DUP, GAF.
Phenethylamine-----	MLS.
Phenethylamine sulfate-----	MLS.
o-Phenethylbenzoic acid-----	LIL.
o-Phenetidine-----	MON.
p-Phenetidine-----	MON.
*Phenol:	
*Natural:	
*From coal tar: <sup>2</sup>	
39° C., m.p-----	KPT, PRD.
82%-84%-----	ACP, KPT.
All other-----	ACP, KPT.
*From petroleum-----	MER, NPC, PIT, PRD, SW.
*Synthetic:	
By caustic fusion: U.S.P-----	MAL, MON, RCI.
From chlorobenzene by liquid-phase hydrolysis: U.S.P-	DOW.
From chlorobenzene by vapor-phase hydrolysis: U.S.P--	HKD, UCC.
*From cumene by oxidation: U.S.P-----	ACP, CLK, HPC, MON, SHC, SKO, SOC, UCC.
Phenolsulfonaphthalein-----	EK.
Phenolsulfonaphthalein, sodium salt-----	EK.
Phenothiazin-2-yl-1-propanone-----	WYT.
Phenoxyacetic acid, sodium salt-----	BPC.
2-Phenoxypropanol-----	ICO.
2-Phenoxypropionyl chloride-----	ICO, OPC.
Phenylacetic acid ( $\alpha$ -Toluic acid)-----	BPC, GIV, MAL.
Phenylacetic acid, ethyl ester, tech-----	BPC, UOP.
Phenylacetic acid, methyl ester-----	BPC.
Phenylacetic acid, potassium salt-----	BPC, OPC, UOP.
Phenylacetic acid, sodium salt-----	BPC, OPC, UOP.
*Phenylacetoneitrile ( $\alpha$ -Tolunitrile)-----	BPC, OPC, SDW, UOP.
4'-Phenylacetophenone-----	DUP.
N-Phenylantranilic acid-----	SDW.
2-Phenylantra[2,3-d]oxazole-5,10-dione-----	GAF.
*p-Phenylazoaniline (C.I. Solvent Yellow 1) and hydrochlo-	ACS, ACY, DUP, GAF.
ride.	
4-(Phenylazo)diphenylamine-----	EK.
4-(Phenylazo)-1-naphthylamine-----	DUP.
4-(Phenylazo)-m-phenylenediamine (C.I. Basic Orange 2)----	DUP.
1-Phenyl-1,3-butanedione-----	EK.
2-Phenylbutyric acid-----	BPC.
$\alpha$ -Phenyl-o-cresol-----	RBC.
1-Phenylcyclopentanecarboxylic acid-----	SK.
1-Phenyldecane (Decylbenzene)-----	ACS.
N'N'-p-Phenylenebis[acetamide]-----	ACY.
m-Phenylenediamine-----	ACS, ACY, DUP, GAF.
o-Phenylenediamine-----	AAP, DUP, FMT, MEE.
*p-Phenylenediamine-----	ACY, BFG, SDC.
d-Phenylephrine base-----	SDW.
dl-Phenylephrine base-----	SDW.
Phenyl-1,2-ethanediol-----	ARA.
2-Phenylethanesulfonic acid, sodium salt ( $\beta$ -Styrenesulfonic	DUP, SHL.
acid, sodium salt).	
Phenyl ether (Diphenyloxide)-----	DOW.
d-Phenyglycine-----	OTC.

See footnotes at end of table.



TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
d-(-)-2-Phenylglycine and derivatives-----	KF.
d-(-)-Phenylglycine, N-carboxy anhydride-----	OTC.
dl-2-Phenylglycine (racemic)-----	KF.
Phenylglycine, sodium salt-----	ACS.
Phenylglycol ethers-----	UCC.
d-(-)-Phenylglycyl hydrochloride-----	OTC.
5-Phenylhydantoin-----	ABB.
Phenylhydrazine-----	DOW.
Phenylhydrazine hydrochloride-----	EK, VPC.
2,2'-[(Phenyl)imino]diethanol (N-Phenyldiethanolamine)-----	EKT, GAF.
3,3'-[(Phenyl)imino]dipropionitrile-----	DUP.
Phenylmagnesium bromide-----	ARA.
Phenylmalonic acid, diethyl ester-----	BPC.
o-Phenylphenol-----	DOW, RCI, RSA.
o-Phenylphenol, chlorinated-----	DOW.
o-Phenylphenol, sodium salt-----	DOW.
p-Phenylphenol-----	DOW.
N-Phenyl-p-phenylenediamine-----	DUP, USR.
Phenylphosphinic acid-----	SFI.
Phenylphosphonic dichloride-----	SFI.
Phenylphosphonothioic dichloride-----	SFI.
Phenylphosphonous acid-----	SFI.
Phenylphosphonous acid, sodium salt-----	SFI.
Phenylphosphorous dichloride-----	SFI.
1-Phenylpiperazine-----	RSA.
*1-Phenyl-1,2-propanedione, 2-oxime-----	ICO, NEP, ORT.
Phenyl-2-propanone-----	ORT, SK.
Phenylsiloxane tetramer-----	DCC.
Phenylsuccinic acid-----	PD.
Phenyl sulfone-----	NES.
1-Phenyl-2-thiourea-----	EK.
Phenylundecanoic acid-----	EK.
Phenylurea-----	RSA.
Phloroglucinol-----	MRT.
1(2H)-Phthalazinone-----	ACS, x.
Phthalic acid-----	EK, FMP, KF, MEE.
Phthalic acid, disodium salt-----	CFC.
*Phthalic anhydride-----	ACP, GRH, KPS, MON, PCC, PTO, RCI, SOC, STP, SW, THC, UCC, WTC.
Phthalide-----	ACS, FMT.
Phthalimide-----	DUP, MEE.
Phthalimide, potassium salt-----	EK, SDW.
[Phthalocyaninato(2-)]copper-----	ICC, ICI.
[Phthalocyaninato(2-)]iron-----	DUP.
Phthalocyaninetetrasulfonyl chloride, copper derivative-----	DUP, TRC.
Phthaloyl chloride (Phthalyl chloride)-----	MON.
3-Picoline-N-oxide-----	RIL.
*Picolines: <sup>2</sup>	
*2-Picoline ( $\alpha$ -Picoline)-----	ACP, KPT, RIL, UCC.
3-Picoline ( $\beta$ -Picoline)-----	NEP, RIL.
4-Picoline ( $\gamma$ -Picoline)-----	RIL, UCC.
Picoline (3,4-mixture)-----	ACP, KPT.
Picolinic acid-----	NEP.
Picolinonitrile (2-Cyanopyridine)-----	NEP.
3-Picolylamine-----	RIL.
Picric acid (Trinitrophenol)-----	ACS, SDC.
2-Pipecoline-----	LIL.
2,5-Piperazinedione-----	EK.
Piperazine mixture, crude <sup>1</sup> -----	FIM, JCC, x.
*Piperidine-----	ABB, DUP, MRK, RIL.
3-Piperidinopropiophenone hydrochloride-----	ACY.
Polychlorobiphenyl-----	MON.
Poly (Methylenephenylene) polyamine-----	KAI.
*Primuline base-----	ACS, ATL, DUP.
Primulinesulfonic acid-----	ATL.
*Propiophenone-----	LIL, OPC, ORT, UOP.
n-Propylbenzene-----	EK, HMY.
*8,16-Pyranthrene-dione-----	CMG, ICI, TRC.
Pyrazole-----	LIL.
Pyridine, refined: <sup>2</sup>	
*2° Pyridine-----	ACP, KPT, NEP, RIL.
Other grades-----	KPT.

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
Pyridine hydrochloride-----	EK.
3-Pyridinemethanol-----	RIL.
Pyridine-N-oxide-----	RIL.
3-Pyridinol-----	NEP.
2(1H)-Pyridone-----	FMT.
2-Pyrimidinol-----	GGY.
2-Pyrrolidinone-----	GAF.
3-(1-Pyrrolidinyl)propiofenone hydrochloride-----	LIL.
Quinaldine-----	ACS, ACY.
Quinoline:	
1° and 2° Quinoline-----	ACP, KPT.
Other grades-----	EK.
2,4-Quinolinediol-----	DUP, GAF.
8-Quinolinol (8-Hydroxyquinoline, tech.)-----	FIS.
Quinophthalone (Quinoline yellow, base)-----	ACS, DUP.
2-Quinoxalinol-----	EK.
Resorcinol, monoacetate (nonmedicinal grade) <sup>1</sup> -----	AAP.
Resorcinol, tech <sup>1</sup> -----	KPT, UPF.
β-Resorcylic acid-----	ACY, KPT.
β-Resorcylic acid, lead salt-----	ACY.
*Salicylaldehyde-----	DOW, HN, MTR, RDA.
*Salicylic acid, tech-----	CFC, DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex-----	TRC.
Salicylic acid, sodium chromium complex-----	TRC.
Salicylic acid, sodium salt (crude)-----	DOW, SDH.
Salicylideneaminoguanidine oleate-----	DUP.
Sodium phenoxide-----	CFC, DUP.
*Styrene, all grades-----	ACC, CSD, DOW, ELP, FG, KPP, MCB, MON, SHC, SKC, SNT, UCC.
5-Sulfamoylanthranilic acid-----	TRC.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt-----	ACS, ACY, CTN, DUP.
Sulfapyridine, tech <sup>1</sup> -----	AAC.
4-Sulfoanthranilic acid-----	CMG, TRC.
5-Sulfoanthranilic acid-----	ICI.
α,α-[(p-Sulfobenzylidene)bis[(3-methyl-p-phenylene)- (ethylimino)]] di-m-toluenesulfonic acid-----	TRC.
5-Sulfoisophthalic acid, 1,3-dimethyl ester-----	x.
4,4'-Sulfonyldianiline-----	RSA.
N,5'-Sulfonyldianthranilic acid-----	TRC.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)-----	MON, UPF.
*Terephthalic acid-----	ACC, DUP, EKT.
*Terephthalic acid, dimethyl ester-----	ACC, DUP, EKT, HPC.
Terphenyl (Phenylbiphenyl)-----	MON.
1,2,4,5-Tetraaminobenzene tetrahydrochloride-----	BJL.
[4,4',4'',4'''-Tetraaminophthalocyaninato(2-)]copper-----	DUP.
3',3'',5',5'''-Tetrabromophenolphthalein, ethyl ester-----	EK.
Tetrabromophthalic anhydride-----	MCH.
Tetrabromo-8,16-pyranthredione-----	ACS.
1,3,6,8-Tetrabromopyrene-----	GAF.
*1,4,5,8-Tetrachloroanthraquinone-----	ACS, DUP, GAF.
1,2,4,5-Tetrachlorobenzene-----	DOW, DVC, HK.
1,2,4,5-Tetrachloro-3-nitrobenzene-----	SDH.
α,α,2,6-Tetrachlorotoluene-----	DUP.
Tetrachloroviolanthrone-----	GAF, ICI.
Tetrahydrofuran-----	DUP, QKO.
Tetrahydrofurfuryl methacrylate-----	SAR.
*1,4,5,8-Tetrahydroxyanthraquinone, leuco derivative-----	AAF, ACS, GAF, ICC, TRC.
1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone (Pentanthrimide).-----	ACS, ICI.
p-(1,1,3,3-Tetramethylbutyl)phenol-----	GAF.
3,3',5,5'-Tetramethyldiphenoquinone-----	DUP.
N,N,N',N'-Tetramethyl-p-phenylenediamine-----	EK.
[4,4',4'',4'''-Tetranitrophthalocyaninato(2)]copper-----	DUP.
2-(2-Thenylamino)pyridine-----	ABB.
2,4-Thiazolidinedione-----	EK.
*3,3'-Thiobis[7H-benz[de]anthracen-7-one]-----	ACY, DUP, GAF, ICI, MAY, TRC.
1,1'-Thiobis(2-naphthol)-----	ACY.
2,2'-Thiobis[5-nitrobenzenesulfonic acid]-----	GAF.
4,4'-Thiodianiline-----	ACS, ACY.
6,6'-Thiodimetanilic acid-----	ACS, GAF.
2-Thiohydantoin-----	BPC.
Thiopheneacetic acid-----	BPC.

See footnotes at end of table.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
2-Thiopheneacetyl chloride-----	LIL.
2-Thiophenecarboxaldehyde-----	ABB.
sym-Thymol-----	GIV.
*Toluene-2,4-diamine (4-m-Tolylenediamine)-----	ACS, ACY, DUP, GAF, RUC, TRC, UCC.
Toluene-2,5-diamine sulfate-----	EK, WAY.
Toluene-2,4-disulfonic acid-----	GAF, SDH.
o-Toluenesulfonamide-----	MON.
p-Toluenesulfonamide-----	MON.
o(and p)-Toluenesulfonic acid-----	ACS, MON, SW, UPF.
p-Toluenesulfonic acid-----	NES, TEN, UPF.
p-Toluenesulfonic acid, ethyl ester-----	ACS, ACY, ATL.
p-Toluenesulfonic acid, methyl ester-----	ICI.
p-Toluenesulfono-o-toluidide-----	GAF.
p-Toluenesulfonyl chloride-----	MON.
m-Toluic acid-----	CWL.
o-Toluic acid-----	CWL.
p-Toluic acid-----	CWL.
m-Toluidine-----	ACS, DUP.
o-Toluidine-----	ACS, DUP, FST.
o-Toluidine hydrochloride-----	AAP, ACY.
p-Toluidine-----	ACS, DUP.
p-Toluidine hydrochloride-----	EK.
Toluidines, mixed-----	DUP.
2-o-Toluidinoethanol-----	EKT.
m-Toluidinomethanesulfonic acid-----	VPC.
o-Toluidinomethanesulfonic acid-----	TRC.
8-p-Toluidino-1-naphthalenesulfonic acid-----	ACS.
*o-(p-Toluoyl)benzoic acid-----	ACS, ACY, DUP.
N-(p-Tolyazo)sarcosine-----	BUC, GAF.
*4-(o-Tolylazo)-o-toluidine (C.I. Solvent Yellow 3)-----	ACS, ACY, BUC, DUP, SDH.
4-(o-Tolylazo)-o-toluidine hydrochloride-----	GAF.
1-p-Tolyldodecane-----	x.
2,2'-(m-Tolylimino)diethanol-----	EKT.
p-Tolylmercuric chloride-----	EK.
N,N,N-Tribenzylamine-----	MLS.
1,2,3(and 1,2,4)-Trichlorobenzene-----	DVC, PPG.
1,2,4-Trichlorobenzene-----	DOW, HK, SVT.
N,2,6-Trichloro-p-benzoquinoneimine-----	EK.
1,2,4-Trichloro-5-nitrobenzene-----	PCW.
Trichlorophenylsilane-----	DCC, UCC.
α,α,α-Trichlorotoluene (Benzotrichloride)-----	HK, VEL.
α,2,4-Trichlorotoluene-----	HN.
α,2,4(and α,2,6)-Trichlorotoluene-----	BPC.
*2,4,6-Trichloro-s-triazine (Cyanuric chloride)-----	ACY, GGY, NIL.
1,3,5-Triethylbenzene-----	DUP.
2-(Trifluoromethyl)phenothiazine-----	SK.
α,α,α-Trifluoro-m-nitrotoluene-----	MEE.
α,α,α-Trifluoro-N-phenyl-m-toluidine (3-(Trifluoro- methyl)diphenylamine).-----	SK.
α,α,α-Trifluorotoluene-----	HK.
α,α,α-Trifluoro-m-toluidine-----	MEE.
α,α,α-Trifluoro-o-toluidine-----	MEE.
1,2,4-Trihydroxyanthraquinone-----	GAF.
2,3,5-Triiodobenzoic acid-----	GAF.
2,4,5-Trimethylaniline (Pseudocumidine)-----	ACS.
2,3,3-Trimethyl-3H-indole-----	GAF.
*1,3,3-Trimethyl-Δ <sup>2</sup> -indolineacetaldehyde-----	DUP, GAF, VPC.
*1,3,3-Trimethyl-2-methyleneindoline (Trimethyl base)-----	ACS, DUP, GAF, VPC.
Trimethylphenylammonium chloride-----	BKL.
Trimethylphenylammonium iodide-----	EK.
α,α',2-Trimethyl-1,4-piperazinediethanol-----	WYN.
2,4,6-Trimethylpyridine-----	KPT.
1,3,5-Trinitrobenzene-----	EK.
2,4,6-Trinitrobenzenesulfonic acid-----	EK.
2,4,7-Trinitrofluoren-9-one-----	EK.
Triphenylamine-----	EK.
Triphenylmethanol-----	EK.
Triphenylsulfonium chloride-----	FIS.
α,α',α''-Tris(dimethylamino)mesitol-----	RH, TKL.
Tris(2-methyl-1-aziridinyl)phosphine oxide-----	ICO.
Tris(2-methyl-1-aziridinyl)phosphine sulfide-----	ICO.
m-Ureidoaniline-----	ICI.

TABLE 7B.--Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*7,7'-Ureylenebis[4-hydroxy-2-naphthalenesulfonic acid] (J acid urea)	ACS, ACY, ATL, BKS, CMG, GAF, TRC, VPC.
Veratraldehyde (3,4-Dimethoxybenzaldehyde)-----	LIL, SLV.
Veratryl alcohol (3,4-Dimethoxybenzyl alcohol)-----	LIL.
2-Vinylcyclohexene-----	UCC.
4-Vinylcyclohexene-----	PLC.
2,2'-Vinylenebis[benzimidazole]-----	TRC.
5-Vinyl-2-picoline (MVP)-----	PLC.
2-Vinylpyridine-----	NEP, RIL.
4-Vinylpyridine-----	RIL.
*Violanthrone (Dibenzanthrone)-----	ATL, DUP, GAF, ICI, MAY, SDC, TRC.
Xanthene-9-carboxylic acid-----	MAL.
m-Xylene-----	SNT, SOC.
*o-Xylene-----	ASH, CCP, COR, CSD, CSO, CSP, DLH, ENJ, GRS, MON, SIN, SNT, SOC, TOC.
*p-Xylene-----	CSD, ENJ, HCR, SIN, SNT, SOC, SOG.
2,5-Xylenesulfonic acid-----	EK.
2,4-Xylenol-----	EK.
2,6-Xylenol-----	KPT.
Xylenol crystals-----	ACP.
Xylenols:	
Low b.p.-----	NPC, PIT.
Medium b.p.-----	NPC, PIT, PRD.
Not classified as to b.p.-----	GE, PRD.
Xylidines:	
2,4-Xylidine (m-4-Xylidine)-----	ACS, DUP.
2,5-Xylidine (p-Xylidine)-----	ACS, DUP.
2,6-Xylidine-----	DUP.
Original mixture-----	ACS, DUP.
4-(2,4-Xylylazo)-o-toluidine-----	ACS.
4-(2,5-Xylylazo)-o-toluidine-----	ACY.
4-(Xylylazo)xylidine-----	GAF.
4-(2,4-Xylylazo)-2,5-xylidine-----	ACS.
All other cyclic intermediates-----	ARA, CWN, DUP, EK, FG, FIS, HPC, ICC, LIL, MON, NRS, PAS, PCW, SW, x.

<sup>1</sup> See table 13B for data on medicinal grade of this item.

<sup>2</sup> Does not include manufacturers' identification codes for producers that report to the Division of Bituminous Coal, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines, Mineral Industry Survey *Coke Producers in the United States in 1967*, Feb. 4, 1969.

## Dyes

TABLE 8B. --Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967

[Dyes for which separate statistics are given in table 8A are marked below with an asterisk (\*); dyes not so marked do not appear in table 8A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES	
*Acid yellow dyes:	
Acid Yellow 1-----	ACY.
Acid Yellow 2-----	DUP.
*Acid Yellow 3-----	ACS, ACY, DUP.
Acid Yellow 4-----	SDH.
*Acid Yellow 11-----	CMG, DUP, VPC.
Acid Yellow 14-----	BDO, TMC.
*Acid Yellow 17-----	ACS, ACY, ATL, BDO, BKS, CMG, DUP, GAF, PDC, SDH, TRC, VPC.
*Acid Yellow 23-----	AAP, ACS, ACY, GAF, MRX, SDH, TRC, VPC.
Acid Yellow 25-----	GAF.
Acid Yellow 29-----	GAF, TRC.
Acid Yellow 34-----	ACS.
*Acid Yellow 36-----	ACS, DUP, TRC.
Acid Yellow 38-----	ACS, GAF.
*Acid Yellow 40-----	ACS, ALT, ATL, DUP, GAF, TRC, VPC.
*Acid Yellow 42-----	AAP, ACY, GAF, VPC.
*Acid Yellow 44-----	AAP, ACS, GAF, VPC.
Acid Yellow 49-----	VPC.
*Acid Yellow 54-----	ACS, ACY, BKS, CMG, GAF, TRC, VPC.
Acid Yellow 59-----	VPC.
Acid Yellow 63-----	AAP.
Acid Yellow 65-----	ALT, TRC.
*Acid Yellow 73-----	ACS, GAF, NYC, SDH.
Acid Yellow 76-----	TRC.
Acid Yellow 79-----	VPC.
Acid Yellow 95-----	CMG.
*Acid Yellow 99-----	ACS, CMG, GAF, TRC, VPC.
Acid Yellow 114-----	CMG, TRC.
Acid Yellow 121-----	GAF.
*Acid Yellow 124-----	ACS, BKS, DUP.
Acid Yellow 127-----	TRC.
Acid Yellow 128-----	TRC.
Acid Yellow 129-----	TRC.
*Acid Yellow 151-----	ACY, BKS, DUP, TRC, VPC.
Acid Yellow 152-----	ACY.
Acid Yellow 159-----	ALT, TRC.
Acid Yellow 174-----	DUP.
Acid Yellow 175-----	DUP.
Other acid yellow dyes-----	ACY, ALT, ATL, CMG, DUP, GAF, TRC, VPC.
*Acid orange dyes:	
*Acid Orange 1-----	ACS, ATL, BKS, GAF.
Acid Orange 2-----	ACS, TRC.
Acid Orange 5-----	ACY.
Acid Orange 6-----	ACS.
*Acid Orange 7-----	AAP, ACS, ACY, ATL, BKS, CPC, GAF, PDC, TRC, YAW.
*Acid Orange 8-----	ACS, ACY, ATL, BKS, DUP, GAF, TRC.
*Acid Orange 10-----	ACS, ACY, DUP, GAF, PDC, TRC, VPC, YAW.
Acid Orange 12-----	ACS.
Acid Orange 19-----	GAF.
*Acid Orange 24-----	ACS, ACY, DUP, GAF, TRC, YAW.
Acid Orange 28-----	ACS.
Acid Orange 31-----	AAP.
Acid Orange 34-----	ACY.
Acid Orange 45-----	ACS, TRC.
Acid Orange 50-----	AAP.
Acid Orange 51-----	CMG, TRC.
Acid Orange 52-----	ACS.
Acid Orange 56-----	GAF.
*Acid Orange 60-----	BKS, CMG, DUP, GAF, TRC.
Acid Orange 62-----	TRC.
Acid Orange 63-----	GAF, TRC.
Acid Orange 64-----	ACS, ACY, DUP.
Acid Orange 69-----	ACY.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid orange dyes--Continued	
Acid Orange 72-----	GAF.
*Acid Orange 74-----	ACS, CMG, GAF, TRC.
Acid Orange 76-----	ACS, TRC.
Acid Orange 85-----	ACS.
Acid Orange 86-----	ACS, TRC.
Acid Orange 114-----	ACY.
*Acid Orange 116-----	ALT, BKS, GAF, TRC.
Acid Orange 119-----	TRC.
Acid Orange 128-----	DUP.
Other acid orange dyes-----	ALT, ATL, TRC, VPC.
*Acid red dyes:	
*Acid Red 1-----	AAP, ACS, ACY, BDO, BKS, BL, DUP, GAF, SDH, TRC, VPC, YAW.
*Acid Red 4-----	ATL, BDO, CMG, DUP, GAF, PDC, TRC, VPC, YAW.
*Acid Red 14-----	ACS, DUP, GAF, PDC, YAW.
Acid Red 17-----	ACS, TRC, YAW.
*Acid Red 18-----	ACS, ACY, ATL, BDO, DUP, GAF, TRC.
*Acid Red 26-----	ACS, ACY, ATL, CPC, GAF.
Acid Red 27-----	ACS.
Acid Red 32-----	GAF.
Acid Red 33-----	ACS, YAW.
Acid Red 34-----	ACS.
Acid Red 35-----	AAP, GAF.
*Acid Red 37-----	ACS, BKS, CMG, DUP, GAF, TRC.
Acid Red 42-----	GAF.
Acid Red 52-----	GAF.
Acid Red 57-----	TRC.
Acid Red 60-----	BKS.
Acid Red 66-----	AAP, YAW.
*Acid Red 73-----	ACS, ACY, ATL, DUP, GAF, PSC, TRC.
Acid Red 76-----	ACS.
Acid Red 80-----	GAF, ICI.
*Acid Red 85-----	ACS, ACY, ALT, ATL, BKS, CMG, DUP, GAF, PDC, TRC, VPC, YAW.
*Acid Red 87-----	AMS, NYC, SDH.
*Acid Red 88-----	ACS, ACY, ATL, DUP, GAF, SDH, TRC, YAW.
*Acid Red 89-----	AAP, BDO, GAF, VPC.
Acid Red 94-----	NYC.
Acid Red 97-----	GAF.
*Acid Red 99-----	ATL, BKS, CMG, TRC, VPC, YAW.
Acid Red 100-----	VPC.
Acid Red 106-----	YAW.
Acid Red 113-----	DUP.
*Acid Red 114-----	ACS, ATL, DUP, GAF, PDC, TRC.
Acid Red 115-----	ACS, GAF.
Acid Red 119-----	ACS, ALT.
Acid Red 133-----	GAF.
Acid Red 134-----	TRC.
*Acid Red 137-----	ACS, ATL, DUP, GAF, TRC.
Acid Red 138-----	ALT.
*Acid Red 151-----	AAP, ACY, ATL, BKS, DUP, TRC, YAW.
Acid Red 167-----	ACS, TRC.
Acid Red 175-----	DUP.
Acid Red 178-----	DUP.
Acid Red 179-----	CMG.
*Acid Red 182-----	ACS, ACY, BKS, CMG, DUP, GAF.
Acid Red 183-----	CMG, TRC.
*Acid Red 186-----	BKS, CMG, GAF, VPC.
Acid Red 190-----	ACY.
Acid Red 191-----	TRC.
Acid Red 194-----	TRC.
Acid Red 201-----	TRC.
Acid Red 207-----	ACS.
Acid Red 212-----	TRC.
Acid Red 213-----	TRC.
Acid Red 292-----	ACY.
Acid Red 299-----	ALT, GAF, TRC.
Acid Red 309-----	TRC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid red dyes--Continued	
Acid Red 337-----	DUP.
Other acid red dyes-----	ACY, ALT, ATL, BKS, DUP, GAF, TRC, VPC.
*Acid violet dyes:	
*Acid Violet 1-----	ACS, BDO, CMG, GAF.
*Acid Violet 3-----	ACS, ACY, DUP, TRC, YAW.
Acid Violet 6-----	ACS.
*Acid Violet 7-----	AAP, ACS, BDO, CMG, DUP, GAF, TRC, VPC.
Acid Violet 11-----	GAF.
*Acid Violet 12-----	BDO, CMG, DUP, GAF.
Acid Violet 17-----	DUP, GAF, SDH.
Acid Violet 29-----	HSH.
Acid Violet 34-----	ICI.
Acid Violet 41-----	CMG.
Acid Violet 43-----	HSH, ICI.
*Acid Violet 49-----	ACS, ACY, TRC.
Acid Violet 56-----	CMG, GAF.
Acid Violet 58-----	GAF.
Acid Violet 76-----	ACS.
Other acid violet dyes-----	DUP, GAF, TRC.
*Acid blue dyes:	
Acid Blue 1-----	ACS, GAF, SDH.
*Acid Blue 7-----	ACS, ACY, GAF, SDH.
*Acid Blue 9-----	ACS, GAF, SDH, VPC.
Acid Blue 10-----	ACS.
Acid Blue 15-----	DUP, GAF.
Acid Blue 20-----	ACS, ACY.
Acid Blue 22-----	NYC.
Acid Blue 23-----	ACS, TRC.
*Acid Blue 25-----	ACS, ATL, BDO, CMG, DUP, GAF, TRC, VPC.
Acid Blue 27-----	CMG, GAF.
Acid Blue 29-----	YAW.
Acid Blue 34-----	ACS.
*Acid Blue 40-----	ACS, ALT, ATL, GAF, ICI, TRC.
*Acid Blue 41-----	ACS, BDO, CMG, GAF.
*Acid Blue 43-----	ACS, ACY, GAF, TRC.
*Acid Blue 45-----	ACS, ACY, CMG, DUP, GAF, TRC, VPC.
Acid Blue 47-----	ICI.
Acid Blue 48-----	HSC.
Acid Blue 55-----	ACS.
Acid Blue 58-----	DUP.
Acid Blue 59-----	ACS.
*Acid Blue 62-----	ACS, ALT, BDO, GAF, VPC.
Acid Blue 63-----	ACS, CMG.
Acid Blue 67-----	CMG.
Acid Blue 69-----	DUP, GAF.
Acid Blue 74-----	ACS, DUP.
*Acid Blue 78-----	ACS, DUP, GAF, ICI, TRC.
Acid Blue 80-----	ACS, TRC.
Acid Blue 81-----	ICI.
Acid Blue 83-----	GAF.
Acid Blue 89-----	ACS.
*Acid Blue 90-----	ACS, GAF, TRC.
Acid Blue 92-----	ACS, YAW.
Acid Blue 93-----	ACY, HSC.
Acid Blue 102-----	ACS, TRC.
Acid Blue 104-----	ACS, GAF.
*Acid Blue 113-----	ACS, ALT, ATL, BDO, BKS, CMG, DUP, GAF, TRC.
Acid Blue 118-----	ACS, BKS, GAF.
Acid Blue 120-----	ACS, GAF.
Acid Blue 122-----	DUP.
Acid Blue 145-----	ACS, DUP.
*Acid Blue 158 and 158A-----	ACS, ACY, BDO, BKS, GAF, TRC, VPC.
Acid Blue 165-----	DUP.
Acid Blue 179-----	GAF.
Acid Blue 198-----	VPC.
Acid Blue 203-----	VPC.
Acid Blue 230-----	DUP, TRC.
Acid Blue 231-----	TRC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
ACID DYES--Continued	
*Acid blue dyes--Continued	
Acid Blue 255-----	DUP.
Other acid blue dyes-----	ACY, ALT, ATL, CMG, DUP, GAF, TRC, VPC.
*Acid green dyes:	
Acid Green 1-----	ACS, ACY.
*Acid Green 3-----	ACS, ACY, DUP, GAF, TRC.
Acid Green 5-----	GAF.
*Acid Green 9-----	ACS, ACY, DUP, GAF.
Acid Green 12-----	ACS, GAF, TRC.
*Acid Green 16-----	ACS, DUP, GAF, SDH, TRC.
*Acid Green 20-----	ACS, ATL, BDO, DUP, GAF, PDC, TRC.
Acid Green 22-----	GAF.
*Acid Green 25-----	ACS, ATL, CMG, GAF, HSH, ICI, TRC, VPC.
Acid Green 35-----	TRC.
Acid Green 41-----	ICI, VPC.
Acid Green 44-----	VPC.
Acid Green 50-----	ACY, GAF.
Acid Green 58-----	TRC.
Acid Green 70-----	TRC.
Other acid green dyes-----	ALT, VPC.
*Acid brown dyes:	
Acid Brown 1-----	GAF.
Acid Brown 6-----	GAF.
*Acid Brown 14-----	AAP, ACS, ACY, DUP, GAF, TRC, YAW.
Acid Brown 19-----	TRC.
Acid Brown 22-----	DUP.
Acid Brown 28-----	TRC.
Acid Brown 29-----	DUP.
Acid Brown 31-----	GAF.
Acid Brown 45-----	TRC.
Acid Brown 96-----	ACY.
Acid Brown 97-----	ACY.
Acid Brown 98-----	ACY, TRC.
Acid Brown 152-----	GAF.
Acid Brown 158-----	GAF.
Acid Brown 223-----	GAF.
Acid Brown 243-----	GAF.
Other acid brown dyes-----	ALT, DUP, GAF, VPC.
*Acid black dyes:	
*Acid Black 1-----	AAP, ACS, ACY, ATL, BDO, BKS, DUP, FAB, GAF, HSH, PDC, TRC, YAW.
Acid Black 2-----	ACS, ACY.
Acid Black 12-----	ACS.
Acid Black 16-----	ACS.
*Acid Black 24-----	ACS, CMG, DUP, GAF.
Acid Black 26, 26A, and 26B-----	ACS, DUP, TRC.
Acid Black 29-----	ACS, GAF.
Acid Black 41-----	ACS.
*Acid Black 48-----	ACY, CMG, DUP, GAF, ICI, TRC.
*Acid Black 52-----	ACS, BKS, GAF, TRC.
Acid Black 53-----	ACS.
Acid Black 58-----	TRC.
*Acid Black 60-----	BDO, CMG, TRC.
Acid Black 92-----	ACY.
*Acid Black 107-----	ACS, ALT, GAF, TRC.
Acid Black 108-----	GAF.
Acid Black 138-----	VPC.
Other acid black dyes-----	DUP, GAF, PDC.
AZOIC DYES AND COMPONENTS	
<i>Azoic Compositions</i>	
Azoic yellow dyes:	
*Azoic Yellow 1-----	ALL, ATL, BUC.
Azoic Yellow 2-----	BUC, GAF, x.
Azoic orange dyes:	
*Azoic Orange 3-----	ALL, ATL, BUC, GAF, x.
Azoic Orange 4-----	GAF.
Other azoic orange dyes-----	VPC.



TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
AZOIC DYES AND COMPONENTS--Continued	
Azoic Compositions--Continued	
*Azoic red dyes:	
*Azoic Red 1-----	ALL, ATL, BUC, GAF, HST, x.
*Azoic Red 2-----	ALL, ATL, BUC, GAF, x.
*Azoic Red 6-----	ALL, ATL, BUC, GAF, x.
Azoic Red 13-----	GAF.
Azoic Red 15-----	GAF.
Azoic Red 16-----	ATL.
Azoic Red 73-----	GAF.
Azoic Red 74-----	GAF.
Other azoic red dyes-----	ALL.
Azoic violet dyes: Azoic Violet 1-----	ATL, BUC, GAF.
Azoic blue dyes:	
Azoic Blue 2-----	ATL, GAF.
*Azoic Blue 3-----	ALL, ATL, BUC, GAF, HST, x.
Azoic Blue 4-----	GAF.
Azoic Blue 6-----	ATL, GAF.
Azoic Blue 7-----	GAF.
Other azoic blue dyes-----	ALL.
Azoic green dyes:	
Azoic Green 1-----	ATL, GAF, VPC.
Other azoic green dyes-----	VPC.
Azoic brown dyes:	
*Azoic Brown 9-----	ALL, BUC, GAF, HST, VPC, x.
Azoic Brown 26-----	GAF.
Other azoic brown dyes-----	ATL, GAF, VPC.
*Azoic black dyes:	
Azoic Black 1-----	GAF, HST.
Azoic Black 4-----	ATL, BUC, GAF.
Azoic Black 15-----	GAF.
Other azoic black dyes-----	ALL, GAF, PCW, VPC.
Other azoic compositions-----	x.
Azoic Diazo Components, Bases (Fast Color Bases)	
Azoic Diazo Component 2, base-----	ATL, BUC.
Azoic Diazo Component 3, base-----	BUC.
*Azoic Diazo Component 4, base-----	ALL, BUC, GAF, SDH.
*Azoic Diazo Component 5, base-----	DUP, GAF, SDH.
Azoic Diazo Component 8, base-----	DUP, SDH.
Azoic Diazo Component 9, base-----	AAP, DUP.
*Azoic Diazo Component 10, base-----	ALL, BUC, GAF.
Azoic Diazo Component 11, base-----	PCW.
*Azoic Diazo Component 12, base-----	BUC, PCW, SDH.
Azoic Diazo Component 13, base-----	ALL, BUC, SDH.
Azoic Diazo Component 14, base-----	AAP.
Azoic Diazo Component 20, base-----	ALL, GAF.
Azoic Diazo Component 27, base-----	ALL.
Azoic Diazo Component 28, base-----	ALL, BUC.
*Azoic Diazo Component 32, base-----	AAP, ATL, BUC, DUP, PCW, SDH.
Azoic Diazo Component 34, base-----	GAF.
Azoic Diazo Component 41, base-----	GAF.
Azoic Diazo Component 42, base-----	ALL, PCW.
Azoic Diazo Component 44, base-----	AAP, BUC.
Azoic Diazo Component 48, base-----	CWN, DUP, GAF.
Other azoic diazo components, bases-----	GAF.
Azoic Diazo Components, Salts (Fast Color Salts)	
*Azoic Diazo Component 1, salt-----	AAP, ALL, GAF, SDH.
Azoic Diazo Component 2, salt-----	GAF.
*Azoic Diazo Component 3, salt-----	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 4, salt-----	ALL.
*Azoic Diazo Component 5, salt-----	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 6, salt-----	AAP, BUC, GAF, SDH.
*Azoic Diazo Component 8, salt-----	AAP, ALL, BUC, GAF.
*Azoic Diazo Component 9, salt-----	AAP, ALL, BUC, GAF, SDH, VPC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
AZOIC DYES AND COMPONENTS--Continued	
<i>Azoic Diazo Components, Salts (Fast Color Salts)--Continued</i>	
*Azoic Diazo Component 10, salt-----	ALL, BUC, GAF, SDH.
*Azoic Diazo Component 11, salt-----	AAP, ALL, GAF.
*Azoic Diazo Component 12, salt-----	AAP, ALL, BUC, GAF, SDH.
*Azoic Diazo Component 13, salt-----	AAP, ALL, BUC, GAF, SDH, VPC.
Azoic Diazo Component 14, salt-----	AAP.
Azoic Diazo Component 20, salt-----	ALL, GAF.
*Azoic Diazo Component 28, salt-----	ALL, BUC, GAF, SDH, VPC.
Azoic Diazo Component 32, salt-----	ALL, SDH.
Azoic Diazo Component 34, salt-----	ALL, GAF.
Azoic Diazo Component 35, salt-----	GAF.
Azoic Diazo Component 36, salt-----	AAP, GAF.
Azoic Diazo Component 37, salt-----	GAF.
Azoic Diazo Component 41, salt-----	GAF.
Azoic Diazo Component 42, salt-----	ALL, GAF.
*Azoic Diazo Component 44, salt-----	ALL, BUC, GAF.
*Azoic Diazo Component 48, salt-----	AAP, GAF, SDH.
*Azoic Diazo Component 49, salt-----	AAP, ALL, BUC, GAF, SDH.
Azoic Diazo Component 51, salt-----	GAF.
Other azoic diazo components, salts-----	ALL, GAF, SDH.
<i>Azoic Coupling Components (Naphthol AS and Derivatives)</i>	
*Azoic Coupling Component 2-----	ACY, ATL, BUC, DUP, GAF, PCW.
*Azoic Coupling Component 3-----	BUC, GAF, PCW.
*Azoic Coupling Component 4-----	ATL, BUC, GAF, PCW.
*Azoic Coupling Component 5-----	AAP, GAF, PCW, SDH.
*Azoic Coupling Component 7-----	AAP, BUC, PCW.
Azoic Coupling Component 8-----	ATL, BUC, GAF, PCW.
Azoic Coupling Component 10-----	ATL, PCW.
Azoic Coupling Component 11-----	BUC, GAF, PCW.
Azoic Coupling Component 12-----	ATL, BUC, GAF, PCW.
Azoic Coupling Component 13-----	GAF.
*Azoic Coupling Component 14-----	ACS, ATL, BUC, GAF, PCW.
Azoic Coupling Component 15-----	BUC, GAF.
Azoic Coupling Component 16-----	BUC, GAF.
*Azoic Coupling Component 17-----	ACY, ATL, BUC, PCW.
*Azoic Coupling Component 18-----	ACY, ATL, BUC, GAF, PCW.
*Azoic Coupling Component 19-----	BUC, GAF, PCW.
*Azoic Coupling Component 20-----	ATL, BUC, DUP, GAF, PCW.
*Azoic Coupling Component 21-----	ATL, BUC, PCW.
Azoic Coupling Component 23-----	GAF, PCW.
Azoic Coupling Component 24-----	GAF, PCW.
*Azoic Coupling Component 29-----	BUC, GAF, PCW.
Azoic Coupling Component 34-----	ATL, BUC, GAF, PCW.
Azoic Coupling Component 35-----	GAF, PCW.
Azoic Coupling Component 36-----	GAF.
*Azoic Coupling Component 43-----	ATL, BUC, GAF.
Other azoic coupling components-----	ATL, GAF.
BASIC DYES	
*Basic yellow dyes:	
Basic Yellow 1-----	DUP.
*Basic Yellow 2-----	ACS, ACY, DUP.
*Basic Yellow 11-----	ACS, ACY, DUP, GAF, VPC.
*Basic Yellow 13-----	ACS, DUP, GAF, VPC.
Basic Yellow 15-----	DUP.
Basic Yellow 21-----	VPC.
Basic Yellow 24-----	BAS.
Basic Yellow 25-----	BAS.
Basic Yellow 26-----	ACY.
Basic Yellow 28-----	VPC.
Basic Yellow 29-----	VPC.
Basic Yellow 31-----	DUP.
Basic Yellow 37-----	ACY, DUP.
Basic Yellow 41-----	ACY.
Other basic yellow dyes-----	DUP, VPC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
BASIC DYES--Continued	
*Basic orange dyes:	
*Basic Orange 1-----	ACS, ACY, DUP, GAF, TRC.
*Basic Orange 2-----	ACS, ACY, DSC, DUP, GAF, PSC, TRC.
Basic Orange 10-----	VPC.
Basic Orange 14-----	GAF.
Basic Orange 17-----	ACS.
*Basic Orange 21-----	ACS, DUP, GAF, VPC.
Basic Orange 22-----	ACS, GAF.
Basic Orange 24-----	DUP.
Basic Orange 25-----	DUP.
Basic Orange 26-----	DUP.
Basic Orange 27-----	VPC.
Basic Orange 31-----	ACY.
*Basic red dyes:	
Basic Red 1-----	BAS, DUP, GAF.
Basic Red 2-----	ACS, DUP.
*Basic Red 9-----	ACY, DSC, HSC.
Basic Red 12-----	ACY, DUP.
Basic Red 13-----	ACS, GAF.
*Basic Red 14-----	ACS, ACY, DUP, GAF, VPC.
Basic Red 15-----	DUP, GAF.
Basic Red 16-----	DUP.
Basic Red 17-----	DUP.
Basic Red 18-----	DUP, VPC.
Basic Red 19-----	DUP.
Basic Red 22-----	ACY, TRC.
Basic Red 29-----	BAS.
Basic Red 30-----	ACY.
Other basic red dyes-----	DUP, GAF, VPC.
*Basic violet dyes:	
*Basic Violet 1-----	ACS, ACY, DSC.
Basic Violet 2-----	BKS, DSC, NYC.
Basic Violet 3-----	ACS, DSC, DUP, GAF, SDH.
*Basic Violet 4-----	ACS, DSC, DUP, GAF.
Basic Violet 7-----	GAF.
*Basic Violet 10-----	ACY, DUP, GAF.
Basic Violet 13-----	DSC.
Basic Violet 14-----	ACY, DSC.
Basic Violet 15-----	DUP.
*Basic Violet 16-----	DUP, GAF, VPC.
Basic Violet 18-----	ACY.
Basic Violet 24-----	DUP.
*Basic blue dyes:	
*Basic Blue 1-----	DSC, GAF, SDH, VPC.
Basic Blue 2-----	DSC.
Basic Blue 3-----	GAF.
Basic Blue 4-----	DUP.
*Basic Blue 5-----	DSC, GAF, SDH, VPC.
Basic Blue 6-----	ACS, ACY.
Basic Blue 7-----	DSC, DUP, SDH.
*Basic Blue 9-----	ACS, ACY, SDH.
Basic Blue 11-----	DSC, SDH.
Basic Blue 21-----	DUP.
Basic Blue 22-----	ACS, DUP.
*Basic Blue 26-----	ACS, DSC, DUP, SDH.
Basic Blue 35-----	DUP.
Basic Blue 38-----	ACY, DUP.
Basic Blue 39-----	DUP.
Basic Blue 41-----	TRC.
Basic Blue 45-----	VPC.
Basic Blue 47-----	VPC.
Basic Blue 54-----	ACY, BAS.
Basic Blue 76-----	ACY.
Other basic blue dyes-----	DUP, CAF, VPC.
Basic green dyes:	
*Basic Green 1-----	ACS, ACY, DSC, DUP, SDH.
Basic Green 3-----	DUP.
*Basic Green 4-----	ACS, ACY, DSC, DUP, SDH.
Basic Green 5-----	ACY.
Basic Green 7-----	DSC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
BASIC DYES--Continued	
Basic brown dyes:	
*Basic Brown 1-----	ACS, ACY, DUP, GAF, TRC.
Basic Brown 2-----	GAF.
*Basic Brown 4-----	ACS, ACY, DSC, DUP, GAF, TRC.
Basic Black dyes:	
Basic Black 3-----	GAF.
Other basic black dyes-----	DSC, DUP, VPC.
DIRECT DYES	
*Direct yellow dyes:	
*Direct Yellow 4-----	ACS, ACY, DUP, GAF, TRC.
*Direct Yellow 5-----	ACS, ACY, GAF.
*Direct Yellow 6-----	ACS, ACY, ATL, DUP, GAF, TRC.
Direct Yellow 7-----	ATL.
Direct Yellow 8-----	ACS, GAF.
Direct Yellow 9-----	DUP.
*Direct Yellow 11-----	ACS, ACY, BKS, DUP, GAF, TRC.
*Direct Yellow 12-----	ACS, ATL, BKS, DUP, FAB, GAF, TRC
Direct Yellow 20-----	TRC.
Direct Yellow 23-----	DUP.
*Direct Yellow 26-----	ALT, BKS, DUP.
Direct Yellow 27-----	GAF.
*Direct Yellow 28-----	ACS, ATL, DUP, GAF, TRC.
Direct Yellow 29-----	ATL, DUP, GAF.
Direct Yellow 39-----	TRC.
*Direct Yellow 44-----	ACS, ATL, BKS, DUP, FAB, GAF, TRC, VPC.
Direct Yellow 49-----	VPC.
*Direct Yellow 50-----	ACS, ATL, BKS, DUP, FAB, GAF, TRC, VPC.
Direct Yellow 59-----	ACS, ATL, DUP.
Direct Yellow 84-----	BKS, TRC.
Direct Yellow 103-----	ACS.
*Direct Yellow 105-----	ALT, BKS, GAF, TRC.
*Direct Yellow 106-----	ALT, BKS, FAB, GAF, TRC.
Direct Yellow 107-----	GAF.
Direct Yellow 114-----	ACY.
Direct Yellow 117-----	TRC.
Direct Yellow 118-----	TRC.
Direct Yellow 119-----	DUP.
Direct Yellow 120-----	BKS.
Direct Yellow 121-----	TRC.
Direct Yellow 123-----	DUP.
Direct Yellow 125-----	ACY.
Direct Yellow 128-----	DUP.
Other direct yellow dyes-----	AAP, ALT, ATL, DUP, GAF, TRC, VPC.
*Direct orange dyes:	
*Direct Orange 1-----	AAP, ATL, BDO, CMG, VPC.
Direct Orange 6-----	ACS.
*Direct Orange 8-----	ACS, ATL, DUP, GAF, TRC.
Direct Orange 10-----	AAP, ACS.
Direct Orange 11-----	GAF.
*Direct Orange 15-----	ACS, ACY, DUP, GAF, TRC.
*Direct Orange 26-----	ACS, ATL, DUP, GAF, TRC.
*Direct Orange 29-----	ATL, BKS, FAB, TRC.
*Direct Orange 34-----	ACS, ATL, CMG, DUP, GAF.
*Direct Orange 37-----	ACY, CMG, DUP, GAF, TRC.
*Direct Orange 39-----	ACY, ALT, ATL, BKS, DUP, GAF.
Direct Orange 42-----	ATL.
Direct Orange 48-----	DUP.
Direct Orange 55-----	DUP.
Direct Orange 59-----	DUP, GAF.
Direct Orange 61-----	TRC.
Direct Orange 67-----	ACS, VPC.
Direct Orange 70-----	TRC.
*Direct Orange 72-----	ACS, ALT, ATL, BKS, FAB, TRC, VPC.
*Direct Orange 73-----	DUP, GAF, TRC, VPC.
Direct Orange 74-----	DUP.
Direct Orange 76-----	DUP.
Direct Orange 78-----	VPC.
Direct Orange 79-----	DUP.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct orange dyes--Continued	
Direct Orange 80-----	DUP, VPC.
*Direct Orange 81-----	ACS, DUP, GAF, VPC.
Direct Orange 83-----	GAF.
Direct Orange 88-----	DUP.
*Direct Orange 102-----	ACS, ACY, DUP, GAF.
Direct Orange 110-----	TRC.
Other direct orange dyes-----	ALT, ATL, DUP, VPC.
*Direct red dyes:	
*Direct Red 1-----	AAP, ACS, ATL, DUP, GAF, TRC, YAW.
*Direct Red 2-----	ACS, ATL, BKS, DUP, TRC.
*Direct Red 4-----	ACS, ATL, TRC, VPC.
Direct Red 5-----	ACS.
Direct Red 7-----	ATL.
*Direct Red 10-----	AAP, ACS, ACY, ATL.
*Direct Red 13-----	AAP, ACS, ATL, DUP, GAF, TRC, YAW.
*Direct Red 16-----	ACS, ATL, GAF, TRC.
Direct Red 20-----	ACS, GAF.
*Direct Red 23-----	ACS, ATL, BKS, CMG, DUP, GAF, TRC.
*Direct Red 24-----	ATL, BKS, FAB, TRC, VPC.
*Direct Red 26-----	AAP, ACS, ATL, BKS, DUP, GAF, TRC, VPC.
*Direct Red 28-----	ACS, ATL, DUP, TRC.
*Direct Red 31-----	ACS, ATL, DUP, GAF.
Direct Red 32-----	ACS, DUP.
*Direct Red 37-----	ACS, ACY, ATL, GAF, TRC, YAW.
*Direct Red 39-----	ACS, ATL, GAF, TRC, YAW.
Direct Red 45-----	ATL.
Direct Red 46-----	ATL.
Direct Red 62-----	ATL, TRC.
*Direct Red 72-----	ACS, GAF, TRC.
Direct Red 73-----	ACS, DUP.
*Direct Red 75-----	ACS, CMG, DUP, GAF.
Direct Red 76-----	ACS, GAF.
*Direct Red 79-----	ATL, BKS, CMG, TRC, VPC.
*Direct Red 80-----	AAP, ACS, ATL, BDO, BKS, BL, CMG, DUP, FAB, SDH, TRC, VPC.
*Direct Red 81-----	AAP, ACS, ACY, ATL, BDO, BKS, BL, DUP, GAF, TRC, VPC, YAW.
*Direct Red 83-----	ACS, ALT, ATL, BKS, BL, CMG, DUP, GAF, TRC, VPC.
Direct Red 84-----	BKS, GAF.
Direct Red 95-----	VPC.
Direct Red 111-----	GAF.
Direct Red 117-----	DUP.
*Direct Red 122-----	CMG, TRC, VPC.
Direct Red 123-----	GAF.
Direct Red 139-----	VPC.
*Direct Red 149-----	ATL, CMG, DUP, GAF.
Direct Red 152-----	CMG, DUP.
Direct Red 153-----	AAP, ATL.
Direct Red 155-----	GAF.
Direct Red 209-----	TRC.
Direct Red 212-----	VPC.
Other direct red dyes-----	ALT, ATL, BL, GAF, TRC.
*Direct violet dyes:	
Direct Violet 1-----	AAP, ACS, ATL, DUP.
Direct Violet 7-----	ACS, GAF.
*Direct Violet 9-----	ACS, ATL, BKS, DUP, GAF, TRC.
Direct Violet 14-----	ACS, ATL.
Direct Violet 22-----	DUP.
Direct Violet 47-----	DUP, GAF.
Direct Violet 48-----	ACS, DUP.
Direct Violet 49-----	ACS.
Direct Violet 51-----	ACS, DUP.
Direct Violet 62-----	ACY.
Direct Violet 66-----	ATL, TRC.
Direct Violet 67-----	DUP.
Other direct violet dyes-----	ALT.
*Direct blue dyes:	
*Direct Blue 1-----	AAP, ACS, ACY, ATL, BKS, BL, DUP, FAB, GAF, TRC, VPC, YAW.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 2)
DIRECT DYES--Continued	
*Direct blue dyes--Continued	
*Direct Blue 2-----	AAP, ACS, ATL, BKS, BL, DUP, FAB, GAF, TRC, VPC, YAW.
*Direct Blue 6-----	AAP, ACS, ACY, ATL, BKS, BL, DUP, GAF, TRC, YAW.
*Direct Blue 8-----	AAP, ACS, ATL, DUP, GAF, YAW.
Direct Blue 14-----	ACS, ATL, BKS, TRC.
*Direct Blue 15-----	ACS, ATL, DUP.
Direct Blue 18-----	YAW.
*Direct Blue 22-----	ACS, ATL, CMG, DUP.
*Direct Blue 24-----	ACS, ATL, BKS, YAW.
*Direct Blue 25-----	ACS, ATL, DUP, GAF, TRC, YAW.
Direct Blue 26-----	ATL.
Direct Blue 27-----	DUP.
*Direct Blue 67-----	ACS, ATL, DUP, TRC.
*Direct Blue 71-----	ACS, DUP, GAF, TRC.
Direct Blue 74-----	DUP.
Direct Blue 75-----	TRC.
*Direct Blue 76-----	ACS, ALT, ATL, BKS, BL, DUP, FAB, GAF, TRC, VPC.
*Direct Blue 78-----	ACS, ATL, CMG, DUP, GAF, TRC.
*Direct Blue 80-----	ACS, ALT, ATL, BKS, BL, DUP, FAB, GAF, TRC.
*Direct Blue 86-----	AAP, ACS, ACY, ALT, ATL, BKS, DUP, FAB, GAF, ICC, ICI, SDH, TMS, TRC, VPC.
Direct Blue 87-----	ICI.
Direct Blue 91-----	TRC.
*Direct Blue 98-----	ALT, ATL, TRC, VPC.
Direct Blue 100-----	ALT, BKS.
Direct Blue 104-----	DUP.
*Direct Blue 120 and 120A-----	BKS, DUP, GAF, TRC.
*Direct Blue 126-----	ACS, BL, DUP, GAF, TRC, VPC.
Direct Blue 133-----	GAF.
Direct Blue 136-----	GAF.
Direct Blue 143-----	DUP.
*Direct Blue 151-----	ACS, ATL, TRC.
Direct Blue 160-----	TRC.
Direct Blue 189-----	BKS, TRC.
Direct Blue 191-----	AAP, ALT, GAF.
Direct Blue 199-----	GAF.
*Direct Blue 218-----	ACS, BKS, DUP, GAF, TRC.
Direct Blue 224-----	ALT, ATL.
Direct Blue 238-----	ACY.
Other direct blue dyes-----	ALT, BL, DUP, GAF.
*Direct green dyes:	
*Direct Green 1-----	AAP, ACS, ACY, ATL, BKS, DUP, GAF, TRC, YAW.
*Direct Green 6-----	AAP, ACS, BKS, DUP, GAF, TRC, YAW.
*Direct Green 8-----	ACS, ATL, TRC.
Direct Green 12-----	ACS, DUP, TRC.
Direct Green 15-----	DUP.
Direct Green 26-----	TRC.
Direct Green 27-----	TRC.
Direct Green 28-----	TRC.
Direct Green 38-----	DUP, GAF.
Direct Green 39-----	GAF.
Direct Green 41-----	DUP.
Direct Green 45-----	VPC.
Direct Green 47-----	DUP, GAF.
Direct Green 51-----	TRC.
Direct Green 69-----	TRC.
Other direct green dyes-----	ACY, ALT, ATL, BL, DUP.
*Direct brown dyes:	
*Direct Brown 1-----	ACY, ATL, BKS, DUP.
*Direct Brown 1A-----	GAF, TRC, YAW.
*Direct Brown 2-----	AAP, ACS, ACY, ATL, BKS, BL, DUP, GAF, TRC, YAW.
*Direct Brown 6-----	ACS, DUP, FAB, GAF, TRC.
Direct Brown 25-----	DUP.
Direct Brown 27-----	GAF.
*Direct Brown 31-----	AAP, ACS, ATL, DUP, GAF, TRC, YAW.
Direct Brown 32-----	GAF.
Direct Brown 33-----	DUP.
Direct Brown 40-----	AAP.
Direct Brown 44-----	GAF, YAW.
Direct Brown 48-----	AAP.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DIRECT DYES--Continued	
*Direct brown dyes--Continued	
Direct Brown 59-----	ACY.
*Direct Brown 74-----	AAP, ACS, DUP.
*Direct Brown 95-----	AAP, ACS, ALT, ATL, BKS, DUP, GAF, TRC, YAW.
Direct Brown 105-----	DUP.
Direct Brown 106-----	ACS, GAF.
*Direct Brown 111-----	DUP, GAF, TRC, VPC.
Direct Brown 112-----	ATL.
Direct Brown 125-----	GAF.
*Direct Brown 154-----	ACS, DUP, FAB, GAF, TRC, YAW.
Other direct brown dyes-----	ACS, ALT, ATL, DUP, VPC.
*Direct black dyes:	
*Direct Black 4-----	ACS, ATL, BKS, DUP, GAF, TRC, YAW.
Direct Black 8-----	TRC, YAW.
*Direct Black 9-----	ACS, BKS, DUP, GAF.
Direct Black 17-----	GAF.
*Direct Black 19-----	ATL, BKS, GAF, TRC.
*Direct Black 22-----	AAP, ACS, ALT, ATL, BKS, CMG, DUP, GAF, TRC, VPC, YAW.
Direct Black 36-----	AAP, ATL.
Direct Black 37-----	AAP, DUP.
*Direct Black 38-----	AAP, ACS, ACY, ATL, BKS, BL, DUP, FAB, GAF, TRC, YAW.
Direct Black 44-----	TRC.
Direct Black 45-----	TRC.
*Direct Black 51-----	AAP, ACS, ATL, DUP, GAF.
Direct Black 55-----	DUP.
Direct Black 56-----	ACS, TRC.
Direct Black 61-----	TRC.
Direct Black 67-----	DUP.
Direct Black 71-----	ATL, VPC.
Direct Black 75-----	GAF.
Direct Black 78-----	ACS, BKS, DUP.
*Direct Black 80-----	AAP, ACS, ATL, BKS, BL, FAB, TRC, VPC, YAW.
Direct Black 109-----	GAF.
Direct Black 131-----	ACS.
Direct Black 190-----	BKS.
Other direct black dyes-----	ACY, ALT, ATL, BL, YAW.
DISPERSE DYES	
*Disperse yellow dyes:	
Disperse Yellow 1-----	DUP, GAF.
Disperse Yellow 2-----	DUP.
*Disperse Yellow 3-----	AAP, ACS, BKS, BL, DUP, EKT, GAF, HSH, ICC, TRC.
*Disperse Yellow 5-----	AAP, BKS, EKT, GAF, ICC.
*Disperse Yellow 8-----	DUP, EKT, TRC.
*Disperse Yellow 23-----	AAP, DUP, EKT, GAF, ICC.
Disperse Yellow 31-----	GAF.
Disperse Yellow 32-----	DUP.
*Disperse Yellow 33-----	AAP, EKT, GAF, ICC, TRC.
*Disperse Yellow 34-----	AAP, EKT, GAF, ICC.
Disperse Yellow 37-----	ICC.
*Disperse Yellow 42-----	AAP, DUP, EKT, GAF, SDC, TRC.
Disperse Yellow 50-----	TRC.
*Disperse Yellow 54-----	AAP, DUP, GAF, ICC, TRC.
Disperse Yellow 67-----	DUP.
Other disperse yellow dyes-----	BKS, DUP, EKT, GAF, ICC, MAY, TRC, VPC.
*Disperse orange dyes:	
*Disperse Orange 3-----	AAP, BKS, DUP, EKT, GAF, HSH, ICC, TRC.
*Disperse Orange 5-----	AAP, EKT, GAF.
Disperse Orange 16-----	AAP.
*Disperse Orange 17-----	AAP, ACS, BKS, EKT, GAF, HSH, ICC.
Disperse Orange 21-----	TRC.
*Disperse Orange 25-----	DUP, EKT, TRC.
Disperse Orange 26-----	DUP.
Disperse Orange 28-----	AAP.
Disperse Orange 29-----	AAP.
Disperse Orange 30-----	TRC.
Disperse Orange 38-----	TRC.
Disperse Orange 41-----	DUP.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DISPERSE DYES--Continued	
*Disperse orange dyes--Continued	
Disperse Orange 44-----	DUP.
Disperse Orange 62-----	DUP.
Other disperse orange dyes-----	AAP, EKT, GAF, ICC, MAY.
*Disperse red dyes:	
*Disperse Red 1-----	AAP, ACS, BKS, DUP, EKT, GAF, HSH, ICC, TRC.
Disperse Red 4-----	GAF, TRC.
*Disperse Red 5-----	AAP, EKT, GAF, HSH, ICC.
Disperse Red 7-----	AAP.
*Disperse Red 11-----	AAP, DUP, GAF, TRC.
*Disperse Red 13-----	AAP, DUP, GAF, ICC.
*Disperse Red 15-----	AAP, GAF, HSH, ICC.
*Disperse Red 17-----	AAP, BKS, DUP, EKT, GAF, HSH, ICC, TRC.
Disperse Red 20-----	ACS.
Disperse Red 21-----	EKT.
Disperse Red 30-----	EKT, TRC.
Disperse Red 31-----	ICC.
Disperse Red 35-----	EKT.
Disperse Red 55-----	AAP, DUP, TRC.
Disperse Red 56-----	DUP.
Disperse Red 59-----	ACY, DUP, GAF.
*Disperse Red 60-----	AAP, DUP, EKT, VPC.
Disperse Red 61-----	DUP.
Disperse Red 62-----	DUP.
*Disperse Red 65-----	DUP, EKT, ICC, TRC.
Disperse Red 66-----	AAP.
Disperse Red 73-----	TRC.
Disperse Red 78-----	TRC.
Disperse Red 96-----	ACY.
Disperse Red 140-----	DUP.
Other disperse red dyes-----	AAP, BKS, DUP, EKT, GAF, ICC, MAY, SDC, TRC.
*Disperse violet dyes:	
*Disperse Violet 1-----	AAP, EKT, GAF, HSH, ICC, TRC.
*Disperse Violet 4-----	AAP, GAF, ICC.
Disperse Violet 8-----	GAF.
Disperse Violet 14-----	DUP.
Disperse Violet 18-----	DUP, TRC.
Disperse Violet 26-----	DUP.
*Disperse Violet 27-----	AAP, ACY, BL, DUP, EKT, GAF, ICC.
Other disperse violet dyes-----	EKT, GAF.
*Disperse blue dyes:	
*Disperse Blue 1-----	AAP, GAF, TRC.
*Disperse Blue 3-----	AAP, ACS, BKS, EKT, GAF, HSH, ICC, TRC.
*Disperse Blue 7-----	AAP, BDO, BKS, DUP, EKT, GAF, ICC, TRC.
Disperse Blue 9-----	ACS, GAF, ICC.
Disperse Blue 27-----	EKT.
Disperse Blue 35-----	ICI.
Disperse Blue 55-----	TRC.
Disperse Blue 59-----	DUP.
Disperse Blue 60-----	DUP.
Disperse Blue 61-----	DUP.
Disperse Blue 62-----	DUP, EKT.
Disperse Blue 63-----	DUP.
*Disperse Blue 64-----	DUP, EKT, GAF, TRC.
Disperse Blue 70-----	AAP.
Disperse Blue 71-----	VPC.
Disperse Blue 73-----	TRC.
Disperse Blue 79-----	AAP, TRC.
Disperse Blue 109-----	DUP.
Disperse Blue 116-----	ACY.
Disperse Blue 133-----	DUP.
Other disperse blue dyes-----	BKS, DUP, EKT, GAF, HSH, ICC, MAY, VPC.
Disperse green dyes-----	GAF, ICC, TRC.
Disperse brown dyes:	
Disperse Brown 1-----	TRC.
Disperse Brown 2-----	DUP, GAF.
Other disperse brown dyes-----	EKT, GAF, ICC, SDC.
*Disperse black dyes:	
*Disperse Black 1-----	AAP, DUP, GAF, TRC.
Disperse Black 2-----	DUP, TRC.



TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
DISPERSE DYES--Continued	
*Disperse black dyes--Continued	
Disperse Black 6-----	AAP, DUP.
Disperse Black 7-----	YAW.
Disperse Black 9-----	AAP, BL, DUP, EKT, GAF.
Other disperse black dyes-----	BKS, DUP, EKT, GAF, ICC, VPC, YAW.
FIBER-REACTIVE DYES	
Reactive yellow dyes:	
Reactive Yellow 1-----	ICI.
Reactive Yellow 2-----	TRC.
Reactive Yellow 3-----	TRC.
Reactive Yellow 4-----	ICI.
Reactive Yellow 6-----	TRC.
Reactive Yellow 7-----	ICI.
Reactive Yellow 13-----	HST.
Reactive Yellow 14-----	HST.
Reactive Yellow 15-----	DUP, HST.
Reactive Yellow 16-----	HST.
Reactive Yellow 17-----	HST.
Reactive Yellow 18-----	ICI.
Reactive Yellow 22-----	ICI.
Reactive Yellow 24-----	HST.
Reactive Yellow 37-----	HST.
Other reactive yellow dyes-----	ACY, DUP, HST, VPC.
Reactive orange dyes:	
Reactive Orange 1-----	ICI.
Reactive Orange 4-----	ICI.
Reactive Orange 5-----	TRC.
Reactive Orange 7-----	DUP.
Reactive Orange 12-----	ICI.
Reactive Orange 13-----	ICI.
Reactive Orange 14-----	ICI.
Reactive Orange 16-----	HST.
Other reactive orange dyes-----	HST.
Reactive red dyes:	
Reactive Red 1-----	ICI.
Reactive Red 2-----	ICI.
Reactive Red 3-----	ICI.
Reactive Red 4-----	TRC.
Reactive Red 5-----	ICI.
Reactive Red 8-----	ICI.
Reactive Red 11-----	ICI.
Reactive Red 13-----	ICI.
Reactive Red 16-----	TRC.
Reactive Red 21-----	HST.
Reactive Red 29-----	ICI.
Reactive Red 31-----	HST, ICI.
Reactive Red 33-----	ICI.
Other reactive red dyes-----	ACY, GAF.
Reactive violet dyes:	
Reactive Violet 1-----	ICI.
Reactive Violet 2-----	TRC.
Reactive Violet 4-----	HST.
Reactive Violet 5-----	HST.
Other reactive violet dyes-----	HST.
*Reactive blue dyes:	
Reactive Blue 1-----	ICI.
Reactive Blue 2-----	TRC.
Reactive Blue 3-----	ICI.
Reactive Blue 4-----	ICI.
Reactive Blue 5-----	TRC.
Reactive Blue 7-----	TRC.
Reactive Blue 9-----	ICI.
Reactive Blue 18-----	TRC.
Reactive Blue 19-----	DUP, HST.
Reactive Blue 21-----	DUP, HST.
Reactive Blue 25-----	ICI.
Reactive Blue 27-----	HST.
Other reactive blue dyes-----	ACY, DUP, GAF, HST.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
FIBER-REACTIVE DYES--Continued	
Reactive green dyes-----	HST, ICI.
Reactive brown dyes:	
Reactive Brown 1-----	TRC.
Reactive Brown 10-----	ICI.
Reactive black dyes:	
Reactive Black 5-----	HST.
Reactive Black 9-----	ICI.
FLUORESCENT BRIGHTENING AGENTS	
Fluorescent Brightening Agent 1-----	GGY.
Fluorescent Brightening Agent 6-----	ACY.
Fluorescent Brightening Agent 8-----	ACY.
*Fluorescent Brightening Agent 9-----	ACY, GAF, SDH.
Fluorescent Brightening Agent 22-----	GGY.
Fluorescent Brightening Agent 24-----	GGY.
Fluorescent Brightening Agent 25-----	GAF.
*Fluorescent Brightening Agent 28-----	ACY, CCW, DUP, GAF.
Fluorescent Brightening Agent 30-----	GAF.
Fluorescent Brightening Agent 33-----	GAF.
Fluorescent Brightening Agent 34-----	DUP.
Fluorescent Brightening Agent 37-----	CIB.
Fluorescent Brightening Agent 45-----	TRC.
Fluorescent Brightening Agent 46-----	GGY.
Fluorescent Brightening Agent 49-----	S.
Fluorescent Brightening Agent 52-----	S.
Fluorescent Brightening Agent 54-----	GGY.
Fluorescent Brightening Agent 59-----	GGY.
Fluorescent Brightening Agent 61-----	ACY.
Fluorescent Brightening Agent 68-----	CCW, GAF.
Fluorescent Brightening Agent 71-----	ACY, GAF.
Fluorescent Brightening Agent 75-----	GAF.
Fluorescent Brightening Agent 102-----	DUP, VPC.
Fluorescent Brightening Agent 108-----	GAF.
Fluorescent Brightening Agent 109-----	GAF.
Fluorescent Brightening Agent 113-----	VPC.
Fluorescent Brightening Agent 114-----	VPC.
Fluorescent Brightening Agent 125-----	ACY.
Fluorescent Brightening Agent 126-----	SDH.
Fluorescent Brightening Agent 128-----	SDH.
Fluorescent Brightening Agent 130-----	SDH.
Fluorescent Brightening Agent 134-----	CIB.
Fluorescent Brightening Agent 135-----	CIB.
Fluorescent Brightening Agent 136-----	CIB.
Fluorescent Brightening Agent 139-----	CIB.
Fluorescent Brightening Agent 155-----	WIM.
Fluorescent Brightening Agent 158-----	ACY.
Fluorescent Brightening Agent 159-----	ACY.
Fluorescent Brightening Agent 161-----	ACY.
Other fluorescent brightening agents-----	ACY, CCW, CIB, DUP, GGY, S, TRC.
FOOD, DRUG, AND COSMETIC COLORS	
<i>Food, Drug, and Cosmetic Dyes</i>	
*FD&C Blue No. 1-----	ACS, KON, SDH, WJ.
*FD&C Blue No. 2-----	ACS, KON, SDH.
FD&C Green No. 3-----	WJ.
*FD&C Red No. 2-----	ACS, ALT, KON, SDH, STG, WJ.
*FD&C Red No. 3-----	ACS, ALT, KON, SDH, STG.
FD&C Red No. 4-----	ACS, ALT, KON, SDH, WJ.
FD&C Violet No. 1-----	ACS.
*FD&C Yellow No. 5-----	ACS, ALT, KON, SDH, STG, WJ.
*FD&C Yellow No. 6-----	ACS, ALT, KON, SDH, STG, WJ.
Other food, drug, and cosmetic dyes-----	STG, WJ.
<i>Drug and Cosmetic Dyes</i>	
D&C Blue No. 6-----	ACS.
D&C Blue No. 9-----	ACS.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
FOOD, DRUG, AND COSMETIC COLORS--Continued	
<i>Drug and Cosmetic Dyes--Continued</i>	
D&C Brown No. 1-----	ACS.
D&C Green No. 5-----	ACS, KON.
D&C Green No. 6-----	ACS, KON.
D&C Green No. 8-----	KON, SDH.
*D&C Orange No. 4-----	ACS, KON, SNA, TMS.
D&C Orange No. 5-----	SNA, TMS.
D&C Orange No. 10-----	TMS.
D&C Orange No. 17-----	KON, SNA.
D&C Red No. 3-----	KON, TMS.
D&C Red No. 6-----	SNA, TMS.
*D&C Red No. 7-----	KON, SNA, TMS.
D&C Red No. 8-----	KON, SNA.
D&C Red No. 9-----	KON, SNA, TMS.
D&C Red No. 10-----	KON, SNA.
D&C Red No. 11-----	SNA.
D&C Red No. 12-----	SNA, TMS.
D&C Red No. 13-----	SNA.
D&C Red No. 17-----	ACS, KON.
*D&C Red No. 19-----	ACS, KON, SNA, TMS.
*D&C Red No. 21-----	KON, SNA, TMS.
D&C Red No. 22-----	KON.
D&C Red No. 27-----	TMS.
D&C Red No. 28-----	ACS.
D&C Red No. 30-----	KON.
D&C Red No. 31-----	KON.
D&C Red No. 33-----	ACS.
D&C Red No. 34-----	KON.
*D&C Red No. 36-----	ALT, KON, SNA, TMS.
D&C Red No. 37-----	ACS.
D&C Violet No. 2-----	ACS.
*D&C Yellow No. 5-----	KON, SNA, TMS.
D&C Yellow No. 6-----	KON.
D&C Yellow No. 7-----	KON.
D&C Yellow No. 8-----	KON, TMS.
D&C Yellow No. 10-----	ACS, KON.
D&C Yellow No. 11-----	ACS, KON.
<i>Drug and Cosmetic Dyes, External</i>	
Ext. D&C Green No. 1-----	ACS, KON.
Ext. D&C Orange No. 3-----	ACS.
Ext. D&C Violet No. 2-----	KON.
Ext. D&C Yellow No. 1-----	ACS, KON.
Ext. D&C Yellow No. 7-----	KON.
INGRAIN DYES	
Ingrain blue dyes:	
Ingrain Blue 1-----	ICI.
Ingrain Blue 2-----	VPC.
Ingrain Blue 3-----	ICI.
Ingrain Blue 6-----	VPC.
MORDANT DYES	
*Mordant yellow dyes:	
*Mordant Yellow 1-----	ATL, GAF, PDC, TRC.
Mordant Yellow 3-----	ACS, ATL.
Mordant Yellow 5-----	TRC.
*Mordant Yellow 8-----	ACS, DUP, VPC.
Mordant Yellow 10-----	DUP.
Mordant Yellow 14-----	ACS.
Mordant Yellow 16-----	ACS, ACY.
Mordant Yellow 20-----	ACS.
Mordant Yellow 26-----	VPC.
Mordant Yellow 29-----	GAF.
Mordant Yellow 30-----	TRC, VPC.
Mordant Yellow 36-----	PDC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
MORDANT DYES--Continued	
*Mordant orange dyes:	
*Mordant Orange 1-----	ACY, GAF, PDC, TRC.
Mordant Orange 4-----	GAF, VPC.
*Mordant Orange 6-----	ATL, GAF, PDC, TRC.
Mordant Orange 8-----	TRC.
Mordant Orange 30-----	ACS.
*Mordant red dyes:	
Mordant Red 3-----	ACS, ACY.
Mordant Red 5-----	PDC.
Mordant Red 6-----	GAF.
Mordant Red 7-----	ACS, ACY, BDO, CMG, GAF, PDC, TRC, VPC.
Mordant Red 9-----	ACS, GAF, MRX.
Mordant Red 11-----	ACY.
Mordant Red 19-----	PDC.
Mordant Red 64-----	PDC.
Mordant violet dyes:	
Mordant Violet 11-----	GAF.
Mordant Violet 20-----	GAF.
*Mordant blue dyes:	
Mordant Blue 1-----	ACS, DUP, GAF, TRC.
Mordant Blue 3-----	GAF.
Mordant Blue 7-----	TRC.
Mordant Blue 9-----	ACS, GAF.
Mordant Blue 13-----	ACS, HSH.
Mordant Blue 19-----	CMG.
Mordant green dyes:	
Mordant Green 11-----	ACY.
Mordant Green 36-----	PDC.
*Mordant brown dyes:	
*Mordant Brown 1-----	ACS, CMG, DUP, GAF, TRC, YAW.
Mordant Brown 12-----	PDC.
Mordant Brown 13-----	ACS.
Mordant Brown 15-----	GAF.
Mordant Brown 18-----	ACS, DUP.
Mordant Brown 19-----	GAF.
Mordant Brown 21-----	GAF, VPC.
*Mordant Brown 33-----	ACS, DUP, GAF, TRC.
*Mordant Brown 40-----	ACS, CMG, GAF, YAW.
Mordant Brown 50-----	TRC.
Mordant Brown 63-----	TRC.
Mordant Brown 70-----	DUP, PDC.
*Mordant black dyes:	
Mordant Black 1-----	ACS.
*Mordant Black 3-----	ACS, GAF, TRC.
Mordant Black 5-----	ACS, TRC.
Mordant Black 7-----	GAF.
Mordant Black 8-----	VPC.
Mordant Black 9-----	ACS, VPC.
*Mordant Black 11-----	ACS, GAF, TRC, VPC.
*Mordant Black 13-----	ACS, GAF, HSH.
*Mordant Black 17-----	ACS, ACY, DUP, GAF, TRC.
Mordant Black 19-----	PDC.
Mordant Black 26-----	TRC.
*Mordant Black 38-----	ACS, CMG.
Other mordant black dyes-----	PDC.
OXIDATION BASES	
Oxidation Base 8 and 8A-----	ACY.
Oxidation Base 21-----	PDC.
Oxidation Base 22-----	ACY.
Oxidation Base 25-----	ACY.
Other oxidation bases-----	ACY, CMG.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent Yellow 1-----	AAP, ACY.
*Solvent Yellow 2-----	AAP, DUP, FH, GAF, PAT, PSC.
*Solvent Yellow 3-----	ACS, DUP, GAF, PSC.
Solvent Yellow 13-----	ACY, GAF, TRC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SOLVENT DYES--Continued	
*Solvent yellow dyes--Continued	
*Solvent Yellow 14-----	AAP, ACS, ACY, DUP, FH, GAF, PAT, PSC, SDH.
Solvent Yellow 16-----	PAT.
Solvent Yellow 19-----	GAF.
Solvent Yellow 29-----	GAF.
Solvent Yellow 30-----	ACS, PSC.
Solvent Yellow 33-----	ACS, ACY.
Solvent Yellow 34-----	DUP.
Solvent Yellow 40-----	ACS.
Solvent Yellow 42-----	ACS.
Solvent Yellow 44-----	ACS, GAF.
Solvent Yellow 45-----	ACS, DUP.
Solvent Yellow 47-----	ACS, ACY, DUP, GAF.
Solvent Yellow 53-----	ACS.
Solvent Yellow 56-----	ACY.
Solvent Yellow 71-----	ACY.
Solvent Yellow 72-----	ACY.
Solvent Yellow 87-----	ACY.
Other solvent yellow dyes-----	AAP, DSC, PAT, x.
*Solvent orange dyes:	
Solvent Orange 2-----	AAP, PSC.
*Solvent Orange 3-----	ACS, ACY, DSC, GAF, PSC.
Solvent Orange 5-----	GAF, TRC.
*Solvent Orange 7-----	ACS, ACY, FH, GAF.
Solvent Orange 20-----	ACY, GAF.
Solvent Orange 23-----	ACS.
Solvent Orange 24-----	DUP.
Solvent Orange 25-----	ACY, DUP.
Solvent Orange 31-----	ACS.
Solvent Orange 48-----	ACY.
Solvent Orange 51-----	ACY.
Other solvent orange dyes-----	AAP, ACY, DSC, DUP, PAT.
*Solvent red dyes:	
Solvent Red 8-----	GAF.
Solvent Red 22-----	GAF.
*Solvent Red 24-----	ACY, DUP, FH, GAF, PAT, SDH.
*Solvent Red 26-----	AAP, ACS, ACY, PSC.
Solvent Red 27-----	ACS.
*Solvent Red 33-----	ACS, DUP, GAF.
Solvent Red 34-----	DUP.
Solvent Red 35-----	GAF.
Solvent Red 40-----	GAF.
Solvent Red 41-----	DSC.
*Solvent Red 49-----	ACY, DSC, DUP, GAF.
Solvent Red 52-----	GAF, ICI.
Solvent Red 65-----	ACS.
Solvent Red 68-----	ACS.
Solvent Red 69-----	DSC, DUP.
Solvent Red 74-----	ACS.
Solvent Red 75-----	ACS.
Solvent Red 76-----	ACS.
Solvent Red 80-----	ACS, ACY.
Solvent Red 105-----	ACY.
Solvent Red 108-----	ACY.
Solvent Red 111-----	ACY.
Solvent Red 115-----	ACY.
Solvent Red 126-----	ACY.
Other solvent red dyes-----	AAP, ACY, DSC, DUP, GAF, ICI, PAT.
*Solvent violet dyes:	
*Solvent Violet 8-----	ACS, ACY, DSC, DUP, NYC.
Solvent Violet 9-----	DSC.
Solvent Violet 13-----	AAP, HSH, ICI.
Solvent Violet 14-----	ICI.
Solvent Violet 17-----	ACS.
Other solvent violet dyes-----	AAP, ACY, DSC, NYC, PAT.
Solvent blue dyes:	
Solvent Blue 3-----	ACY, SW.
Solvent Blue 4-----	DSC, DUP, SDH.
Solvent Blue 5-----	DSC.
Solvent Blue 6-----	DSC.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SOLVENT DYES--Continued	
Solvent blue dyes--Continued	
Solvent Blue 7-----	ACS, ACY.
Solvent Blue 9-----	GAF.
Solvent Blue 11-----	GAF, ICI.
Solvent Blue 12-----	ACS, DUP.
Solvent Blue 16-----	ACS.
Solvent Blue 32-----	AAP.
Solvent Blue 36-----	ACS, DUP.
Solvent Blue 37-----	DUP.
*Solvent Blue 38-----	ACS, ACY, DUP.
Solvent Blue 43-----	ACS.
Solvent Blue 58-----	ACY.
Solvent Blue 59-----	ACY.
Solvent Blue 60-----	ACY.
Solvent Blue 74-----	ACS.
Other solvent blue dyes-----	AAP, ACY, DSC, GAF, ICI, NYC, PAT, SDH.
Solvent green dyes:	
Solvent Green 1-----	ACY, DSC, SDH.
Solvent Green 2-----	GAF.
Solvent Green 3-----	AAP, ACS, ACY, ATL, GAF, HSH, ICI.
Solvent Green 10-----	DUP.
Solvent Green 11-----	DUP.
Other solvent green dyes-----	DSC.
*Solvent brown dyes:	
Solvent Brown 11-----	GAF.
*Solvent Brown 12-----	ACY, DSC, GAF.
Solvent Brown 17-----	DUP.
Solvent Brown 19-----	DUP.
Solvent Brown 20-----	ACY, DUP.
Solvent Brown 22-----	FH.
Solvent Brown 38-----	ACY.
Other solvent brown dyes-----	DSC.
Solvent black dyes:	
Solvent Black 3-----	ACS.
Solvent Black 5-----	ACS, ACY, DSC.
Solvent Black 7-----	ACS, ACY, DSC, FH, NYC.
Solvent Black 12-----	ACS, NYC.
Solvent Black 13-----	ACS.
Solvent Black 17-----	DUP.
Solvent Black 26-----	ACY.
Other solvent black dyes-----	DSC, NYC.
SULFUR DYES	
Sulfur yellow dyes:	
Leuco Sulfur Yellow 1-----	SDC.
Leuco Sulfur Yellow 2-----	ACY, SDC.
Sulfur Yellow 4-----	DUP, SDC.
Leuco Sulfur Yellow 4-----	SDC.
Leuco Sulfur Yellow 15-----	ACY.
Other sulfur yellow dyes-----	ACY, SDC.
Sulfur red dyes:	
Sulfur Red 1-----	ACS, ACY.
Leuco Sulfur Red 5-----	SDC.
Sulfur Red 6-----	ACS, ACY, DUP, SDC.
Leuco Sulfur Red 6-----	SDC.
Sulfur Red 8-----	DUP.
Sulfur blue dyes:	
Sulfur Blue 7-----	ACS, ACY, SDC.
Leuco Sulfur Blue 7-----	ACS, ACY, SDC.
Solubilized Sulfur Blue 7-----	SDC.
Sulfur Blue 8-----	SDC.
Leuco Sulfur Blue 8-----	SDC.
Sulfur Blue 9-----	ACS, ACY.
Sulfur Blue 11-----	ACS, DUP, SDC.
Leuco Sulfur Blue 11-----	SDC.
Leuco Sulfur Blue 13-----	ACY.
Sulfur Blue 15-----	DUP.
Other sulfur blue dyes-----	ACY, SDC.
Sulfur green dyes:	
Sulfur Green 1-----	ACS.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
SULFUR DYES--Continued	
Sulfur green dyes--Continued	
Sulfur Green 2-----	SDC.
Leuco Sulfur Green 2-----	SDC.
Sulfur Green 3-----	ACS.
Leuco Sulfur Green 3-----	SDC.
Sulfur Green 14-----	DUP.
Leuco Sulfur Green 16-----	SDC.
Solubilized Sulfur Green 16-----	SDC.
Sulfur Green 28-----	ACY.
Other sulfur green dyes-----	ACY, SDC.
Sulfur brown dyes:	
Sulfur Brown 3-----	SDC.
Leuco Sulfur Brown 3-----	SDC, SDH.
Solubilized Sulfur Brown 3-----	SDC.
Sulfur Brown 10-----	ACS, DUP, SDC.
Leuco Sulfur Brown 10-----	SDC.
Solubilized Sulfur Brown 10-----	SDC.
Sulfur Brown 14-----	SDC.
Leuco Sulfur Brown 14-----	ACY, SDC.
Solubilized Sulfur Brown 14-----	SDC.
Sulfur Brown 20-----	DUP.
Sulfur Brown 21-----	DUP.
Sulfur Brown 26-----	ACY.
Sulfur Brown 30-----	ACY.
Sulfur Brown 33-----	ACY.
Sulfur Brown 37-----	SDC.
Leuco Sulfur Brown 37-----	SDC.
Sulfur Brown 44-----	ACS.
Sulfur Brown 45-----	ACS.
Sulfur Brown 50-----	ACS.
Leuco Sulfur Brown 82-----	ACY.
Other sulfur brown dyes-----	ACY, SDC.
Sulfur black dyes:	
Sulfur Black 1-----	ACS, ACY, DUP, SDC.
Leuco Sulfur Black 1-----	ACS, ACY, SDC.
Solubilized Sulfur Black 1-----	SDC.
Sulfur Black 2-----	ACS, ACY, DUP, SDC.
Leuco Sulfur Black 2-----	ACS, ACY, SDC.
Solubilized Sulfur Black 2-----	SDC.
Leuco Sulfur Black 6-----	ACS.
Sulfur Black 10-----	ACY, DUP.
Leuco Sulfur Black 10-----	ACS, ACY.
Sulfur Black 11-----	SDC.
Leuco Sulfur Black 11-----	SDC.
Other sulfur black dyes-----	SDC.
VAT DYES	
*Vat yellow dyes:	
Vat Yellow 1, 12-1/2%-----	ACS.
*Vat Yellow 2, 8-1/2%-----	AAP, ACS, ATL, GAF, ICI, TRC, VPC.
Solubilized Vat Yellow 2, 25%-----	GAF, ICI.
Vat Yellow 3, 12-1/2%-----	DUP.
Vat Yellow 4, 12-1/2%-----	ACY, ATL, CMG, GAF, HST, ICI, VPC.
*Solubilized Vat Yellow 4, 37-1/2%-----	GAF, HST, ICI.
Vat Yellow 10, 10%-----	GAF.
Vat Yellow 13, 6-1/2%-----	ICI.
Vat Yellow 14, 12-1/2%-----	TRC.
Vat Yellow 15, 11-1/2%-----	ACY.
Vat Yellow 21, 9-1/2%-----	ATL.
Vat Yellow 22, 10%-----	DUP, GAF.
Vat Yellow 27-----	VPC.
Vat Yellow 33, 15%-----	TRC.
Vat Yellow 41, 9%-----	ACY.
Other vat yellow dyes-----	ACS, GAF, MAY, VPC.
*Vat orange dyes:	
*Vat Orange 1, 20%-----	ACS, CMG, GAF, HST, ICI, TRC, VPC.
*Solubilized Vat Orange 1, 26%-----	GAF, HST, ICI.
*Vat Orange 2, 12%-----	AAP, ACS, ACY, CMG, DUP, GAF, ICI, TRC.
*Vat Orange 3, 13-1/2%-----	CMG, DUP, GAF, HST.

TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967 --Continued

Dye	Manufacturers' identification codes (according to list in table 22)
VAT DYES--Continued	
*Vat orange dyes--Continued	
*Vat Orange 4, 6%-----	ACY, CMG, DUP.
*Vat Orange 5, 10%-----	AAP, ACY, HST.
*Solubilized Vat Orange 5, 30%-----	GAF, HST, ICI.
Vat Orange 7, 11%-----	GAF, HST, TRC.
*Vat Orange 9, 12%-----	AAP, ACS, ACY, CMG, DUP, GAF, ICI, TRC.
Vat Orange 11, 6%-----	ACS, DUP.
*Vat Orange 15, 10%-----	AAP, ACS, GAF, ICI, TRC, VPC.
Vat Orange 23, 17-1/2%-----	ACY, DUP.
Vat Orange 24-----	DUP.
Other vat orange dyes-----	GAF, SDC.
*Vat red dyes:	
*Vat Red 1, 13%-----	AAP, ACY, HST, ICI.
*Solubilized Vat Red 1, 37%-----	GAF, HST, ICI.
Vat Red 10, 18%-----	ACS, GAF.
Solubilized Vat Red 10, 31%-----	GAF.
Vat Red 12, 8-1/2%-----	DUP.
*Vat Red 13, 11%-----	DUP, GAF, TRC.
Vat Red 14, 10%-----	GAF, HST.
*Vat Red 15, 10%-----	GAF, HST, TRC.
Vat Red 16, 11%-----	DUP.
Vat Red 17, 10%-----	GAF.
Vat Red 23-----	DUP.
Vat Red 29, 18%-----	GAF.
*Vat Red 32, 20%-----	ACS, DUP, GAF.
Vat Red 35, 12-1/2%-----	ACS, TRC.
Vat Red 44, 17%-----	TRC.
Vat Red 52, 10%-----	DUP.
Vat Red 53, 12%-----	DUP.
Vat Red 56, 15-1/2%-----	ACY.
Vat Red 62-----	DUP.
Other vat red dyes-----	GAF, TRC, VPC.
*Vat violet dyes:	
*Vat Violet 1, 11%-----	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Violet 1, 26%-----	GAF, ICI.
*Vat Violet 2, 20%-----	ACY, GAF, HST, VPC.
Vat Violet 3, 15%-----	GAF, HST.
Solubilized Vat Violet 3, 43%-----	GAF.
*Vat Violet 9, 12%-----	DUP, GAF, ICI, TRC.
*Vat Violet 13, 6-1/4%-----	ACS, DUP, GAF, ICI, TRC.
Vat Violet 14, 12-1/2%-----	ACS.
Vat Violet 17, 12-1/2%-----	DUP, GAF.
Vat Violet 21-----	VPC.
Other vat violet dyes-----	GAF, MAY.
*Vat blue dyes:	
Vat Blue 1, 20%-----	ACS.
Solubilized Vat Blue 1, 25%-----	GAF.
Vat Blue 4, 10%-----	ACY, DUP, GAF.
Vat Blue 5, 16%-----	ATL, DUP, HST.
Solubilized Vat Blue 5, 38%-----	GAF, HST.
*Vat Blue 6, 8-1/3%-----	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Blue 6, 17-1/2%-----	GAF, HST, ICI.
Vat Blue 7, 12-1/2%-----	ACS.
Solubilized Vat Blue 9, 35%-----	GAF.
Vat Blue 12, 6-1/2%-----	DUP.
Vat Blue 14, 8-1/3%-----	ACS, DUP, GAF, TRC.
Vat Blue 16, 16-1/2%-----	ACS, ACY, DUP.
Vat Blue 18, 13%-----	AAP, ACS, ACY, ATL, DUP, GAF, ICI, MAY, TRC.
*Vat Blue 20, 14%-----	AAP, ACY, ATL, DUP, GAF, ICI, MAY, SDC, TRC.
Vat Blue 26, 24%-----	GAF.
Vat Blue 29-----	GAF.
Vat Blue 35, 20%-----	HST.
Vat Blue 39, 12%-----	GAF.
Vat Blue 42, 20%-----	SDC.
Vat Blue 43-----	DUP, SDC.
Vat Blue 53, 20-1/2%-----	GAF.
Vat Blue 60-----	DUP.
Other vat blue dyes-----	GAF, VPC, x.
*Vat green dyes:	
*Vat Green 1, 6%-----	AAP, ACY, ATL, DUP, GAF, ICI, MAY.
Solubilized Vat Green 1, 12-1/2%-----	GAF, HST, ICI.



TABLE 8B. -- Benzenoid dyes for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Dye	Manufacturers' identification codes (according to list in table 22)
VAT DYES--Continued	
*Vat green dyes--Continued	
*Vat Green 3, 10%-----	AAP, ACS, ACY, ATL, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Green 3, 26%-----	GAF, HST, ICI.
*Vat Green 8, 8-1/2%-----	ACS, ATL, DUP, GAF, ICI.
*Vat Green 9, 12-1/2%-----	ACS, ACY, ATL, DUP, GAF, MAY, SDC, TRC.
Vat Green 15, 17%-----	ACS.
Vat Green 18, 8%-----	DUP.
Vat Green 20, 6%-----	DUP.
Other vat green dyes-----	GAF, MAY, SDC.
*Vat brown dyes:	
*Vat Brown 1, 11%-----	ACS, ACY, DUP, GAF, ICI, MAY, TRC.
Solubilized Vat Brown 1, 17%-----	GAF, ICI.
*Vat Brown 3, 11%-----	AAP, ACS, ACY, DUP, GAF, ICI, MAY, TRC, VPC.
*Vat Brown 5, 13%-----	AAP, ACY, GAF, HST, VPC.
Vat Brown 11, 12%-----	DUP, MAY, TRC.
Vat Brown 12, 12-1/2%-----	ACS, DUP.
Vat Brown 13, 17%-----	MAY.
Vat Brown 20, 10-1/2%-----	ACS, GAF.
Vat Brown 25, 11-1/2%-----	GAF.
Vat Brown 28, 22%-----	ICI.
Vat Brown 29, 13%-----	ACY.
Vat Brown 31, 28%-----	AAP.
Vat Brown 38, 20%-----	ICI.
Vat Brown 40, 14%-----	DUP.
Vat Brown 53-----	GAF.
Vat Brown 57, 15%-----	GAF, HST, TRC.
Other vat brown dyes-----	ACS, GAF, SDC, VPC.
*Vat black dyes:	
*Solubilized Vat Black 1, 27-1/2%-----	GAF, HST, ICI.
*Vat Black 9, 16%-----	ACS, ATL, GAF, MAY, TRC.
Vat Black 11, 17-1/2%-----	ACY.
Vat Black 13, 14%-----	ACS, DUP.
Vat Black 14, 11-1/2%-----	DUP.
Vat Black 15-----	AAP.
Vat Black 18, 15-1/2%-----	ACS, GAF.
Vat Black 21, 18-1/2%-----	ACY.
Vat Black 22, 19%-----	ACY, TRC.
*Vat Black 25, 12-1/2%-----	AAP, ACY, DUP, GAF, ICI, MAY, TRC.
*Vat Black 27, 12-1/2%-----	AAP, ACS, ACY, BDO, DUP, GAF, ICI, MAY, TRC.
Vat Black 34, 16%-----	ICI.
Vat Black 37-----	GAF.
Vat Black 38, 20%-----	GAF.
Vat Black 52, 18-1/2%-----	ACY.
Other vat black dyes-----	DUP, GAF, SDC, TRC.
All other dyes-----	ACY, DUP, PAT, SDC.

## Pigments

TABLE 11B.--Benzenoid pigments for which U.S. production or sales were reported, identified by manufacturer, 1967

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

Pigment	Manufacturers' identification codes (according to list in table 22)
TONERS	
*Yellow toners:	
*Hansa yellows:	
*Pigment Yellow 1, C.I. 11 680-----	ACS, ACY, AMS, CPC, DUP, FCL, GAF, HSC, HSH, ICI, IMP, KON, PPG, S, SDH, SNA, SW.
*Pigment Yellow 3, C.I. 11 710-----	ACS, HSC, HSH, HST, IMP, KCW, PPG, S, SW.
Pigment Yellow 4, C.I. 11 665-----	ACS, SNA.
Pigment Yellow 5, C.I. 11 660-----	IMP.
Pigment Yellow 6, C.I. 11 670-----	IMP.
Pigment Yellow 9, C.I. 11 720-----	SNA.
Pigment Yellow 49, C.I. 11 765-----	ICI.
Pigment Yellow 65, C.I. 11 740-----	SW.
*Pigment Yellow 73-----	ACS, SNA, SW, x.
*Pigment Yellow 74, C.I. 11 741-----	DUP, SDH, SW.
All other Hansa yellows-----	HSC, KCW.
*Benzidine yellows:	
*Pigment Yellow 12, C.I. 21 090-----	ACS, ACY, AMS, CIK, DUP, FCL, GAF, HSC, HSH, HST, ICC, IMP, KON, LVY, S, SDH, SNA, SW.
*Pigment Yellow 13, C.I. 21 100-----	ACS, BUC, FCL, GAF, HSH, HST, ICC, IMP, ROM, SDH, SNA, SW.
*Pigment Yellow 14, C.I. 21 095-----	ACS, ACY, AMS, BUC, CIK, CPC, DUP, FCL, GAF, HSC, HSH, HST, ICC, IMP, KON, ROM, S, SDH, SNA, SW, x.
*Pigment Yellow 17, C.I. 21 105-----	ACY, AMS, BUC, FCL, HSC, HSH, HST, ICC, IMP, SDH, SNA, SW.
Pigment Yellow 83-----	HST.
All other benzidine yellows-----	HSH, ICC, IMP, ROM, SW.
Pigment Yellow 10, C.I. 12 710-----	SW.
Pigment Yellow 18, C.I. 49 005-----	IMP.
Pigment Yellow 19-----	GAF.
Pigment Yellow 60, C.I. 12 705-----	SW.
(Basic Yellow 2), C.I. 41 000, fugitive-----	MRX.
(Vat Yellow 1), C.I. 70 600-----	ACS, TRC.
All other-----	ACY, ICC, IMP, S, SW.
*Orange toners:	
Pigment Orange 1, C.I. 11 725-----	ACS, KCW.
*Pigment Orange 2, C.I. 12 060-----	FCL, IMP, SDH, SW, UHL.
*Pigment Orange 5, C.I. 12 075-----	ACY, HSC, IMP, SNA, SW.
*Pigment Orange 13, C.I. 21 110-----	ACS, ACY, AMS, DUP, HSC, IMP, KON, S, SNA, SW.
Pigment Orange 15, C.I. 21 130-----	ACS, GAF.
*Pigment Orange 16, C.I. 21 160-----	ACS, BUC, DUP, FCL, HSH, HST, ICC, IMP, ROM, SDH, SNA, SW.
Pigment Orange 30-----	SNA.
Pigment Orange 34, C.I. 21 115-----	BUC, ICC.
(Vat Orange 1), C.I. 59 105-----	HST.
(Vat Orange 2), C.I. 59 705-----	GAF.
(Vat Orange 3), C.I. 59 300-----	ACS, TRC.
(Vat Orange 4), C.I. 59 710-----	ACS.
(Vat Orange 7), C.I. 71 105-----	GAF, HST.
(Vat Orange 15), C.I. 69 025-----	ACS, TRC.
All other-----	ICC, KON, ROM, SDH.
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310-----	ACS, GAF, HSC, HSH, IMP, KCW, KON, MRX, SDH, SW.
*Pigment Red 5, C.I. 12 490-----	DUP, GAF, HSH, HST, ICC, ICI, IMP, ROM, S, SDH, SW.
Pigment Red 7, C.I. 12 420-----	ICI, S.
Pigment Red 9, C.I. 12 460-----	IMP.
Pigment Red 10, C.I. 12 440-----	KCW.
*Pigment Red 13, C.I. 12 395-----	ACS, IMP, KCW, SW.
Pigment Red 14, C.I. 12 380-----	DUP.
Pigment Red 15, C.I. 12 465-----	DUP.

See note at end of table for definition of abbreviations.

TABLE 11B.--Benzenoid pigments for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Pigment	Manufacturers' identification codes (according to list in table 22)
TONERS--Continued	
*Red toners--Continued	
*Naphthol reds--Continued	
*Pigment Red 17, C.I. 12 390-----	ACY, FCL, ICC, IMP, SNA, SW, UHL.
*Pigment Red 18, C.I. 12 350-----	ACS, IMP, SW.
Pigment Red 19, C.I. 12 400-----	ACS.
*Pigment Red 22, C.I. 12 315-----	ACY, DUP, FCL, GAF, IMP, MRX, SNA, SW.
*Pigment Red 23, C.I. 12 355-----	ACY, BUC, DUP, FCL, ICC, IMP, ROM, SDH, SNA, SW.
Pigment Red 31, C.I. 12 360-----	SNA.
All other naphthol reds-----	ICC, IMP, KCW, S, SDH, SW.
*Pigment Red 1, C.I. 12 070, dark-----	ACY, AMS, HSC, HSH, IMP, KON, LVY, SDH, SW.
*Pigment Red 1, C.I. 12 070, light-----	ACY, HSC, HSH, IMP, KON, PPG, SDH, SNA, SW.
*Pigment Red 3, C.I. 12 120-----	ACS, ACY, CIK, DUP, FCL, HSC, HSH, IMP, KCW, KON, PPG, SDH, SNA, SW, UHL.
*Pigment Red 4, C.I. 12 085-----	ACY, AMS, FCL, HSC, HSH, IMP, KON, MRX, SDH, SNA, SW, UHL.
*Pigment Red 6, C.I. 12 090-----	DUP, HSC, KCW, KON, SW.
*Pigment Red 38, C.I. 21 120-----	ACS, DUP, GAF, ICC, SNA, SW.
Pigment Red 41, C.I. 21 200-----	ACS, GAF.
*Pigment Red 48, C.I. 15 865-----	ACS, ACY, AMS, DUP, FCL, GAF, HSC, HSH, ICC, IMP, KON, LVY, MRX, S, SNA, SW.
Pigment Red 49, C.I. 15 630:	
*Barium toner-----	ACY, AMS, CIK, FCL, HSC, IMP, KON, LVY, PPG, SDH, SW, UHL.
*Calcium toner-----	ACY, AMS, CIK, FCL, HSC, IMP, LVY, PPG, SDH, SW.
*Sodium toner-----	ACY, AMS, FCL, HSC, SDH, SW.
*Pigment Red 52, C.I. 15 860-----	AMS, FCL, HSC, HSH, IMP, SNA, SW.
*Pigment Red 53, C.I. 15 585, barium toner-----	ACY, AMS, CIK, FCL, HSC, IMP, KON, LVY, MGR, MRX, SDH, SNA, SW.
Pigment Red 53, C.I. 15 585, sodium toner-----	KON.
*Pigment Red 54, C.I. 14 830, calcium toner-----	HSH, IMP, MRX, SDH.
Pigment Red 55, C.I. 15 820-----	ACS, DUP.
*Pigment Red 57, C.I. 15 850, calcium toner-----	ACS, AMS, CIK, DUP, FCL, HSC, HSH, IMP, KON, LVY, MGR, SDH, SNA, SW.
Pigment Red 58, C.I. 15 825-----	DUP, GAF, IMP.
*Pigment Red 63, C.I. 15 880-----	ACS, FCL, HSH, IMP, KON, SNA, SW.
Pigment Red 64, C.I. 15 800-----	ACS.
Pigment Red 77, C.I. 15 826-----	SW.
Pigment Red 79, FMA-----	GAF.
Pigment Red 81, C.I. 45 160, fugitive-----	KCW, MGR.
*Pigment Red 81, C.I. 45 160, PMA-----	CPC, DUP, FCL, GAF, IMP, KON, LVR, LVY, MGR, MRX, S, SNA.
*Pigment Red 81, C.I. 45 160, PTA-----	ACY, AMS, DUP, FCL, GAF, HSC, IMP, KCW, KON, MGR, MRX, S, SDH, SNA.
Pigment Red 87, C.I. 73 310-----	ACS.
Pigment Red 88-----	ACS, SDH.
*Pigment Red 90, C.I. 45 380-----	AMS, FCL, ICC, IMP, LVR, LVY, NYC, SDH, SNA.
Pigment Red 117, C.I. 15 603-----	SW.
Pigment Red 122-----	ACS.
Pigment Red 123-----	ACS.
(Vat Red 1), C.I. 73 360-----	HST.
(Vat Red 23), C.I. 71 130-----	ACS.
*(Vat Red 29), C.I. 71 140-----	ACS, GAF, HSC.
All other-----	ACY, DUP, GAF, HAM, HSC, SW, TRC.
*Violet toners:	
Pigment Violet 1, C.I. 45 170, fugitive-----	UHL.
*Pigment Violet 1, C.I. 45 170, PMA-----	GAF, IMP, LVR, MGR, MRX, S, SNA.
*Pigment Violet 1, C.I. 45 170, PTA-----	ACY, AMS, DUP, FCL, GAF, HSC, IMP, MGR, MRX, SNA.
*Pigment Violet 3, C.I. 42 535, fugitive-----	ACY, AMS, HAM, HSC, IMP, KON, LVY, MGR, NYC, UHL.
*Pigment Violet 3, C.I. 42 535, PMA-----	AMS, CIK, DUP, GAF, HSC, IMP, KON, LVR, LVY, MGR, MRX, PPG, SDH, SNA, SW, UHL.
*Pigment Violet 3, C.I. 42 535, PTA-----	ACY, AMS, GAF, HSC, IMP, KON, MRX, SNA, SW.
Pigment Violet 19, C.I. 46 500-----	ACS, DUP, SNA.
*Pigment Violet 23-----	ACS, ACY, GAF, HST.
(Vat Violet 1), C.I. 60 010-----	ACS, DUP.
(Vat Violet 2), C.I. 73 385-----	ACS.
(Vat Violet 3), C.I. 73 395-----	ACS.
All other-----	BUC, ICC, IMP, ROM.

See note at end of table for definition of abbreviations.

TABLE 11B.--Benzenoid pigments for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Pigment	Manufacturers' identification codes (according to list in table 22)
TONERS--Continued	
*Blue toners:	
*Pigment Blue 1, C.I. 42 595, PMA-----	DUP, GAF, IMP, KON, LVR, LVY, MGR, MRX, SDH, SNA, SW, UHL.
*Pigment Blue 1, C.I. 42 595, PTA-----	ACS, AMS, GAF, IMP, KON, MGR, SNA, SW.
Pigment Blue 2, C.I. 44 045, PMA-----	GAF.
Pigment Blue 2, C.I. 44 045, PTA-----	GAF, HAM.
Pigment Blue 5, C.I. 42 600-----	GAF.
Pigment Blue 9, C.I. 42 025, PMA-----	MRX.
*Pigment Blue 9, C.I. 42 025, PTA-----	GAF, IMP, MGR, MRX, SDH.
Pigment Blue 10, C.I. 44 040, PMA-----	IMP, SDH.
Pigment Blue 10, C.I. 44 040, PTA-----	IMP.
*Pigment Blue 14, C.I. 42 600, PMA-----	DUP, GAF, IMP.
Pigment Blue 14, C.I. 42 600, PTA-----	DUP,
*Pigment Blue 15, C.I. 74 160, alpha form-----	ACS, ACY, DUP, FCL, GAF, HSC, ICI, IMP, MGR, SNA, SW, TMS, TRC.
*Pigment Blue 15, C.I. 74 160, beta form-----	ACY, AMS, DUP, FCL, HSC, ICC, IMP, LVY, SNA, SW, TMS.
*Pigment Blue 19, C.I. 42 750A-----	ACY, AMS, HSC, NYC, SW.
*Pigment Blue 22, C.I. 69 810-----	ACS, DUP, IMP, TRC.
*Pigment Blue 25, C.I. 21 180-----	ACS, DUP, GAF, ICC, S, SW.
(Basic Blue 7), C.I. 42 595, PTA-----	DUP.
(Vat Blue 4), C.I. 69 800-----	GAF.
(Vat Blue 6), C.I. 69 825-----	ICI, TRC.
All other-----	GAF, IMP, S, SDH.
*Green toners:	
Pigment Green 1, C.I. 42 040, PMA-----	GAF, IMP, MRX, UHL.
*Pigment Green 1, C.I. 42 040, PTA-----	IMP, MGR, S.
*Pigment Green 2, C.I. 42 040 and 49 005, PMA-----	AMS, GAF, IMP, KON, LVY, MGR, MRX, UHL.
*Pigment Green 2, C.I. 42 040 and 49 005, PTA-----	ACY, DUP, GAF, IMP, KON, LVY, MRX, S, SDH, UHL.
Pigment Green 4, C.I. 42 000, fugitive-----	GAF.
Pigment Green 4, C.I. 42 000, PMA-----	GAF, MGR.
*Pigment Green 4, C.I. 42 000, PTA-----	ACY, AMS, HAM, IMP, KON, MGR.
*Pigment Green 7, C.I. 74 260-----	ACS, ACY, CIK, DUP, FCL, GAF, HSC, ICC, IMP, SNA, SW, TMS, TRC.
*Pigment Green 8, C.I. 10 006-----	DUP, HSH, IMP, KCW, SW.
Pigment Green 10, C.I. 12 775-----	DUP, HSC, IMP, SW.
*Pigment Green 36, C.I. 74 265-----	ACY, GAF, SNA.
Pigment Green 38-----	ACS, SNA.
All other-----	SW.
*Brown toners:	
Pigment Brown 1, C.I. 12 480-----	ICI.
Pigment Brown 2, C.I. 12 071-----	SDH.
Pigment Brown 3, C.I. 21 010, PMA-----	KCW, KON.
*Pigment Brown 5, C.I. 15 800-----	ACS, BUC, HSH, ICC, ROM, SNA.
(Vat Brown 3), C.I. 69 015-----	GAF, TRC.
All other-----	GAF, ICC, SDH, SW.
*Black toners:	
Pigment Black 1, C.I. 50 440-----	SNA.
Pigment Black 7, C.I. 77 266-----	GAF.
All other-----	DUP, GAF, UHL.
LAKES	
Yellow lakes:	
(Acid Yellow 1), C.I. 10 316-----	IMP.
(Acid Yellow 3), C.I. 47 005-----	IMP.
(Acid Yellow 23), C.I. 19 140-----	KON, MRX.
Orange lakes:	
Pigment Orange 17, C.I. 15 510-----	CPC, IMP, KCW.
All other-----	HAM.
Red Lakes:	
*Pigment Red 60, C.I. 16 105-----	HSC, HSH, KON, MRX, SNA, SW.
*Pigment Red 83, C.I. 58 000-----	HSH, IMP, KON, MRX, SW, UHL.
(Acid Red 17), C.I. 16 180-----	IMP, KCW.
* (Acid Red 26), C.I. 16 150-----	CPC, HAM, IMP, KCW.
(Natural Red 4), C.I. 75 470-----	KON.
(Natural Red 24), C.I. 75 280-----	IMP.

See note at end of table for definition of abbreviations.

TABLE 11B.--Benzenoid pigments for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Pigment	Manufacturers' identification codes (according to list in table 22)
LAKES--Continued	
Red Lakes--Continued	
(Natural Red 24), C.I. 75 280-----	IMP.
All other-----	HAM, IMP, SNA.
Violet lakes:	
*Pigment Violet 5, C.I. 58 055-----	ACS, DUP, HSH, IMP, KON, MRX, S, UHL.
Pigment Violet 20, C.I. 58 225-----	SW.
All other-----	HAM.
Blue lakes:	
Pigment Blue 17, C.I. 74 180-----	CPC.
Pigment Blue 24, C.I. 42 090-----	AMS, ICC, KON, LVY, SDH.
(Acid Blue 93), C.I. 42 780-----	LVR.
(Acid Blue 104), C.I. 42 735-----	CPC, KCW.
Brown lakes-----	HAM, KON.
Black lakes:	
(Natural Black 3), C.I. 75 291-----	CPC, KON.
All other-----	HAM.

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

When the name of a color is enclosed in parentheses, it indicates that this name is that of the dye from which the pigment can be made and that no name for the pigment itself is given in the *Colour Index*.

The abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively.

## Medicinal Chemicals

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967

[Medicinal chemicals for which separate statistics are given in table 13A are marked below with an asterisk (\*); medicinal chemicals not so marked do not appear in table 13A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
*Antibiotics:	
*For medicinal use:	
*Antifungal and antitubercular antibiotics:	
Antifungal antibiotics:	
Amphotericin B-----	OMS.
Candicidin-----	PEN.
Nystatin-----	OMS.
Antitubercular antibiotics:	
Cycloserine-----	COM.
Dihydrostreptomycin-----	MRK, PFZ.
Streptomycin-----	LIL, MRK, OMS, PFZ.
Viomycin-----	PFZ.
*Bacitracin-----	COM, PEN, PFZ, PMP.
*Penicillin G, potassium-----	LIL; MRK, OMS, PFZ, WYT.
*Other antibiotics for medicinal use:	
Cephaloridine-----	LIL.
Cephalothin-----	LIL.
Chloramphenicol-----	PD.
Erythromycin-----	ABB, LIL.
Fumagillin-----	ABB.
Gentamycin-----	SCH.
Gramicidin-----	PEN.
Kanamycin-----	BRS.
Lincomycin-----	x.
Neomycin-----	OMS, PEN, PFZ, UPJ.
Novobiocin-----	MRK, UPJ.
Oleandomycin-----	PFZ.
Paromomycin-----	MRK.
Penicillins:	
Ampicillin-----	BRS, WYT.
Cloxacillin, sodium-----	BRS.
Dicloxacillin, sodium-----	BRS.
Hetacillin-----	BRS.
Methicillin, sodium-----	BRS.
Nafcillin, sodium-----	WYT.
Oxacillin, sodium-----	BRS.
Penicillin G, benzathine-----	WYT.
Penicillin G, procaine-----	LIL, MRK, OMS, PRZ, WYT.
Penicillin G, sodium-----	OMS.
Phenethicillin-----	PFZ.
Phenethicillin, potassium-----	BRS.
Phenoxyethylpenicillin (Penicillin V)-----	LIL.
Phenoxyethylpenicillin, benzathine-----	WYT.
Phenoxyethylpenicillin, hydrabamine-----	ABB.
Phenoxyethylpenicillin, potassium-----	ABB, LIL.
Polymyxin B-----	PFZ.
Spectinomycin-----	ABB.
Tetracyclines:	
Chlortetracycline-----	ACY, RLS.
Demethylchlortetracycline-----	ACY.
Doxycycline-----	PFZ.
Methacycline-----	PFZ.
Oxytetracycline-----	PFZ.
Tetracycline-----	ACY, BRS, PFZ, RLS.
Thiostrepton-----	OMS.
Troleandomycin-----	PFZ.
Tyrothricin-----	PEN.
Vancomycin-----	LIL.
*For other uses:	
*Bacitracin-----	COM, DLI, GPR, PEN, PMP.
Chlortetracycline-----	ACY.
Cycloheximide-----	UPJ.
Hygromycin B-----	LIL.
Neomycin-----	PEN, PFZ.
Novobiocin-----	UPJ.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Antibiotics--Continued</b>	
<b>*For other uses--Continued</b>	
Oxytetracycline-----	PFZ.
Penicillin G, benzathine-----	WYT.
Penicillin G, procaine-----	LIL, MRK, OMS.
Streptomycin-----	LIL, MRK, PFZ.
Tylosin-----	LIL.
<b>*Anticoagulants:</b>	
Ammonium heparin-----	ABB, WIL.
Anisindione-----	SCH.
Bishydroxycoumarin-----	ABB, FIN.
Phenindione-----	GAN.
*Sodium heparin-----	ABB, RIK, WIL.
Sodium warfarin-----	EN.
<b>*Antihistamines:</b>	
<b>*Antinauseants:</b>	
Cyclizine hydrochloride-----	BUR.
Dimenhydrinate-----	SRL.
Meclizine hydrochloride-----	PFZ.
Trimethobenzamide hydrochloride-----	HOF.
Bromodiphenhydramine hydrochloride-----	PD.
Brompheniramine maleate-----	SCH.
Carbinoxamine-----	SCH.
Carbinoxamine D-tartrate-----	SCH.
Chlorcyclizine hydrochloride-----	ABB, BUR.
Chlorothen citrate-----	ACY.
*Chlorpheniramine maleate-----	HEX, LEM, SCH, SK, x.
Cyproheptadine hydrochloride-----	MRK.
Dexbrompheniramine maleate-----	SCH.
Dexchlorpheniramine maleate-----	SCH.
Dimethindene maleate-----	CBP.
Diphenhydramine hydrochloride-----	GAN, PD, RLS.
Doxylamine succinate-----	BKC.
Methapyrilene fumarate-----	ABB.
Methapyrilene hydrochloride-----	ABB.
Methapyrilene hybenzate-----	LIL.
Phenindamine tartrate-----	HOF.
*Pheniramine maleate-----	HEX, LEM, SCH, x.
Phenyltoloxamine citrate-----	BRS.
Pyrilamine maleate-----	HEX, MRK, RSA.
Pyrrobutamine phosphate-----	LIL.
Theridiamine hydrochloride-----	SDW.
Thonzylamine hydrochloride-----	NEP.
Tripeleennamine-----	CBP.
Tripeleennamine citrate-----	CBP.
Tripeleennamine hydrochloride-----	CBP, RLS.
Tripolidine hydrochloride-----	BUR.
<b>*Anti-infective agents (except antibiotics):</b>	
<b>*Arsenic and bismuth compounds:</b>	
Arsanilic acid <sup>1</sup> -----	SAL, WHL.
Bismuth dipropylacetate-----	x.
Bismuth sodium triglycollamate-----	BPC.
Bismuth subsalicylate-----	MAL, NOR, PEN.
Carbarsone-----	LIL, PYL, WHL.
Glycobiarsol-----	PYL, SDW.
Nitarsone-----	SAL.
Roxarsone-----	SAL.
Roxarsone sodium-----	SAL.
Sodium arsanilate <sup>1</sup> -----	PYL, SAL.
<b>*Caprylates and undecylenates:</b>	
Calcium undecylenate-----	WTL.
Sodium caprylate-----	CFC, LEM.
Sodium undecylenate-----	BAC.
Undecylenic acid-----	BAC.
Zinc undecylenate-----	BAC, CFC, LEM, WTL.
<b>*Mercury compounds:</b>	
Merbromin-----	HYN.
Mercuric salicylate-----	MRK.
Nitromersol-----	ABB.

See footnotes at end of table.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Anti-infective agents (except antibiotics)--Continued</b>	
<b>*Mercury compounds--Continued</b>	
Phenylmercuric acetate-----	WRC.
Phenylmercuric benzoate-----	MRK, WRC.
Phenylmercuric borate-----	MRK, WRC.
Phenylmercuric chloride-----	MRK.
Phenylmercuric nitrate-----	MRK, WRC.
*Thimerosal-----	LIL, MED, PYL, SEL.
<b>*Phenolic antiseptics and disinfectants:</b>	
Betanaphthol <sup>1</sup> -----	ACY, FIN.
Bithionol-----	SDH.
Chlorothymol-----	OPC.
Resorcinol <sup>1</sup> -----	LEM.
Resorcinol monoacetate <sup>1</sup> -----	KPT.
Thymol-----	GIV.
Thymol iodide-----	MAL.
<b>*Piperazine base and salts:</b>	
<b>*Piperazine<sup>1</sup></b>	
Piperazine adipate-----	DOW, FLM, JCC, UCC.
Piperazine citrate-----	JCC, PYL.
Piperazine dihydrochloride-----	BUR, JCC.
Piperazine dithiocarbamate-----	DOW, FLM, JCC, SEL, WHL.
Piperazine hexahydrate-----	SEL.
Piperazine hydrochloride-----	JCC.
Piperazine phosphate-----	DOW, JCC.
Piperazine sulfate-----	BUR, JCC, PYL.
Piperazine tartrate-----	JCC.
<b>*Quinoline derivatives:</b>	
Amodiaquin-----	PYL, SEL.
Amodiaquin hydrochloride-----	PD.
Buquinolate-----	PD.
Chloroquine phosphate-----	UOP.
*Dihydroxyquin-----	SDW.
Hydroxychloroquine sulfate-----	LEM, PYL, RSA, SRL.
8-Hydroxy-5-quinolinesulfonic acid-----	SDW.
Iodochlorhydroxyquin-----	MRK.
Oxolinic acid-----	CBP, PYL.
Oxyquinoline-----	NEP.
Oxyquinoline benzoate-----	LEM, MRK.
Oxyquinoline citrate-----	FIS, LEM, MRK.
*Oxyquinoline sulfate-----	FIS.
Primaquine phosphate-----	FIS, LEM, MRK, PYL.
<b>*Sulfonamides:</b>	
Acetyl sulfamethoxy pyridazine-----	PD, SDW.
Acetyl sulfisoxazole-----	ACY.
Azosulfamide-----	HOF.
Dinsed-----	SDW.
Mafenide acetate-----	SAL.
Mafenide hydrochloride-----	SDW.
Phthalylsulfacetamide-----	SDW.
Phthalylsulfathiazole-----	LEM, PYL.
Succinylsulfathiazole-----	LEM, MRK, PYL.
Sulfabenzamide-----	LEM, MRK.
Sulfabenzamide, sodium-----	ACY.
Sulfabromomethazine, sodium-----	ACY.
Sulfacetamide-----	MRK.
Sulfacetamide, sodium-----	LEM.
Sulfachloropyrazine, sodium-----	LEM.
Sulfadiazine-----	ACY.
Sulfadiazine, sodium-----	ACY, LEM.
Sulfadimethoxine-----	ACY.
Sulfaethidole-----	HOF.
Sulfaguanidine-----	ACY.
Sulfamerazine-----	ACY, LEM.
Sulfamerazine, sodium-----	ACY, LEM.
Sulfamethazine-----	ACY.
Sulfamethazine, sodium-----	ACY, LEM.
Sulfamethizole-----	ACY.
Sulfamethoxazole-----	ACY.
Sulfamethoxy pyridazine-----	HOF.
	ACY.

See footnotes at end of table.



TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Anti-infective agents (except antibiotics)--Continued</b>	
<b>*Sulfonamides--Continued</b>	
Sulfanilamide-----	MRK.
Sulfanilamide-----	LEM.
Sulfanilamide-----	SAL.
Sulfapyridine-----	ACY, MRK.
Sulfapyridine, sodium-----	ACY.
Sulfaquinoxaline-----	MRK.
Sulfathiazole-----	ACY, LEM, MRK.
Sulfathiazole, sodium-----	ACY, MRK.
Sulfisoxazole-----	HOF.
Sulfisoxazole, sodium-----	HOF.
<b>*Other anti-infective agents:</b>	
<b>*Anthelmintic and antifungal agents:</b>	
<b>Anthelmintic agents:</b>	
Cadmium anthranilate-----	MAL.
Diethylcarbamazine citrate-----	ACY.
Gentian violet-----	ACS, SDH.
Hexylresorcinol-----	HEX, MRK.
Phenothiazine-----	CLV.
Pyrvinium pamoate-----	x.
Thiabendazole-----	MRK.
<b>Antifungal agents:</b>	
Benzoic acid <sup>1</sup> -----	MON, PFZ.
Fuchsin, basic-----	ACS.
Salicylanilide <sup>2</sup> -----	LEM.
<b>*Antiprotozoan and antiviral agents:</b>	
<b>Antiprotozoan agents:</b>	
Aklomide-----	SAL.
Aminitroazole-----	ACY.
2-Amino-5-nitrothiazole-----	ACY.
Amprolium-----	MRK.
Chlorbetamide-----	SDW.
Cycloguanil pamoate-----	PD.
Furazolidone-----	NOR.
Metronidazole-----	RDA.
Nihydrazone-----	NOR.
Nithiazide-----	MRK.
Nitrophenide-----	ACY.
Pyrimethamine-----	BUR.
Antiviral agent: Amantadine hydrochloride-----	x.
<b>*Urinary antiseptics:</b>	
Ammonium benzoate-----	PEN.
Calcium mandelate-----	MAL.
Ethoxazene hydrochloride-----	KON.
Mandelic acid-----	MAL.
Methenamine-----	HN.
Methenamine hippurate-----	RIK.
Methenamine mandelate-----	ARN, LEM, NEP, PYL, RSA.
Methylene blue-----	ACS, ACY.
Nitrofurantoin-----	NOR.
Phenazopyridine hydrochloride-----	HOF, KON, NEP.
<b>*All other:</b>	
Acriflavine-----	ACS.
Aminacrine-----	SDW.
Aminacrine hydrochloride-----	SDW.
<b>Antileprotic and antitubercular agents:</b>	
Aminosalicyclic acid-----	MLS.
Calcium aminosalicylate-----	MLS.
Dapsone-----	SDW.
Isoniazid-----	RIL.
Potassium aminosalicylate-----	MLS.
Pyrazinamide-----	MRK.
Sodium aminosalicylate-----	MLS.
Sodium sulfoxone-----	ABB.
Benzalkonium chloride-----	SDH.
Bromoform-----	DOW.
Camphor, monobromated-----	MAL, PEN.
Cetalkonium chloride-----	FIN, SDW.
Cetylpyridinium chloride-----	FIN, HEX, NEP.

See footnotes at end of table.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*Anti-infective agents (except antibiotics)--Continued	
*Other anti-infective agents--Continued	
*All other--Continued	
Chloramine T-----	MON.
Chlorobutanol-----	BPC, PD.
Iodoform <sup>2</sup> -----	MAL, PEN.
Nalidixic acid-----	SDH.
Nifuraldezone-----	NOR.
Nitrofurathiazide-----	SCH.
Nitrofurazone-----	NOR.
Nitromide-----	SAL.
Povidone - iodine complex-----	GAF.
*Antineoplastic agents and local anesthetics:	
Antineoplastic agents:	
Mercaptopurine-----	BUR.
Urethane-----	FMP.
Vinblastine sulfate-----	LIL.
Local anesthetics:	
Butacaine-----	ABB.
Butacaine hydrochloride-----	ABB.
Butacaine sulfate-----	ABB.
Butamben picrate-----	ABB.
Butyl aminobenzoate (Butamben)-----	ABB, ICO.
Dibucaine-----	CBP.
Dibucaine hydrochloride-----	CBP, RSA.
Ethyl aminobenzoate (Benzocaine)-----	ABB, LEM.
Isobutyl aminobenzoate-----	ICO.
*Lidocaine-----	AST, LEM, RLS, SDW.
Oxethazine-----	WYT.
Phenacaine hydrochloride-----	GAN, SDW.
Piperocaine hydrochloride-----	LIL.
Pramoxine hydrochloride-----	ABB.
Procaine-----	ABB.
Procaine hydrochloride-----	ABB, LEM, PFZ.
Proparacaine hydrochloride-----	QMS.
Propoxycaine-----	SDW.
Tetracaine-----	SDW.
Tetracaine hydrochloride-----	RSA, SDW.
*Autonomic drugs:	
*Parasympatholytic (anticholinergic) agents (except tropane derivatives):	
*Quaternary ammonium compounds:	
Ambutonium bromide-----	ICO.
Diphemanil methylsulfate-----	SCH.
Hexocyclium methylsulfate-----	ABB.
Isopropamide iodide-----	SK.
Mepenzolate bromide-----	LKL.
Methantheline bromide-----	SRL.
Pipenzolate bromide-----	LKL.
Pralidoxime chloride-----	NEP.
Propantheline bromide-----	SRL.
Thihexinol methylbromide-----	SCH.
Tridihexethyl iodide-----	ACY.
*Tertiary amines:	
Adiphenine hydrochloride-----	CBP.
Caramiphen edisylate-----	SK.
Dicyclomine hydrochloride-----	BJL, BKC.
Orphenadrine citrate-----	RIK.
Orphenadrine hydrochloride-----	RIK.
Oxyphenyclimine hydrochloride-----	PFZ.
Piperidolate hydrochloride-----	LKL.
Thiophenamil hydrochloride-----	BJL, x.
Trihexyphenidyl hydrochloride-----	ACY, SDW.
*Sympathomimetic (adrenergic) agents:	
dl-Arterenal hydrochloride-----	SDW.
Cinnamedrine hydrochloride (Cinnamylephedrine hydrochloride).-----	SDW.
Cyclopentamine hydrochloride-----	LIL.
Epinephrine bitartrate (levo)-----	SDW.

See footnotes at end of table.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>*Autonomic drugs--Continued</i>	
<i>*Sympathomimetic (adrenergic) agents--Continued</i>	
<i>*Isoproterenol salts:</i>	
Isoproterenol hydrochloride-----	GAN, SDW.
Isoproterenol sulfate-----	ABB.
Levarterenol bitartrate-----	SDW.
dl-Metanephrine hydrochloride-----	SDW.
Methoxyphenamine hydrochloride-----	x.
Naphazoline hydrochloride-----	CBP.
Nordefrin hydrochloride-----	SDW.
dl-Normetanephrine hydrochloride-----	SDW.
Nylidrin hydrochloride-----	BKL.
Phenylephrine-----	GAN, SDW.
Phenylephrine hydrochloride-----	CTN, GAN, HEX, ORT, SDW.
<i>*Phenylpropanolamine hydrochloride-----</i>	BKL, GAN, ICO, NEP, ORT.
Propylhexedrine-----	HEX, SK.
Protokylol hydrochloride-----	LKL.
Pseudoephedrine hydrochloride-----	BUR, GAN.
Pseudoephedrine sulfate-----	GAN.
Tetrahydrozoline hydrochloride-----	PFZ.
<i>*Other autonomic drugs:</i>	
Ganglionic blocking agent: Hexamethonium chloride.	
Parasympatholytic (anticholinergic) tropane derivatives:	
Anisotropine methylbromide-----	EN, x.
Benztropine mesylate-----	x.
Homatropine-----	CTN.
Homatropine hydrobromide-----	CTN.
Homatropine methylbromide-----	CTN, HEX.
Parasympathomimetic (cholinergic) agents:	
Acetylcholine chloride-----	MRK, RSA.
Methacholine chloride-----	MRK, RSA.
Neostigmine bromide-----	HEX.
Physostigmine salicylate-----	PEN.
Pyridostigmine bromide-----	HOF.
Sympatholytic (antiadrenergic) agent: Ergonovine maleate.	LIL.
<i>*Cardiovascular agents:</i>	
<i>*Cardiac drugs:</i>	
Calcium camphorsulfonate-----	FIN.
Gitalin-----	PEN.
Procainamide hydrochloride-----	LEM, OMS.
Quinidine gluconate-----	HEX.
Quinidine sulfate-----	HEX.
<i>*Rauwolfia and veratrum alkaloids:</i>	
Alkavervir-----	PEN, RIK.
Alseroxylon-----	RIK.
Reserpine-----	PEN.
Raunormine-----	PEN.
Syrosingopine-----	CBP.
<i>*Vasodilators:</i>	
Dioxyline phosphate-----	LIL.
Ethyl nitrite-----	MAL.
Glyceryl trinitrate-----	APD.
Isosorbide dinitrate-----	APD.
Mannitol hexanitrate-----	APD.
Nicotinyl alcohol tartrate-----	HOF.
Pentaerythritol tetranitrate-----	APD.
<i>*Other cardiovascular agents:</i>	
Antihypertensive agents (except rauwolfia and veratrum alkaloids):	
Hydralazine hydrochloride-----	CBP.
Methyldopa-----	MRK.
Pargyline hydrochloride-----	ABB.
Bioflavonoids:	
Hesperidin-----	SKG.
Hesperidin methyl chalcone-----	SKG.
Lemon bioflavonoid-----	SKG.
Naringin-----	SKG.
Rutin-----	PEN.
Sclerosing agent: Sodium morrhuate-----	MED.

TABLE 13B. -- Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*Central depressants and stimulants:	
*Amphetamines:	
*Amphetamine base and sulfate (racemic):	
Amphetamine (racemic)-----	HEX, ORT.
Amphetamine sulfate (racemic)-----	ARN, HEX, SK.
Dextroamphetamine-----	HEX.
Dextroamphetamine carboxymethylcellulose-----	ARN.
Dextroamphetamine hydrochloride-----	ARN, HEX.
Dextroamphetamine phosphate-----	ARN, HEX.
*Dextroamphetamine sulfate-----	ARN, HEX, SK.
Dextroamphetamine tannate-----	ARN.
Levamphetamine succinate-----	ARN.
Methamphetamine (dextro)-----	HEX.
Methamphetamine (levo)-----	ABB.
Methamphetamine (racemic)-----	HEX.
Methamphetamine hydrochloride (dextro)-----	ABB, ARN, GAN, HEX.
Methamphetamine hydrochloride (racemic)-----	ARN, HEX.
*Analgesics and antipyretics:	
Acetaminophen-----	ATP, MLS, NEP, PEN.
p-Aminobenzoic acid and salts:	
Aminobenzoic acid-----	LEM.
Calcium aminobenzoate-----	GAN.
Magnesium aminobenzoate-----	LEM.
Potassium aminobenzoate-----	GAN, LEM.
Sodium aminobenzoate-----	GAN, LEM.
Anileridine hydrochloride-----	MRK.
Calcium succinate-----	LEM.
Colchicine-----	PEN.
Ethoheptazine citrate-----	WYT.
Indomethacin-----	MRK.
Mefenamic acid-----	PD.
Meperidine hydrochloride-----	SDW, WYT.
Methadone hydrochloride-----	LIL.
Oxycodone hydrochloride-----	EN.
Oxymorphone hydrochloride-----	EN.
Oxyphenbutazone-----	GGY.
Pentazocine-----	SDW.
Phenacetin-----	MON.
Phenylbutazone-----	GGY.
Phenylramidol hydrochloride-----	OTC.
Propoxyphene hydrochloride-----	LIL.
*Salicylates:	
Aluminum aspirin-----	ABB, SCH.
*Aspirin-----	DOW, MLS, MON, NOR, SDG.
Ethyl salicylate carbonate-----	PD.
Magnesium salicylate-----	MAL.
Phenyl salicylate-----	DOW, MAL.
Potassium salicylate-----	HN, PEN.
Salicylamide-----	CFC, PEN.
Salicylsalicylic acid-----	CFC.
Sodium salicylate-----	DOW, HN.
Strontium salicylate-----	HFC.
*Antidepressants:	
Amitriptyline-----	MRK.
Desipramine hydrochloride-----	GGY, LKL.
Imipramine hydrochloride-----	GGY.
Nialamide-----	PFZ.
Nortriptyline-----	LIL.
Phenelzine sulfate-----	NEP.
Protriptyline-----	MRK.
*Barbiturates:	
5-Allyl-5-(2-cyclopenten-1-yl)barbituric acid-----	GAN.
Amobarbital-----	LIL.
Amobarbital, sodium-----	GAN, LIL.
Barbital-----	GAN.
Barbital, sodium-----	GAN.
Butobarbital-----	ABB, GAN.
*Butobarbital, sodium-----	ABB, BPC, GAN.
Butalbital-----	GAN.
Butalbital, sodium-----	GAN.
Cyclobarbital-----	SDW.
Cyclobarbital, calcium-----	SDW.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Central depressants and stimulants--Continued</b>	
<b>*Barbiturates--Continued</b>	
Hexobarbital-----	GAN, SDW.
Hexobarbital, sodium-----	SDW.
Mephobarbital-----	SDW.
Metharbital-----	ABB.
Methohexital, sodium-----	LIL.
Pentobarbital-----	ABB, GAN.
Pentobarbital, sodium-----	ABB, GAN, PD.
Phenobarbital-----	GAN, MAL.
*Phenobarbital, sodium-----	GAN, MAL, SDW.
Secobarbital-----	GAN.
Secobarbital, sodium-----	GAN, LIL.
Talbutal-----	SDW.
Thiamylal, sodium-----	PD.
Thiopental, sodium-----	ABB.
Vinbarbital-----	x.
<b>*Hypnotics and sedatives (except barbiturates):</b>	
Carbromal-----	PD.
Ethchlorvynol-----	ABB.
Ethinamate-----	LIL.
Glutethimide-----	CBP.
Mecloqualone-----	NEP.
Methyprylon-----	HOF.
<b>*Skeletal muscle relaxants:</b>	
Carisoprodol-----	BKL.
Chlorphenesin carbamate-----	UPJ.
Mephenesin-----	BKL, HEX.
Mephenesin carbamate-----	OMS.
Phenaglycodol-----	LIL.
Styramate-----	ARP.
*Succinylcholine chloride-----	ABB, BUR, SDW.
Tubocurarine-----	ABB, OMS.
<b>*Tranquilizers:</b>	
Azacyclonol hydrochloride-----	BKC.
Buclizine hydrochloride-----	PFZ.
Chlordiazepoxide hydrochloride-----	HOF.
Chlormezanone-----	SDW.
Chlorprothixene-----	HOF.
Diazepam-----	HOF.
Ectylurea-----	x.
Hydroxyphenamate-----	ARP.
Hydroxyzine hydrochloride-----	PFZ.
Hydroxyzine pamoate-----	PFZ.
Mebutamate-----	BKL.
*Meprobamate-----	ABB, BKL, PEN.
Methaqualone-----	HEX.
Oxazepam-----	WYT.
<b>Phenothiazine derivatives:</b>	
Acetophenazine maleate-----	SCH.
Carphenazine maleate-----	WYT.
Chlorpromazine hydrochloride-----	SK.
Fluphenazine enanthate-----	OMS.
Fluphenazine hydrochloride-----	OMS, SCH.
Perphenazine-----	SCH.
Prochlorperazine maleate-----	SK.
Promazine hydrochloride-----	WYT.
Promethazine hydrochloride-----	WYT.
Trifluoperazine hydrochloride-----	SK.
Triflupromazine hydrochloride-----	OMS.
Tybamate-----	BKL.
<b>*Other central depressants and stimulants:</b>	
<b>Anticonvulsants:</b>	
Diphenylhydantoin-----	PD.
Diphenylhydantoin, sodium-----	PD.
Ethosuximide-----	PD.
Ethotoin-----	ABB.
Methsuximide-----	PD.
Paramethadione-----	ABB.
Phenacemide-----	ABB.
Phensuximide-----	PD.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*Central depressants and stimulants--Continued	
*Other central depressants and stimulants--Continued	
Antitussives:	
Benzonatate-----	CBP.
Carbetapentane citrate-----	PFZ.
Dextromethorphan hydrobromide-----	HOF.
Dimethoxanate hydrochloride-----	BKL.
Ethylmorphine hydrochloride-----	MAL, MRK, PEN.
Hydrocodone bitartrate-----	EN, MAL, MRK.
General anesthetics:	
Tribromoethanol-----	SDW.
Vinyl ether-----	MRK.
Stimulants:	
Benzphetamine hydrochloride-----	x.
Caffeine:	
Natural-----	GNF, MYW.
Synthetic-----	PFZ.
Caffeine, citrated-----	MAL.
Caffeine sodium benzoate-----	MAL.
Chlorphentermine hydrochloride-----	NEP.
Deanol acetamidobenzoate-----	RIK.
Diethylpropion hydrochloride-----	BKC, GAN.
Nikethamide-----	CBP.
Phendimetrazine tartrate-----	x.
Phentermine-----	HEX.
Sodium succinate-----	LEM.
*Dermatological agents:	
Allantoin-----	FIN, HFT.
Aluminum phenolsulfonate-----	MAL.
Ammonium phenolsulfonate-----	SAL.
*Bismuth subgallate-----	BKC, MAL, PEN.
Dipropylene glycol salicylate-----	SBC.
Glycol salicylate-----	RDA.
Homomenthyl salicylate-----	ICO.
p-Methoxycinnamic acid, 2-ethoxyethyl ester-----	GIV.
*Salicylic acid <sup>1</sup> -----	DOW, HN, MON, SDH.
Scarlet red-----	ACS.
Sodium phenolsulfonate-----	MAL, SAL.
Zinc phenolsulfonate-----	MAL.
*Expectorants and mucolytic agents:	
Ethylenediamine dihydriodide-----	CLV, WHL.
*Guaiacol and its derivatives:	
Glyceryl guaiacolate-----	GAN, PEN.
Guaiacol-----	MON.
Potassium guaiacolsulfonate-----	HN.
Iodinated glycerol-----	x, x.
Iodobrassid-----	CBP.
Lobeline sulfate-----	ABB.
Terpin hydrate-----	LEM, PEN.
Thonzonium bromide-----	NEP.
*Gastrointestinal agents:	
*Betaine base, hydrate, and hydrochloride:	
Betaine base-----	HFT, MAL.
Betaine hydrate-----	HFT.
Betaine hydrochloride-----	CFC, HFT, LEM.
*Choleretics and hydrocholeretics:	
Bile acids, oxidized-----	SRL, WIL.
Dehydrocholic acid-----	WIL.
Florantyrone-----	SRL.
Iron bile salts-----	LIL.
Ox bile extract-----	ABB.
Sodium dehydrocholate-----	WIL.
Tocamphyl-----	x.
*Choline chloride (all grades):	
Feed grade-----	COM, DA, DLI, HFT, TMH.
Medicinal grade-----	HFT.
Technical grade-----	GAF, RH.
*Methionine and its hydroxy analogue:	
Methionine (feed grade)-----	DOW.
Methionine (medicinal grade)-----	DOW, LEM.

See footnotes at end of table.

## MEDICINAL CHEMICALS

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
*Gastrointestinal agents--Continued	
*Methionine and its hydroxy analogue--Continued	
Methionine, hydroxy analogue, calcium salt-----	DUP, MON.
*Other gastrointestinal agents:	
Choline bicarbonate-----	COM.
Choline bitartrate-----	ACY, HFT.
Choline citrate (Tricholine citrate)-----	ACY, HFT.
Choline dihydrogen citrate-----	ACY, HFT.
Dihydroxy aluminum aminoacetate-----	CHT.
Magnesium citrate-----	MAL.
Pectin-----	SKG.
Phenolphthalein-----	MON.
Phenolphthalein, yellow-----	WLI.
Podophyllum-----	ABB.
Polycarbophil-----	WLI.
Sitosterols-----	UPJ.
Sodium carboxymethylcellulose-----	CBP.
Sodium tartrate-----	MAL.
*Hormones and synthetic substitutes:	
Anabolic agents and androgens:	
Fluoxymesterone-----	UPJ.
Testosterone cypionate-----	UPJ.
Testosterone phenylacetate-----	CBP.
Antithyroid agents:	
Iothiouracil, sodium-----	CBP.
Methimazole-----	LIL.
Thiouracil-----	ACY.
Corticosteroids:	
Betamethasone-----	SCH.
Betamethasone acetate-----	SCH.
Betamethasone phosphate-----	SCH.
Betamethasone valerate-----	SCH.
Cortisone-----	UPJ.
Cortisone acetate-----	MRK, SCH, UPJ.
Dexamethasone-----	MRK, SCH.
Dexamethasone acetate-----	SCH.
Dexamethasone phosphate-----	MRK.
Dichlorisone acetate-----	SCH.
Fludrocortisone acetate-----	UPJ.
Fluorometholone-----	UPJ.
9-Fluoroprednisolone acetate-----	UPJ.
Fluprednisolone-----	UPJ.
Hydrocortisone-----	MRK, UPJ.
Hydrocortisone acetate-----	MRK, UPJ.
Hydrocortisone phosphate-----	MRK.
Methylprednisolone-----	UPJ.
Prednisolone-----	MRK, UPJ.
Prednisolone acetate-----	SCH, UPJ.
Prednisolone pivalate-----	CBP.
Prednisone-----	MRK, SCH, UPJ.
Triamcinolone-----	ACY, OMS.
Estrogens:	
Chlorotrianisene-----	BKC.
Dienestrol diacetate-----	SCH.
Diethylstilbestrol-----	CTN, LIL.
Diethylstilbestrol dipropionate-----	CTN.
Natural estrogenic substances-----	ORG.
Piperazine estrone sulfate-----	ABB.
Progestogens:	
11 $\beta$ -Hydroxy-6 $\alpha$ -methyl progesterone-----	UPJ.
Medroxyprogesterone acetate-----	x.
Progesterone-----	x.
*Synthetic hypoglycemic agents:	
Acetohexamide-----	LIL.
Chlorpropamide-----	PFZ.
Phenformin hydrochloride-----	BKL.
Tolazamide-----	x.
Tolbutamide-----	HST, x.
*Other hormones:	
Corticotropin (ACTH) (pituitary)-----	ARP, ORG, WIL.
Insulin (pancreas)-----	ARP, LIL.

TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Renal-acting and edema-reducing agents:</b>	
<b>*Mercurial diuretics:</b>	
Meralluride	LKL.
Mersalyl acid	SDW.
Sodium mercaptomerin	WYT.
Sodium mercuriophylline	FIN.
<b>*Theobromine and theophylline derivatives:</b>	
Ambuphylline	GAN, LEM.
*Aminophylline	GAN, LEM, SRL.
Aminophylline sodium biphosphate	GAN.
Oxtriphylline	NEP.
Theobromine sodium salicylate	GLY.
Theophylline monoethanolamine	LIL.
Theophylline sodium glycinate	CHT.
<b>*Other renal-acting and edema-reducing agents:</b>	
Acetazolamide	ACY.
<b>Benzothiadiazine derivatives:</b>	
Bendroflumethiazide	CMS.
Benzthiazide	PFZ.
Chlorothiazide	MRK.
Flumethiazide	CMS.
Hydrochlorothiazide	ABB, CBP, MRK.
Methyclothiazide	ABB.
Polythiazide	PFZ.
Trichloromethiazide	SCH.
Chlorthalidone	GGY.
Dichlorphenamide	MRK.
Ethacrynic acid	MRK.
Probenecid	MRK.
Spirocholactone	SRL.
Triamterene	SK.
<b>*Therapeutic nutrients:</b>	
<b>*Amino acids and salts:</b>	
Aminoacetic acid (glycine) <sup>2</sup>	BPC.
Amino acid mixtures	ABB, CUT, STA.
Arginine glutamate	ABB.
<b>Aspartic acid and salts:</b>	
Aspartic acid	ACS, HEX.
Magnesium aspartate	WYT.
Potassium aspartate	WYT.
Beta-alanine	DA.
<b>Glutamic acid and salts:</b>	
Ammonium glutamate	IMC.
Calcium glutamate	LEM.
Glutamic acid	IMC, LEM.
Glutamic acid hydrochloride	IMC, LEM.
Potassium glutamate	IMC, LEM.
Lysine (feed grade)	MRK.
Lysine hydrochloride	MRK.
Phenylalanine	SDW.
*Calcium gluconate	MAL, PFZ, WHL.
<b>*Other therapeutic nutrients:</b>	
Calcium glucoheptonate	PFN.
Calcium lactophosphate	MAL.
Calcium levulinate	PYL.
Calcium phytate	STA.
Copper gluconate	PFZ.
Ferrous gluconate	PFZ, SDW.
Fructose	DLI.
Liver concentrate	WIL.
Liver, desiccated	WIL.
Magnesium gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
Sodium glycerophosphate	SEL.
<b>*Vitamins:</b>	
<b>*Vitamin A alcohol and esters:</b>	
Vitamin A acetate (feed grade)	HOF.
Vitamin A acetate (medicinal grade)	HOF, PFZ.
Vitamin A alcohol	CW, HOF.

See footnotes at end of table.



TABLE 13B.--Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<b>*Vitamins--Continued</b>	
<b>*Vitamin A alcohol and esters--Continued</b>	
Vitamin A natural esters-----	CW.
*Vitamin A palmitate (feed grade)-----	EK, HOF, PFZ.
Vitamin A palmitate (medicinal grade)-----	EK, HOF, PFZ.
<b>*Vitamin B-complex:</b>	
<b>*Niacin:</b>	
Feed grade-----	CKL, MRK, NEP, RIL.
Medicinal grade-----	DA, MRK, RIL, SCR.
<b>*Niacinamide-----</b>	
<b>*Pantothenic acid and derivatives:</b>	
Calcium pantothenate (dextro)-----	x.
*Calcium pantothenate (racemic) (feed grade)-----	CKL, DA, DLI, HFT.
Calcium pantothenate (racemic) (medicinal grade).-----	DA.
Calcium pantothenate (racemic) - calcium chloride complex.-----	CKL, DA, HFT.
Dexpanthenol-----	HOF.
Panthenol (racemic)-----	HOF, PD.
Sodium pantothenate-----	PD.
<b>*Riboflavin:</b>	
Feed grade-----	COM, GPR, HOF, MRK, PMP.
Medicinal grade-----	HOF, MRK.
<b>*Other B-complex vitamins:</b>	
Biotin-----	HOF.
<b>Cyanocobalamin:</b>	
Feed grade-----	GPR, MRK, PMP.
Medicinal grade-----	IMC, MRK.
U.S.P. crystalline-----	MRK.
Cyanocobalamin with intrinsic factor concentrate---	WIL.
Folic acid-----	ACY.
Inositol-----	STA.
Magnesium nicotinate-----	NEP.
Niacinamide hydrochloride-----	NEP.
Pyridoxine hydrochloride-----	HOF, MRK.
Riboflavin-5-phosphate, sodium-----	HOF.
Sodium nicotinate-----	NEP.
Thiamine hydrochloride-----	HOF, MRK.
Thiamine mononitrate-----	HOF, MRK.
<b>*Vitamin C:</b>	
*Ascorbic acid-----	HOF, MRK, PFZ,
Calcium ascorbate-----	PFZ.
Sodium ascorbate-----	HOF, MRK, PFZ.
*Vitamin D <sub>2</sub> (Ergocalciferol)-----	DLI, PHF, SCR, VTM,
<b>*Vitamin E:</b>	
d-Alpha tocopherol-----	CW, EK.
dl-Alpha tocopherol-----	HOF.
d-Alpha tocopheryl acetate-----	CW, EK.
dl-Alpha tocopheryl acetate-----	HOF.
dl-Alpha tocopheryl acetate (feed grade)-----	HOF.
d-Alpha tocopheryl acid succinate-----	CW, EK.
dl-Alpha tocopheryl acid succinate-----	HOF.
<b>Vitamin K:</b>	
*Menadione-----	ABB, HET, HFT, WHL.
*Menadione sodium bisulfite-----	ABB, DLI, HET, HFT, WHL.
<b>*Other vitamins:</b>	
Beta-carotene (Provitamin A)-----	EK, HOF.
Cholecalciferol (Vitamin D <sub>3</sub> )-----	DA, DLI, PHF.
Phytonadione (Vitamin K <sub>1</sub> )-----	MRK.
<b>*Miscellaneous medicinal chemicals:</b>	
<b>Diagnostic agents:</b>	
<b>Roentgenographic contrast media:</b>	
Acetrizoate, sodium-----	MAL.
Diatrizoate, meglumine-----	SDW.
Diatrizoate, sodium-----	SDW.
Diprotrizoate, sodium-----	MAL.
Iodohippurate, sodium-----	MAL.
Iodopyracet-----	SDW.
Iopanoic acid-----	SDW.
Iophendylate-----	x.
Iothalamate, meglumine-----	MAL.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued*

Chemical	Manufacturers' identification codes (according to list in table 22)
*Miscellaneous medicinal chemicals--Continued	
Diagnostic agents--Continued	
Roentgenographic contrast media--Continued	
Iothalamate, sodium-----	MAL.
Methiodal, sodium-----	SDW.
Other diagnostic agents:	
Evans blue (Blood volume determination)-----	NEP.
Indocyanine green (cardiac output test)-----	X.
Metyrapone (pituitary function test)-----	CBP
Hematological agents (except anticoagulants):	
Aminocaproic acid-----	ACY.
Cellulose, oxidized-----	EKT.
Dextran (plasma expander)-----	PHR.
Smooth muscle relaxants:	
Alverine-----	CTN.
Alverine citrate-----	CTN.
Alverine hydrochloride-----	CTN.
Papaverine hydrochloride-----	LIL.
Sodium benzyl succinate-----	LEM.
Unclassified medicinal chemicals:	
Allopurinol-----	BUR.
Berberine hydrochloride-----	ABB, PEN.
Hydrastine-----	PEN.
Hydrastine hydrochloride-----	PEN.
Penicillamine (copper chelating agent)-----	MRK.

<sup>1</sup> See table 7B for producers of the technical grade.

<sup>2</sup> See table 21B for producers of the technical grade.

Flavor and Perfume Materials

TABLE 14B. -- Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967

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

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC	
<i>Benzenoid and Naphthalenoid</i>	
2'-Acetonaphthone-----	GIV, UOP.
Acetophenone-----	GIV.
5-Acetyl-1,1,2,3,6-hexamethylindan-----	PFW.
p-Allylanisole-----	GIV.
4-Allyl-1,2-dimethoxybenzene (4-Allylveratrole)-----	GIV, ICO.
*4-Allyl-2-methoxyphenol (Eugenol)-----	FB, GIV, ICO, IFF, LUE, PEN, RT, UNG, UOP, VLY.
4-Allyl-2-methoxyphenol acetate (Eugenyl acetate)-----	GIV.
*4-Allyl-1,2-(methylenedioxy)-benzene (Safrole)-----	FB, GIV, OPC.
Allyl phenoxyacetate-----	GIV.
*p-Anisaldehyde-----	GIV, OPC, UNG, UOP.
Anisole (Methyl phenyl ether)-----	GIV.
*Anisyl acetate-----	GIV, RT, UOP.
Anisyl butyrate-----	RT.
Anisyl formate-----	RT.
Other anisyl esters-----	RT.
*Benzophenone-----	GAF, GIV, NEO, PD, UOP.
*Benzyl acetate-----	GIV, OPC, SHL, UOP.
Benzyl acetoacetate-----	RT.
*Benzyl alcohol-----	BPC, OPC, SHL, UOP, VEL.
Benzyl benzoate-----	MON, OPC, PFZ, UOP, VEL.
*Benzyl butyrate-----	FB, GIV, UOP.
Benzyl cinnamate-----	GIV, UOP.
Benzyl ether-----	OPC, SHL.
Benzyl formate-----	GIV, RT, UOP.
*Benzyl glyceryl acetal-----	GIV, RT, VLY.
Benzyl isopentyl ether-----	GIV.
1-(Benzylloxy)-2-methoxy-4-propenylbenzene (Benzyl iso-	GIV, UOP.
eugenyl ether).	
*Benzyl phenylacetate-----	GIV, MYW, RT, UOP.
*Benzyl propionate-----	FB, GIV, UOP.
*Benzyl salicylate-----	GIV, OPC, RT, UNG, UOP.
4-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone	GIV.
(Musk ketone).	
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette)-	GIV.
p-tert-Butyl- $\alpha$ -methyl hydrocinnamaldehyde-----	GIV.
1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzene-----	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)-----	GIV.
Carvacrol-----	GIV.
Cinnamaldehyde-----	FB, OPC, UOP.
Cinnamic acid-----	BPC.
*Cinnamyl acetate-----	GIV, RT, UOP.
*Cinnamyl alcohol-----	FB, GIV, NEO, UOP.
*Cinnamyl anthranilate-----	FEL, GIV, RT.
*Cinnamyl propionate-----	GIV, RT, UOP.
*Coumarin-----	DOW, RDA, UOP.
Dihydrionordicyclopentadienyl acetate-----	GIV.
p-Dimethoxybenzene (Dimethylhydroquinone)-----	ICO.
1,2-Dimethoxy-4-propenylbenzene (4-Propenylveratrole)----	GIV, ICO.
p- $\alpha$ -Dimethylbenzyl alcohol-----	GIV, UOP.
3,7-Dimethyl-1,6-octadien-3-yl benzoate (Linalyl benzoate)	HOF.
3,7-Dimethyl-2,6-octadienylphenylacetate (Geranyl phenyl-	GIV.
acetate).	
$\alpha,\alpha$ -Dimethylphenethyl acetate-----	GIV, IFF.
$\alpha,\alpha$ -Dimethylphenethyl alcohol-----	GIV, IFF.
Diphenylmethane (Benzylbenzene)-----	ARA.
1,3-Diphenyl-2-propanone (Dibenzyl ketone)-----	GIV.
6-Ethoxy-m-anol (Propenylguaethol)-----	ICO, SHL.
3-Ethoxy-4-hydroxybenzaldehyde (Ethylvanillin)-----	MON, RDA.
2-Ethoxynaphthalene-----	GIV, UOP.

TABLE 14B. --Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
Ethyl anisate (Ethyl p-methoxybenzoate)-----	ICO.
Ethyl anthranilate-----	FB.
Ethyl cinnamate-----	GIV, UOP.
Ethyl $\alpha$ , $\beta$ -epoxy- $\beta$ -methylhydrocinnamate-----	GIV, PFW, RT.
2-Ethylhexyl salicylate-----	FEL, ICO.
*Ethyl phenylglycidate-----	GIV, RT, UOP.
Ethyl salicylate-----	FB, UOP.
3'-Ethyl-5',6',7',8'-tetrahydro-5',5',8',8',-tetramethyl-2'-acetonaphthone.	GIV, UOP.
$\alpha$ -Hexylcinnamaldehyde-----	GIV, IFF, UOP.
Hydratropaldehyde-----	GIV, IFF, UOP.
*Hydratropaldehyde, dimethyl acetal-----	GIV, IFF, RT, UOP.
*Hydrocoumarin-----	GIV, ICO, UOP.
Hydroxycitronellalmethyl anthranilate-----	GIV.
Indole-----	GIV.
Isoamyl phenylacetate-----	GIV.
Isobutyl cinnamate-----	RT.
*Isobutyl phenylacetate-----	FB, GIV, OPC, RT, UOP.
2-Isobutylquinoline-----	FMT.
*Isobutyl salicylate-----	FB, GIV, UOP.
*Isopentyl salicylate-----	FB, GIV, OPC, UOP.
p-Isopropylbenzaldehyde (Cumaldehyde)-----	GIV.
p-Isopropylbenzyl alcohol-----	GIV.
p-Isopropyl- $\alpha$ -methylhydrocinnamaldehyde(Cyclamen aldehyde)	GIV, RDA.
6-Isopropylquinoline-----	FMT.
p-Mentha-1, 8-diene (Limonene)-----	RT, SKG.
Menthyl anthranilate-----	PFW.
*4'-Methoxyacetophenone (Acetanisole)-----	GIV, ICO, OPC, UOP.
p-Methoxybenzyl alcohol (Anisyl alcohol)-----	GIV, UOP.
o-Methoxycinnamaldehyde-----	x.
2-Methoxynaphthalene-----	GIV, UOP, VLY.
1-(p-Methoxyphenyl)-1-pentene-3-one-----	GIV.
*2-Methoxy-4-propenylphenol (Isoeugenol)-----	GIV, SHL, UOP, VLY.
4'-Methylacetophenone-----	UOP.
Methyl anisate (Methyl p-methoxybenzoate)-----	ICO.
p-Methylanisole-----	GIV, UOP.
*Methyl anthranilate-----	FB, GIV, MEE, OPC, SHL, UNG.
Methyl anthranilydene-p-isopropylmethyl hydrocinnamaldehyde.	RDA.
Methyl benzoate-----	HN, VLY.
* $\alpha$ -Methylbenzyl acetate (Styralyl acetate)-----	GIV, UNG, UOP.
* $\alpha$ -Methylcinnamaldehyde-----	FB, GIV, UOP, VLY.
Methyl cinnamate-----	FB, ICO, UOP.
6-Methylcoumarin-----	GIV.
1,2-(Methylenedioxy)-4-propenylbenzene (Isosafrole)-----	GIV.
p-Methylhydratropaldehyd-----	GIV.
Methyl N-methylantranilate-----	GIV, OPC.
Methyl phenylacetate-----	GIV, UOP.
*Methyl salicylate-----	CFC, DOW, HN, MON, PEN.
1,1,3,3,5-Pentamethyl-4,6-dinitroindan-----	GIV.
* $\alpha$ -Pentylcinnamaldehyde-----	GIV, IFF, RDA, UOP, VLY.
*Phenethyl acetate-----	GIV, IFF, NEO.
Phenethylacetoacetate-----	RT.
Phenethyl alcohol-----	IFF.
Phenethyl benzoate-----	IFF.
Phenethyl butyrate-----	GIV.
Phenethyl formate-----	IFF, RT, UOP.
*Phenethyl isobutyrate-----	GIV, IFF, RT, UOP.
Phenethyl isovalerate-----	GIV, RT, UOP.
*2-Phenethyl phenylacetate-----	GIV, IFF, RT, UOP.
Phenethyl propionate-----	GIV, UOP.
Phenethyl salicylate-----	GIV, UOP.
*2-Phenoxyethyl isobutyrate-----	GIV, IFF, UOP.
2-Phenoxyethyl propionate-----	IFF.
Phenylacetaldehyde-----	GIV, UOP.
Phenylacetaldehyde, dimethyl acetal-----	GIV, UOP.
o-Phenylanisole (2-Methoxybiphenyl)-----	GIV.
4-Phenyl-3-buten-2-one (Methyl styryl ketone)-----	FB, RT, UOP.

TABLE 14B. --Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
<i>Benzenoid and Naphthalenoid--Continued</i>	
*3-Phenyl-1-propanol (Hydrocinnamic alcohol)-----	FB, GIV, UOP.
3-Phenylpropyl acetate-----	GIV, UOP.
3-Phenylpropyl cinnamate-----	FB.
*Piperonal (Heliotropin)-----	GIV, SHL, UOP.
*p-Propenylanisole (Anethole)-----	ARZ, GLD, HNW, HPC, NCI.
p-Propylanisole (Dihydroanethole)-----	FB, GIV.
α-Propylphenylethyl alcohol-----	GIV.
*Sweeteners, synthetic:	
Cyclohexanesulfamic acid-----	ABB.
Cyclohexanesulfamic acid, calcium salt-----	ABB, DRW, MON, NRS, PBY, PFZ, UNS.
Cyclohexanesulfamic acid, sodium salt-----	ABB, MON, NRS, PBY, PFZ, UNS.
Saccharin (1,2-Benzisothiazolin-3-one,-1,1-dioxide)---	MEE, MON.
Saccharin, calcium salt-----	MEE, MON, PBY.
Saccharin, sodium salt-----	MEE, MON.
p-Tolualdehyde-----	GIV, HN.
p-Tolylacetaldehyde-----	GIV.
*p-Tolyl acetate-----	FB, GIV, ICO, UOP.
p-Tolyl phenylacetate-----	GIV.
α-(Trichloromethyl)benzyl acetate (Rosetone)-----	ICO, UOP.
Vanillin (4-Hydroxy-3-methoxybenzaldehyde)-----	MON, SLV.
Verdyl propionate-----	GIV.
<i>Terpenoid, Heterocyclic, and Alicyclic</i>	
Allyl cyclohexyl propionate-----	GIV.
Amyris acetate-----	GIV.
Bornyl acetate-----	FEL.
p-tert-Butylcyclohexanone-----	DOW, IFF.
p-tert-Butylcyclohexyl acetate-----	IFF, VLY.
β-Caryophyllene-----	FB, GIV.
Cedrenol-----	GIV.
Cedrol-----	GIV, IFF, UOP.
*Cedryl acetate-----	GIV, IFF, NEO, UNG, UOP.
2-Cyclohexylcyclohexanone-----	GIV.
Cyclopentanone-----	ARA.
Dihydroterpinyl acetate-----	GIV.
Essential oils, chemically modified:	
Acetyl cedrene-----	IFF.
Cedarwood acetate-----	FB.
Clove leaf oil terpenes-----	SHL.
Clove stem oil, acetylated-----	FB.
trans-Decahydro-β-naphthol-----	IFF.
Ethyl oxyhydrate-----	FEL, FLO, LJE, PFW, RT, VND.
Geranonitrile-----	IFF.
Guaiacwood acetate-----	FB, GIV.
4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-10-carbox-	IFF.
aldehyde.	
Lavandin, acetylated-----	GIV, UNG.
Myrcenyl acetate-----	IFF.
Ocimenyl acetate-----	IFF.
Omega decenol-----	IFF.
Piperonal terpenes-----	SHL.
Rosemary oil, acetylated-----	FEL.
Sassafrass oil, hydrogenated-----	GIV.
Tetrahydro alloocimenol-----	IFF.
Ethylene brassylate-----	RDA, VLY.
Ethylene glycol tridecandiote-----	RDA.
α-Furfural mercaptan-----	EVN, RT.
2-Heptylcyclopentanone-----	IFF.
Hexadecen-8-olide (Ambrettolide)-----	IFF.
16-Hydroxyhexadecanoic acid, o-lactone (Hexadecanolide)--	IFF.
2-Hydroxy-3-methyl-2-cyclopenten-1-one (Methyl cyclo-	DOW, RT.
pentanolone).	
2-Hydroxy-3-methyl-2-cyclopenten-1-one isovalerate-----	RT.
3-Hydroxy-2-ethyl-4-pyrone (Ethyl maltol)-----	PFZ.
3-Hydroxy-2-methyl-4-pyrone (Maltol)-----	DOW, PFZ.
4-Hydroxynonanoic acid, γ-lactone (γ-Nonalactone)-----	GIV.

TABLE 14B. --Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Terpenoid, Heterocyclic, and Alicyclic--Continued	
4-Hydroxyoctanoic acid, $\gamma$ -lactone ( $\gamma$ -Octalactone)-----	GIV, RT.
4-Hydroxyundecanoic acid, $\gamma$ -lactone ( $\gamma$ -Undecalactone)---	FB, GIV.
*Ionones:	
$\alpha$ -Ionone-----	GIV, HOF, IFF, MYW, UOP.
$\beta$ -Ionone-----	HOF, MYW, UOP.
Ionone ( $\alpha$ - and $\beta$ -)-----	GIV, LUE, MYW, UNG, UOP.
Isoborneol-----	RDA.
*Isobornyl acetate-----	FB, GIV, OPC, RDA, UNG, UOP.
Isobornyl propionate-----	GIV.
Isomenthone-----	GIV, UOP.
2-Isopropylcyclohexanol-----	GIV.
Menthadiene-7-carbinol-----	RT.
p-Mentha-6,8-dien-2-ol (Carveol)-----	FB.
p-Mentha-6,8-dien-2-one (Carvone; Carvol)-----	FB, FRM, OPC.
*p-Menthan-3-one (Menthone)-----	GIV, HNW, NEO.
p-Menth-8-en-3-ol (Isopulegol)-----	GIV.
p-Menth-1-en-8-ol butyrate (Terpinyl butyrate)-----	RT.
p-Menth-4(8)-en-3-one (Pulegone)-----	GIV.
1,1-p-Menthen-6-yl-1-propanone-----	GIV.
*Menthol, synthetic:	
Tech-----	GIV, NEO.
U.S.P.-----	GIV, GLD, HNW, NEO.
Menthyl acetate-----	GIV.
*Methylionones:	
6-Methyl- $\alpha$ -ionone-----	GIV, IFF, MYW.
Methylionone ( $\alpha$ - and $\beta$ -)-----	GIV, IFF, LUE, MYW, UNG, UOP.
2-(2-Methyl-1-propenyl)-4-methyl-tetrahydropyran (Rose oxide).	GIV.
Neryl acetate prime-----	GIV.
Nopyl acetate-----	RT, SHL, VLY.
Santalol-----	GIV, IFF.
Santalyl acetate-----	GIV.
*Terpineols:	
$\alpha$ -Terpineol-----	GLD, HPC.
$\beta$ -Terpineol-----	HNW.
Terpineol ( $\alpha$ - and $\beta$ -)-----	GIV, NEO.
Terpinol hydrate (terpin hydrate), tech-----	HPC.
* $\alpha$ -Terpinyl acetate-----	GIV, IFF, NEO, RDA, UNG, UOP.
$\alpha$ -Terpinyl propionate-----	GIV, UOP.
3,5,5-Trimethylcyclohexanol (m-Homomenthol)-----	ICO.
1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1,6-heptadien-3-one (Allyl- $\alpha$ -ionone).	GIV, IFF.
4-(2,6-Trimethyl-1-cyclohexen-1-yl)-3-methyl-3-buten-2-one ( $\beta$ -Isomethylionone).	HOF.
Vernaldehyde-----	GIV.
Vetivenol-----	GIV, UOP.
*Vetivenyl acetate-----	FB, GIV, IFF, NEO, UOP.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
Acetylbutyryl (2,3-Hexanedione)-----	RT.
Acetylvaleryl (2,3-Heptanedione)-----	RT.
Allyl cinnamate-----	RT.
Allyl furoate-----	RT.
Allyl hexadienoate-----	RT.
*Allyl hexanoate-----	FB, GIV, PFW.
Allyl isothiocyanate (Synthetic mustard oil)-----	MRT.
Allylmercaptan-----	RT.
Allyl octanoate (Allyl caprylate)-----	RT.
Allyl sulfide-----	RT.
Amyl caprylate-----	VLY.
Amyl propionate-----	GIV.
Brazinol-----	RDA.
Butyl butyryl lactate-----	ICO, RT.

TABLE 14B. -- Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Butyl 10-undecylenate-----	GIV.
*Citral (Geranial and Neral)-----	FB, FEL, GIV, HOF, IFF, LUE, RT, UNG, UOP, VLY.
*Citronellyl acetate-----	GIV, IFF, UOP, VLY.
Citronellyl butyrate-----	GIV, UOP.
*Citronellyl formate-----	GIV, RT, UOP, VLY.
*Citronellyl isobutyrate-----	GIV, RT, UOP.
Citronellyl propionate-----	IFF, VLY.
Decanal (Capraldehyde)-----	GIV, IFF.
Diethyl sebacate-----	FEL, UOP.
Diethyl succinate-----	ICO, UCC, UOP.
1,1-Dimethoxy-3,7-dimethyl-2,6-octadiene-----	VLY.
2,6-Dimethyl-5-hepten-1-al-----	GIV.
3,7-Dimethyl-1,6-nonadien-3-ol-----	HOF.
3,7-Dimethyl-1,6-nonadien-3-ol, acetate-----	HOF.
3,7-Dimethyl-cis-2,6-octadien-1-ol (Nerol)-----	FB, GLD, IFF, UOP.
*3,7-Dimethyl-trans-2,6-octadien-1-ol (Geraniol)-----	FEL, GIV, GLD, IFF, NCI, NEO, UNG, UOP, VLY.
3,7-Dimethyl-1,6-octadien-3-ol (Linalyl alcohol)-----	FB, FEL, GIV, GLD, HOF, LUE, SHL, UNG, VLY.
3,7-Dimethyl-1,6-octadien-3-ol, acetate (Linalyl acetate)	FB, GIV, GLD, HOF, SHL, UNG.
3,7-Dimethyl-1,6-octadien-3-ol, cinnamate-----	HOF.
3,7-Dimethyl-1,6-octadien-3-yl anthranilate (Linalyl anthranilate).	FMT.
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate (Linalyl isobutyrate).	HOF.
3,7-Dimethyl-1,6-octadien-3-yl propionate (Linalyl propionate).	GIV, HOF.
3,7-Dimethyloctan-1-al-----	HOF.
3,7-Dimethyl-1,7-octanediol (Hydroxycitronellol)-----	GIV.
3,7-Dimethyl-1-octanol (Dihydrocitronellol)-----	GIV, VLY.
3,7-Dimethyl-3-octanol (Tetrahydrolinalool)-----	GIV, HOF.
3,7-Dimethyl-6-octen-1-al (Citronellal)-----	FB, GIV, IFF, UOP.
*3,7-Dimethyl-6-octen-1-ol (Citronellol)-----	GIV, GLD, IFF, NEO, UOP, VLY.
3,7-Dimethyl-6-octen-1-yl formate (Rhodinyl formate)-----	GIV.
Dimethyl succinate-----	ICO.
1,1-Dipropoxyethane (Propylacetal)-----	GIV.
Dodecyl laurate-----	RT.
*Ethyl butyrate-----	FB, NW, RT, UOP.
Ethyl formate-----	FB, PFW.
Ethyl heptanoate-----	FEL, RT, UOP.
*Ethyl hexanoate (Ethyl caproate)-----	FB, NW, PFW, RT.
2-Ethyl-1-hexanol (3-Octanol)-----	GIV.
Ethyl isohexanoate-----	PFW.
Ethyl isovalerate-----	FB, PFW.
Ethyl laurate-----	RT, UOP.
Ethyl levulinate-----	FMT.
Ethyl myristate-----	PFW, RT.
*Ethyl nonanoate-----	FEL, RT, UOP.
Ethyl octanoate-----	RT.
Ethyl propionate-----	FB.
Ethyl valerate-----	PFW.
*Geranyl acetate-----	FEL, GIV, IFF, UOP, VLY.
Geranyl butyrate-----	GIV, UOP.
*Geranyl formate-----	GIV, RT, UOP, VLY.
Geranyl isobutyrate-----	IFF.
*Glutamic acid, monosodium salt (Monosodium glutamate)-----	COM, GRW, IMC, MRK.
Heptanal (Enanthaldehyde)-----	BAC.
Heptyl alcohol (1-Heptanol)-----	BAC, UCC, UOP.
2-Hexenal-----	GIV, RT.
cis-3-Hexen-1-ol-----	x.
cis-3-Hexen-1-ol lactate-----	RT.
3-Hydroxy-2-butanone (Acetoin)-----	FMT.
*7-Hydroxy-3,7-dimethyl-1-octanal (Hydroxycitronellal)-----	GIV, GLD, IFF, OPC, UOP, VLY.
*7-Hydroxy-3,7-dimethyl octanal, dimethyl acetal (Hydroxycitronellal, dimethyl acetal).	GIV, IFF, UOP.
Isobutyl acetate-----	FB, UOP.
Isobutyl hexanoate-----	GIV.

TABLE 14B. --*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1967*--Continued

Material	Manufacturers' identification codes (according to list in table 22)
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
Isodecanyl acetate-----	VLY.
*Isopentyl butyrate-----	FB, GIV, NW, PFW, RT, UOP.
*Isopentyl formate-----	FEL, GIV, RT, UOP.
Isopentyl heptoate-----	RT.
Isopentyl isovalerate-----	FB, PFW, UOP.
Lauraldehyde-----	GIV, IFF.
Methyl isobutyrate-----	PFW.
Methyl $\beta$ -methylthiopropionate-----	RT.
Methyl 2-nonenolate-----	GIV, RT.
Methylol methyl hexyl ketone-----	GIV.
$\beta$ -Methylthiopropionaldehyde-----	RT.
2-Methylundecanal-----	GIV, UOP.
Myristaldehyde-----	GIV, IFF.
Nonamethylene glycol diacetate-----	VLY.
Nonanal-----	GIV.
Nonane-1,3-diol monoacetate-----	GIV.
Nonanol-----	GIV.
Nonyl acetate-----	GIV.
Octanal-----	GIV, IFF, UOP.
3-Octanone (Ethyl amyl ketone)-----	GIV.
n-Octyl alcohol-----	GIV.
n-Octyl formate-----	RT.
2,3-Pentandione (Acetyl propinyl)-----	FB.
*Rhodinol-----	FB, FEL, GIV, IFF, LUE, NEO, SHL.
Rhodiny acetate-----	GIV, IFF.
Tepyl acetate-----	IFF, UOP.
3,7,9-Trimethyl-1,6-decadien-3-ol-----	HOF.
Trimethyl hexanal, sodium bisulfite complex-----	SHL.
2,6,10-Trimethyl-9-undecen-1-al-----	GIV.
Undecanal-----	GIV, IFF.
9-Undecenal-----	GIV.
10-Undecen-1-ol-----	GIV.
$\gamma$ -Valerolactone-----	GIV.
All other-----	GIV.



## Plastics and Resin Materials

TABLE 15B.--Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1967

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

Chemical	Manufacturers' identification codes (according to list in table 22)
THERMOSETTING RESINS	
*Alkyd resins, domestic:	
*Phthalic anhydride type-----	ACP, ACY, APV, ASH, BAL, BEN, BOY, BRU, CEL, CIK, CM, COM, CPV, DAV, DEG, DSO, DUN, DUP, EW, FAR, FBR, FCD, FLW, FOC, FSH, GEI, GIL, GLD, GRG, GRV, HAN, HPC, HRS, ICF, JOB, JSC, JWJ, KEL, KMC, KMP, KPS, KPT, KYN, MCC, MID, MMM, MNP, MR, NCI, NON, NPV, NTL, OBC, ORO, OSB, PER, PFP, PPG, PRT, PRX, PTP, QCP, RCI, RED, REL, RH, SCN, SED, SHA, SIP, SM, SRR, SVC, SW, SYV, TV, TXT, x.
*Polybasic acid type-----	ACP, ACY, APV, ASH, BEN, BRU, CGL, CM, COM, CPV, DEG, DSO, DUN, DUP, EW, FAR, FBR, FCD, FOC, GEI, GIL, GLD, GRV, HAN, HPC, HYC, ICF, KYN, MCC, MID, MMM, MOB, NCI, NON, NPV, ORO, OSB, PPG, RCI, RED, RH, SCN, SM, SRR, SW, TV.
*Coumarone-indene and petroleum polymer resins:	
*Floor tile-----	ACC, ACP, NEV, PAI, RCI, VEL.
*Rubber compounding-----	ACC, ACP, KPI, NEV, PAI, RCI, VEL.
*All other uses (including export)-----	ACC, ACP, DSO, DUP, ENJ, MCA, NEV, ORO, PAI, PPG, RCI, VEL, VSV.
Epoxy resins:	
*Unmodified:	
*Bonding and adhesives-----	CBA, CEL, DOW, RCI, SHC, UCC.
*Protective coatings-----	CBA, CEL, DOW, RCI, SHC, UCC.
*Reinforced plastics-----	CBA, CEL, DOW, RCI, SHC, UCC.
*All other uses (including export)-----	CBA, CEL, DOW, RCI, SCH, UCC.
*Modified-----	ASH, CM, CPV, DA, EW, FOM, HAP, IOC, JOB, MID, MMM, MNP, MRB, NPV, ORO, OSB, PRX, PYR, REL, REZ, SCN, SED, SM.
*Polyester resins:	
Reinforced plastics:	
*Sheets, flat and corrugated-----	ACY, APD, DA, EW, GLD, HKD, ICF, LAS, MFG, ORO, PPG, RCI, RH, SIC, SW, USR.
*All other-----	ACP, ACY, ASH, CPV, DA, DSO, GLD, GNT, GRV, GYR, HKD, ICF, IPC, KPS, LAS, MFG, MRO, PLU, PPG, RCI, SW, USR, UTR, VAL, x.
*Surface coatings-----	ACP, ACY, APD, COM, CPV, DA, GLD, GYR, ORO, PPG, SW, USR.
*All other uses (including export)-----	ACP, ACR, ACY, CAP, DA, DSO, DUP, EKT, EPC, EW, FMP, GEI, GLD, GNT, GRG, GYR, HKD, KPT, LAS, MMM, OCF, PFP, PLU, PPG, PTP, RCI, RH, SCN, SW, USR, UTR, x.
*Phenolic and other tar acid resins:	
*Molding materials-----	FRL, GE, HER, HKD, HVG, MON, MRB, NPI, PLS, RCI, RGC, UCC, VSV.
Bonding and adhesive resins for:	
*Laminating-----	ACP, AMR, ASH, BOR, CBR, CD, ENJ, EW, FOM, GE, HKD, IRI, MON, NTC, NVF, PGU, PPL, PYZ, RCD, RCI, SCN, SPL, UCC.
*Coated and bonded abrasives-----	AMR, ASH, BME, BOR, CBM, CBR, HKD, MMM, MON, MRB, PPG, PYZ, RCI, SCN, UCC.
*Friction materials-----	ABS, ASH, BME, BOR, FRL, GE, HKD, MMM, MON, PYZ, RAB, RCI, SCN, SYV, UCC, VSV.
*Thermal insulation-----	ACP, AMR, ASH, HKD, MON, OCF, PYZ, RCI, UCC.
*Foundry or shell molding-----	ACP, ACR, AMR, ASH, BOR, GE, HKD, MON, PYZ, RCI, SCN, UCC, UNO.
*Plywood-----	ASH, BOR, CBC, CBD, HPC, MON, PGU, PYZ, RCI, RH, SIM, WCA, WRD.
*Fibrous and granulated wood-----	AMR, BOR, CBC, CBD, HKD, MON, PYZ, RCI, SIM, UCC, UPL.
*Protective coatings, unmodified and modified-----	ASH, BOR, CIK, CM, CPV, DSO, EW, FAR, FCD, GE, GEI, GRG, GRV, HAN, HER, HKD, ICF, INL, KMC, KRM, KYN, MID, MMM, MON, MRB, NCI, ORO, PRX, PYZ, RCI, REL, RH, SM, SNC, SW, TV, UCC, x.

TABLE 15B. --Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
THERMOSETTING RESINS--Continued	
*Phenolic and other tar acid resins--Continued *All other uses (including export)-----	ACP, ACR, AMR, ASH, EME, BOR, CBR, DSO, EW, GE, GEI, GRG, HER, HKD, HVG, IOC, IRC, IRI, KND, KPT, MCA, MMM, MON, MRB, NPI, PLS, PTP, PYR, PYZ, RAB, RCI, RGC, RH, RPC, SCN, SHA, SNC, TKL, UNO, USR, WCA. ACB, ARK, ASH, BFG, CBM, DA, DCC, DSO, DUP, GPM, HAP, IPI, JWL, KMC, MCC, PEL, PFP, PTP, PYR, QUN, RCT, SCN, SKT, UPJ.
*Polyurethane and diisocyanate resins-----	
*Rosin modifications: *Rosin and rosin esters, unmodified (ester gums)-----	ASH, CBY, DPP, FAR, FLW, FRP, KRM, MCC, NCI, OSB, PTP, RCI, SRR.
*All other-----	ASH, CBY, DPP, EW, FAR, FRP, HN, KRM, NCI, OSB, PTP, RCI, RH, SCF, SHA.
Silicone resins-----	ACP, ASH, DCC, GLD, RCI, SPD.
Styrene-alkyd polyesters-----	ASH, EW, FLW, MCC, PTP, USR.
*Urea and melamine resins: *Textile treating and coating resins-----	ACY, ASH, BRY, CBR, CIB, DAN, DEP, DUP, ECC, GAF, HNC, HRT, JSC, MON, MRA, ONX, PC, QCP, RCI, RH, RPC, S, SBC, SEY, SNW, STC, USO, VAL, WIC.
*Paper treating and coating resins-----	ACY, AMR, EME, BOR, CBC, CBD, CBR, DUP, HPC, MMM, MON, RCI, RH, SIM, TXT, x. ACP, ACY, FMB, GDN, PMC, SFA.
Molding materials----- Bonding and adhesive resins for: *Laminating-----	ACY, ASH, BOR, CBR, ENJ, FOM, GE, MON, NTC, OCF, PGU, PMC, PPL, RCI, STC.
*Plywood-----	ACP, ACY, ASH, BOR, CBC, CBD, HPC, MON, NTC, PGU, RCI, REN, RH, SAC, SIM, SOR, WRD.
*Fibrous and granulated wood-----	ACY, AMR, BOR, CBC, CBD, IPR, MON, PGU, RCI, SAC, SOR, SYV, UPL.
*Protective coatings-----	ACP, ACY, CEL, CMP, CPV, DSO, DUP, GLD, GRV, HAN, KPS, MID, MON, NON, PPG, RCI, REL, RH, SCN, SW, TV.
*All other uses (including export)-----	ACP, ACY, AMR, ASH, BOR, DUP, EFH, FMB, HPC, IRI, MON, RCI, RH, TV, UNO, VAL. ACP, ACY, HPC, HVG, MOB, MON, RPC, UNO, VSV, x.
*All other thermosetting resins-----	
THERMOPLASTIC RESINS	
Acrylic resins-----	ACY, ASH, CEL, CIB, CMG, DUP, FLH, GLC, GLX, HRT, JOB, JSC, ORO, PPG, QUN, RH, RPC, SAR, SED, SEY, VPC, WIC, x, x.
*Cellulose plastics materials: Sheets, continuous: *Under 0.003 gage-----	CEL, DUP, EKT, NIX.
*0.003 gage and over-----	CEL, DOW, EKT, MON, MPP, NIX, PDJ, SPY.
*All other sheets, rods, and tubes-----	CEL, MPP, NIX, PDJ, RSB, SPY.
*Molding and extrusion materials-----	CBN, CEL, DOW, EKT, MON, RSB.
Polyamide resins: *Nylon type-----	ALF, CEL, DUP, FG, GOC, POL.
Non-nylon type-----	AMR, BCM, EMR, GNM, HN, KRM, SM, SNW.
Polyolefin plastics materials: Ethylene polymers and copolymers: Production: *High-pressure polyethylene-----	ACP, CBN, DOW, DUP, EKX, GOC, KPP, MON, PLC, RCC, UCC, USI.
*Low-pressure polyethylene-----	ACP, CEL, DOW, DUP, HPC, KPP, MON, PLC, UCC, USI.
*Ethylene copolymers-----	DUP, EKX, ENJ, UCC, USI.
*Polyethylene, density 0.940 and below: *Sales and use: *Injection molding-----	ACP, CBN, CEL, DOW, DUP, EKX, ENJ, GOC, KPP, MON, PLC, RCC, SHC, UCC, USI.
*Blow molding-----	ACP, CBN, DOW, DUP, EKX, KPP, MON, PLC, RCC, SHC, UCC, USI.
*Film and sheet-----	ACP, CBN, CEL, DA, DOW, DUP, EKX, ENJ, GOC, KPP, MON, PLC, RCC, SHC, UCC, USI.
*Extrusion coating on paper and other substrates----	CEL, DOW, DUP, EKX, GOC, MON, PLC, RCC, UCC, USI.
*Wire and cable-----	DOW, DUP, EKX, KPP, MON, PLC, UCC, USI.

TABLE 15B. --Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
THERMOPLASTIC RESINS--Continued	
Polyolefin plastics materials--Continued	
*Polyethylene, density 0.940 and below--Continued	
*Sales and use--Continued	
*Pipe and conduit-----	EKX, KPP, PLC, UCC, USI.
*Other extruded products-----	ACP, DOW, DUP, EKX, ENJ, KPP, PLC, UCC, USI.
*All other uses (including export)-----	ACP, CEL, DOW, DSO, DUP, EKX, ENJ, GOC, KPP, MON, PLC, RCC, UCC, USI.
*Polyethylene, density over 0.940:	
*Sales and use:	
*Injection molding-----	ACP, CEL, DOW, DUP, EKX, HPC, KPP, PLC, RCC, SHC, UCC, USI.
*Blow molding-----	ACP, CEL, DOW, DUP, EKX, HPC, KPP, MON, PLC, RCC, SHC, UCC, USI.
*Film and sheet-----	ACP, CEL, DOW, DUP, EKX, HPC, KPP, PLC, SHC, UCC, USI.
*Extrusion coating on paper and other substrates-----	DUP, EKX, PLC, UCC, USI.
*Wire and cable-----	ACP, CEL, DUP, EKX, HPC, MON, PLC, SHC, UCC, USI.
*Pipe and conduit-----	ACP, CEL, DUP, EKX, HPC, KPP, PLC, SHC, UCC, USI.
*Other extruded products-----	ACP, CEL, DOW, DUP, EKX, HPC, KPP, PLC, UCC, USI.
*All other uses (including export)-----	ACP, CEL, DOW, DSO, DUP, EKX, HPC, KPP, MON, PLC, UCC, USI.
*Polypropylene:	
*Production-----	AVS, DA, DOW, EKX, ENJ, HPC, NVT, RCC, SHC.
*Sales and use:	
*Injection and blow molding-----	ACP, DOW, EKX, ENJ, HPC, NVT, PLC, RCC, SHC, UCC, USI, x.
*Film and sheet-----	ACP, AVS, DA, EKX, ENJ, HPC, RCC, SHC, UCC.
*Fibers and filaments-----	DA, EKX, ENJ, HPC, PLC, SHC, x.
*Other extruded products-----	EKX, ENJ, HPC, PLC, RCC, SHC, UCC.
*All other uses (including export)-----	ACP, AVS, DA, DOW, EKX, ENJ, HPC, NVT, PLC, RCC, SHC, UCC, USI.
*Styrene type plastics materials:	
ABS and SAN resins:	
*Production-----	BFG, DOW, FBF, FIR, GRD, KPP, MCB, MON, RCC, SW, UCC, USR.
*Sales and use:	
*Molding-----	BFG, DOW, FBF, KPP, MCB, MON, UCC, USR.
*Extrusion-----	BFG, DOW, MCB, MON, RCC, UCC, USR.
*All other uses (including export)-----	BFG, DOW, FIR, GRD, KPP, MCB, MON, SW, UCC, USR.
Styrene and styrene copolymer resins:	
*Production:	
*Straight polystyrene-----	BPL, CBN, CSD, DOW, FBF, FG, KPP, MON, ONX, PLA, POL, PRX, RCC, SEK, SOL, SW, TIC, UBS, UCC.
Rubber-modified polystyrene-----	BOR, BPL, CSD, DOW, FG, GOR, KPP, MON, PLA, RCC, SHC, UCC.
Styrene-butadiene copolymer-----	BFG, BOR, DOW, FIR, GNT, GRD, GYR, ILC, KPP, USR, WIC.
All other-----	ACC, BAS, BCN, BKC, DOW, DSO, DUP, GAF, GLD, GRD, IOC, JSC, KEL, MON, MRT, NLC, ORO, PAI, POL, PRX, PVI, RCC, RH, SEK, SM, SPT.
*Sales and use:	
*Molding-----	BFG, BKC, BPL, CSD, DOW, FBF, FG, FIR, GOR, GYR, KPP, MON, PLA, RCC, SHC, SOL, TIC, UCC, USR.
*Textile and paper treating and coating-----	BFG, BOR, DOW, FIR, GNT, GRD, GYR, ILC, JSC, KPP, MON, MRT, ONX, PRX, USR, WIC.
*Emulsion paint-----	BOR, DOW, DSO, FIR, GLD, GNT, GRD, GYR, KPP, MON, USR.
*Extrusion-----	BFG, CBN, CSD, DOW, KPP, MON, RCC, SHC, UCC.
Foam and foamable materials-----	BAS, CSD, DOW, FG, GYR, KPP, MON, RCC, SEK, SHC, USR.
*All other uses (including export)-----	ACC, BAS, BCN, BFG, BOR, CSD, DOW, DSO, DUP, FG, GAF, GNT, GRD, GYR, IOC, JSC, KPP, MON, MRT, PAI, PRX, PVI, RCC, RH, SEK, SHC, SM, UBS, UCC, USR, x.
Vinyl resins:	
Polyvinylchloride and copolymers:	
*Production:	
Suspension homopolymers-----	ACP, AME, ATU, BFG, BOR, CRY, CUC, DA, DOW, ESC, FIR, GNT, GRA, GYR, MON, PNT, SFA, UCC, USR.
Suspension copolymers-----	ACP, AME, BFG, BOR, CRY, CUC, DA, FIR, GNT, GYR, KYS, MON, NSC, ONX, PNT, SFA, THC, UCC.
Dispersions (paste)-----	ACP, BFG, BOR, CRY, DA, FIR, GYR, MON, SFA, UCC, USR.

TABLE 15B. --Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
THERMOPLASTIC RESINS--Continued	
Vinyl resins--Continued	
Polyvinylchloride and copolymers--Continued	
*Sales and use:	
*Calendering, except flooring-----	AME, ATU, BFG, BOR, CRY, CUC, DA, DOW, ESC, FIR, GNT, GYR, MON, PNT, SFA, THC, UCC, USR.
Flooring:	
*Calendered-----	AME, ATU, BFG, BOR, CRY, CUC, DA, ESC, FJR, MON, PNT, SFA, THC, UCC.
*Coated-----	BFG, BOR, CRY, DA, FIR, GNT, GYR, MON, THC, UCC, USR.
Paper and textile uses:	
*Coating-----	ATU, BFG, BOR, CRY, DA, FIR, MON, ONX, SFA, THC, UCC, USR.
*Other-----	BFG, BOR, ESC, FIR, THC, UCC.
*Protective coatings and adhesives-----	BFG, BOR, DA, ESC, FIR, MON, NSC, UCC.
*Wire and cable-----	AME, ATU, BFG, BOR, CRY, CUC, DA, DOW, FIR, MON, PNT, THC, UCC, USR.
*Extruded film and sheet-----	AME, BFG, BOR, CUC, DA, DOW, FIR, GYR, MON, PNT, SFA, THC, UCC, USR.
*Other extruded products-----	ACP, AME, ATU, BFG, BOR, CRY, CUC, DA, DOW, ESC, FIR, GNT, GYR, MON, PNT, THC, UCC, USR.
*Sound records-----	AME, BFG, BOR, CRY, CUC, DA, KYS, MON, PNT, SFA, THC, UCC, USR.
*Injection and blow molding-----	ATU, BFG, BOR, CRY, DA, ESC, FIR, GYR, MON, PNT, SFA, THC, UCC, USR.
*Plastisol formulating and molding-----	BFG, BOR, CUC, DA, FIR, MON, PYR, SFA, THC, UCC, USR.
*All other uses (including export)-----	BFG, BOR, CRY, CUC, DA, DOW, ESC, FIR, GRA, GYR, MON, PNT, SFA, THC, UCC, USR.
Polyvinyl acetate:	
*Production:	
*Latexes-----	AML, BEN, BOR, BOY, CEL, CUC, DSO, DUP, FLH, GLC, GRD, HAN, HNC, HRT, JOB, JSC, KMC, KMP, MCC, MMM, MON, MR, MRN, NCI, NPV, NSC, NTC, OBC, PFP, PII, PPG, PRX, PVI, QCP, REL, RPC, SED, SEY, SPC, UCC, WIC, x.
*Resins-----	ASH, BEN, BOR, CST, CUC, DAN, DAV, DUP, FAR, HNC, JOB, MON, MRN, NSC, OCF, PPG, RCI, SCO, SED, SH, UCC, x.
*Sales and use:	
*Emulsion paints-----	AML, APV, ASH, BEN, BOR, CEL, CUC, DAV, DSO, DUP, FLH, GLC, GLD, GRD, HAN, JOB, KMC, KMP, MCC, MON, NCI, NPV, NSC, PFP, PPG, PRX, RCI, SED, SPC, UCC, WIC.
*Adhesives-----	AML, ASH, BOR, CEL, CUC, DUP, FLH, GLC, GRD, HNC, JSC, MMM, MON, MRN, NSC, NTC, PII, PPG, RCI, SH, UCC, x.
*Paper treating-----	AML, BOR, CEL, CUC, DUP, FLH, GLC, MON, NSC, PII, SEY, WIC.
*Textile treating-----	AML, BOR, CEL, CST, CUC, DAN, DUP, GLC, GRD, HRT, NSC, PII, SCO, SEY.
*All other uses (including export)-----	BOR, CUC, DUP, GRD, MON, NSC, OCF, PII, PVI, QCP, RCI, SCO, UCC, x.
*Polyvinyl alcohol-----	BOR, CUC, DUP, MON, SEY, x.
*Other vinyl resins-----	BAS, BOR, DOW, DUP, GRD, MON, SW, UCC.
*All other thermoplastic resins-----	ACP, CBY, CEL, CIB, DEP, DUP, GE, GGY, JSC, KRM, MOB, ONX, PPG, RH, RPC, SCN, SNW, WIC, x.

## Rubber-Processing Chemicals

TABLE 16B. -- Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967

[Rubber-processing chemicals for which separate statistics are given in table 16A are marked below with an asterisk (\*); chemicals not so marked do not appear in table 16A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Aldehyde-amine reaction products:	
Acetaldehyde-aniline condensate-----	USR.
n-Butyraldehyde-aniline condensate-----	DUP, MON, RCD, USR.
Butyraldehyde-butyrideneaniline condensate-----	MON.
$\alpha$ -Ethyl- $\beta$ -propylacrylanilide-----	CCO.
Heptaldehyde-aniline condensate-----	USR.
Triethyltrimethylenetriamine-----	USR.
*Dithiocarbamic acid derivatives:	
Dibenzylidithiocarbamic acid, sodium salt-----	USR.
Dibenzylidithiocarbamic acid, zinc salt-----	USR.
Dibutylidithiocarbamic acid, N,N-dimethylcyclohexylamine salt.	MON.
Dibutylidithiocarbamic acid, diphenylguanidine salt-----	CCO.
2,4-Dinitrophenyl dimethylidithiocarbamate-----	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts, mixed.	DUP.
Guanidines:	
Dicatechol borate, di-o-tolylguanidine salt-----	DUP.
1,3-Diphenylguanidine-----	ACY.
Diphenylguanidine phthalate-----	MON.
1,3-Di-o-tolylguanidine-----	ACY.
1,2,3-Triphenylguanidine-----	ACS.
*Thiazole derivatives:	
2-Benzothiazyl-N,N-diethylthiocarbamoyl sulfide-----	PAS.
1,3-Bis(2-benzothiazolylmercaptomethyl)urea-----	MON.
N-tert-Butyl-2-benzothiazolesulfenamide-----	MON.
*N-Cyclohexyl-2-benzothiazolesulfenamide-----	ACY, BFG, MON, USR.
N,N-Diisopropyl-2-benzothiazolesulfenamide-----	ACY.
N-(2,6-Dimethylmorpholino)-2-benzothiazole-sulfenamide.	MON.
*2,2'-Dithiobis(benzothiazole)-----	ACY, BFG, GYR, MON, USR.
*2-Mercaptobenzothiazole-----	ACY, BFG, GYR, MON, USR.
2-Mercaptobenzothiazole, zinc chloride-----	DUP.
2-Mercaptobenzothiazole, zinc salt-----	ACY, BFG, DUP, GYR, USR.
4-Morpholinyl-2-benzothiazyl disulfide-----	GYR.
N-Oxydiethylene-2-benzothiazolesulfenamide-----	ACY, BFG, MON.
Thiazoline-2-thiol-----	ACY.
All other cyclic accelerators, activators, and vulcanizing agents:	
p-Benzoquinonedioxime-----	CTA, DUP.
Bis(p-aminocyclohexyl)methane carbamate-----	DUP.
Bis(2,6-dimethylmorpholinothiocarbonyl) sulfide-----	DUP.
Dibenzoyl-p-quinonedioxime-----	CTA, USR.
Dibenzylamine-----	MLS, USR.
N,N'-Dicinnamylidene-1,6-hexanediamine-----	DUP.
Di-N,N'-pentamethylenethiuram tetrasulfide-----	DUP, VNC.
4,4'-Dithiodimorpholine-----	MON.
2-Imidazoline-2-thiol-----	DUP, RBC.
Poly-p-dinitrosobenzene-----	DUP.
Styrene polysulfide-----	TKL.
*Antioxidants, antiozonants, and stabilizers:	
*Amino antioxidants, antiozonants, and stabilizers:	
Aldehyde- and acetone-amine reaction products:	
Acetaldehyde-aniline hydrochloride condensate-----	USR.
Aldol- $\alpha$ -naphthylamine condensate-----	BFG.
Butyraldehyde-aniline condensate-----	DUP.
Diphenylamine-acetone condensate-----	ACY, BFG, USR.
Phenyl-2-naphthylamine-acetone condensate-----	USR.
*Substituted p-phenylenediamines:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT, USR. x.
N,N'-Bis(1-ethyl-3-methylpentyl)-p-phenylenediamine-----	MON, UPM.

TABLE 16B.--Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Antioxidants, antiozonants, and stabilizers--Continued	
*Amino antioxidants, antiozonants, and stabilizers--Continued	
*Substituted p-phenylenediamines--Continued	
N,N'-Bis(1-methylheptyl)-p-phenylenediamine-----	BFG, MON, UPM.
N-sec-Butyl-N'-phenyl-p-phenylenediamine-----	USR.
N-Cyclohexyl-N'-phenyl-p-phenylenediamine-----	USR.
Diarylarlylenediamines, mixed-----	GYR.
N,N'-Di-sec-butyl-p-phenylenediamine-----	USR.
N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine---	GYR.
N,N'-Di-2-naphthyl-p-phenylenediamine-----	BFG.
*N,N'-Diphenyl-p-phenylenediamine-----	BFG, DUP, USR.
N-Isopropyl-N'-phenyl-p-phenylenediamine-----	MON, USR.
Nitroso-N-phenyl-p-phenylenediamine-----	USR.
All other p-phenylenediamines-----	MON.
Other amino antioxidants, antiozonants, and stabilizers:	
p-Anilinophenol-----	BFG.
1,2-Dihydro-6-dodecyl-2,2,4-trimethylquinoline-----	MON.
1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline-----	MON.
1,2-Dihydro-2,2,4-trimethylquinoline-----	BFG, MON.
4,4'-Dimethoxydiphenylamine-----	DUP.
4,4'-Dinonyldiphenylamine-----	ACY.
4,4'-Dioctyldiphenylamine-----	BFG.
N,N'-Diphenylethylenediamine-----	CCO, DA, x.
N,N'-Diphenyl-1,3-propanediamine-----	CCO.
N,N'-Di-o-tolythylenediamine-----	CCO.
p-Isopropoxydiphenylamine-----	BFG..
4,4'-Methylenedianiline-----	USR.
*Octyldiphenylamine-----	ACY, NPI, PAS, USR.
Octyldiphenylamine mixture (mono-, nonyl-, and di)--	BFG.
N-Phenyl-1-naphthylamine-----	DUP, UCC.
*N-Phenyl-2-naphthylamine-----	BFG, DUP, USR.
p-(p-Toluenesulfonamido)diphenylamine-----	USR.
All other-----	DUP.
*Phenolic and phosphite antioxidants and stabilizers:	
Phosphites:	
Nonyl phenyl phosphites, mixed-----	USR.
Polyphenolic phosphite, polyalkylated-----	BFG.
*Polyphenolics (including bisphenols):	
Bisphenol, hindered-----	GYR.
4,4'-Butylidenebis(6-tert-butyl-m-cresol)-----	MON.
2,5-Di-(1,1-dimethylpropyl)hydroquinone-----	MON.
2,2'-Methylenebis(6-tert-butyl-p-cresol)-----	ACY, ASH.
2,2'-Methylenebis(6-tert-butyl-4-ethylphenol)-----	ACY.
2,2'-Methylenebis(6-tert-octyl-p-cresol)-----	ACY.
4,4'-Thiobis(6-tert-butyl-m-cresol)-----	MON.
2,2'-Thiobis(4,6-di-sec-amylphenol)-----	MON.
1,1,3-Tri(2-methyl-4-hydroxy-5-tert-butylphenyl)butane.	ICI.
Other phenolic antioxidants and stabilizers:	
p-Benzoyloxyphenol-----	BFG.
o-Cresol, alkylated-----	PIT.
N-Lauroyl-p-aminophenol-----	MLS.
*Phenol, alkylated-----	ACY, BFG, CCO, GYR, PIT, USR.
Phenol, hindered-----	DUP, GYR, PIT.
Phenol, styrenated-----	BFG, GYR, USR.
N-Stearoyl-p-aminophenol-----	MLS.
Xylenol, alkylated-----	PIT.
*Blowing agents:	
N,N'-Dimethyl-N,N'-dinitrosoterephthalamide-----	DUP.
Dinitrosopentamethylenetetramine-----	DUP, NPI.
p,p'-Oxybis(benzenesulfonhydrazide)-----	USR.
*Peptizers:	
Alkylated o-thiocresol-----	PIT.
Alkylated thiophenol, zinc salt-----	PIT.
Aryl mercaptans-----	PIT.
2-Benzamidothiophene, zinc salt-----	ACY.
2',2''-Di thiobis(benzanilide)-----	ACY.
Dixylyl disulfides, mixed-----	PIT.
2-Naphthalenethiol-----	DUP.

TABLE 16B. -- Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Peptizers--Continued	
Pentachlorobenzenethiol-----	DUP.
Pentachlorobenzenethiol, zinc salt-----	DUP.
Thiocresol-----	PIT.
Thiophenol (Benzenethiol)-----	PIT.
Xylenethiol-----	DUP.
Other cyclic rubber-processing chemicals:	
p-tert-Amylphenol sulfide (tackifier)-----	PAS.
Dicresyl disulfide-----	USR.
N,4-Dinitroso-N-methylaniline (physical-property improver).-----	CTA, MON.
Hindered aromatic polyamine-----	USR.
N-Nitrosodiphenylamine (retarder)-----	ACY, BFG, CTA, GYR, USR.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators, activators, and vulcanizing agents:	
*Dithiocarbamic acid derivatives:	
Dibutyldithiocarbamic acid, potassium salt-----	VNC.
*Dibutyldithiocarbamic acid, sodium salt-----	ALC, DUP, PAS, USR, VNC.
*Dibutyldithiocarbamic acid, zinc salt-----	ALC, DUP, USR, VNC.
Diethyldithiocarbamic acid, selenium salt-----	VNC.
Diethyldithiocarbamic acid, sodium salt-----	ALC, PAS.
Diethyldithiocarbamic acid, tellurium salt-----	VNC.
*Diethyldithiocarbamic acid, zinc salt-----	ALC, GYR, PAS, USR, VNC.
Dimethyldithiocarbamic acid, bismuth salt-----	VNC.
Dimethyldithiocarbamic acid, copper salt-----	VNC.
Dimethyldithiocarbamic acid, lead salt-----	VNC.
Dimethyldithiocarbamic acid, selenium salt-----	VNC.
Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide.-----	BFG, GNT.
*Dimethyldithiocarbamic acid, zinc salt-----	ALC, DUP, FMN, GYR, PAS, RBC, USR, WRC.
All other-----	PAS, VNC.
*Thiurams:	
Bis(dibutylthiocarbamoyl) sulfide-----	USR.
*Bis(diethylthiocarbamoyl) disulfide-----	DUP, GYR, PAS.
*Bis(dimethylthiocarbamoyl) disulfide-----	BFG, DUP, GYR, PAS, VNC.
Bis(dimethylthiocarbamoyl) disulfide and 2-mercaptobenzothiazole, mixed.-----	VNC.
*Bis(dimethylthiocarbamoyl) sulfide-----	DUP, GYR, USR.
Bis(ethylmethylthiocarbamoyl) sulfide-----	PAS, VNC.
Thiuram blend-----	DUP.
Xanthates and sulfides:	
Di-n-butylxantho disulfide-----	USR.
Diisopropylxantho disulfide-----	BFG.
Zinc dibutyl xanthate-----	USR.
Zinc isopropyl xanthate-----	VNC.
All other acyclic accelerators, activators, and vulcanizing agents:	
n-Butyraldehyde-butylamine condensate-----	DUP.
Di-n-butylammonium oleate-----	DUP.
3-Ethyl-1,1-dimethyl-2-thiourea-----	VNC.
Ethylenediamine carbamate-----	DUP.
1,1,3-Trimethyl-2-thiourea-----	VNC.
Blowing agents:	
Modified urea-----	DUP.
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.
Polymerization regulators:	
Alkyl mercaptans, mixed-----	PAS, PLC.
*Dodecyl mercaptans-----	HK, PAS, PLC.
Tetradecyl mercaptan-----	PAS, PLC.
Shortstops:	
Dimethyldithiocarbamic acid, potassium salt-----	GYR, PAS, USR.
*Dimethyldithiocarbamic acid, sodium salt-----	ALC, BFG, DUP, GYR, PAS, USR.
Other acyclic rubber-processing chemicals:	
Zinc laurate (activator, physical-property improver)-----	USR.
All other-----	USR.

## Elastomers (Synthetic Rubbers)

TABLE 17B.--Elastomers (synthetic rubbers) for which U.S. production or sales were reported, identified by manufacturer, 1967

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

Product	Manufacturers' identification codes (according to list in table 22)
ELASTOMERS, CYCLIC	
*Polybutadiene-styrene type (S-type)-----	ASY, BFG, CPY, FIR, FRS, GGC, GNT, GYR, ILC, MCB, PLC, RUB, SHC, TUS, URC, USR, WIC.
*Polybutadiene-styrene-vinylpyridine type-----	BFG, FIR, FRS, GNT, GYR, USR.
*Polyurethane type-----	ACY, DUP, GNT, MCB, PRC, RUB, TKL, USR.
ELASTOMERS, ACYCLIC	
Polyacrylate ester type-----	ACY, BFG, TKL.
Polyalkalene sulfide type-----	PRC, TKL.
Polybutadiene type-----	BFG, FRS, GYR, TKL, TUS.
*Polybutadiene-acrylonitrile type (N-type)-----	BFG, FRS, GYR, ILC, USR.
Polychloroprene type (Neoprene)-----	DUP.
*Polyisobutylene-isoprene type (Butyl)-----	CBN, ENJ.
Reaction products of natural rubber-----	GYR, HPC, ICI.
*Silicone elastomers-----	DCC, SFA, SPD, UCC.
*Stereo elastomers-----	ASY, BAR, DUP, ENJ, FRS, GGC, GYR, PLC, SHC, TUS, USR.
All other-----	DUP, ENJ, x.



## Plasticizers

TABLE 18B. --Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1967

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

Chemical	Manufacturers' identification codes (according to list in table 22)
PLASTICIZERS, CYCLIC	
Coumarone-indene plasticizer-----	NEV.
N-Cyclohexyl-p-toluenesulfonamide-----	MON.
Dibenzyl sebacate-----	WTH.
Diethylene glycol dibenzoate-----	VEL.
Di-tert-octyldiphenyl oxide-----	DOW.
Dipropanediol dibenzoate-----	VEL.
N-Ethyl-p-toluenesulfonamide-----	MON.
Isopropylidenediphenoxypropanol-----	DOW.
Naphthalene, alkylated-----	ACC.
Phosphoric acid esters:	
*Cresyl diphenyl phosphate-----	FMP, MON, MTR, SFA, SM.
Dibutyl phenyl phosphate-----	MON.
Diphenyl mono-o-xenyl phosphate-----	DOW.
Diphenyl octyl phosphate-----	MON.
Methyl diphenyl phosphate-----	FMP, MON.
*Tricresyl phosphate-----	FMP, MON, MTR, SFA.
*Triphenyl phosphate-----	EK, MON, MTR, SFA.
All other phosphoric acid esters-----	SFA.
*Phthalic anhydride esters:	
Alkyl benzyl phthalates-----	x.
Bis(4-methyl-2-pentyl) phthalate-----	GRH.
Butyl benzyl phthalate-----	GRH, MON, UCC.
Butyl cyclohexyl phthalate-----	ACP.
n-Butyl n-decyl phthalate-----	PCC.
*Butyl 2-ethylhexyl phthalate-----	MON, UCC.
*Butyl octyl phthalate-----	GRH, PCC, RCI, RUB.
Di(2-butoxyethyl) phthalate-----	ARC, FMP, WM, WTH.
*Dibutyl phthalate-----	ACP, COM, DUP, EKT, ENJ, GRH, MON, PCC, PFZ, RCI, RUB, SW, UCC.
*Dicyclohexyl phthalate-----	ACP, DUP, FMP, MON, PFZ.
Diethyl isophthalate-----	PFZ.
*Diethyl phthalate-----	DUP, EKT, KF, MON, PFZ.
Dihexyl phthalate-----	ACP, ENJ, GRH, TEK.
Di(isodecyl)-4,5-epoxy phthalate-----	UCC.
Diisodecyl hydrophthalate-----	UCC.
*Diisodecyl phthalate-----	ACP, BFG, EKT, ENJ, GRH, MON, PCC, RCI, RUB, TEK, UCC.
*Di(2-methoxyethyl) phthalate-----	DUP, EKT, FMP, RCI, SFA, WTH.
Dimethyl isophthalate-----	PFZ.
*Dimethyl phthalate-----	EKT, KF, MON, PFZ, TCC.
Dinonyl phthalate-----	RCI.
*Dioctyl phthalates:	
*Dicapryl phthalate-----	GRH, WTH.
*Di(2-ethylhexyl) isophthalate-----	UCC.
*Di(2-ethylhexyl) phthalate-----	ACP, BFG, EKT, ENJ, GRH, MON, PCC, PFZ, RCI, RUB, TEK, UCC.
*Diiso-octyl phthalate-----	ACP, ENJ, GRH, MON, PCC, RCI, RUB, TEK, UCC.
*Di-n-octyl phthalate-----	ASH.
*Mixed dioctyl phthalate-----	BFG.
Diphenyl phthalate-----	MON.
*Ditridecyl phthalate-----	ACP, ENJ, GRH, MON, PCC, PFZ, RCI, RUB, TEK, UCC.
2-Ethylhexyl isodecyl phthalate-----	UCC.
*Glycolate phthalate esters:	
Butyl phthalyl butyl glycolate-----	DA, MON.
Ethyl (and methyl) phthalyl ethyl glycolate-----	MON.
All other glycolate phthalate esters-----	ARG, HPC.
n-Hexyl n-decyl phthalate-----	ACP, GRH, UCC.
Hydrogenated castor oil phthalate-----	DUP.
Isodecyl tridecyl phthalate-----	TEK.
Iso-octyl isodecyl phthalate-----	ACP, RUB.
*n-Octyl n-decyl phthalate-----	ACP, GRH, MON, PCC, RCI, RUB, TEK, UCC.
All other phthalic anhydride esters-----	FMP, TEK, UCC, x.

TABLE 18B. --Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22).
PLASTICIZERS, CYCLIC--Continued	
Polyethylene glycol dibenzoate-----	VEL.
Tetrahydrofurfuryl oleate-----	CCW, EMR.
Toluenesulfonamide, o-, p- mixtures-----	ACY, MON.
*Trimellitic acid esters:	
n-Octyl n-decyl trimellitate-----	GRH, PCC, RCI, TEK.
Tri(2-ethylhexyl) trimellitate-----	PFZ, RCI.
Triisodecyl trimellitate-----	PFZ.
Triiso-octyl trimellitate-----	RCI, RUB.
*Trioctyl trimellitate-----	GRH, PCC, RUB.
All other trimellitic acid esters-----	PFZ, RUB.
All other cyclic plasticizers-----	CCW, EKT, MON, NEV.
PLASTICIZERS, ACYCLIC	
*Adipic acid esters:	
*Di(2-(2-butoxyethoxy)ethyl) adipate-----	FMP, RCI, TKL.
*Di(2-ethylhexyl) adipate-----	DA, EKT, GRH, MON, PCC, RCI, RH, RUB, TEK, UCC, WTH.
Di-n-hexyl adipate-----	ARC.
Diisobutyl adipate-----	FMP, GRH, HAL.
*Diisodecyl adipate-----	ACP, EKT, GRH, MON, PCC, PFZ, RCI, RH, RUB, TEK, UCC.
Diiso-octyl adipate-----	PCC, RCI, RH, RUB.
Diisopropyl adipate-----	SBC, VND.
Dinonyl adipate-----	TEK.
Di-n-octyl adipate-----	ACP.
Di-n-propyl adipate-----	ARC.
n-Hexyl n-decyl adipate-----	ACP, PCC.
Iso-octyl isodecyl adipate-----	GRH, RCI.
*n-Octyl n-decyl adipate-----	ACP, GRH, MON, PCC, RCI, RH, RUB, TEK, TKL.
Polyethylene glycol adipate-----	PFZ.
All other adipic acid esters-----	PFZ, RUB.
*Azelaic acid esters:	
Dicyclohexyl azelate-----	PFZ.
Di(2-ethylbutyl) azelate-----	EMR.
Di(2-ethylhexyl) azelate-----	EKT, EMR, PCS, PFZ, RCI, RH, RUB.
Diisobutyl azelate-----	HAL.
Diiso-octyl azelate-----	EMR.
Di-n-octyl azelate-----	PFZ.
All other azelaic acid esters-----	ACP, EMR.
1,4-Butanediol dicaprylate-----	RUB.
Butoxyethyl pelargonate-----	HAL.
Citric and acetylcitric acid esters-----	PFZ.
*Complex linear polyesters and polymeric plasticizers-----	ASH, EKT, EMR, HAL, MON, PFZ, RCI, RH, RUB, TEK, UCC, WTH.
Di(butoxyethoxy-ethoxy)methane-----	TKL.
Di(2-(2-butoxyethoxy)ethyl)methane-----	GRD.
Dibutyl tartrate-----	ARC.
Diethylene glycol dipelargonate (d nonanoate)-----	EMR.
Diiso-octyl diglycolate-----	CCA, FMP.
*Epoxidized esters:	
Butyl epoxydioleate-----	ASH.
Butyl epoxystearate-----	BAC.
Butyl epoxytallate-----	ASH, TEK.
Epoxidized linseed oils-----	ASH, SWT.
*Epoxidized soya oils-----	ARG, ASH, BAC, RCI, RH, SWT, TEK, UCC.
Epoxidized tall oils-----	RCI.
*2-Ethylhexyl epoxytallates-----	ASH, BAC, UCC.
Octyl epoxystearates-----	ARG.
*Octyl epoxytallates-----	ARG, RH, TEK, UCC.
All other epoxidized esters-----	EMR, RH.
Glyceryl pelargonate-----	EMR.
Glyceryl tributyrates and tripropionate-----	EKT.
Glycol pelargonate-----	EMR.
Isodecyl nonanoate (isodecyl pelargonate)-----	EMR.
Lauric acid esters-----	HAL, SBC.
Myristic acid esters:	
Butyl myristate-----	ARC.
*Isopropyl myristate-----	ARC, DA, DRW, ICI, PCS, PEN, SBC.
*Oleic acid esters:	
2-Butoxyethyl oleate-----	ARC, HAL.
*Butyl oleate-----	ARC, CHL, DA, HAL, ICI, SWT, WM, WTH.

TABLE 18B. --Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PLASTICIZERS, ACYCLIC--Continued	
*Oleic acid esters--Continued	
*Glyceryl triolate (Triolein)-----	DRW, EMR, PCS, SWT, WM.
*Isopropyl oleate-----	EMR, ICI, SCP, WM.
*Methyl oleate-----	EMR, ICI, SWT.
*n-Propyl oleate-----	CHL, EMR, SCP, WM.
All other oleic acid esters-----	DRW, HAL, RH, VND.
Palmitic acid esters:	
Isobutyl palmitate-----	ARC, EKT, PEN.
Iso-octyl palmitate-----	RUB.
*Isopropyl palmitate-----	ARC, DRW, ICI, PCS, SBC.
2-Methoxyethyl palmitate-----	EKT.
*Phosphoric acid esters:	
Tri(2-butoxyethyl) phosphate-----	FMP.
Tributyl phosphate-----	FMP.
Tri(2-chloroethyl) phosphate-----	SFA, UCC.
Triethyl phosphate-----	EKT.
Triooctyl phosphate-----	FMP, UCC.
All other phosphoric acid esters-----	SM.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate-----	BAC, WTH.
*Butyl ricinoleate-----	BAC, DA, RCI.
*Glyceryl monoricinoleate-----	BAC, GLY, HAL.
Glyceryl tri(acetylricinoleate)-----	BAC.
Methoxyethyl ricinoleate-----	RCI.
Methyl ricinoleate-----	BAC.
All other ricinoleic and acetylricinoleic acid esters----	BAC, PFZ, RH.
Sebacic acid esters:	
Dibutoxyethyl sebacate-----	HAL, RCI.
*Dibutyl sebacate-----	EKT, GRH, HAL, RCI, RH, WTH.
*Di(2-ethylhexyl) sebacate-----	GRH, HAL, RH, RCI, WTH.
Diiso-octyl sebacate-----	DA, RCI.
All other sebacic acid esters-----	DA, SBC.
*Stearic acid esters:	
Butoxyethyl stearate-----	ARC, WM.
*n-Butyl stearate-----	ARC, CHL, EMR, HAL, ICI, SCP, SWT, WTH.
Dimethylammonium stearate-----	RH.
2-Ethylhexyl stearate-----	FMP.
Glyceryl triacetyl stearate-----	BAC.
Hexadecyl stearate-----	SCP.
Isocetyl stearate-----	WM.
Isopropyl stearate-----	PEN, WM.
Methoxyethyl stearate-----	ARC.
Methyl dichlorostearate-----	HK.
Methyl pentachlorostearate-----	HK.
Methyl stearate-----	CHL.
All other stearic acid esters-----	RCI, WM, x.
Sucrose acetate isobutyrate-----	ARC, EKT.
Tetraethylene glycol di(2-ethylhexanoate)-----	UCC.
Triethylene glycol dicaprylate-----	RUB.
*Triethylene glycol di(caprylate-caprate)-----	FOR, HAL, RUB, WM.
Triethylene glycol di-2-ethylbutyrate-----	UCC.
Triethylene glycol di(2-ethylhexanoate)-----	DA, EKT, UCC.
Triethylene glycol dipelargonate-----	RUB.
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate-----	EEX.
All other acyclic plasticizers-----	ARC, CTA, EMR, GLY, HAL, HPC, PFZ, RUB, SCP, TKL, WM.

## Surface-Active Agents

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967

[Surface-active agents for which separate statistics are given in table 19A are marked below with an asterisk (\*); products not so marked do not appear in table 19A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Amphoteric Surface-Active Agents</i>	
Acyclic:	
Alkylbetaine-----	DUP.
(1-Carboxyheptadecyl)trimethylammonium hydroxide, inner salt.	DUP.
(Carboxymethyl)(coconut oil alkyl)dimethylammonium hydroxide, inner salt.	CUL.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium chloride, sodium salt.	JRG.
(Carboxymethyl)[3-(coconut oil amido)propyl]dimethylammonium hydroxide, inner salt.	UVC.
(Carboxymethyl)dimethyl(9-octadecenyl)ammonium hydroxide, inner salt.	DUP.
(Carboxymethyl)dodecyldimethylammonium hydroxide, inner salt.	TCC.
(1-Carboxyundecyl)trimethylammonium hydroxide, inner salt.	DUP.
N-(Coconut oil alkyl)- $\beta$ -alanine, sodium salt-----	GNM.
3-[(Coconut oil alkyl)amino]butyric acid sodium salt-----	ARC.
N-(2-Coconut oil amidoethyl)-N-(2-hydroxyethyl)glycine, sodium salt.	TCC.
N-Dodecyl-3-iminodipropionic acid-----	GNM.
N-Dodecyl-3-iminodipropionic acid, disodium salt-----	GNM.
N-(2-Hydroxyethyl)-N-(2-stearamidoethyl)glycine, sodium salt.	GAF.
Mixed acyclic primary amines, ethoxylated and sulfated, sodium salt.	RH.
(Mixed alkyl)sulfobetaine-----	DUP, TXT.
Mixed fatty betaines-----	TXT.
Oleic acid - ethylenediamine condensate, propoxylated and sulfated, sodium salt.	S.
Polypeptide, ammonium salt-----	MYW.
Polypeptide, sodium salt-----	MYW.
N-(Tallow alkyl)-3-iminodipropionic acid, disodium salt--	GNM.
All other acyclic-----	VAC.
Cyclic:	
1,1-Bis(carboxymethyl)-2-undecyl-2-imidazolinium hydroxide, disodium salt.	MIR.
1-Carboxymethyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-nonyl-2-imidazolinium chloride, sodium salt.	PCS, UVC.
1-Carboxymethyl-1-(2-Hydroxyethyl)-2-nonyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium derivative, sodium salt.	MIR, PCS.
1-Carboxymethyl-1-(2-hydroxyethyl)-2-undecyl-2-imidazolinium hydroxide, sodium salt.	UVC.
Heptadecylmethylbenzimidazolinium sulfonic acid, sodium salt.	CIB.
3-[2-(2-Mixed alkyl-2-imidazolin-1-yl)ethoxy] propionic acid salt.	MOA.
3-[2-(2-Undecyl-2-imidazolin-1-yl)ethoxy] propanesulfonic acid, sodium salt.	UVC.
3-[2-(2-Undecyl-2-imidazolin-1-yl)ethoxy] propionic acid, sodium salt.	UVC.
<i>Anionic Surface-Active Agents</i>	
*Carboxylic acids (and salts thereof):	
*Amine salts of fatty, rosin, and tall oil acids: Coconut oil acids, diethanolamine salt -----	SEY.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
*Carboxylic acids (and salts thereof)--Continued	
*Amine salts of fatty, rosin, and tall oil acids--Continued	
Coconut oil acids, ethanolamine salt-----	SBP.
Coconut oil acids, triethanolamine salt-----	EMR, SCP.
Oleic acid, butylamine salt-----	DYS.
Oleic acid, triethanolamine salt-----	DOM, HAL.
Stearic acid, morpholine salt-----	CSB.
Stearic acid, N,N,N',N'-tetrakis(2-hydroxyethyl)- ethylenediamine salt.	ICI.
Stearic acid, triethanolamine salt-----	GLY.
Tall oil acids, diethanolamine salt-----	SEY.
Tallow acids, ethanolamine salt-----	SBP.
Tallow acids, triethanolamine salt-----	SBP.
*Carboxylic acids having amide, ester, or ether linkages:	
Butoxyethoxypropionic acid-----	UVC.
N-(Coconut oil acyl)polypeptide, ammonium salt-----	MYW.
N-(Coconut oil acyl)polypeptide, potassium salt-----	MYW.
N-(Coconut oil acyl)polypeptide, sodium salt-----	MYW.
N-(Coconut oil acyl)sarcosine-----	GGY.
N-(Coconut oil acyl)sarcosine, sodium salt-----	HMP.
Diisobutylene-maleic anhydride copolymer, ammonium and sodium salts.	RH.
*N-Lauroylsarcosine, sodium salt-----	CP, GGY, HMP, ONX.
N-(Mixed alkylsulfonyl)glycine, sodium salt-----	GAF.
Mixed linear alcohols, ethoxylated and carboxyalkylated, sodium salt.	SEY.
N-Oleoylpolypeptide, sodium salt-----	LMI, MYW.
N-Oleoylsarcosine, sodium salt-----	GAF, GGY.
Phthalic acid, octadecyl ester, potassium salt-----	CIB.
Stearolactolactic acid-----	GLY.
Stearolactolactic acid, calcium salt-----	GLY.
Stearolactolactic acid, sodium salt-----	GLY.
N-Stearoylsarcosine, sodium salt-----	GGY.
Tridecylpoly(ethyleneoxy)acetic acid, sodium salt---	UVC.
N-(Undecenylpolypeptide), potassium salt-----	MYW.
Unspecified sarcosine derivatives-----	HMP.
*Potassium and sodium salts of fatty, rosin, and tall oil acids:	
Castor oil acids, potassium salt-----	ARL, BAC, SEA.
Castor oil acids, sodium salt-----	HEW, MRV.
Cocoa butter acids, sodium salt-----	HSY.
*Coconut oil acids, potassium and sodium salts:	
Potassium salt-----	ACE, AES, CSB, DYS, GAF, GRC, GRL, HEW, HNT, JRG, LUR, MCP, NMC, PCH, PG, SWT.
Sodium salt-----	AGP, CON, CP, GRC, HEW, JRG, LEV, NPR, PG, PRX.
*Corn oil acids, potassium salt-----	
GRC, HNT, NMC.	
*Corn oil acids, sodium salt-----	
GRC, LUR, NMC.	
Lauric acid, potassium salt-----	DA, DRW, VAL.
*Mixed vegetable fatty acids, potassium salt-----	
AES, AML, DYS, GRC, GRL, PCH, SWT.	
Myristic acid, potassium salt-----	AES.
*Oleic acid, potassium salt-----	
AES, AML, ARL, BSW, CCL, CPY, DA, DAN, GAF, GYR, HNT, QCP, S, SCP, SHP, USR, WBG.	
*Oleic acid, sodium salt-----	
BSW, DA, GYR, LAK, LEV, LUR, MRV, NMC, SEA, SNW, SWT, WBG, WTC.	
Olive oil acids, sodium salt-----	HEW, HNT, LUR.
Palm kernel oil acids, sodium salt-----	HEW.
Palm oil acids, sodium salt-----	HEW, LUR.
Peanut oil acids, potassium salt-----	KAL, SLC.
Rosin acids, potassium salt-----	ASY, GYR, USR, x.
Rosin acids, sodium salt-----	ASY, CRT, MRA, PLC, PRX, QCP, x.
Soybean oil acids, potassium salt-----	CON, DYS, HEW.
Soybean oil acids, sodium salt-----	HEW.
*Stearic acid, potassium and sodium salts:	
Potassium salt-----	GYR, HEW, VAL.
Sodium salt-----	DA, HEW, LEV, MAL, WTC.
*Tall oil acids, potassium and sodium salts:	
*Potassium salt-----	
ACE, AES, CON, CSB, DRW, DSO, DYS, EFH, GAF, GRC, GYR, HNT, LUR, NMC, PNK, QCP, SOP, VAL, x.	
*Sodium salt-----	
CPY, GRC, GYR, MRV, PRX, SOP, UNP, x.	

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
*Carboxylic acids (and salts thereof)--Continued	
*Potassium and sodium salts of fatty, rosin, and tall oil acids--Continued	
*Tallow acids, potassium salt-----	ASY, CPY, NMC, PG, SWT.
*Tallow acids, sodium salt-----	AGP, ASY, BSW, CON, CP, DA, DYS, GRC, GYR, HEW, JRG, LEV, LUR, NMC, NPR, PG, PLC, PRX, QCP, SCP, SWT. NMC.
All other-----	
*Phosphoric and polyphosphoric acid esters (and salts thereof):	
*Alcohols and phenols, ethoxylated and phosphated:	
Butyl alcohol, ethoxylated and phosphated-----	GAF.
p-tert-Butylphenol, ethoxylated and phosphated-----	RTF.
Dinonylphenol, ethoxylated and phosphated-----	GAF.
Dodecyl alcohol, ethoxylated and phosphated-----	GAF, WIC.
Dodecyl alcohol, ethoxylated and phosphated, barium salt.	GAF.
2-Ethylhexanol, ethoxylated and phosphated-----	WAY.
*Mixed linear alcohols, ethoxylated and phosphated-----	CHP, CRT, CST, GAF, SEY, WAY.
*Nonylphenol, ethoxylated and phosphated-----	GAF, HDG, NLC, RTF, SCP, TCC, TXT, VAC, WAY.
9-Octadecenyl alcohol, ethoxylated and phosphated-----	GAF.
Octylphenol, ethoxylated and phosphated-----	RH.
Octylphenol, ethoxylated and phosphated, magnesium salt.	x.
Phenol, ethoxylated and phosphated-----	ARC, GAF.
Polyhydric alcohol, ethoxylated and phosphated-----	NLC.
*Tridecyl alcohol, ethoxylated and phosphated-----	ARC, GAF, LUR, NLC, TCC, WAY.
All other-----	GAF.
*Alcohols, phosphated or polyphosphated:	
Decyl, dodecyl, and octyl phosphate, morpholine salt--	DUP.
Decyl polyphosphate, triethanolamine salt-----	RCD.
2-Ethylhexyl phosphate-----	WAY.
*2-Ethylhexyl phosphate, sodium salt-----	SEY, TCI, UCC, UVC.
2-Ethylhexyl polyphosphate-----	TCC, TCI, UVC.
Hexyl polyphosphate, potassium salt-----	DEX.
Mixed alkyl phosphate-----	CST, DUP, GAF, SFA, TCC.
Mixed alkyl phosphate, diethanolamine salt-----	DUP.
9-Octadecenyl phosphate-----	DUP.
Octadecyl phosphate, triethanolamine salt-----	RCD.
*Octyl phosphates:	
Octyl phosphate-----	DUP.
Octyl phosphate, alkylamine salt-----	DUP, TXT.
Octyl phosphate, potassium salt-----	DUP.
Octyl polyphosphate-----	DEX, TXT.
Octyl polyphosphate, potassium salt-----	x.
Octyl polyphosphate, sodium salt-----	SFA.
All other-----	NLC.
*Sulfonic acids (and salts thereof):	
*Alkylbenzenesulfonates:	
*Dodecylbenzenesulfonates:	
*Dodecylbenzenesulfonic acid-----	ACS, ARD, CO, CRT, CTL, EMK, HLI, LAK, LEV, MON, PIL, RCD, RTF, STP, TCI, TDC, TEN, TXT, WTC.
Dodecylbenzenesulfonic acid, ammonium salt-----	AKS, ARL, PLX.
Dodecylbenzenesulfonic acid, butylamine salt-----	SOP, WTC.
*Dodecylbenzenesulfonic acid, calcium salt-----	APD, NLC, RCD, RH, RTF, STP, WTC, x.
Dodecylbenzenesulfonic acid, diethanolamine salt--	VAL.
Dodecylbenzenesulfonic acid, ethylenediamine salt--	APD, RTF.
*Dodecylbenzenesulfonic acid, isopropanolamine salt--	CTL, RCD, x.
*Dodecylbenzenesulfonic acid, isopropylamine salt--	APD, ARD, CTL, RCD, RTF, SNW, STP.
Dodecylbenzenesulfonic acid, (mixed alkyl) amine salt.	VAL, WTC.
Dodecylbenzenesulfonic acid, potassium salt-----	RCD, SOP, VAL.
*Dodecylbenzenesulfonic acid, sodium salt-----	AAC, ACS, AKS, APX, ARD, ARL, ATR, BLA, CO, CP, CRT, CTL, DA, DEP, DSO, EFH, HLI, HRT, LEV, MON, PEK, PG, PIL, PLX, PRX, RCD, RTF, STP, TEN, TXT, UNP, VAC, WTC.
Dodecylbenzenesulfonic acid, strontium salt-----	RTF.
*Dodecylbenzenesulfonic acid, triethanolamine salt--	ACC, ACS, AML, ARD, ARL, ATR, CRT, CTL, DSO, DYS, HLI, PCS, PIL, RCD, RTF, SOS, STP, VAC.

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfonic acids (and salts thereof)--Continued	
*Alkylbenzenesulfonates--Continued	
*Other alkylbenzenesulfonates:	
Decylbenzenesulfonic acid, sodium salt-----	MON.
Dodecylbenzenesulfonic acid-----	CO.
Didodecylbenzenesulfonic acid, sodium salt-----	CO.
(Mixed higher alkyl)benzenesulfonic acid-----	TXT.
(Mixed higher alkyl)benzenesulfonic acid, ammonium salt.	RTF.
Pentadecylbenzenesulfonic acid, potassium salt-----	STP.
Pentylbenzenesulfonic acid, sodium salt-----	MON.
*Tridecylbenzenesulfonic acid-----	KON, NPR, RCD, TXT.
Tridecylbenzenesulfonic acid, sodium salt-----	BLA, CP, NPR, RCD, WTC.
Tridecylbenzenesulfonic acid, triethanolamine salt--	PCS.
Undecylbenzenesulfonic acid-----	TXT.
Undecylbenzenesulfonic acid, ammonium salt-----	TXT.
Undecylbenzenesulfonic acid, sodium salt-----	TXT.
Undecylbenzenesulfonic acid, triethanolamine salt--	TXT.
All other-----	USR.
*Benzene-, cumene-, toluene-, and xylenesulfonates:	
Benzenesulfonic acid, sodium salt-----	NES.
Cumenesulfonic acid, ammonium salt-----	STP.
2,4-Dinitrobenzenesulfonic acid, sodium salt-----	NES.
Toluenesulfonic acid-----	NES, RCD.
Toluenesulfonic acid, potassium salt-----	NES, RCD, STP, TXN.
Toluenesulfonic acid, sodium salt-----	CO, NES, PIL, STP, WTC.
Toluene- and xylenesulfonic acids, sodium salt-----	CO.
*Xylenesulfonic acid, ammonium salt-----	ATR, CO, HLI, NEX, RCD, STP, WTC.
Xylenesulfonic acid, potassium salt-----	NES, STP,
*Xylenesulfonic acid, sodium salt-----	ATR, CO, HLI, JRG, NES, PIL, RCD, STP, TXN, WTC.
*Ligninsulfonates:	
Ligninsulfonic acid, aluminum salt-----	MAR.
Ligninsulfonic acid, ammonium salt-----	CPP, CRZ.
*Ligninsulfonic acid, calcium salt-----	CRZ, CWP, GLY, LKY, LPC, MAR, PSP.
*Ligninsulfonic acid, chromium salt-----	DCP, MAR, RAY.
Ligninsulfonic acid, iron salt-----	CRZ, WVA.
Ligninsulfonic acid, magnesium salt-----	LPC, MAR.
Ligninsulfonic acid, mixed salts-----	PSP.
*Ligninsulfonic acid, sodium salt-----	CRZ, CWP, MAR, RAY, SNC, WVA.
*Naphthalenesulfonates:	
*Butylnaphthalenesulfonic acid, sodium salt-----	CLD, CMG, GGY, PFZ.
Dibutylnaphthalenesulfonic acid-----	GAF, S.
Didodecylnaphthalenesulfonic acid, sodium salt-----	PFZ.
*Diisopropylnaphthalenesulfonic acid and sodium salt:	
Diisopropylnaphthalenesulfonic acid-----	DUP, GAF.
Diisopropylnaphthalenesulfonic acid, sodium salt----	ACS, GAF, PFZ.
Dipentyl-naphthalenesulfonic acid, ammonium salt-----	NLC.
Dipentyl-naphthalenesulfonic acid, (mixed alkyl)amine salt.	NLC.
Dipentyl-naphthalenesulfonic acid, sodium salt-----	GGY.
Isopropylnaphthalenesulfonic acid-----	DA, DUP, GRD, ONX.
Isopropylnaphthalenesulfonic acid, ammonium salt-----	NLC.
Methylenebis(2-naphthalenesulfonic acid)-----	DUP.
6,6'-Methylenebis(2-naphthalenesulfonic acid), calcium salt.	DUP.
Methylnaphthalenesulfonic acid, sodium salt-----	UDI.
Methylnonylnaphthalenesulfonic acid, sodium salt-----	UDI.
Tetrahydronaphthalenesulfonic acid-----	DUP.
*Sulfonic acids having amide linkages:	
N-(Coconut oil acyl)-N-methyltaurine, sodium salt----	GAF, MCP, TNI.
N-Cyclohexyl-N-palmitoyltaurine, sodium salt-----	GAF.
*N-Methyl-N-oleoyltaurine, sodium salt-----	CRT, DA, DEP, DRW, GAF, HRT, MRA, PCI.
N-Methyl-N-palmitoyltaurine, sodium salt-----	GAF.
N-Methyl-N-(tallow oil acyl)taurine, sodium salt-----	GAF, WTC.
N-Methyl-N-(tallow acyl)taurine, sodium salt-----	GAF.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
*Sulfonic acids (and salts thereof)--Continued	
*Sulfonic acids having amide linkages:	
*Sulfosuccinamic acid derivatives:	
N-(1,2-Dicarboxyethyl)-N-octadecylsulfosuccinamic acid, tetrasodium salt.	ACY.
N-(2-Hydroxyethyl)-N-(tallow alkyl)sulfosuccinamic acid, disodium salt.	SCP.
N-Octadecylsulfosuccinamic acid, disodium salt-----	ACY, CTA.
N-(Oleoyloxyisopropyl)sulfosuccinamic acid, disodium salt.	WTC.
Sulfosuccinic acid, alkanolamide ester, sodium salt---	HDG.
Sulfosuccinic acid, 2-(Coconut oil amido)ethyl ester, disodium salt.	LAK.
*Sulfosuccinic acid esters:	
Sulfosuccinic acid, bis(2,6-dimethyl-4-heptyl) ester, sodium salt.	GAF, SCP.
*Sulfosuccinic acid, bis(2-ethylhexyl) ester, sodium salt.	ACY, AKS, CRT, CST, DAN, EFH, EMK, GGY, HDG, HRT, ICI, MCP, MOA, PC, SBC, SCP, TCI.
Sulfosuccinic acid, bis(tallow monoglyceride) ester, sodium salt.	ACY.
Sulfosuccinic acid, dihexyl ester, sodium salt-----	ACY, MCP, MOA, SNW.
Sulfosuccinic acid, dioctyl ester, sodium salt-----	RH.
Sulfosuccinic acid, dipentyl ester, sodium salt-----	ACY.
Sulfosuccinic acid, ditridecyl ester, sodium salt-----	ACY, MOA.
*All other sulfonic acids:	
Butylhydroxybiphenylsulfonic acid-----	RBC.
Coconut oil acids, 2-sulfoethyl ester, sodium salt---	GAF, LEV.
Dodecyldiphenyloxidedisulfonic acid, disodium salt---	DOW.
Dodecyl sulfoacetate-----	ACS.
2-Lauroyloxy-1-propanesulfonic acid-----	CUC, SDH.
Methyl 2-sulfostearate-----	ARC.
Mixed alkanesulfonic acid, sodium salt-----	DUP, VPC.
Octylphenol, ethoxylated and sulfonated, sodium salt---	CRT, RH.
Petroleum sulfonic acid, water soluble (acid layer), sodium salt.	SIN, VAL, WTC.
All other-----	STC.
Sulfuric acid esters (and salts thereof):	
*Acids, amides, and esters, sulfated:	
*Coconut oil acids - ethanolamine condensate, sulfated, potassium salt.	DEX, EMK, ONX.
*Esters of sulfated oleic acid:	
2-Butoxyethyl oleate, sulfated, sodium salt-----	S.
*Butyl oleate, sulfated, sodium salt-----	AKS, CHP, DA, ICI, MCP, ONX, PC.
Ethyl oleate, sulfated, sodium salt-----	GAF.
Glycerol trioleate, sulfated, sodium salt-----	LEA, MRV, SCP.
*Isopropyl oleate, sulfated, sodium salt-----	BRY, CRT, DEX, HRT, ICI, LEA, LUR, SCP.
Methyl oleate, sulfated, sodium salt-----	DA, ICI.
*Propyl oleate, sulfated, sodium salt-----	ACY, CHP, EFH, GAF, MCP, MRV.
*Oleic acid, sulfated, disodium salt-----	ACT, ACY, CHP, CRT, DA, DRW, GAF, ICI, LEA, MRV, PCI, SCO, SCP, TEN, WHI, WHW.
*Tall oil, sulfated, sodium salt-----	ACY, APX, BAO, DA, ICI, MRV, RTF, SEA, WHI.
*Other acids, amides, and esters, sulfated:	
Butyl ricinoleate, sulfated, disodium salt-----	DA.
Coconut oil acids - isopropanolamine condensate, sulfated, sodium salt.	APX.
Glycerol monoester of coconut oil acids, sulfated, sodium salt.	AAC, CP.
Neat's-foot oil acids - ethanolamine condensate, sulfated, ammonium salt.	APX.
9-Octadecenyl acetate, sulfated, sodium salt-----	DUP.
Oleic acid - ethanolamine condensate, sulfated, sodium salt.	SCP.
Oleostearin, sulfated, sodium salt-----	SEA.
Propyl ricinoleate, sulfated, disodium salt-----	AKS.
Ricinoleic acid, sulfated, disodium salt-----	DA.
All other-----	EMR.
*Alcohols and phenols, sulfated:	
*Coconut and sperm oil alkyl sulfate, sodium salt-----	DEP, DUP, SCP.



TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
Sulfuric acid esters (and salts thereof)--Continued	
*Alcohols and phenols, sulfated--Continued	
*Dodecyl sulfate salts:	
2-Amino-2-methylpropanol salt-----	DUP.
*Ammonium salt-----	AAC, CTL, CUL, DUP, ONX, PCS, SCP, STP.
Diethanolamine salt-----	CUL, DUP, HLI, JRG, SCP, STP, WTC.
N,N-Diethylcyclohexylamine salt-----	DUP.
Isopropanolamine salt-----	JRG, PCS.
*Magnesium salt-----	AAC, HLI, SCP, STP.
Potassium salt-----	HLI, PG.
*Sodium salt-----	AAC, CTL, CUL, DUP, HLI, JRG, ONX, PCS, PG, RCD, STP.
*Triethanolamine salt-----	AAC, CTL, CUL, DUP, HLI, ONX, PCS, PG, RCD, SCP, STP, TXT.
*Hexadecyl sulfate, sodium salt-----	AAC, DUP, SCP.
*Mixed linear alcohol sulfate salts:	
Ammonium salt-----	LAK, S, TXT.
Polyamine salt-----	NLC.
Sodium salt-----	LAK, SCP, TXT.
*Octadecyl sulfate salts:	
Sodium salt-----	DUP, EMK, ONX, PG.
Triethanolamine salt-----	DUP.
*Other alcohols and phenols, sulfated:	
Linear alcohols, sulfated:	
Decyl and octyl sulfate, sodium salt-----	PCS.
Decyl sulfate, sodium salt-----	CTL, DUP, ONX, PCS.
Decyl sulfate, triethanolamine salt-----	DUP.
Hexadecyl and 9-octadecenyl sulfate, sodium salt---	RCD.
Hexyl sulfate, potassium salt-----	DEX.
Hexyl sulfate, sodium salt-----	GAF.
Nonyl sulfate, sodium salt-----	TEN.
Octyl sulfate, sodium salt-----	AAC, DUP.
Phenols and nonlinear alcohols, sulfated:	
Branched hexadecyl sulfate, sodium salt-----	APX.
3-9-Diethyl-6-tridecyl sulfate, sodium salt-----	UCC.
2-Ethylhexyl sulfate, sodium salt-----	AAC, SCP, UCC, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate, sodium salt----	UCC.
Trichlorophenol sulfate, ethanolamine salt-----	GAF.
Tridecyl sulfate, sodium salt-----	ACC, DUP, SCP.
*Ethers, sulfated:	
*Alkylphenols, ethoxylated and sulfated:	
Dodecylphenol, ethoxylated and sulfated, ammonium salt.	GAF.
(Mixed alkyl)phenol, ethoxylated and sulfated, ammonium salt.	GAF.
Nonylphenol, ethoxylated and sulfated, ammonium salt.	CIB, GAF, STP, TXT.
Nonylphenol, ethoxylated and sulfated, sodium salt---	CRT, GAF.
Nonylphenol, ethoxylated and sulfated, triethanolamine salt.	ARL.
Octylphenol, ethoxylated and sulfated, sodium salt---	RH.
*Dodecyl alcohol, ethoxylated and sulfated, ammonium salt.	AAC, CTL, HLI, ONX, PG, SCP.
*Dodecyl alcohol, ethoxylated and sulfated, sodium salt-	AAC, CTL, CUL, DUP, ONX, PCS, RCD, SCP, STP, TCI.
*Mixed linear alcohols, ethoxylated and sulfated, sodium salt.	CRT, GAF, LAK, NLC, RCD, RTF, SCP, TCI, TXT, UCC.
*Tridecyl alcohol, ethoxylated and sulfated, sodium salt.	AAC, ARL, ONX, RCD.
*Other sulfated ethers:	
Dodecyl and tetradecyl alcohols, ethoxylated and sulfated, ammonium salt.	LEV.
Hexyloxypropyl sulfated, sodium salt-----	S.
Mixed linear alcohols, ethoxylated and sulfated, ammonium salt.	CO, GAF, LAK, NLC, RCD, SCP, SHC, STP, TXT, UCC.
Mixed linear alcohols, ethoxylated and sulfated, potassium salt.	CO, SHC, STP, TXT.
Sperm oil alcohol, ethoxylated and sulfated, sodium salt.	DUP.
All other-----	APX, PG.

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Anionic Surface-Active Agents--Continued</i>	
Sulfuric acid esters (and salts thereof)--Continued	
*Natural fats and oils, sulfated:	
*Animal (including fish) oils, sulfated:	
*Cod oil, sulfated, sodium salt-----	ACT, BAO, CRT, DRW, MRD, S, SEA, WAW, WHI, WHW.
Grease, other than wool, sulfated, sodium salt-----	DA, SEA, WHI, WHW.
Herring oil, sulfated, sodium salt-----	WHI.
Lard, sulfated, sodium salt-----	WAW.
Mixed fish oils, sulfated, sodium salt-----	AML, SCO, WHI.
*Neat's-foot oil, sulfated, sodium salt-----	ACT, BAO, CRT, DA, KAL, LUR, MRD, PC, SEA, WHW.
*Sperm oil, sulfated, sodium salt-----	ACT, AKS, BAO, CLD, CRT, DA, DRW, HRT, KAL, KNG, LEA, MRD, ONX, RTC, S, SEA, WHI, WHW.
*Tallow, sulfated, sodium salt-----	ACT, ACY, AKS, BRY, BSW, DA, DRW, EFH, ICI, KAL, LEA, LUR, MCP, MRA, MRD, ONX, PC, PCI, SCP, SEY, SID, SNW, SOS, WHI.
Whale oil, sulfated, sodium salt-----	KNG.
*Vegetable oils, sulfated:	
*Castor oil, sulfated, sodium salt-----	AAE, ACT, ACY, AKS, AML, APX, BAO, BRY, BSW, CRT, DA, DEX, DRW, GAF, HRT, ICI, KAL, KNG, LEA, LUR, MCP, MRA, MRD, MRV, ONX, PC, S, SCO, SCP, SEA, SLC, WHI, WHW.
*Coconut oil, sulfated, sodium salt-----	ACY, BAO, DA, KNG, MRD, SEA, WHW.
Cottonseed oil, sulfated, sodium salt-----	DA, RTC.
Mustard seed oil, sulfated, sodium salt-----	DA, LUR.
Peanut oil, sulfated, sodium salt-----	ACY, DA, ICI, LEA, LUR, SCP, SLC.
*Ricebran oil, sulfated, sodium salt-----	DA, EFH, KNG, LUR.
*Soybean oil, sulfated, sodium salt-----	CRT, DA, DRW, HRT, KAL, LEA, MRD, ONX.
Other anionic surface-active agents:	
Lignin (non-sulfonated) and salts thereof-----	WVA.
Mixed linear alcohols, ethoxylated and carbonated, sodium salt.	S.
Tridecyl alcohol, ethoxylated and carbonated sodium salt.	S.
<i>Cationic Surface-Active Agents</i>	
*Amine oxides and oxygen-containing amines (except those having amide linkages):	
*Acyclic:	
N,N-Bis(2-hydroxyethyl)(coconut oil alkyl)amine oxide-	ARC.
N,N-Bis(2-hydroxyethyl)dodecylamine-----	CTL, FIN.
N,N-Bis(2-hydroxyethyl)octadecylamine-----	ARC, FIN.
N,N-Bis(2-hydroxyethyl)octadecylamine oxide-----	ARC.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine-----	ARC.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine acetate----	PG.
N,N-Bis(2-hydroxyethyl)(tallow alkyl)amine oxide-----	ARC.
*(Coconut oil alkyl)amine, ethoxylated-----	AAC, APD, ARC, NLC, SDW, SNW, TCH, VAC.
(Coconut oil alkyl)amine, ethoxylated, acetate-----	RPC.
(Coconut oil alkyl)amine, ethoxylated, maleate-----	SDH.
(Coconut oil alkyl)amine, propoxylated-----	ARC.
5,8-Diethyl-7-hydroxydodecane-6-one oxime-----	GNM.
N,N-Dimethyl(coconut oil alkyl)amine oxide-----	ARC.
N,N-Dimethylhexadecylamine oxide-----	ARC, ONX.
(Hydrogenated tallow alkyl)amine, ethoxylated-----	CIB, TCH.
N-(2-Hydroxyethyl)-N,N',N'-tris(2-hydroxypropyl) ethylenediamine.	NLC.
*(Mixed alkyl)amine, ethoxylated-----	APD, CIB, DA, GAF, RH.
Mixed substituted oximes-----	GNM.
(9-Octadecenyl)amine, ethoxylated-----	ARC.
Octadecylamine, ethoxylated-----	ARC, ICI, TCH.
Polyethylenepolyamine, alkoxyated-----	NLC.
*(Soybean oil alkyl)amine, ethoxylated-----	AAC, ARC, HDG, RTF, VAC.
*(Tallow alkyl)amine, ethoxylated-----	AAC, ARC, ASH, CIB, DUP.
N-(Tallow alkyl)trimethylenediamine, ethoxylated-----	ARC, RTF.
N,N,N',N'-Tetrakis(2-hydroxyethyl)ethylenediamine----	NLC.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine, propoxylated and ethoxylated.	WYN.
All other-----	GAF, x.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amine oxides and oxygen-containing amines (except those having amide linkages)--Continued	
*Imidazoline and oxazoline derivatives:	
2-(8-Heptadecenyl)-4,4-bis(hydroxymethyl)-2-oxazoline.	COM, SWT, UVC.
*2-(8-Heptadecenyl)-1-(2-hydroxyethyl)-2-imidazoline--- 2-(8-Heptadecenyl)-4-hydroxymethyl-4-methyl-2-oxazoline.	NLC, ONX, UVC, VAC. COM, UVC.
*2-(Heptadecyl)-1-(2-hydroxyethyl)-2-imadazoline----- 1-(2-Hydroxyethyl)-2-nonyl-2-imidazoline----- 1-(2-Hydroxyethyl)-2-nor(coconut oil alkyl)-2-imidazoline.	GGY, MOA, PCS, UVC. UVC. GGY, UVC.
1-(2-Hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazoline.	CUL, NLC, UVC, VAC, x.
1-(2-Hydroxyethyl)-2-tridecyl-2-imidazoline hydrochloride.	UVC, WTC.
1-(2-Hydroxyethyl)-2-undecyl-2-imidazoline----- 2-(11-Hydroxy-8-heptadecenyl)-2-imidazoline-----	MOA, UVC. UVC.
*Cyclic products (except imidazoline and oxazoline derivatives):	
N-(Coconut oil alkyl)morpholine oxide-----	ARC.
N-Hexadecylmorpholine-----	APD.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine-----	APX, HDG.
Lignin amine-----	WVA.
Piperazine, ethoxylated-----	GAF.
*Rosin amine, ethoxylated-----	HPC, NLC, PCS, RTF.
N-(Soybean oil alkyl)morpholine-----	APD.
*Amines and amine oxides having amide linkages:	
*Carboxylic acid - diamine and polyamine condensates:	
Caprylic acid - tetraethylenepentamine condensate----	ICI.
*Coconut oil acids - diethylenetriamine condensate-----	APX, DA, TXT.
*Coconut oil acids - N,N-dimethyltrimethylenediamine condensate.	JRG, PCS, RCD, TXT.
Mixed fatty acids - polyalkylenepolyamine condensate--	GRD, NLC.
Oleic acid - 1-(2-aminoethyl)piperazine condensate----	TXT.
Oleic acid - diethylenetriamine condensate-----	APD, PCS, TXT.
Oleic acid - N,N-dimethyltrimethylenediamine condensate.	CCW, CIB, SNW.
Pelargonic acid - tetraethylenepentamine condensate---	ICI.
*Stearic acid - diethylenetriamine condensate-----	APX, CST, HRT, ONX, PCS, S.
Stearic acid - N,N-diethylethylenediamine condensate--	CEP.
Stearic acid - dipropylenetriamine condensate-----	JOR.
Stearic acid - tetraethylenepentamine condensate-----	ICI, ONX.
Tall oil acids - diethylenetriamine condensate-----	NCW, NLC, RTF.
Tall oil acids - polyalkylenepolyamine condensate----	UVC.
All other-----	TXT, VND.
*Stearic acid - ethylenediamine condensate, monoethoxylated.	AML, CLD, CMG, CST, DA, DEP, DEX, ICI, MRA, S, SNW.
*Other amines and amine oxides having amide linkages: N,N-Bis(2-hydroxyethyl)-2-(stearamidomethoxy)ethylamine.	CIB.
Coconut oil acids - diethylenetriamine condensate, polyethoxylated.	TCC.
Coconut oil acids - ethylenediamine condensate, monoethoxylated.	ARL, DA.
3-Lauramido-N,N-dimethylpropylamine oxide-----	SNW.
Oleic acid - ethylenediamine condensate, monoethoxylated.	CLD, DA, DEX, SOC, TNA.
Palm oil acids - ethylenediamine condensate, monoethoxylated.	APX.
Polypeptide, ethyl ester-----	MYW.
Stearic acid - N-(2-cyanoethyl)diethylenetriamine condensate (amine/acid ratio=1/2).	CIB.
Stearic acid - diethylenetriamine condensate, polyethoxylated.	TCC.
Stearic acid - ethylenediamine condensate; polyethoxylated.	APD.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amines, not containing oxygen (and salts thereof):	
*Amine salts:	
(Coconut oil alkyl)amine acetate-----	ARC, ASH, FOR.
N-(Coconut oil alkyl)trimethylenediamine acetate-----	ARC.
N-(Coconut oil alkyl)trimethylenediamine adipate-----	ARC.
N-(Coconut oil alkyl)trimethylenediamine dicaprylate--	ARC.
(Hydrogenated tallow alkyl)amine acetate-----	ARC, ASH, FOR.
(9-Octadecenyl)amine acetate-----	ARC, GNM.
Octadecylamine acetate-----	ACY, ARC.
Octylamine acetate-----	ARC.
(Soybean oil alkyl)amine acetate-----	ARC, ENO.
(Tallow alkyl)amine acetate-----	ARC, ASH, FOR.
N-(Tallow alkyl)trimethylenediamine acetate-----	ARC, FOR.
N-(Tallow alkyl)trimethylenediamine naphthenate-----	APD, ARC, FOR.
N-(Tallow alkyl)trimethylenediamine oleate-----	ARC, FOR.
N-(Tallow alkyl)trimethylenediamine tallate-----	ARC.
All other-----	ASH.
*Diamines and polyamines:	
1-(2-Aminoethyl)-2-(mixed alkyl)-2-imidazoline-----	RTF.
1-[3-(2-aminoethyl)naphth-1-yl]-2-(8-heptadecenyl)-	NLC.
2-imidazoline.	
1-(2-Aminoethyl)-2-nor(tall oil alkyl)-2-imidazoline--	NLC, PCS, RTF, UVC.
*N-(Coconut oil alkyl)trimethylenediamine-----	ARC, ENO, FOR, GNM.
N-(Docosyl and eicosyl)trimethylenediamine-----	ENO.
N-Dodecyl diethylenetriamine-----	FIN.
2-Heptadecyl-2-imidazoline-----	SCO.
N-(Mixed alkyl)polyethylenepolyamine-----	CCW.
*N-(9-Octadecenyl)trimethylenediamine-----	ARC, FOR, GNM.
N-(Soybean oil alkyl)trimethylenediamine-----	ARC, ENO.
N-(Tall oil alkyl)trimethylenediamine-----	ARC.
N-(Tallow alkyl)dipropylenetriamine-----	GNM.
*N-(Tallow alkyl)trimethylenediamine-----	ARC, ENO, FOR, GNM.
*Primary monoamines:	
*(Coconut oil alkyl)amine-----	ARC, ASH, ENO, FOR, GNM.
(Cottonseed oil alkyl)amine-----	FOR.
Docosyl- and eicosylamine-----	ENO.
Dodecylamine-----	ARC, ASH, ENO, FOR, GNM.
Hexadecylamine-----	ARC, ASH, ENO, FOR.
*(Hydrogenated tallow alkyl)amine-----	ARC, ASH, ENO, FOR, GNM.
(Mixed alkyl)amine-----	ARC, GNM.
(Mixed tert-alkyl)amine-----	RH.
*9-Octadecenylamine-----	ARC, ENO, FOR, GNM.
*Octadecylamine-----	ARC, ENO, FOR, GNM.
Octylamine-----	ARC.
tert-Octylamine-----	RH.
(Soybean oil alkyl)amine-----	ARC, ENO.
*(Tall oil alkyl)amine-----	ARC, FOR, GNM.
*(Tallow alkyl)amine-----	ARC, ASH, ENO, FOR, GNM.
Tetradecylamine-----	GNM.
*Secondary and tertiary monoamines:	
Bis(coconut oil alkyl)amine-----	ARC, FOR.
Bis(hydrogenated tallow alkyl)amine-----	ARC, FOR, GNM.
*N,N-Dimethyl(coconut oil alkyl)amine-----	ARC, BRD, ENO, PG.
N,N-Dimethyldodecylamine-----	ARC, BRD, ENO.
N,N-Dimethylhexadecylamine-----	ARC, BRD.
N,N-Dimethyl(hydrogenated tallow alkyl)amine-----	ARC.
N,N-Dimethyl(mixed alkyl)amine-----	BRD, RH.
N,N-Dimethyl(9-octadecenyl)amine-----	ARC.
*N,N-Dimethyloctadecylamine-----	ARC, BRD, ENO, PG.
N,N-Dimethyl(soybean oil alkyl)amine-----	ARC.
N,N-Dimethyltetradecylamine-----	ARC, BRD, ENO.
N-Methylbis(coconut oil alkyl)amine-----	ARC, FOR, GNM.
*N-Methylbis(hydrogenated tallow alkyl)amine-----	ARC, ENO, FOR, GNM.
N-Methylbis(mixed alkyl)amine-----	PG.
N-Methyldioctadecylamine-----	FOR.
Tridodecylamine-----	GNM.

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Cationic Surface-Active Agents--Continued</i>	
*Amines, not containing oxygen (and salts thereof)-- Continued	
*Secondary and tertiary monoamines--Continued	
Trioctylamine-----	GNM.
Tris(hydrogenated tallow alkyl)amine-----	GNM.
*Oxygen-containing quaternary ammonium salts (except those having amide linkages):	
*Acyclic:	
(2-Aminoethyl)ethyl(hydrogenated tallow alkyl)(2- hydroxyethyl)ammonium ethyl sulfate.	ARC.
Bis(hydrogenated tallow alkyl)(2-hydroxyethyl, ethoxy- lated)methylammonium chloride.	ARC.
Bis(2-hydroxyethyl, ethoxylated)methyl(9-octadecenyl) ammonium chloride.	ARC.
Bis(2-hydroxyethyl, ethoxylated)methyloctadecyl- ammonium chloride.	ARC.
(Coconut oil alkyl)bis(2-hydroxyethyl, ethoxylated) methylammonium chloride.	ARC, VAC.
(Coconut oil alkyl)(2-hydroxyethyl, ethoxylated) methyl(mixed alkyl)ammonium chloride.	ARC.
(Coconut oil alkyl)(2-hydroxyethyl, ethoxylated)methyl (mixed alkyl)ammonium methyl sulfate.	ARC.
2-Hydroxytrimethylenebis[(coconut oil alkyl) dimethylammonium chloride].	CIB.
Triethyl(octadecyloxymethyl)ammonium chloride-----	DAN.
All other-----	DUP, TCC.
*Cyclic:	
Benzyl(coconut oil alkyl)bis(2-hydroxyethyl)ammonium chloride.	CIB, NLC.
Benzyl(coconut oil alkyl, ethoxylated)dimethylammonium chloride.	GAF.
1-Benzyl-2-heptadecyl-1-(2-hydroxyethyl)-2-imidazo- linium chloride.	PCS, UVC.
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2- imidazolinium chloride.	HDG, NLC.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride--	RH.
(Ethoxybenzyl)dimethyl(octyltolylloxy)ammonium chloride.	RH.
1-Ethyl-2-(8-heptadecenyl)-1-(2-hydroxyethyl)-2- imidazolinium ethyl sulfate.	APD, UVC.
N-Ethyl-N-hexadecylmorpholinium ethyl sulfate-----	APD.
N-Ethyl-N-octadecylmorpholinium ethyl sulfate-----	GAF.
N-Ethyl-N-(soybean oil alkyl)morpholinium ethyl sulfate.	APD.
2(8-Heptadecenyl)-1,1-bis(2-hydroxyethyl)-2-imidazo- linium chloride.	GGY.
(Tridecylbenzyl)diethyl(2-hydroxyethyl)ammonium chloride.	SNW.
*Quaternary ammonium salts having amide linkages:	
Benzylbis(2-hydroxyethyl)(2-stearamidomethoxyethyl) ammonium chloride.	ARC, CIB.
2-Heptadecyl-1-methyl-1-(2-stearamidoethyl)-2-imidazo- linium methyl sulfate.	ARC, CUL.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium dihydrogen phosphate.	ACY.
(2-Hydroxyethyl)dimethyl(3-stearamidopropyl)ammonium nitrate.	ACY.
(2-Hydroxyethyl)dimethyl(3-tallow acyl amidopropyl) ammonium chloride.	CUL.
(3-Lauramidopropyl)trimethylammonium methyl sulfate----	ACY.
Trimethyl(3-oleamidopropyl)ammonium methyl sulfate-----	CIB, LUR.
All other-----	DUP, NLC.
*Quaternary ammonium salts, not containing oxygen:	
*Acyclic:	
*Bis(coconut oil alkyl)dimethylammonium chloride-----	ARC, ENO, FOR, GNM, VAC.
Bis(coconut oil alkyl)dimethylammonium nitrate-----	ARC.
*Bis(hydrogenated tallow alkyl)dimethylammonium chloride.	ARC, ASH, ENO, FOR, GNM, VAC.
*(Coconut oil alkyl)trimethylammonium chloride-----	ARC, FOR, GNM.
(Cottonseed oil alkyl)trimethylammonium chloride-----	FOR.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Cationic Surface-Active Agents--Continued</i>	
*Quaternary ammonium salts, not containing oxygen-- Continued	
*Acyclic--Continued	
Didodecyldimethylammonium bromide-----	ONX.
Dimethylbis(mixed alkyl)- and trimethyl(mixed alkyl) ammonium chloride.	GNM.
Dimethylbis(9-octadecenyl)ammonium chloride-----	GNM.
Dimethylbis(soybean oil alkyl)ammonium chloride-----	ARC.
Dimethyldioctadecylammonium chloride-----	FOR, ONX, PG.
Dimethyldioctadecylammonium methyl sulfate-----	ONX.
Dodecyltrimethylammonium bromide-----	DUP.
Dodecyltrimethylammonium chloride-----	ARC, FOR, GNM.
Ethyltrimethyl(mixed alkyl)ammonium ethyl sulfate-----	JOR, TCC.
Ethyltrimethyl(9-octadecenyl)ammonium bromide-----	ONX.
Ethyltrimethyl(soybean oil alkyl)ammonium bromide-----	ARC.
Ethylhexadecyldimethylammonium bromide-----	FIN.
*Hexadecyltrimethylammonium salts:	
Hexadecyltrimethylammonium bromide-----	DUP, FIN, ICI.
Hexadecyltrimethylammonium chloride-----	ARC, BRD.
Hexadecyltrimethylammonium p-toluenesulfonate-----	FIN.
(Hydrogenated tallow alkyl)trimethylammonium chloride-----	ARC, FOR.
Methyltrioctylammonium chloride-----	GNM.
Methyltris(mixed alkyl)ammonium chloride-----	ASH, VAC.
N,N,N',N',N'-Pentamethyl-N-(tallow alkyl)trimethyl- enebis[ammonium chloride].	ARC, GNM, ORO.
Triethyloctadecylammonium ethyl sulfate-----	AKS.
Trimethyloctadecylammonium chloride-----	ARC.
Trimethyl(soybean oil alkyl)ammonium chloride-----	ARC, VAC.
Trimethyl(tallow alkyl)ammonium chloride-----	ARC, FOR, GNM.
Trimethyl(tallow alkyl)ammonium dimethyl phosphate----	CUL.
All other-----	GNM, STC, VAC.
*Benzenoid:	
*Benzyl(coconut oil alkyl)dimethylammonium chloride----	ARC, CRT, DEP, LUR, RTF, TXT.
*Benzyltrimethyl(mixed alkyl)ammonium chloride-----	AAC, BRD, CUL, FIN, ONX, PG, RH, TXT, VAC, WSN.
Benzyltrimethyloctadecylammonium chloride-----	APX, CUL, FIN, ONX, WSN.
Benzyltrimethyl(tallow alkyl)ammonium chloride-----	ENO.
Benzyltrimethyltetradecylammonium chloride-----	SNW, WSN.
Benzyltrimethyldodecylammonium chloride-----	FIN, ONX, SDH, WSN.
Benzylhexadecyldimethylammonium chloride-----	ONX, RH.
Benzyl(hydrogenated tallow alkyl)dimethylammonium chloride.	ENO.
Benzyl(mixed alkyl)pyridinium chloride-----	RTF.
1-Benzylpyridinium chloride-----	DEP.
Benzyltrimethylammonium chloride-----	BRD, TCC.
*(3,4-Dichlorobenzyl)dodecyldimethylammonium chloride--	CUL, ONX, VAC, WSN.
(Dodecylbenzyl)dimethyloctadecylammonium chloride----	ARC.
(Dodecylbenzyl)triethylammonium chloride-----	PC.
(Dodecylbenzyl)trimethylammonium chloride-----	CUL, NLC, VAC, WTC.
2-Dodecylisquinolinium bromide-----	CUL, ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride----	RH.
1-Dodecylpyridinium chloride-----	HK.
(Ethylbenzyl)dimethyl(mixed alkyl)ammonium chloride----	ONX.
<i>Nonionic Surface-Active Agents</i>	
*Carboxylic acid amides:	
*Carboxylic acid - alkanolamine condensates:	
*Diethanolamine condensates (amine/acid ratio=2/1):	
*Capric acid-----	GGY, PCS, SCP, UVC.
Castor oil acids-----	BAC, PCS, VAL.
*Coconut oil acids-----	AKS, AML, ARD, BSW, CIB, CLI, CTL, DA, DEP, EFH, GAF, HLI, HRT, JOR, KNP, LUR, MCP, MOA, ONX, PC, PCS, PNX, PUR, RCD, SBC, SCP, SEY, SOP, SOS, STP, SWT, TXC, UNN, UVC, VAC, VND, WTC.
Coconut oil and tall oil acids-----	CSB.
*Coconut oil and tallow acids-----	CLI, CRT, GAF, PG.
*Lauric acid-----	CLI, DA, DRW, HLI, MCP, MOA, ONX, PG, RCD, WON, WTC.
Lauric and myristic acids-----	HLI.
Linoleic acid-----	VND.
Mixed vegetable oil acids-----	HLI.

TABLE 19B. --Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid amides--Continued	
*Carboxylic acid - alkanolamine condensates--Continued	
*Diethanolamine condensates (amine/acid ratio=2/1)--Continued	
*Oleic acid-----	CCW, CLI, SCP, SOS, STP, VAC, WTC.
Palmitic acid-----	CMG.
Palmitic and stearic acids-----	MCP.
Pelargonic acid-----	EMR.
*Stearic acid-----	AML, CLI, DA, EMR, JOR, ONX, SCO, SCP, TXC, VAL.
Tallow acids-----	MCP.
*Tall oil acids-----	EFH, MRA, WTC.
Unspecified mixed fatty acids-----	ROB.
*Diethanolamine condensates (other amine/acid ratios):	
*Coconut oil acids (1/1)-----	APX, ARD, CCL, CLI, CTL, DA, DRW, EMK, GGY, HLI, MOA, MRV, ONX, PCS, PEK, QCP, RCD, RTF, SBC, SCO, SEY, STP, TCC, TXT, VAC.
Coconut oil acids (1.4/1)-----	JRG.
Hydrogenated tallow acids (1/1)-----	DA.
*Lauric acid (1/1)-----	CTL, CUL, DRW, HLI, LEV, MOA, ONX, PCS, PG, SBC, STP, TXN, TXT, VAC.
Lauric and myristic acids (1/1)-----	CLI, TXT, RTF.
Myristic acid (1/1)-----	HDG.
*Oleic acid (1/1)-----	DA, GGY, PCS, SBC, SWT, TCC, TXT.
Palmitic and stearic acids (1/1)-----	GAF, MRA.
Pelargonic acid (1/1)-----	PCS.
*Stearic acid (1/1)-----	EMR, GAF, GGY, GLY, PCS, RPC, SEY, SWT, UVC.
Tall oil acids (1/1)-----	MRV.
Tallow acids (1/1)-----	RPC.
Unspecified mixed fatty acids (1/1)-----	STP.
*Ethanolamine condensates:	
Amine/acid ratio=2/1:	
Coconut oil acids-----	CTL, MOA, PCS, RTF, STP, VND, WTC.
Hydrogenated castor oil acids-----	BAC, GLY.
Hydrogenated tallow acids-----	GLY.
*Lauric acid-----	AES, ARC, CTL, WTC.
Lauric and myristic acids-----	TXN.
Stearic acid-----	ARC, CLI.
Amine/acid ratio=1/1:	
Coconut oil acids-----	APX, DSO, PG, STP, UVC.
Lauric and myristic acids-----	TXT.
Oleic acid-----	VPC.
Stearic acid-----	MOA, VND.
Amine/acid ratio=1/2: Stearic acid-----	
*Isopropanolamine condensates:	
Coconut oil acids-----	MOA, STP, TXT.
*Lauric acid-----	CLI, MOA, PCS, WTC.
Lauric and myristic acids-----	LEV, TXT.
Oleic acid-----	WTC.
*Carboxylic acid - alkanolamine condensates, ethoxylated:	
Coconut oil acids - ethanolamine condensate, ethoxylated.	STP.
Hydrogenated tallow acids - ethanolamine condensate, ethoxylated.	ARC, DA.
Oleic acid - ethanolamine condensate, ethoxylated-----	ARC, GAF.
Tallow oil acids - ethanolamine condensate, ethoxylated (amine/acid ratio=1/2).	NLC.
*Carboxylic acid esters:	
*Anhydrosorbitol esters:	
Anhydrosorbitol dioleate-----	APD.
Anhydrosorbitol ester of mixed fatty acids-----	GLY.
*Anhydrosorbitol monoester of tall oil acids-----	APD, GLY, HDG, RTF, TCH.
Anhydrosorbitol monolaurate-----	APD, GLY, DRW, HDG, PCS, TCH.
*Anhydrosorbitol mono-oleate-----	AAC, APD, ARC, DRW, EMR, GLY, HDG, PCS, TCH.
Anhydrosorbitol monopalmitate-----	APD, GLY, HDG, PCS.
*Anhydrosorbitol monostearate-----	AAC, APD, ARC, DRW, GLY, HDG, PCS.
Anhydrosorbitol sesquioleate-----	AAC, GLY.
Anhydrosorbitol tetrastearate-----	APD.
Anhydrosorbitol triester of tall oil acids-----	TCH.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Anhydrosorbitol esters--Continued	
*Anhydrosorbitol trioleate-----	APD, GLY, PCS, TCH.
*Anhydrosorbitol tristearate-----	APD, DRW, GLY, HDG, PCS.
*Ethoxylated anhydrosorbitol esters:	
Ethoxylated anhydrosorbitol monoester of tall oil acids.	RTF, TCH.
*Ethoxylated anhydrosorbitol monolaurate-----	AAC, APD, ARC, DRW, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol mono-oleate-----	AAC, APD, ARC, DRW, GLD, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol monopalmitate-----	AAC, APD, GLY, HDG, PCS, TCH.
*Ethoxylated anhydrosorbitol monostearate-----	AAC, APD, ARC, DRW, GLY, HDG, PCS, TCH.
Ethoxylated anhydrosorbitol triester of castor oil acids.	APD.
Ethoxylated anhydrosorbitol triester of tall oil acids.	APD.
*Ethoxylated anhydrosorbitol trioleate-----	AAC, APD, GLY, HDG, TCH.
*Ethoxylated anhydrosorbitol tristearate-----	AAC, APD, DRW, GLY, HDG, PCS, TCH.
*Ethylene glycol and diethylene glycol esters:	
Diethylene glycol dioleate-----	GLY.
Diethylene glycol distearate-----	ARC, GLY.
Diethylene glycol monoester of coconut oil acids-----	EMR.
Diethylene glycol monoester of tallow acids-----	DRW.
*Diethylene glycol monolaurate-----	CCW, DA, GLY, HAL, HDG, WTC.
*Diethylene glycol mono-oleate-----	ARC, DA, HAL, WTC.
Diethylene glycol monoricinoleate-----	GLY.
*Diethylene glycol monostearate-----	AML, ARC, CCW, CLI, DA, HAL, HDG, PCS, QCP, SEY, UVC, VAL, VND, WTC.
Diethylene glycol sesquiester of tall oil acids-----	QCP, WTC.
Diethylene glycol sesquilaurate-----	ARC, GLY.
Diethylene glycol sesquistearate-----	MCP, WM.
Ethylene glycol distearate-----	ARC, EMR, HAL, HDG, HUM.
*Ethylene glycol monostearate-----	ARC, CCW, CLI, EFH, GLY, HAL, HDG, KNP, PCS, VND, WM.
Ethylene glycol sesquistearate-----	WM.
All other-----	EMR.
*Glycerol esters:	
*Complex glycerol esters:	
Glycerol diacetyltartrate monostearate-----	DRW, PCS.
Glycerol lactate palmitate-----	ARC, DRW, GLD.
Glycerol lactate stearate-----	APD, GLD.
Glycerol maleate mono-oleate-----	DA, WTC.
Glycerol monoester of mixed fatty acids, acetylated-----	EK, EFH.
Glycerol mono-oleate, acetylated-----	x.
Glycerol monostearate, succinylated-----	EK.
*Glycerol esters of chemically defined acids:	
Glycerol dioleate-----	ARC, HAL.
Glycerol distearate-----	APX, ARC.
Glycerol monocaprinate-----	ARC.
Glycerol monocaprylate-----	ARC, DRW.
*Glycerol monolaurate-----	ARC, GLY, HAL.
*Glycerol mono-oleate-----	APD, ARC, CCW, DRW, EFH, EK, EMR, GLY, HAL, HDG, PCS, SWT, WM.
Glycerol monoricinoleate-----	CCW, HDG.
*Glycerol monostearate-----	ARC, CCW, CHL, CRT, DA, DRW, EK, GLY, GRO, HAL, HDG, JRG, LUR, MRA, NW, PCS, PG, SOS, SWT, TCC, VND, WM, WTC, x.
*Glycerol esters of mixed acids:	
Glycerol diester of lard acids-----	PCS.
Glycerol ester of tall oil acids-----	ARC.
Glycerol monoester of coconut oil acids-----	DRW, GLY, SWT, WM.
Glycerol monoester of corn oil acids-----	GLD.
Glycerol monoester of cottonseed oil acids-----	DRW, EK.
Glycerol monoester of hydrogenated cottonseed oil acids.	GLD, LEV, PCS.
*Glycerol monoester of hydrogenated soybean oil acids.	
Glycerol monoester of lard acids-----	DRW, EK, GLD.
Glycerol monoester of peanut oil acids-----	EK, GLD, PCS.
Glycerol monoester of tallow acids-----	DRW.
Glycerol sesquiester of castor oil acids-----	PCS.
	HDG.



TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Glycerol esters--Continued	
*Glycerol esters of mixed acids--Continued	
Glycerol sesquiesther of mixed fatty acids-----	APD.
All other-----	EK, LEV.
*Natural fats and oils, ethoxylated:	
*Castor oil, ethoxylated-----	
Hydrogenated castor oil, ethoxylated-----	APD, BAC, DA, DRW, EMR, GAF, GLY, ICI, NLC, PCS, RTF, TCH, TMH, WYN.
*Lanolin, ethoxylated-----	APD, GAF, TCH, VAC.
Tallow, ethoxylated-----	APD, CRD, PCS. DRW.
*Polyethylene glycol esters:	
*Polyethylene glycol esters of chemically defined acids:	
*Polyethylene glycol dilaurate-----	ARC, DA, DRW, EFH, GLY, HAL, HDG, JOR, PCS, UVC, WM.
*Polyethylene glycol dioleate-----	ARC, CLD, DA, EFH, GGY, GLY, HAL, HDG, NLC, PCS, SM, UVC.
*Polyethylene glycol distearate-----	ARC, GLY, HAL, HDG, PCS, QCP.
Polyethylene glycol methylcarbitol maleate-----	CCA.
*Polyethylene glycol monolaurate-----	AAC, ARC, CCA, DA, GAF, GGY, GLY, HAL, HDG, JOR, KNP, PCS, SYC, TCH, TXT, UVC.
*Polyethylene glycol mono-oleate-----	ARC, CCA, CLD, CRT, DA, DRW, EMR, GAF, GGY, GLY, HAL, HDG, ICI, ONX, PCS, SM, SOS, SWT, SYC, TCH, UVC, VAC, VND, VPC, WM, WTC.
Polyethylene glycol monopalmitate-----	APD.
Polyethylene glycol monopelargonate-----	EMR, PCS.
Polyethylene glycol monoricinoleate-----	BAC, DA, HAL, TCH.
*Polyethylene glycol monostearate-----	AAC, AKS, AML, APD, ARC, CHP, CRT, DA, DEP, DEX, DRW, GAF, GGY, GLY, HAL, HDG, ICI, KNP, ONX, PC, PCS, PD, RH, SCP, SEY, TCC, TCH, UVC, VND, WTC.
Polyethylene glycol pelargonate-----	SCP.
Polyethylene glycol sesquioleate-----	PCS.
*Polyethylene glycol esters of rosin and tall oil acids:	
Polyethylene glycol diester of tall oil acids-----	GLY.
Polyethylene glycol monoester of rosin acids-----	NLC.
Polyethylene glycol monoester of tall oil acids-----	GLY, TMH, UVC.
Polyethylene glycol sesquiesther of rosin acids-----	APD, HPC, QCP.
*Polyethylene glycol sesquiesther of tall oil acids---	AML, APD, APX, ARC, DA, DRW, MON, OMC, RTF, TCH, WTC.
*Polyethylene glycol esters of other mixed acids:	
Polyethylene glycol diester of trimerized castor oil acids.	GLY.
Polyethylene glycol monoester of coconut oil acids--	EMR, GLY.
Polyethylene glycol monoester of soybean oil acids--	SYC.
Polyethylene glycol sesquiesther of castor oil acids--	ARC, GGY, WTC.
*Polyethylene glycol sesquiesther of coconut oil acids.	ARC, ARL, DA, DRW, MCP, ONX, PG, SCP, SOS, VAC, VND.
Polyethylene glycol sesquiesther of tallow acids-----	ONX, SQS.
*Polyglycerol esters:	
Polyglycerol lactate oleate-----	DRW.
Polyglycerol mono-oleate-----	HDG, PCS, VND, WTC.
Polyglycerol monostearate-----	PCS.
*Propanediol esters:	
1,2-Propanediol distearate-----	HAL, PCS.
1,3-Propanediol monoester of coconut oil acids-----	DRW.
1,3-Propanediol monoester of tallow acids-----	PCS.
1,2-Propanediol monolaurate-----	ARC, HAL, SBC, WM.
1,2-Propanediol mono-oleate-----	HAL.
Propanediol monopalmitate-----	ARC, HDG.
*1,2-Propanediol monostearate-----	APD, ARC, CCW, EK, GLD, GLY, HAL, JRG, PCS, PG.
*Other carboxylic acid esters:	
Anhydrosorbitol glycerol monolaurate-----	APD.
Ethoxylated glycerol sesquiesther of mixed fatty acids--	APD.
Ethoxylated 1,2-propanediol monostearate-----	APD.
Ethoxylated sorbitol beeswax ester-----	APD.
Ethoxylated sorbitol hexaester of tall oil acids-----	APD, RTF, TCH.
Ethoxylated sorbitol hexaoleate-----	APD, TCH.
Ethoxylated sorbitol lanolin ester-----	APD.
Ethoxylated sorbitol mono-oleate-----	APD, HAL.
Ethoxylated sorbitol monostearate-----	MCP, SNW.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Carboxylic acid esters--Continued	
*Other carboxylic acid esters--Continued	
Ethoxylated sorbitol oleate, acetylated-----	APD.
Ethoxylated sorbitol pentaester of tall oil acids----	APD, RTF.
Ethoxylated sorbitol pentalaurate-----	APD.
Ethoxylated sorbitol tetraester of lauric and oleic acids.	APD.
Ethoxylated sorbitol tetraester of tall oil acids----	APD.
Methoxy polyethylene glycol mono-oleate-----	NLC.
Methylglucoside laurate-----	HDG.
Methylglucoside oleate-----	HDG.
Pentaerythritol distearate-----	GLY, VAL.
Polyalkylene glycol diglycolate-----	NLC, RTF.
Sucrose esters of fatty acids-----	SUG.
All other-----	CCW, STC, TCC, WM.
*Ethers:	
*Benzenoid ethers:	
Alkylphenol - formaldehyde condensates, alkoxyated:	
p-tert-Butylphenol - formaldehyde, alkoxyated-----	RTF.
(Mixed alkyl)phenol - formaldehyde, alkoxyated-----	NLC, RTF.
Nonylphenol - formaldehyde, alkoxyated-----	NLC, RTF.
tert-Octylphenol - formaldehyde, ethoxylated-----	SDW.
p-tert-Butylphenol, ethoxylated-----	RTF.
Diisobutylphenol, ethoxylated-----	GAF, RH.
Dinonylphenol, ethoxylated-----	GAF, PCS, RTF, STP, TMH.
*Dodecylphenol, ethoxylated-----	GAF, MON, PCS, TMH, UCC.
*Iso-octylphenol, ethoxylated-----	APX, DA, DRW, OMC.
(Mixed alkyl)phenol, ethoxylated-----	GAF.
(Mixed alkyl)phenol, ethoxylated, butyl ether-----	RH.
(Mixed alkyl)phenoxypoly(ethyleneoxy)ethyl chloride----	GAF.
*Nonylphenol, ethoxylated-----	APD, CIB, CLY, DOW, DRW, GAF, HDG, HPC, JCC, MON, NLC, OMC, PCS, RH, RTF, STP, TCH, TMH, UCC.
Nonylphenol, ethoxylated and propoxylated-----	RTF.
Nonylphenoxypoly(ethyleneoxy)ethyl iodide-----	GAF.
*Phenol, ethoxylated-----	APD, DA, GAF, JCC, TCH, UCC.
Tetradecylphenol, ethoxylated-----	ORO, WTC.
Tridecylphenol, ethoxylated-----	PCS.
Xylenol, ethoxylated-----	NLC.
All other-----	RH.
*Nonbenzenoid ethers:	
*Linear alcohols, alkoxyated:	
Coconut oil alcohol, ethoxylated-----	PCS.
*Decyl alcohol, ethoxylated-----	GAF, ICI, PCS.
Decyloxypoly(ethyleneoxy)ethyl chloride-----	GAF.
Decyl and octyl alcohols, ethoxylated-----	GAF.
*Dodecyl alcohol, ethoxylated-----	AAC, APD, DRW, DUP, GAF, HDG, JCC, OMC, UCC.
*Hexadecyl alcohol, ethoxylated-----	ACS, APD, ASH, CIB, GLY, ICI.
*Mixed linear alcohols, ethoxylated-----	AAC, ASH, CO, GAF, HDG, JCC, MON, NLC, RH, RTF, SHC, STP, TCH, UCC, VAC.
*Mixed linear alcohols, ethoxylated and propoxylated----	GAF, JCC, STP, WYN.
*9-Octadecenyl alcohol, ethoxylated-----	AAC, APD, ASH, CIB, CRD, DA, DUP, GAF, GLY, ICI, TCH, VPC.
*Octadecyl alcohol, ethoxylated-----	APD, CIB, DUP, HDG, VAC.
Sperm oil alcohol, ethoxylated-----	DUP.
Tallow alcohol, ethoxylated-----	AAC, ASH.
Tridecyl alcohol, ethoxylated-----	DUP.
All other-----	RH, VPC.
*Other ethers and thioethers:	
tert-Dodecyl mercaptan, ethoxylated-----	AAC, MON, RTF, UCC.
Glucose, ethoxylated-----	RH.
Glycerol, alkoxyated-----	NLC.
Mixed alcohols, ethoxylated-----	DRW.
Poly(mixed ethylene, propylene)glycol-----	NLC, UCC.
Polypropylene glycol, ethoxylated-----	NLC, PCS, RTF, WYN.
Propoxylated thiourea-----	VAC.
Rosin alcohol, ethoxylated-----	CIB, HPC.
Sorbitol, ethoxylated-----	TCH.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated--	CUC.
*Tridecyl alcohol, ethoxylated-----	AAC, APD, DRW, EFH, GAF, GLY, ICI, JCC, MON, NLC, OMC, PCS, RTF, TCH, UCC.

TABLE 19B.--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
<i>Nonionic Surface-Active Agents--Continued</i>	
*Ethers--Continued	
*Nonbenzenoid ethers--Continued	
*Other ethers and thioethers--Continued	
Tridecyl alcohol, propoxylated and ethoxylated-----	JCC.
Trimethylnonyl alcohol, ethoxylated-----	UCC.
Trimethylolpropane, alkoxyated-----	JCC, RTF, WYN.
Woolwax alcohols, ethoxylated-----	CRD.
All other-----	SNW.
*Other nonionic surface-active agents:	
Bis(octadecenyloxypolyethylene glycol)ester of 1,6-hexamethylenedicarbamic acid.	CIB.
3,5-Dimethyl-1-hexyn-3-ol-----	CUC.
3,6-Dimethyl-4-octyne-3,6-diol-----	CUC.
Dodecylbenzenesulfonic acid - diethanolamine condensate, fatty acid monoester.	MAH.
Glycerol sesquiester of hydrogenated castor oil acids, borated and ethoxylated.	GLY.
Octyl phosphate, ethoxylated-----	DUP, SFA.
Polyethylene - vinyl alcohol condensate, potassium salt-	NLC.
2,4,7,9-Tetramethyl-5-decyne-4,7-diol-----	CUC.
Tri(castor oil alkyl) phosphate-----	GLY.
Tris(nonylphenyl)phosphite-----	GAF.
All other-----	CCW, CMG, SNW.

## Pesticides and Related Products

TABLE 20B.--Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967

[Pesticides and related products 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 date are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, CYCLIC	
*Fungicides:	
2,6-Bis(dimethylaminomethyl)cyclohexanone-----	MRK.
5-Chloro-2-benzothiazolethiol, laurylpyridium salt-----	VNC.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine-----	CHG.
1,4-Dichloro-2,5-dimethoxybenzene-----	DUP.
2,3-Dichloro-1,4-naphthoquinone (Dichlone)-----	USR.
2,6-Dichloro-4-nitroaniline (DCNA)-----	CWN, UPJ.
*3,5-Dimethyl-1,3,5,2H-tetrahydrothiadiazine-2-thione (DMTT)	MRK, OTC, SF, WRC.
Diphenylammonium propionate-----	MRK.
2-Heptadecyl-2-imidazoline (Glyodin)-----	UCC.
2-Mercaptobenzothiazole, monoethanolamine salt-----	VNC.
*Mercury fungicides:	
N-(Ethylmercuri)-p-toluene sulfonanilide-----	DUP.
Hydroxymercurichlorophenol-----	DUP.
Hydroxymercurinitrophenol-----	DUP.
Mercurial turf fungicides-----	MAL.
Methylmercury quinolinolate-----	MRK.
2-(Phenylmercuriamino)ethyl acetate-----	CLY.
*Phenylmercuric acetate (PMA)-----	BKM, CLY, MRK, TRO, WRC.
Phenylmercuric ammonium acetate-----	TRO.
Phenylmercuric hydroxide-----	MRK.
Phenylmercuric lactate-----	WRC.
Phenylmercuric naphthenate-----	MRK.
Phenylmercuric oleate-----	CLY, HNX, MRK, TRO.
Phenylmercuric propionate-----	MRK.
N-Phenylmercuriformamide-----	VIN.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium lactate-----	CLY.
2-(1-Methyl-n-heptyl)-4,6-dinitrophenyl crotonate (Dinocap)	RH.
3-(2-Methylpiperidino)propyl-3,4-dichlorobenzoate (Piperalin).	LIL.
*Naphthenic acid, copper salt-----	CCA, FER, HNX, MCI, MLD, SHP, SRR, TGL, TRO, WTC.
Pentachloronitrobenzene (PCNB)-----	OMC, OTC.
*Pentachlorophenol (PCP)-----	BXT, DOW, FRO, MON, RCI, SFD.
Pentachlorophenol, sodium salt-----	DOW, MON, RCI.
*8-Quinololinol (8-Hydroxyquinoline), copper salt-----	FIS, HNX, MRK.
Tetrachloro-p-benzoquinone (Chloranil)-----	USR.
2,3,4,6-Tetrachlorophenol and sodium salt-----	DOW.
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide (Captan).	CHO.
N-Trichloromethylthiophthalimide (Folpet)-----	CHO.
*2,4,5-Trichlorophenol-----	DA, DOW, HK, HPC.
*2,4,5-Trichlorophenol, ethanolamine salt-----	GAF.
*2,4,5-Trichlorophenol, sodium salt-----	DOW.
2,4,6-Trichlorophenol-----	DOW, RBC.
*Herbicides and plant hormones:	
4-Amino-3,5,6-trichloropicolinic acid (Picloram)-----	DOW.
5-Bromo-3-sec-butyl-6-methyluracil (Bromacil)-----	DUP.
3-tert-Butyl-5-chloro-6-methyluracil-----	DUP.
N-Butyl-N-ethyl- $\alpha, \alpha, \alpha$ -trifluoro-2,6-dinitro-p-toluidine (Benefin).	LIL.
2-Butynyl-4-chloro-m-chlorocarbanilate (Barban)-----	GOC.
2-Chloro-4,6-bis(ethylamino)-s-triazine (Simazine)-----	GGY.
2-Chloro-4,6-bis(isopropylamino)-s-triazine (Propazine)---	GGY.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine (Atrazine).	GGY.
2-Chloro-N-isopropyl acetanilide-----	MON.
3'-Chloro-2-methyl-p-valerotoluidide (Solan)-----	FMN.
N-(4-Chlorophenoxy)phenyl N,N-dimethylurea (Chloroxuron)	CBA, NES.
3-(p-Chlorophenyl)-1,1-dimethylurea (Monuron)-----	DUP.
3-(p-Chlorophenyl)-1,1-dimethylurea trichloroacetate-----	ACN.

TABLE 20B. --Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
3-Cyclohexyl-5,6-trimethyleneuracil-----	DUP.
2,6-Di-tert-butyl-p-tolylmethylcarbamate-----	HPC.
2,5-Dichloro-3-aminobenzoic acid, ammonium salt-----	AMC, GAF.
3,6-Dichloro-o-anisic acid (Dicamba)-----	VEL.
2,4-Dichlorobenzyltributylphosphonium chloride-----	SM.
2-(2,4-Dichlorophenoxy)ethyl sulfate, sodium salt (Sesone).	GAF.
3-(3,4-Dichlorophenyl)-1,1-dimethylurea (Diuron)-----	DUP.
3-(3,4-Dichlorophenyl)-1-methoxy-1-methylurea (Linuron)-	DUP.
3-(3,4-Dichlorophenyl)-1-methyl-1-n-butylurea (Neburon)-	DUP.
2,4-Dichlorophenyl-4-nitrophenyl ether-----	RH.
3',4'-Dichloropropionanilide (Propanil)-----	CIS, MON, RH.
1,2-Dihydropyridazine-3,6-dione (Maleic hydrazide) (MH)-	ACY, USR.
N-(beta-0,0-Diisopropyl-dithiophosphorylethyl)-benzene sulfonamide (Bensulide).	SF.
N,N-Dimethyl-2,2-diphenylacetamide (Diphenamide)-----	ARA, CWN, UPJ.
1,1-Dimethyl-3-phenylurea (Fenuron)-----	DUP.
1,1-Dimethyl-3-phenylurea trichloroacetate-----	ACN.
Dimethyl tetrachloroterephthalate-----	DA.
Dinitrobutylphenol (DNBP)-----	CIS, DOW, FMN.
*Dinitrobutylphenol, ammonium salt-----	CIS, DOW, FMN.
Dinitrobutylphenol, triethanolamine salt-----	CIS, DOW, FMN.
Dinitroresol (DNOC)-----	CIS, FMN.
Dinitroresol, sodium salt-----	CIS, FMN.
Diphenylacetoneitrile (Diphenatril)-----	LIL.
2-Ethylamino-4-isopropylamino-6-methylmercapto-s- triazine (Ametryne).	GGY.
S-Ethyl hexahydro-1H-azepine-1-carbothioate (Molinate)--	SF.
Gibberellic acid-----	ABB, MRK.
3-(Hexahydro-4,7-methanoindan-5-yl)-1,1-dimethylurea (Norea).	HPC.
3-Indolebutyric acid-----	ARA.
Isopropyl N-phenylcarbamate (IPC)-----	PPG.
Isopropyl N-(3-chlorophenyl)carbamate (CIPC)-----	PPG.
1-(2-Methylcyclohexyl)-3-phenylurea (Siduron)-----	DUP.
2-Methylmercapto-4,6-bis-(isopropylamino)-s-triazine (Prometryne).	GGY.
4-(Methylsulfonyl)-2,6-dinitro-N,N-dipropylaniline-----	SHC.
1-Naphthaleneacetic acid and derivatives:	
1-Naphthaleneacetamide-----	AMC.
*1-Naphthaleneacetic acid (NAA)-----	AMC, COK, THM.
*1-Naphthaleneacetic acid, methyl ester-----	AMC.
*1-Naphthaleneacetic acid, sodium salt-----	AMC, BKL.
N-1-Naphthylphthalamic acid (NPA)-----	USR.
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (Endothall).	PAS.
Phenoxyacetic acid derivatives:	
4-Chloro-2-methylphenoxyacetic acid (MCPA)-----	CHC, CLY, RIV.
4-Chloro-2-methylphenoxyacetic acid, potassium salt---	GTH.
*2,4-Dichlorophenoxyacetic acid (2,4-D)-----	CHC, DA, DOW, HPC, MON, THM.
*2,4-Dichlorophenoxyacetic acid esters and salts:	
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester-	AMC.
2,4-Dichlorophenoxyacetic acid, butoxypoly-	DOW.
propyleneglycol ester.	
*2,4-Dichlorophenoxyacetic acid, n-butyl ester-----	AMC, CHC, DA, DOW, HPC, MON, PBI, RIV.
2,4-Dichlorophenoxyacetic acid, sec-butyl ester-----	CHC, DOW, MON.
2,4-Dichlorophenoxyacetic acid, dimethylamine salt--	ALC, AMC, CHC, DA, DOW, HPC, PBI, RIV, TMH.
2,4-Dichlorophenoxyacetic acid, ethanolamine and isopropanolamine salt.	DOW.
2,4-Dichlorophenoxyacetic acid, ethyl ester-----	AMC.
2,4-Dichlorophenoxyacetic acid, 2-ethylhexyl ester--	DA, HPC.
*2,4-Dichlorophenoxyacetic acid, iso-octyl ester-----	CHC, DOW, MON, PBI, RIV.
*2,4-Dichlorophenoxyacetic acid, isopropyl ester-----	AMC, CHC, DA, DOW, HPC, MON.
2,4-Dichlorophenoxyacetic acid, lithium salt-----	GTH, RIV.
*2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)-----	DA, DOW, HPC, MON, THM.
*2,4,5-Trichlorophenoxyacetic acid esters and salts:	
2,4,5-Trichlorophenoxyacetic acid, amyl esters-----	HPC.
2,4,5-Trichlorophenoxyacetic acid, 2-butoxyethyl ester	AMC.
2,4,5-Trichlorophenoxyacetic acid, butoxypolypropy-	DOW.
leneglycol ester.	
*2,4,5-Trichlorophenoxyacetic acid, n-butyl ester----	DA, DOW, HPC, MON, PBI, RIV.

TABLE 20B.--Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Herbicides and plant hormones--Continued	
Phenoxyacetic acid derivatives--Continued	
*2,4,5-Trichlorophenoxyacetic acid esters and salts--Continued	
2,4,5-Trichlorophenoxyacetic acid, 2-ethylhexyl ester.	DA, HPC.
*2,4,5-Trichlorophenoxyacetic acid, iso-octyl ester--2,4,5-Trichlorophenoxyacetic acid, triethylamine salt.	DA, DOW, MON, PBI, RIV, TMH. DOW, HPC.
Polychloro-tetrahydro-methanoindene (Polychlorodicyclopentadiene) isomers.	VEL.
N-m-Tolyl phthalamic acid-----	USR.
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)-----	DOW, HPC, RIV.
2-(2,4,5-Trichlorophenoxy)propionic acid, 2-ethylhexyl ester.	HPC.
2-(2,4,5-Trichlorophenoxy)propionic acid, triethanolamine salt).	BKL.
$\alpha,\alpha,\alpha$ -Trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine (Trifluralin).	LIL.
3-(m-Trifluoromethylphenyl)-1,1-dimethylurea (Fluometuron).	CBA
Tris(2,4-dichlorophenoxyethyl) phosphite (2,4-DEP)---	USR.
Insect attractants and repellants:	
tert-Butyl 4(or 5)-chloro-2-methylcyclohexanecarboxylate (Trimedlure).	UOP.
N,N-Diethyltoluamide (DEET)-----	HPC, PFZ.
Di-n-propyl isocinchomeronate-----	MGK.
*Insecticides:	
Allethrin (allyl homolog of Cinerin I)-----	BPC.
3-sec-Amylphenyl-N-methylcarbamate-----	x.
Benzyl thiocyanate-----	HK.
2-sec-Butyl-4,6-dinitrophenyl-3,3-dimethylacrylate (Binapacryl).	FMN.
Chlorinated insecticides:	
*Aldrin-toxaphene group:	
Heptachloro-tetrahydro-endo-methanoindene (Heptachlor).	VEL.
Hexachloro-epoxy-octahydro-endo-endo-dimethanonaphthalene (Endrin).	VEL.
Hexachloro-epoxy-octahydro-endo-exo-dimethanonaphthalene (Dieldrin).	SHC.
Hexachloro-hexahydro-endo-exo-dimethanonaphthalene (Aldrin).	SHC.
Octachloro-hexahydro-methanoindene (Chlordan)-----	VEL.
Terpene polychlorinates-----	HN.
Toxaphene (Chlorinated camphene)-----	HPC, SFD.
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane (DDD) (TDE)	ACN, RH.
1,1-Bis(p-chlorophenyl)-2-nitrobutane-----	COM.
1,1-Bis(p-chlorophenyl)-2-nitropropane-----	COM.
* $\alpha$ -Bis(p-chlorophenyl) $\beta,\beta$ -trichloroethane (DDT)-----	ACN, DA, LEB, MTO, OMC.
2-(p-tert-Butylphenoxy)isopropyl-2'-chloroethyl sulfite.	USR.
Chlorobenzilate-----	GGY.
p-Chlorophenyl p-chlorobenzenesulfonate (Ovex)-----	AMP, DOW.
o-Chlorophenyl-N-methylcarbamate-----	OTC.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone (Tetradifon).	FMN, FMP.
6-Chloro-3,4-xylyl, methylcarbamate-----	UPJ.
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[cd]pentalen-2-one.	ACN.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane-----	RH.
4,4'-Dichloro- $\alpha$ -trichloromethylbenzhydrol (Dicofol)---	RH.
Dodecachlorooctahydro-1,3,4-metheno-2H-cyclobuta[cd]pentalene (Mirex).	ACN.
*Hexachlorocyclohexane (Benzene hexachloride) (BHC)----	DA, HK, PPG.
Hexachlorocyclohexane, 100% $\gamma$ -isomer (Lindane)-----	HK.
Hexachloro-hexahydro-methano-benzodioxathiepin 3-oxide (Endosulfan).	HK.
1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methoxychlor).	CHF, DUP.
Isobornyl thiocyanacetate-----	CIS, HPC.
N-(Phenyl-2-nitropropyl)piperidine-----	MRK.
1-Naphthyl N-methylcarbamate (Carbaryl)-----	UCC.

TABLE 20B.--Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, CYCLIC--Continued	
*Insecticides--Continued	
*Organophosphorus insecticides:	
4-tert-Butyl-2-chlorophenyl methyl methylphosphor-	DOW.
amidite.	
S-[[[p-Chlorophenyl)thio] methyl] 0,0-diethyl phos-	SF.
phorodithioate (Carbophenothion).	
2-Chloro-1-(2,4,5-trichlorophenyl) vinyl dimethyl	SHC.
phosphate.	
0,0-Diethyl 0-3-chloro-4-methyl-1-oxo-2H-1-benzopyran-	CHG.
7-yl phosphorothioate (Coumaphos).	
Diethyl 1-(2,4-dichlorophenyl)-2-chlorovinyl	SHC.
phosphate.	
0,0-Diethyl-1-(2,5-dichlorophenyl) 0-2-chlorovinyl	SHC.
phosphate.	
0,0-Diethyl 0-(2-isopropyl-4-methyl-6-pyrimidinyl)	GGY.
phosphorothioate (Diazinon).	
0,0-Diethyl 0-p-(methylsulfinyl)phenyl phos-	CHG.
phorothioate.	
*0,0-Diethyl 0-p-nitrophenyl phosphorothioate	AMP, MON, SF, SHC.
(Parathion).	
0,0-Dimethyl 0-[4-(methylthio)-m-tolyl] phosphoro-	CHG.
thioate (Fenthion).	
*0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (Methyl	AMP, MON, SF, SHC, VEL.
parathion).	
0,0-Dimethyl S-[4-oxo-1,2,3-benzotriazin-3(4H)-	CHG.
ylmethyl] phosphorodithioate.	
0,0-Dimethyl S-phthalimidomethyl phosphorodithioate--	SF.
Dimethyl 2,4,5-trichlorophenyl phosphorothioate	DOW.
(Ronnell).	
2,3-p-Dioxane S,S-bis(0,0-diethylphosphorodithioate)	HPC.
(Dioxathion).	
0-Ethyl 0-p-nitrophenyl phenylphosphonothioate (EPN).	SF.
α-Methylbenzyl 3-(dimethoxyphosphinyloxy)-cis-croto-	SHC.
nate.	
0,0,0',0'-Tetramethyl 0,0'-thiodi-p-phenylene	ACY.
phosphorodithioate.	
Lampricide: 3-Trifluoromethyl-4-nitrophenol-----	MEE.
Nematocides:	
0,0-Diethyl 0-(2,4-dichlorophenyl) phosphorothioate----	SM.
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)-	ACY.
*Rodenticides:	
3-(α-Acetylbenzyl)-4-hydroxycoumarin (Warfarin)-----	CIS, MOT, PEN.
2-Diphenylacetyl-1-3-indandione (Diphacinone)-----	NES.
2-Diphenylacetyl-1-3-indandione, sodium salt-----	NES.
3-(1-Furyl-3-acetylolethyl)-4-hydroxycoumarin	AMC.
(Coumafuryl).	
2-Pivaloyl-1,3-indandione (Pindone)-----	MOT, PIC.
Synergists and adjuvants:	
α-[2-(2-n-Butoxyethoxy)-ethoxy]-4,5-methylene-dioxy-2-	FMN, FMP.
propyltoluene (Piperonyl butoxide).	
N,N-Di-n-butyl-p-chlorobenzenesulfonamide-----	NES.
N-(2-Ethylhexyl)bicyclo(2.2.1)-5-heptene-2,3-	MGK.
dicarboximide.	
1,2-Methylenedioxy-4-[2-(octylsulfinyl)propyl]-benzene	PEN.
(Sulfoxide).	
Piperonal bis[2-(2-butoxyethoxy)ethyl] acetal-----	MGK.
PESTICIDES AND RELATED PRODUCTS, ACYCLIC	
*Fungicides:	
Bis-1,4-bromoacetoxy-2-butene-----	VIN.
Cadmium succinate-----	MAL.
1-Chloro-2-nitropropane (Korax)-----	FMN.
Disodium cyanodithioimidocarbonate-----	BKM.
Dithiocarbamic acid fungicides:	
*Dimethyldithiocarbamic acid, ferric salt (Ferbam)----	DUP, FMN, VNC, WRC.
Dimethyldithiocarbamic acid, manganese salt-----	FMN.
Ethylene bis(dithiocarbamic acid), diammonium salt---	CIS, RBC.
*Ethylene bis(dithiocarbamic acid), disodium salt	CIS, DUP, FMN, RH.
(Nabam).	
Ethylene bis(dithiocarbamic acid), manganese salt	CIS, DUP, RH.
(Maneb).	

TABLE 20B.--Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Fungicides--Continued	
Dithiocarbamic acid fungicides--Continued	
*Ethylene bis(dithiocarbamic acid), zinc salt (Zineb).	CIS, DUP, FMN, RH, WOD.
Polyethylenethiuram disulfide (PETD)-----	FMN.
Other dithiocarbamic acid fungicides-----	VNC.
n-Dodecylguanidine acetate (Dodine)-----	ACY.
Mercury fungicides:	
Chloromethoxypropylmercuric acetate-----	TRO.
3-Methyl (mercurithio)-1,2-propanediol-----	DUP.
Methylmercuric hydroxide-----	MRT.
Methylmercury nitrile-----	WRC.
All other acyclic fungicides:	
Dimethyl thiocarbonyl disulfide-----	CLY.
2-Propene-1,1-diol diacetate-----	SHC.
*Herbicides and plant hormones:	
Cacodylic acid-----	ASL, VIN.
2-Chloroallyl diethyldithiocarbamate (CDEC)-----	MON.
2-Chloro-N,N-diallylacetamide (CDA)-----	MON.
2,3-Dichloroallyl diisopropylthiolcarbamate (Diallate)-----	MON.
2,2-Dichloropropionic acid, sodium salt (Dalapon)-----	DOW.
N-Dimethylaminosuccinamic acid-----	USR.
S-Ethyl di-N,N-propylthiocarbamate (EPTC)-----	SF.
Ethyl xanthogen disulfide-----	RBC.
Methanearsonic acid, disodium salt (DSMA)-----	ASL, CLY.
Methanearsonic acid, dodecyl- and octylammonium salts-----	CLY, VIN.
Methanearsonic acid, sodium salt (MSMA)-----	VIN.
S-Propyl butylethylthiocarbamate (Pebulate)-----	SF.
S-Propyl dipropylthiocarbamate (Vernolate)-----	SF.
S,S,S-Tributyl phosphorotrithioate-----	CHG.
Tributyl phosphorotrithioate-----	SM.
Trichloroacetic acid, sodium salt (TCA)-----	DOW.
S-2,3,3-Trichloroallyl N,N-diisopropylthiol carbamate (Tri-allate).	MON.
Other acyclic herbicides-----	ACN.
*Insecticides:	
2-(2-Butoxyethoxy)ethyl thiocyanate -----	RH.
Metalddehyde-----	COM.
*Organophosphorus insecticides:	
S-[1,2-Bis (ethoxycarbonyl)ethyl] O,O-dimethyl phosphorodithioate (Malathion).	ACY, CIS.
2-Carbomethoxy-1-propen-2-yl dimethyl phosphate-----	SHC.
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate (Naled)	SHC.
O,O-Diethyl S-2-(ethylthio)ethyl phosphorodithioate (Disulfoton).	CHG.
O,O-Diethyl O-2-(ethylthio)ethyl phosphorothioate (Demeton O).	CHG.
O,O-Diethyl S-2-(ethylthio)ethyl phosphorothioate (Demeton S).	CHG.
O,O-Diethyl S-(ethylthio)methyl phosphorodithioate (Phorate).	ACY.
3-(Dimethoxyphosphinyloxy)-N,N-dimethyl-cis-crotonamide.	SHC.
O,O-Dimethyl O-2,2-dichlorovinyl phosphate (DDVP).	SHC.
O,O-Dimethyl S-(N-methylcarbamoylmethyl) phosphorodithioate (Dimethoate).	ACY.
Dimethyl phosphate of 3-hydroxy-N-methyl-cis-crotonamide.	SHC.
S-[2-(Ethylsulfanyl)ethyl] O,O-dimethyl phosphorothioate (Oxydemetonmethyl).	CHG.
O,O,O',O'-Tetraethyl S,S'-methylene bis-phosphorodithioate (Ethion).	FMN, FMP.
Tetraethyl pyrophosphate (TEPP)-----	ALC, OTH.
Tetra-n-propyl dithiopyrophosphate-----	SF.
2-Thiocyanoethyl dodecanoate-----	RH.
Other acyclic insecticides-----	BFG.



TABLE 20B.--Pesticides and related products for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
PESTICIDES AND RELATED PRODUCTS, ACYCLIC--Continued	
*Rodenticides: Sodium fluoracetate-----	RBC.
*Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY.
*Soil fumigants:	
2-Aminobutane carbonate-----	LIL.
*1,2-Dibromo-3-chloropropane (DBCP)-----	AMP, BST, DOW, SHC.
1,3-Dichloropropene-----	DOW.
1,3-Dichloropropene, 1,2-dichloropropane-----	DOW, SHC.
*Methyl bromide (Bromomethane)-----	AMP, DOW, GTL, MCH.
N-Methyldithiocarbamic acid, sodium salt (Metham)-----	CHF, DUP, RH, SF.
Trichloronitromethane (Chloropicrin)-----	DOW, IMC.
All other soil fumigants-----	SF.

## Miscellaneous Chemicals

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967

[Miscellaneous chemicals for which separate statistics are given in table 21A are marked with an asterisk (\*); chemicals not so marked do not appear in table 21A because the reported data are accepted in confidence and may not be published. Manufacturers' identification codes shown below are taken from table 22. An x signifies that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC	
6-Acetoxy-2,4-dimethyl-m-dioxane-----	GIV.
Adamantane and carboxylic acid-----	ALD.
Adenosine phosphates-----	PLB.
2-Aminobenzothiazole-----	FMT.
2-Amino-4,6-dimercapto-1,3,5-triazine-----	ACY.
1-(2-Aminoethyl)piperazine-----	JCC.
1-(3-Aminopropyl)morpholine-----	JCC.
Anisaldehyde bisulfite-----	GIV, SHL.
Arylalkyl phosphites-----	WES.
Barium octylphenate-----	CCA.
Benzoic acid salts:	
Ammonium benzoate-----	FIS.
*Sodium benzoate-----	HK, HN, MON, PFZ, VEL.
p-Benzoquinone (p-Quinone)-----	EKT.
Benzothiazole-----	ACY.
*Benzoyl peroxide-----	ARG, AZT, BKL, CAD, NOC, RCI, SDH, UPR, WTL.
Benzyltrimethylammonium chloride-----	COM.
Biological stains-----	ACS, EK.
Bis(2,4-dichlorobenzoyl) peroxide-----	CAD, WTL.
2,4-Bis(4-hydroxy-3,5-di-tert-butyl-phenoxy)-6-(n-octylthio)-1,3,5-triazine.	GGY.
2,4-Bis(n-octylthio)-6-(4'-hydroxy-3',5'-di-tert-butylanilino)-1,3,5-triazine.	
Boron fluoride-phenol complex-----	ACS.
*Butyl benzoate-----	FRO, TCC, VEL.
p-tert-Butylbenzoic acid, barium bis-salt-----	CCA.
2(and 3)-tert-Butyl-4-methoxyphenol-----	EKT.
p-tert-Butyl- $\alpha$ -methylcinnamaldehyde-----	GIV.
tert-Butyl peroxybenzoate-----	AZT, WTL.
4-tert-Butylphenyl salicylate-----	DOW.
*4-tert-Butylpyrocatechol-----	BKL, CTA, DOW.
Camphene-----	GLD, HPC.
Catecholsulfonic acid, sodium salt-----	ICO.
Centralite-1 (N,N'-Diethyl-N,N'-diphenylurea)-----	ACS, OTC, PAS.
Chemical indicators-----	ACS, EK, LAM.
Chemical reagents-----	ACS, CLB, EK, GFS, LAM, PIC.
Chloramine B (Sodium derivative of N-chlorobenzene-sulfonamide).	NES.
1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride.	DOW.
o-Chlorobenzamalonnitrile-----	NCA.
5-Chloro- $\alpha$ , $\alpha$ -bis(3,5-dichloro-2-hydroxyphenyl)-o-toluenesulfonic acid	TRO.
5-Chloro-2-hydroxybenzophenone-----	DOW.
Chlorophyllin, sodium-potassium-copper-----	KCH.
Cobalt phthalocyaninedisulfonic acid-----	ACS.
Cumene hydroperoxide-----	HPC, RCI.
Cyanuric acid-----	FMB.
1,3-(and 1,4-)Cyclohexadiene-----	ALD.
*Cyclohexanone peroxide-----	AZT, CAD, NOC, WTL.
Cyclohexene-1,2-dicarboxylic acid (Tetrahydrophthalic acid) disubstituted, polyester salts; Barium and cadmium salts.	RCI.
Cyclohexenone and Cyclopentanone-----	ALD.
1,4-Cyclohexylenedimethanol-----	EKT.
Cyclopropane-----	OH, OMS, TAE.
Cytidine and derivatives-----	PLB.
Decahydronaphthalene (Decalin)-----	DUP.
Decyl diphenyl phosphite-----	HK, x.
Dehydroacetic acid, and sodium salt-----	GAN.
Diaminohexanitrobiphenyl-----	NCA.
Diaminotrinitrobenzene-----	NCA.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
2,5-Di-tert-amylhydroquinone-----	EKT.
1,5-Diazabicyclo(4.3.0)-5-non-5-ene-----	ALD.
1,4-Diazabicyclo(2.2.2)octane-----	HOU.
Diazodinitrophenol-----	HPC.
2,4-Dibenzoylresorcinol-----	DOW.
2,6-Di-tert-butyl-p-cresol:	
*Food grade-----	ASH, EKT, HPC, KPT, PRD, SHC.
*Tech-----	ASH, EKT, HPC, KPT, PRD, SHC.
2,5-Di-tert-butylhydroquinone-----	EKT.
Di-tert-butyl peroxyphthalate-----	WTL.
1,3-Dichloro-5,5-dimethylhydantoin-----	GLY.
Dichloro-s-triazine-2,4,6(1H,3H,5H)trione (Dichloro-	FMB, MON.
isocyanuric acid), potassium and sodium salts.	
4,4'-Dichloro-3-trifluoromethylcarbonalide-----	GGY.
Dicyclohexylammonium nitrite-----	OMC.
Didecyl phenyl phosphite-----	HK.
Digitonin-----	PEN.
2,4-Dihydroxybenzophenone-----	DUP.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone-----	GAF.
2,6-Dihydroxyisonicotinic acid (2,6-Dihydroxy-4-carboxy-	EK.
pyridine).	
2,2'-Dihydroxy-4-methoxybenzophenone-----	ACY.
2,2'-Dihydroxy-4-(octadecyloxy)benzophenone-----	ACY.
3,5-Diiodosalicylic acid-----	MRT.
Diisopropylbenzene hydroperoxide-----	HPC.
Diisopropyl-m,p-cresols-----	GIV.
*p-Dimethoxybenzene (Dimethyl ether of hydroquinone)-----	ASL, EKT, GAF, ICO, UOP.
5,6-Dimethylbenzimidazole-----	ALD.
2,5-Dimethyl-2,5-di(benzoylperoxy)hexane-----	WTL.
2,6-Dimethylmorpholine-----	DOW.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol-----	MRK.
Di-n-octadecyl 3,5-di-tert-butyl-4-hydroxyphenyl phos-	GGY.
phonate.	
Dioxane (1,4-Diethylene oxide)-----	DOW, UCC.
Dipropylene glycol salicylate-----	HAL.
Dithioammilide, monoethanolamine salt-----	ACY.
4-(Dodecyloxy)-2-hydroxybenzophenone-----	DUP, EKT.
Enzymes:	
Hydrolytic:	
Amylases-----	BAX, CRN, MLS, OMS, PMP, RH, SBI, WBC.
Proteases-----	BAX, MLS, PFZ, PMP, RH, WBC.
Other-----	MLS, RH, WBC.
Nonhydrolytic-----	MLS, PLB, WBC.
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)-----	SHC.
Ethyl cellulose phthalate-----	EK.
Ethylenediaminedi(o-hydroxyphenylacetic acid), ferric,	GGY.
sodium salt.	
2-Ethylethyleneimine-----	ICO.
4-Ethylmorpholine-----	BRD, JCC.
*Flotation reagents:	
Dicresylphosphorodithioic acid (Dicresylthiophosphoric	ACY.
acid).	
Dicresylphosphorodithioic acid, ammonium salt-----	ACY.
Dicresylphosphorodithioic acid, sodium salt-----	KCU.
2,2'-Dimethylthiocarbamilide (Di-o-tolylthiourea)-----	DUP, RBC.
Rosin amines-----	HPC.
Thiocarbamilide (Diphenylthiourea)-----	ACS, ACY.
Fluorinated benzenoid chemicals-----	PIC.
Furan derivatives:	
2-Furaldehyde (Furfural)-----	QKO.
Tetrahydrofurfuryl alcohol-----	QKO.
Gallic acid-----	MAL.
*Gasoline additives:	
N,N'-Bis(1,4-dimethylpentyl)-p-phenylenediamine-----	EKT.
2,6-Di-tert-butylphenol-----	SHC, TNA.
N,N-Di-sec-butyl-o-phenylenediamine-----	x.
*N,N'-Di-sec-butyl-p-phenylenediamine-----	DUP, EKT, UPM.
N,N'-Diisopropyl-p-phenylenediamine-----	DUP, x.
*N,N'-Disalicylidene-1,2-propanediamine-----	DUP, EKT, SM, TX, UPM.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Photographic chemicals--Continued	
p-Diethylaminobenzenediazonium (p-Diazo-N,N-diethylaniline) fluoroborate.	IDC.
N,N-Diethyl-p-phenylenediamine hydrochloride-----	EKT, FMT.
*N,N-Diethyltoluene-2,5-diamine, monohydrochloride-----	EKT, FMT, IDC.
2,5-Dihydroxybenzenesulfonic acid-----	EK.
2,7-Dihydroxy-3,6-naphthalene sulfonate-----	FMT.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline) - zinc chloride.	ESA, FMT, IDC.
4-(2',6'-Dimethylmorpholinyl)benzenediazonium chloride - zinc chloride.	IDC.
p-Diphenylaminediazonium sulfate-----	FMT.
p-(N-Ethylbenzimidob)benzenediazonium chloride (p-Diazo-N-benzyl-N-ethylaniline) - zinc chloride.	FMT, MRT.
p-[Ethyl(2-hydroxyethyl)amino]benzenediazonium chloride (p-Diazo-N-ethyl-N-hydroxyethylaniline) - zinc chloride.	FMT, IDC.
N-Ethyl-N-hydroxyethyl-p-phenylenediamine sulfate-----	IDC.
N-Ethyl-N-(β-methanesulfonamidoethyl)toluene-2,5-diamine sulfate.	EKT.
Hydroquinone (Hydroquinol)-----	EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline) - zinc chloride.	FMT.
1-Hydroxy-N-(2-hydroxyethyl)-2-naphthamide (2,3-Oxynaphthoic-mono-ethanolamide).	FMT.
1-(3-Hydroxyphenyl)urea-----	FMT, IDC.
4-Methoxy-1-naphthol-----	x.
p-Methylaminophenol sulfate-----	EK.
5-Methylbenzotriazole-----	EK.
2-Methylbenzoxazole-----	FMT.
4-Methyl-1-phenyl-3-pyrazolidinone-----	WAY.
4-Morpholinylbenzenediazonium salts-----	FMT, IDC.
6-Nitrobenzimidazole-----	EK, FMT.
Octylphenyl salicylate-----	EKT.
Phenyl-5-mercaptopentatriazole-----	CFC, FMT.
1-Phenyl-3-pyrazolidinone-----	GGY, WAY.
4-Phenylpyrocatechol-----	x.
Polyvinyl cinnamate-----	WAY.
2-Resorcylic monoethanolamide-----	FMT.
4,4'-Thiodiresorcinol (Diresorcylic sulfide)-----	BKC.
1-(2,4,6-Trichlorophenyl)-3-(4-nitroanilino)-2-pyrazolin-5-one.	EKT.
All other-----	EK, EKT, FMT, IDC, VPC, WAY, x.
Phthalic acid, lead salt, dibasic-----	NTL.
Picric acid, sodium salt-----	NCA, SDC.
*Pinene (α- and β-)-----	ARZ, CBY, GLD, HNW, HPC, NCI.
Piperonal, sodium bisulfite complex-----	SHL.
Poly-4-(2-acryloxy ethoxy)-2-hydroxybenzophenone-----	ACY.
Poly(dihydroxyphenylene) sulfide-----	ACY.
Polyethylene terephthalate-----	DUP, EK.
Polyvinyl phthalate-----	EK.
*Propyl gallate-----	EKT, HN, HSH.
Pyrogallol (Pyrogallic acid)-----	HSH, MAL.
Resorcinol monobenzoate-----	EKT.
*Rosin acid salts:	
Aluminum resinate-----	JMS.
Calcium resinate-----	JMS, SW.
Cobalt manganese resinate-----	JMS.
Copper resinate-----	JMS.
Iron resinate-----	HSH, JMS.
Lead resinate-----	JMS.
Manganese resinate-----	JMS, WVA.
Zinc resinate-----	JMS, SW.
Salicylanilide-----	DUP, PCW.
Salicylic acid salts:	
Lead salicylate-----	NTL.
Strontium salicylate-----	CFC.
Sodium cresoxide (Cresylic acid, sodium salt)-----	DEX, GOC.
Sucrose benzoate-----	VEL.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Sulfosalicylic acid-----	MON, MRK.
Tall oil fatty acid chloride-----	GAF.
*Tall oil salts (Linoleic-rosin acid salts):	
Barium zinc tellate-----	HSH.
Calcium manganese tellate-----	MCI.
*Calcium tellate-----	CCA, CCC, DYS, HNX, HSH, MCI, MLD, SRR, TRO, WTC.
*Cobalt tellate-----	CCA, CCC, FER, HNX, MCI, MLD, SHP, SRR, TRO, WTC.
Copper tellate-----	CCA, MCI, MLD, SHP.
Iron tellate-----	CCA, MCI, MLD, SHP, SRR, WTC.
Lead manganese tellate-----	HSH, MCI.
*Lead tellate-----	CCA, CCC, FER, HNX, HSH, MCI, MLD, SHP, SRR, TRO, WTC.
*Manganese tellate-----	CCA, CCC, FER, HNX, HSH, MCI, MLD, SHP, SRR, TRO, WTC.
Manganese zinc tellate-----	MCI.
Zinc tellate-----	CCA, HSH, MCI.
Tannic acid-----	HSH, MAL.
*Tanning materials, synthetic:	
Hydroxytoluenesulfonic acid, formaldehyde condensate (Cresol-formaldehyde sulfonate), sodium salt.	GGY.
*2-Naphthalenesulfonic acid, formaldehyde condensate and salts.	AKS, DA, GRD, NYC, RH.
*1-Phenol-2-sulfonic acid, formaldehyde condensate (Phenol-formaldehyde, sulfonated).	ACS, DA, RH.
Styrene maleic anhydride interpolymers, partial sodium salt.	DUP.
Sulfonyldiphenolsulfonic acid, formaldehyde condensate---	GAF.
All other-----	AKS, GGY.
Tetra(n-butyl)ammonium picrate-----	MED.
Tetrahydromethylthiophene-1,1-dioxide-----	PLC.
1,2,3,4-Tetrahydronaphthalene (Tetralin)-----	DUP, UCC.
Tetrahydrothiophene-----	ORO, PAS.
Tetrahydrothiophene-1,1-dioxide (Sulfolane)-----	PLC.
Tetrakis[methylene-3-(3',5'-di-tert-butyl-4'-hydroxyphenol) propionate]methane.	GGY.
Tetranitrocarbazole-----	SDC.
Tetraphenyltin-----	x.
*Textile chemicals, other than surface-active agents:	
1,3-Bis(hydroxymethyl)-2-imidazolidone (Dimethylol ethylene urea).	ACY, AKS.
4-Decyloxy-2-hydroxybenzophenone-----	GAF.
N <sup>1</sup> ,N <sup>1</sup> -Diphenyl-1,2-propanediamine-----	SNW.
1-[(Octadecyloxy)methyl]pyridinium chloride-----	DUP.
Phenol, sulfurated-----	GAF.
Tetrahydro-3,5-bis(methoxymethyl)-4H-1,3,5-oxadiazine-4- one (1,3-Bis(methoxymethyl)uron).	DEX.
2,2',4,4'-Tetrahydroxybenzophenone-----	GAF.
All other-----	x, x,
2,2'-Thiobis[4-chlorophenol]-----	GIV.
2,2'-Thiobis[4,6-dichlorophenol]-----	SDH.
[2,2'-Thiobis(4-octylphenolate)]-n-butylamine nickel-----	ACY.
Thiophene-----	PAS.
3-o-Tolyloxy-1,2-propanediol-----	ICO.
o-Tolylbiguanide-----	MON.
Triallyl cyanurate-----	ACY.
Triaryl phosphites-----	WES.
Tribenzylamine-----	BFC.
3,4',5-Tribromosalicylanilide-----	DOW, FIN, MEE.
3,4',5-Tribromosalicylanilide and dibromosalicyl- anilide mixtures.	FIN.
3,4,4'-Trichlorocarbanilide-----	MON.
Trichloromelamine-----	WTH.
1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)trione (Trichloroisocyanuric acid).	MON.
Tri-(m,p)-cresyl borate-----	USB.
$\alpha,\alpha,\alpha$ -Trifluoro-p-toluidine (p-Aminobenzotrifluoride)-----	PIC.
Trimethylaminoethylpiperazine-----	JCC.
3,5,5-Trimethyl-2-cyclohexen-1-one (Isophorone)-----	ENJ, UCC.
2,4,6-Trinitroresorcinol, lead derivative-----	x.
s-Trioxane-----	CEL.
Triphenylphosphine-----	CCW, x.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
Triphenyl phosphite-----	HK, MON.
Triphenyltin-----	x.
Triphenyltin chloride-----	x.
Tris(1-aziridinyl)phosphine oxide-----	DOW.
Uridine derivatives-----	PLB.
1-Vinyl-2-pyrrolidinone - acrylamide copolymer-----	GAF.
1-Vinyl-2-pyrrolidinone - ethyl - acrylamide copolymer---	GAF.
1-Vinyl-2-pyrrolidinone - olefin copolymers-----	GAF.
1-Vinyl-2-pyrrolidinone - vinyl acetate copolymer-----	GAF.
1-Vinyl-2-pyrrolidinone, monomer and polymer-----	GAF.
MISCELLANEOUS CHEMICALS, ACYCLIC	
<i>Cellulose Esters and Ethers</i>	
*Cellulose esters:	
*Cellulose acetate-----	AV, CEL, DUP, EKT.
Cellulose acetate butyrate-----	EKT.
Cellulose acetate propionate-----	EKT.
Cellulose propionate-----	CEL.
Nitrocellulose (Cellulose nitrate)-----	DUP, HPC.
*Cellulose ethers:	
Ethylcellulose-----	DOW, x.
Ethylhydroxyethylcellulose-----	HPC.
Hydroxyethylcellulose-----	HPC, UCC.
Hydroxypropylcellulose-----	x.
Methylcellulose-----	DOW.
*Sodium carboxymethylcellulose, 100%-----	BUK, DUP, HPC, KON, WMP, WYN, UCC.
Sodium carboxymethylhydroxyethylcellulose-----	HPC.
<i>Lubricating Oil Additives</i>	
Chlorosulfurized lard oil-----	CCW.
Chlorosulfurized sperm oil-----	CCW.
Oxidized hydrocarbons-----	ALX.
*Phosphorodithioates (Dithiophosphates):	
Zinc di(butylhexyl) phosphorodithioate-----	ORO.
Zinc dihexyl phosphorodithioate-----	MON, SIN.
All other-----	ENJ, LUB, MON, SIN, x.
Sulfurized butenes-----	LUB.
*Sulfurized lard oil-----	
Sulfurized sperm oil-----	CCW, GOC, NLC, SIN, WBG.
All other-----	CCW, LUB, QCP, SIN.
All other-----	
	CCW, ENJ, HK, LUB, MON, ORO, PAS, SIN, SM, SOI, TX.
<i>Nitrogenous Compounds</i>	
Acetamide-----	ACS.
Acetamidine hydrochloride-----	MRK.
Acetamidoethanol (n-Acetyl-ethanolamine)-----	RBC.
Acetonitrile-----	EKX, SOH, UCC.
*Acrylonitrile-----	ACY, BFG, DUP, MON, SOH.
Adiponitrile-----	DUP, MON.
Allyl-sec-butylcyanoacetic acid, ethyl ester-----	SDW.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea-----	FMT, IDC.
Allyl isocyanate-----	CWN.
Allyl isothiocyanate, non-perfume grade-----	ICO.
Allyl nitrile (Allyl cyanide)-----	KF.
Amidinourea (Guanylurea) phosphate-----	ACY.
*Amines:	
Allylamines-----	SHC.
n-Butylamines:	
*n-Butylamine, mono-----	EKT, PAS, UCC, VGC.
*Di-n-butylamine-----	PAS, UCC, VGC.
Tri-n-butylamine-----	PAS, VGC.
tert-Butylamine, mono-----	MON, RH.
n-Butylethylamine-----	PAS.
n-Butylmethylamine-----	PAS.
Diethylaminopropylamine-----	UCC.
Diethylenetriamine-----	DOW, JCC, UCC.
N,N-Diethylethylenediamine-----	ALB, CBP.
N <sup>1</sup> , N <sup>1</sup> -Diethyl-1,4-pentanediamine (Novoldiamine)-----	SDH.
Dihexylamine-----	VGC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
*Amines--Continued	
N,N-Dimethyl-1,3-propanediamine-----	JCC.
Dimethylaminopropylamine-----	ARC, UCC.
Ethylamines:	
*Diethylamine-----	DUP, ESC, PAS, UCC, VGC.
Diethylamine hydrochloride-----	CFC.
*Ethylamine, mono-----	ESC, PAS, UCC, VGC.
*Triethylamine-----	ESC, PAS, UCC, VGC.
Ethylenediamine-----	DOW, JCC, UCC.
Ethylenediamine sulfate-----	ASH.
(2-Ethylhexyl)amine, mono-----	VGC.
n-Heptylamine-----	ALB.
*1,6-Hexanediamine (Hexamethylenediamine)-----	CEL, DUP, ELP, MON.
n-Hexylamine-----	VGC.
3,3'-Iminobispropylamine-----	JCC, UCC.
Isobutylamines:	
Diisobutylamine-----	PAS.
Isobutylamine, mono-----	PAS.
Isopropylamines:	
*Diisopropylamine-----	ESC, PAS, UCC, VGC.
*Isopropylamine, mono-----	ESC, PAS, UCC, VGC.
Methylamines:	
*Dimethylamine-----	COM, DUP, ESC, GAF, PAS, RH.
Dimethylamine hydrochloride-----	CFC, EK.
Dimethylamine sulfate-----	RH.
*Methylamine, mono-----	COM, DUP, ESC, GAF, PAS, RH.
Methylamine hydrochloride-----	EK, RBC.
*Trimethylamine-----	COM, DUP, ESC, GAF, PAS, RH.
n-Octylamine, mono-----	VGC.
Pentaethylenhexamine-----	DOW.
Pentylamines (Amylamines):	
Dipentylamine-----	ASH, PAS, VGC.
Pentylamine, mono-----	EK, PAS.
Tripentylamine-----	PAS.
1,2-Propanediamine (Propylenediamine)-----	UCC.
1,3-Propanediamine (1,3-Diaminopropane)-----	JCC.
Propylamines:	
*Dipropylamine-----	PAS, UCC, VGC.
Propylamine, mono-----	PAS, UCC, VGC.
Tripropylamine-----	PAS.
Tetraethylenepentamine-----	DOW, UCC.
N,N,N',N'-Tetramethyl-1,3-butanediamine-----	UCC.
Tetramethylethylenediamine-----	RH.
Triethylenetetramine-----	DOW, UCC.
Other amines-----	ALB, ALD, DUP, EK, NLC, PIC, SDW, UCC.
2-Amino-1-butanol-----	ACY, CCM.
2-Aminoethanethiol (2-Mercaptoethylamine) hydrochloride-----	EVN.
1-Aminoethanol (Acetaldehyde ammonia)-----	PAS.
2-Aminoethanol (Monoethanolamine) hydrochloride-----	WSN.
2-Aminoethanol (Monoethanolamine) sulfite-----	EVN, SUM.
Aminoethoxyethanol-----	JCC.
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)-----	DOW, HDG, JCC, UCC.
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate).-----	EVN, HAB.
2-Amino-2-ethyl-1,3-propanediol-----	COM.
Aminoguanidine bicarbonate-----	COM, TRJ.
2-Amino-2-(hydroxymethyl)-1,3-propanediol (Tris-(hydroxymethyl)aminomethane).-----	COM.
2-Amino-2-methyl-1,3-propanediol-----	COM.
2-Amino-2-methyl-1-propanol-----	COM.
2-Amino-1-propanol-----	LIL.
3-Amino-1-propanol-----	UCC.
*1,1'-Azobisformamide-----	FMT, NPI, USR.
2,2'-Azobis[2-methylpropionitrile] (Azobisisobutyronitrile).-----	DUP.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)-----	CCW, GLY, x.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
N,O-Bis(trimethylsilyl)acetamide-----	PIC.
Biuret-----	SW.
N-Bromoacetamide-----	ARA.
N-Bromosuccinimide (Succinibromimide)-----	ARA, SDW.
2,3-Butanedione monoxime-----	EK.
2-Butanone oxime-----	ACS, CCA, MLD.
1-Butyl-3-ethyl-2-thiourea-----	PAS.
2,2'-(Butylimino)diethanol (N,N-Bis(2-hydroxyethyl)-butylamine).	PAS.
Butyl isocyanate-----	CWN, UPJ.
Butyraldehyde oxime-----	ACS.
n-Butyronitrile-----	EKX.
*Caprolactam (2-Oxohexamethylenimine)-----	ACS, CNP, DBC, DUP.
Chloroacetamide-----	BPC.
Chloroacetonitrile-----	BPC.
β-Chloroallyl-N-methylamine-----	LIL.
Chlorocholine chloride-----	ACY.
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride.	ABB, HEX, MCH, PAS.
2-Chloro-N,N-diethylethylamine hydrochloride-----	HEX.
3-Chloro-N,N-dimethylpropylamine-----	SK.
2-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.
3-Chloro-N,N-dimethylpropylamine hydrochloride-----	MCH.
2-Chloroethylamine hydrochloride-----	NES.
N-Chlorosuccinimide (Succinichlorimide)-----	ACS, ARA.
Choline base-----	RH.
Coco nitrile-----	FOR.
Coconut oil amide-----	ARC, PG.
Cottonseed oil acids, ammonium salt-----	GLY.
Cottonseed oil nitrile-----	FOR.
Creatine and creatinine-----	PFN.
2-Cyanoacetamide-----	KF.
2-Cyanoacethydrazide-----	KF.
Cyanoacetic acid-----	KF.
Cyanogen bromide-----	EK.
3-Cyanopropylamine-----	EKT.
2-Dibutylaminoethanol-----	AAC, PAS.
1,3-Dibutyl-2-thiourea-----	OMC, PAS, RBC.
1,4-Dicyanobutene-----	x.
Diethanolamine polyoxypropylene ether-----	JCC.
Diethyl acetamidomalonate-----	RSA, SDW.
Diethylaminoethanethiol hydrochloride-----	EVN.
2-Diethylaminoethanol-----	AAC, PAS, UCC.
2-(2-Diethylaminoethoxy)ethanol-----	PAS.
2-Diethylaminoethyl methacrylate-----	DUP.
Diethyldithiocarbamic acid, sodium salt-----	EK.
N,N-Diethyldodecanamide-----	EK.
Diethylhydroxylamine-----	PAS.
1,3-Diethyl-2-thiourea-----	PAS, RBC.
Diisopropylaminoethanol-----	PAS, UCC.
Diisopropylammonium nitrite-----	OMC.
N,N-Dimethylacetamide-----	DUP.
2-Dimethylaminoethanethiol hydrochloride-----	EVN.
*2-Dimethylaminoethanol-----	AAC, JCC, PAS, RH, UCC.
Dimethylaminoethyl methacrylate-----	x.
Dimethylamino-2-propanol-----	COM, PAS.
3-Dimethylaminopropionitrile-----	ACY.
Dimethylcarbamoyl chloride-----	CTN, OTC.
N,N-Dimethylformamide-----	DUP.
1,1-Dimethylhydrazine-----	FMP.
2,5-Dithiobiurea-----	ACY.
Dithioamide-----	MAL.
*Erucamide-----	ARC, ASH, FIN, HUM.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)-----	ACP, DOW, JCC, UCC.
*2,2'-Iminodiethanol (Diethanolamine)-----	ACP, DOW, JCC, UCC.
*2,2',2''-Nitrilotriethanol (Triethanolamine)-----	ACP, DOW, JCC, UCC.



TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Ethoxymethylenemalononitrile-----	KF.
3-Ethoxypropionitrile-----	ACY.
Ethyl acetamidocynoacetate-----	SDW.
2-Ethylaminoethanol (Ethylmonoethanolamine)-----	PAS.
Ethyl carbamate-----	FMP.
Ethyl carbodiimide hydrochloride-----	OTC.
Ethyl cyanoacetate-----	KF.
N,N'-Ethylenebis stearamide-----	CTN.
2-Ethylhexyl cyanoacetate-----	GAF, KF.
5-(N-Ethyl-N-hydroxyethylamino)-2-pentanone-----	SDW.
N-Ethyl-N-hydroxyethyl-1,4-pentanediamine-----	SDW.
Ethyl isocyanate-----	OTC.
Ethyl isothiocyanate-----	CWN, EK.
Fish oil fatty acid amide-----	ASH, HUM.
Formamide-----	DUP.
Formamidine disulfide dihydrochloride-----	WAY.
Formamidine hydrochloride-----	KF.
Glycine (Aminoacetic acid), non-medicinal-----	BPC, CHT.
Glycine ethyl ester hydrochloride-----	BPC.
Glycine salts: Cupric glycinate-----	BPC.
Glycolonitrile-----	ACY.
Guanidine hydrochloride-----	ACY.
Hexadecyl nitrile-----	FOR.
Hexamethyldiaminopropanol diiodide-----	RSA.
Hexamethylenediammonium adipate (Nylon salt)-----	CEL, DUP, MON.
Hydracrylonitrile (Ethylene cyanohydrin)-----	UCC.
N-(2-Hydroxyethyl)chloracetamide-----	KF.
2-(Hydroxymethyl)-2-nitro-1,3-propanediol (Tris(hydroxymethyl)nitromethane).	COM.
N-Hydroxymethylstearamide-----	ICI.
3,3'-Iminodi-1,2-propanediol-----	DUP.
Isobutyl cyanoacetate-----	KF.
Isobutyronitrile-----	EKX, ESC.
Isopropanolamines:	
1-Amino-2-propanol (Monoisopropanolamine)-----	DOW, UCC.
1,1'-Iminodi-2-propanol (Diisopropanolamine)-----	DOW, UCC.
1,1',1''-Nitrilotri-2-propanol (Triisopropanolamine)-----	DOW, UCC.
3-Isopropoxypropionitrile-----	ACY, DUP.
3-Isopropoxypropylamine-----	DUP.
2-Isopropylaminoethanol-----	PAS.
Isopropyl carbamate-----	BKL.
Isopropyl ethylthionocarbamate-----	DOW.
Isopropyl isocyanate-----	OTC.
Lactonitrile-----	MON.
Lauronitrile (Dodecyl nitrile)-----	ARC, FOR.
Malonitrile-----	KF, MTR.
Methacrylamide-----	RH, x.
Methacrylonitrile-----	SOH.
Methoxyamine hydrochloride-----	EK.
Methoxyiminobis(propylamine)-----	JCC.
3-Methoxypropionitrile-----	DUP.
3-Methoxypropylamine-----	DUP, JCC.
N-Methylacetamide-----	ACT, EK.
2-Methylaminoethanol (N-Methylethanolamine)-----	UCC.
Methylamino dimethyl acetal-----	LIL.
Methyl carbamate-----	BKL, FMP.
Methyl cyanoacetate-----	KF.
Methyl $\alpha$ -cyanoacrylate-----	EKT.
N,N'-Methylenebis(acrylamide)-----	ACY.
N,N'-Methylenebis(octadecanamide)-----	ARC.
Methylenebis(thiocyanate)-----	NLC.
N-Methylglucamine-----	DUP.
2,2'-(Methylimino)diethanol (Methyldiethanolamine)-----	UCC.
Methyl isobutyl ketoxime-----	ALB.
Methyl isocyanate-----	OTC, UCC.
*2-Methylactonitrile (Acetone cyanohydrin)-----	ACY, RH, x.
2-Methyl-2-nitro-1,3-propanediol-----	COM.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
2-Methyl-2-nitro-1-propanol-----	COM.
Methylpolyethanolamine-----	GAF.
N-Methyltaurine-----	GAF.
N-Methylurea-----	EK.
Nitrated lard oil-----	SM.
*Nitriiloacids and salts:	
(Diethylenetrinitrilo)pentaacetic acid-----	HMP.
(Diethylenetrinitrilo)pentaacetic acid, mono-sodium hydrogen ferric salt.	GGY.
(Diethylenetrinitrilo)pentaacetic acid, pentasodium salt	GGY, HMP.
(Diethylenetrinitrilo)pentaacetic acid, sodium salt-----	CWL, DOW, GGY, HMP, RPC, TCC.
N,N-Dihydroxyethylglycine, sodium salt-----	CWL, DOW, HMP.
Ethanoldiglycine, disodium salt-----	HMP.
*(Ethylenedinitrilo)tetraacetic acid (Ethylenediamine- tetraacetic acid).	DOW, EK, GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, calcium disodium salt.	DOW, GGY.
(Ethylenedinitrilo)tetraacetic acid, disodium salt-----	DOW, EK, GGY, HMP, RPC.
(Ethylenedinitrilo)tetraacetic acid, disodium copper salt, dihydrate.	GGY.
(Ethylenedinitrilo)tetraacetic acid, disodium zinc salt, dihydrate.	GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, manganese salt-----	GGY.
(Ethylenedinitrilo)tetraacetic acid, monosodium iron salt.	GGY, HMP.
(Ethylenedinitrilo)tetraacetic acid, tetrammonium salt--	DOW.
(Ethylenedinitrilo)tetraacetic acid, tetrapotassium salt	GGY.
*(Ethylenedinitrilo)tetraacetic acid, tetrasodium salt---	CRT, CWL, DOW, GGY, HMP, HRT, IBI, RPC, TCC.
(Ethylenedinitrilo)tetraacetic acid, triammonium salt---	DOW.
*(Ethylenedinitrilo)tetraacetic acid, trisodium salt-----	DA, GGY, HMP.
(N-Hydroxyethylethylenedinitrilo)triacetic acid-----	GGY.
*(N-Hydroxyethylethylenedinitrilo)triacetic acid, tri- sodium salt.	CRT, CWL, DOW, GGY, HMP, IBI, RPC, TCC.
Nitriilotriacetic acid, trisodium salt-----	DOW, GGY, HMP.
Other-----	HMP.
2-Nitro-1-butanol-----	COM.
Nitroethane-----	COM.
Nitromethane-----	COM.
1-Nitropropane-----	COM.
2-Nitropropane-----	COM.
*Nylon, 6 and 6/6 polymer for fiber-----	ACS, DBC, DUP, MON.
Octadecyl isocyanate-----	CWN, MOB.
Octadecyloxymethyltriethylammonium chloride-----	DAN.
Oleamide (Octadecene amide)-----	ARC, ASH, FIN, HUM.
Oleotrile (Octadecene nitrile)-----	ARC, FOR.
Oleoylhydroxamic acid-----	WAY, WOB.
Oleoylpalmitamide-----	FIN.
*Pentaerythritol tetranitrate-----	COM, DUP, HPC, TRJ.
Pentyl nitrate (Amyl nitrate)-----	TNA.
Polyacrylamide-----	ACY, HPC, NLC.
Polyacrylonitrile-----	DUP.
Polyesteramide-----	ICI.
n-Propyl carbamate-----	BKL.
Propyl isocyanate-----	CWN, OTC.
Propyl nitrate-----	TNA.
Quaternary ammonium compounds-----	EK, RSA, WAY.
Ricinolamide-----	TKL.
*Sarcosine (N-Methylaminoacetic acid)-----	GAF, GGY, HMP.
Semicarbazide base-----	FMT.
Semicarbazide hydrochloride-----	FMT.
Semioxamazine-----	NOR.
*Stearamide (Octadecane amide)-----	ARC, ASH, DUP, FIN, HUM.
Stearonitrile (Octadecanenitrile)-----	FOR, HUM.
Succinimide-----	ACS.
Tallow amide, hydrogenated-----	ARC, ASH.
Tallow nitrile-----	ASH, FOR.
Tallow nitrile, hydrogenated-----	FOR.
N,N,N',N'-Tetrakis(2-hydroxypropyl)ethylenediamine-----	WYN.

TABLE 21B. -- Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Nitrogenous Compounds--Continued	
Tetramethylguanidine-----	ACY.
Thioacetamide-----	EK.
3,3'-Thiodipropionitrile-----	ACY.
Thiosemicarbazide-----	ACY, FMT.
*Urea in compounds or mixtures, 100% basis:	
*In feed compounds-----	ACN, <sup>x</sup> , DUP, GCC, JDC, KET, MON, MSC, SHC, SOH, TER, VLN, WYC.
*In liquid fertilizer-----	ACN, AGY, BOR, CFA, CNC, COL, DUP, ESC, FCA, FTX, GCC, GOC, HKY, HPC, JDC, KET, MON, MSC, NIT, OMC, PLC, PPC, SHC, SNI, SOH, TER, VLN, WYC, x.
*In solid fertilizer-----	ACN, ACY, DUP, GCC, GOC, HPC, JDC, MON, MSC, OMC, PPC, SHC, SNO, SOH, TER, VLN, WYC, x, x, x, x.
In plastics-----	DUP, MON.
All other-----	ACN, ACY, DUP, HPC, MON, SHC, SNO, SOH.
Urea peroxide-----	FMB.
Urea - Urethane copolymer-----	DUP.
γ-Valeronitrile-----	EK, SEL.
All other nitrogenous compounds-----	ACY, ALD, ARC, DUP, EK, FIN, GAF, GLY, LIL, MOB, NCA, OMC, SM, VPC, WAY, WYN, x, x.
Acids, Acid Anhydrides, and Acyl Halides	
*Acetic acid, synthetic, 100%-----	BOR, CEL, EKT, HPC, PUB, SNC, UCC.
*Acetic anhydride, 100%:	
From acetaldehyde-----	HPC.
From acetic acid, other than recovered, by the vapor- phase process.	CEL, EKT, FMT.
From acetic acid, recovered, by the vapor-phase process	
From ethylene-----	CEL.
Aconitic acid-----	UCC.
*Acrylic acid-----	PCW.
*Adipic acid-----	BFG, CEL, DBC, MMM, UCC.
Adipoyl chloride-----	ACS, CEL, DUP, ELP, MON, RH.
Azelaic acid-----	CFC, EK.
Behenic acid-----	EMR.
α-Bromo(lauric-stearic) acid-----	ASH.
tert-Butylperoxymaleic acid-----	DUP.
Butylstannoic acid-----	WTL.
*Butyric acid-----	CCW.
Butyric anhydride-----	CEL, EKT, UCC.
Butyryl chloride-----	ARC, EKT, UCC.
Castor oil fatty acids, dehydrated-----	HK.
*Chloroacetic acid, mono-----	BAC.
Chloroacetyl chloride-----	BUK, DA, DOW, HPC, MON.
Chlorolevulinic acid-----	DOW.
Citric acid-----	CRZ.
Crotonic acid (2-Butenoic acid)-----	MLS, PFZ.
*Decanoyl chloride-----	EKT.
Diglycolic acid-----	CAD, UPR, WTL.
Dodecenylsuccinic anhydride-----	DUP.
2-Ethylbutyric acid (Diethylacetic acid)-----	ACS, ARC, HMY, MON.
2-Ethylhexanoic acid (α-Ethylcaproic acid)-----	UCC.
2-Ethylhexanoyl chloride-----	EKT, UCC.
*Formic acid, 90%-----	UPR, WTL.
*Fumaric acid-----	DUP, HN, SFI, SNC, UCC.
*Gluconic acid, tech-----	ACS, HN, MON, PCC, PFZ, PTT.
Glutaric anhydride-----	CWL, DLI, IBI, PFZ.
Glycolic acid (Hydroxyacetic acid)-----	UCC.
n-Hexadecenylsuccinic anhydride-----	DUP.
Hexafluoroglutaric acid-----	HMY.
Isethionic acid (2-Hydroxyethanesulfonic acid)-----	PIC.
Isoascorbic acid-----	GAF.
Isobutyric acid-----	MRK, PFZ.
Isobutyric anhydride-----	EKT.
Iso-octanoic acid-----	EKT.
Itaconic acid (Methylenesuccinic acid)-----	SFA, UCC.
	PFZ.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Acids, Acid Anhydrides, and Acyl Halides--Continued</i>	
Lactic acid:	
Edible, 100%-----	CLN, MON.
Technical, 100%-----	CLN, MON.
*Lauroyl chloride-----	CAD, GAF, HK, ONX, THC, UPR, WTL.
Levulinic acid-----	QKO.
Maleic acid-----	ACS, PFN, PFZ.
*Maleic anhydride-----	ACS, HN, KPS, MON, PCC, PTT, RCI.
Malic acid-----	ACS, EK.
Malonic acid-----	KF.
Mercaptoacetic acid (Thioglycolic acid)-----	EVN, HAB.
$\beta$ -Mercaptopropionic acid-----	EVN.
Mercaptosuccinic acid (Thiomalic acid)-----	EVN.
Methacrylic acid-----	DUP, RH.
Methanesulfonic acid-----	EK, PAS.
2-Methylvaleric acid (2-Methylpentanoic acid)-----	UCC.
Mucochloric acid (2,3-Dichloro-3-formylacrylic acid)-----	EKT.
Neodecanoic acid-----	ENJ.
Neoheptanoic acid-----	ENJ.
Neononanoic acid-----	ENJ.
Neopentanoic acid-----	ENJ.
Nonanoic acid (Pelargonic acid)-----	EMR, GIV.
Nonenylsuccinic anhydride-----	HMY.
Octadecylphosphonic acid-----	SM.
Octanoyl chloride-----	HK.
Octenylsuccinic anhydride-----	HMY.
Oleoyl chloride-----	GAF.
Oxalic acid-----	ACS, MAL, PFZ, SFI.
*Palmitoyl chloride-----	GAF, OPC, PD.
Pelargonyl chloride-----	WTL.
Perfluorobutyryl chloride-----	PIC.
Perfluoroglutaryl chloride-----	PIC.
Peroxyacetic acid-----	FMB, UCC.
Pivaloyl chloride-----	WTL.
Polyacrylic acid-----	RH.
Polygalacturonic acid-----	SKG.
*Propionic acid-----	CEL, COM, EKT, UCC.
Propionic anhydride-----	EKT, UCC.
Propionyl chloride-----	ABB, EK.
Sebacic acid-----	RH, WTH.
Sorbic acid (2,4-Hexadienoic acid)-----	UCC.
Succinic acid-----	ACS, BKC.
Succinic anhydride-----	ACS.
d-Tartaric acid-----	BKC.
Tetrahydroxysuccinic acid (Dioxytartaric acid)-----	ACY.
Thioacetic acid-----	EK, EVN.
3,3'-Thiodipropionic acid-----	EVN.
Thiodisuccinic acid-----	EVN.
Thiolactic acid-----	EVN.
Trichloroacetic acid-----	DOW.
Trichloroacetyl chloride-----	EK.
Trifluoroacetic anhydride-----	EK, PIC.
Valeric acid-----	ARC, UCC.
All other-----	ABB, ALD, CCW, EK, KF, PD, PIC, RH, x, x.
<i>Salts of Organic Acids</i>	
*Acetic acid salts:	
Aluminum acetate-----	ACY, UCC.
Aluminum subacetate-----	MAL.
*Ammonium acetate-----	ACS, BKC, MAL, WSN.
Barium acetate-----	ACS, BKC, MAL.
Cadmium acetate-----	MAL, SHP.
Calcium acetate-----	ACS, BKC, ENJ, MAL.
Chromium acetate-----	ACY.
Cobalt acetate-----	BKC, HSH, SHP.
Copper acetate-----	ACS, BKC, SHP, UCC.
Dibutyltin diacetate-----	CCW, x.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
*Acetic acid salts--Continued	
Lead acetate-----	BKC, MAL, SW.
Lead subacetate-----	ACS, BKC, MAL.
Lead tetraacetate-----	ARA, UCC.
Magnesium acetate-----	ACS, BKC.
Manganese acetate-----	HSH, SHP.
Mercuric acetate-----	MAL.
Methylmercury acetate-----	DUP.
Nickel acetate-----	BKC, HSH, SHP.
Potassium acetate-----	ACS, BKC, CWL, MAL, UCC, WSN.
Silver acetate-----	MAL.
*Sodium acetate-----	ACS, BKC, CEL, DAN, EKT, MAL, UCC, WSN.
Sodium diacetate-----	UCC.
Strontium acetate-----	BKC.
Uranyl acetate-----	BKC.
*Zinc acetate-----	ACS, BKC, HSH, MAL, SHP, SNW, UCC.
*Zirconium acetate-----	HSH, NTL, SNW, TZC.
Adipic acid, ammonium salt-----	FIS.
Chloroacetic acid, sodium salt-----	DOW.
Chlorohydroxylactic acid, aluminum, sodium salt-----	REH.
Citric acid salts:	
Ammonium citrate-----	MAL, PFZ.
Calcium citrate-----	PFZ.
Ferric ammonium citrate-----	PFZ.
Ferric citrate-----	MAL.
Ferrous calcium citrate-----	BKL, MAL.
Potassium citrate-----	MLS, PFZ.
Sodium citrate-----	MLS, PFZ.
Cottonseed oil acids, calcium salt-----	
*2-Ethylhexanoic acid ( $\alpha$ -Ethylcaproic acid) salts:	
Aluminum 2-ethylhexanoate-----	EK, WTC.
Barium 2-ethylhexanoate-----	CCA.
Cadmium 2-ethylhexanoate-----	CCA.
*Calcium 2-ethylhexanoate-----	CCA, CCC, FER, HNX, HSH, MCI, SRR, SW, WTC.
*Cobalt 2-ethylhexanoate-----	CCA, CCC, FER, HNX, HSH, MCI, MLD, SRR, SW, TRO, WTC.
Cobalt lead manganese 2-ethylhexanoate-----	MCI.
Copper 2-ethylhexanoate-----	CCA, SRR.
Dibutyltin di-2-ethylhexanoate-----	x.
Iron 2-ethylhexanoate-----	CCA, MCI, SRR.
*Lead 2-ethylhexanoate-----	CCA, CCC, HNX, HSH, MCI, SRR, SW, TRO, WTC.
Lithium 2-ethylhexanoate-----	SRR.
*Manganese 2-ethylhexanoate-----	CCA, HNX, MCI, MLD, WTC.
Nickel 2-ethylhexanoate-----	MCI.
Potassium 2-ethylhexanoate-----	CCA, SRR.
Rare earths 2-ethylhexanoate-----	CCA.
Stannous 2-ethylhexanoate-----	WTC.
Strontium 2-ethylhexanoate-----	CCA.
*Zinc 2-ethylhexanoate-----	CCA, HNX, HSH, MCI, SRR.
Zirconium 2-ethylhexanoate-----	CCA, HNX, WTC.
*Formic acid salts:	
Aluminum formate-----	UCC, WSN.
Ammonium formate-----	ACS, WSN.
Calcium formate-----	COM, TRJ.
Chromic formate-----	GAF.
Copper formate-----	CTN.
Lead formate-----	NTL.
Nickel formate-----	HSH.
Potassium formate-----	CFC.
Sodium formate, refined-----	ACS, BKC.
Sodium formate, tech-----	COM, HPC, TRJ.
Fumaric acid, lead salt-----	NTL.
Glucosheptonic acid salts:	
Sodium glucosheptonate-----	IBI.
Zinc glucosheptonate-----	PFN.
Gluconic acid salts:	
Ammonium gluconate-----	PFZ.
*Sodium gluconate-----	CWL, DLI, IBI, PFZ, FMP.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Glycolic acid salts:	
Aluminum glycolate-----	CIB.
Sodium glycolate-----	CFC, MED.
9H-Hexadecafluorononanoic acid, ammonium salt-----	ARC, DUP.
Humic acids, sodium salts-----	NLC.
Isoascorbic acid, sodium salt-----	BAX, MRK, PFZ.
Lactic acid salts:	
Aluminum sodium lactate-----	TZC.
Ammonium lactate-----	TCC.
Calcium lactate-----	SHF.
Other-----	REH.
Lauric acid, dibutyltin salt-----	CCA, x.
*Linoleic acid salts:	
Calcium linoleate-----	CCA, SHP, SRR.
Cobalt linoleate-----	HSH, SHP, SRR.
Copper linoleate-----	SHP, WTC.
Lead linoleate-----	SHP, SRR.
Lead manganese linoleate-----	SDH, IMC.
Manganese linoleate-----	SHP.
Maleic acid salts:	
Dibutyltin maleate-----	CCA, x.
Lead (tribasic) maleate-----	NTL.
Malonic acid, calcium salt-----	GIV.
*Mercaptoacetic acid (Thioglycolic acid) salts:	
Ammonium mercaptoacetate-----	EVN, HAB, TNI.
Antimony mercaptoacetate-----	CCA.
Calcium mercaptoacetate-----	EVN.
Dibutyltin mercaptoacetate-----	CCA.
Potassium mercaptoacetate-----	EVN.
Sodium mercaptoacetate-----	EVN, MED.
Mercaptopropionic acid, dibutyltin salt-----	CCA.
Methylsuccinic acid, disodium salt-----	SDW.
Myristic acid, lithium salt-----	CCW.
Neodecanoic acid salts:	
Cadmium neodecanoate-----	CCA.
Calcium neodecanoate-----	CCA, MCI.
Cobalt neodecanoate-----	MCI.
Lead neodecanoate-----	CCA, MCI.
Lithium neodecanoate-----	MCI.
Zinc neodecanoate-----	CCA, MCI.
Other-----	MCI.
Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate-----	ARC, DA.
Stannous octanoate-----	CCW, x.
Zinc octanoate-----	BKC.
*Oleic acid salts:	
Aluminum oleate-----	WTC.
Ammonium oleate-----	BCN.
Barium zinc oleate-----	WTC.
Chromium oleate-----	SHP.
Copper oleate-----	MLD, SHP, WTC.
Lead oleate-----	SHP.
Stannous oleate-----	CCW, x.
Oxalic acid salts:	
Ammonium oxalate-----	ACS, BKC, PFZ.
Copper oxalate-----	CFC.
Ferric ammonium oxalate-----	PFZ.
Ferric oxalate-----	PFZ.
Ferrous oxalate-----	BKL.
Potassium binoxalate-----	BKC.
Potassium oxalate-----	BKC, PFZ.
Sodium oxalate-----	BKC, MAL, SFI.
Palmitic acid salts:	
*Aluminum palmitate-----	ACY, DA, WTC.
Zinc palmitate-----	ACY, DA, WTC.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Salts of Organic Acids--Continued	
Phosphorodithioic acid salts (Dithiophosphates):	
Potassium dihexyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate-----	ACY.
Sodium di-sec-butyl phosphorodithioate-----	ACY.
Sodium diethyl phosphorodithioate-----	ACY.
Sodium dihexyl phosphorodithioate-----	ACY.
Sodium diisopropyl phosphorodithioate-----	ACY.
Other-----	ACY.
*Polyacrylic acid salts:	
Ammonium polyacrylate-----	BFG.
Sodium polyacrylate-----	ALC, BFG, GRD, JOR, RH.
Polymethacrylic acid, sodium salt-----	GRD.
Propionic acid salts:	
*Calcium propionate-----	HFT, PFZ, UCC, WSN.
*Sodium propionate-----	HFT, PFZ, UCC, WSN.
Zinc propionate-----	BKC.
Ricinoleic acid salts:	
Calcium ricinoleate-----	BAC.
Lithium ricinoleate-----	BAC.
Sodium ethyl oxalacetate-----	FMP.
Sodium polypectate-----	SKG.
Sodium sorbitol borate-----	APD.
Sorbic acid salts:	
Potassium sorbate-----	UCC.
Sodium sorbate-----	UCC.
*Stearic acid salts:	
*Aluminum stearates:	
*Aluminum distearate-----	ACY, DA, JTC, MAL, NOC, PEN, SYP, WTC.
*Aluminum monostearate-----	DA, JTC, MAL, NOC, WTC.
*Aluminum tristearate-----	ACY, DA, MAL, NOC, PEN, SYP.
Ammonium stearate-----	DA, WTC.
Barium stearate-----	DA, NOC, PEN, SYP.
Cadmium stearate-----	DA, NOC, PEN, SYP, WTC.
*Calcium stearate-----	ACY, DA, HNX, JTC, MAL, NOC, PEN, SYP, WTC.
Cobalt stearate-----	WTC.
Copper stearate-----	NOC, WTC.
Ferric stearate-----	NOC, WTC.
Ferrous stearate-----	WTC.
Lead stearate-----	DA, NTL, WTC.
Lead stearate, dibasic-----	NTL.
*Lithium stearate-----	DA, PEN, SYP, WTC.
*Magnesium stearate-----	ACY, DA, JTC, MAL, NOC, PEN, SYP, WTC.
Manganese stearate-----	NOC.
Nickel stearate-----	NOC, WTC.
Strontium stearate-----	MAL.
*Zinc stearate-----	ACI, ACY, BCN, CCA, DA, HNX, JTC, MAL, NOC, PEN, SYP, WTC.
All other-----	APD, NOC.
Succinic acid, sodium salt-----	MAL.
Sugar acids, sodium salt-----	PFN.
Tartaric acid salts:	
Antimony potassium tartrate-----	PFZ.
Calcium tartrate-----	CFC.
Potassium bitartrate-----	ATC.
Potassium sodium tartrate-----	PFZ.
Sodium bitartrate-----	PFZ.
Valeric acid, ammonium salt-----	RSA.
Xanthic acid salts:	
Potassium ethylxanthate-----	ACY, DOW.
Potassium hexylxanthate-----	DOW.
Potassium isopropylxanthate-----	DOW.
Potassium pentylxanthate-----	ACY, DOW.
Potassium sec-pentylxanthate-----	DOW.
Sodium n-butylxanthate-----	KCC.
Sodium sec-butylxanthate-----	ACY, DOW.
Sodium ethylxanthate-----	ACY, DOW.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Salts of Organic Acids--Continued</i>	
Xanthic acid salts--Continued	
Sodium isobutylxanthate-----	DOW.
Sodium isopropylxanthate-----	ACY, DOW.
All other salts of organic acids-----	CCW, EK, RSA, SYP, x.
<i>Aldehydes and Ketones</i>	
*Acetaldehyde-----	CEL, COM, DUP, EKT, EKX, HPC, MON, PUB, SHC, UCC.
*Acetone:	
From cumene-----	ACP, CLK, HPC, MON, SHC, SKO, SOC, UCC.
*From isopropyl alcohol-----	EKT, ENJ, SHC, UCC.
Other-----	CEL, DIX, HPC.
Acrolein (Acrylaldehyde)-----	SHC, UCC.
Aldol (Acetaldol)-----	UCC.
*2-Butanone (Methyl ethyl ketone)-----	CEL, DIX, ENJ, SHC, SPI, UCC.
Butyraldehyde-----	CEL, EKX, UCC.
*Chloral (Trichloroacetaldehyde)-----	DA, FMB, GGY, MTO.
5-Chloro-2-pentanone-----	SDW.
1-Chloro-1-penten-3-one ( $\beta$ -Chlorovinyl ethyl ketone)-----	ABB.
Chloro-2-propanone (Chloroacetone)-----	EK.
Crotonaldehyde-----	CEL, EKT, UCC.
Dichloroacetaldehyde-----	FMB.
Dihydropseudoionone-----	GIV.
1,3-Dihydroxy-2-propanone (Dihydroxyacetone)-----	BAX.
2-Ethylbutyraldehyde-----	UCC.
2-Ethylhexanal ( $\alpha$ -Ethylcaproaldehyde)-----	EKT, EKX, UCC.
Ethylpropylacrolein-----	UCC.
*Formaldehyde (37% by weight)-----	ACN, ACP, BOR, CBC, CEL, COM, DUP, GAF, GOC, HKD, HN, HPC, MON, RCI, RH, TRJ, UCC.
Glutaraldehyde-----	UCC.
Glyoxal-----	UCC.
2-Heptanone (Methyl amyl ketone)-----	UCC.
Heptyl methyl ketone-----	ARC.
Hexaldehyde-----	GIV.
2,5-Hexanedione (Acetylacetone)-----	ACL, RBC, UCC.
2-Hydroxy-2-methyl-3-butanone-----	LIL.
*4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)-----	CEL, SHC, UCC.
Isobutyraldehyde-----	EKX, UCC.
Isodecaldehyde, mixed isomers-----	UCC.
Isovalerone (Diisobutyl ketone)-----	EKT, UCC.
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)-----	CLN.
4-Methoxy-4-methyl-2-pentanone-----	SHC.
5-Methyl-2-hexanone (Methyl isoamyl ketone)-----	EKT, UCC.
Methyl nonyl ketone-----	ARC.
*4-Methyl-2-pentanone (Methyl isobutyl ketone)-----	EKT, ENJ, SHC, UCC.
4-Methyl-3-penten-2-one (Mesityl oxide)-----	SHC, UCC.
Methylpseudoionone-----	GIV.
2-Methylvaleraldehyde (2-Methylpentaldehyde)-----	UCC.
3-Octanone (Amyl ethyl ketone)-----	SHC.
Paraformaldehyde-----	CEL, HN.
Paraldehyde (Paracetaldehyde)-----	ARC, UCC.
2,4-Pentanedione (Acetylacetone)-----	UCC.
3-Pentanone (Diethyl ketone)-----	DUP.
Propionaldehyde-----	EKX, UCC.
Pseudoionone-----	GIV.
Tetrahydropseudoionone-----	GIV.
2,6,8-Trimethyl-4-nonanone (Isobutyl heptyl ketone)-----	UCC.
Valeraldehyde-----	UCC.
All other-----	CEL, CLB, EK, MLS, PIC, UCC.
<i>Alcohols, Monohydric, Unsubstituted</i>	
*Alcohols C <sub>9</sub> or lower, unmixed:	
Allyl alcohol-----	DOW, SHC.
Amyl alcohols:	
2-Methyl-1-butanol-----	UCC.
2-Methyl-2-butanol (tert-Amyl alcohol)-----	SHC.



TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Alcohols, Monohydric, Unsubstituted--Continued</i>	
*Alcohols C <sub>9</sub> or lower, unmixed--Continued	
Amyl alcohols--Continued	
1-Pentanol-----	UCC.
2-Pentanol-----	UCC.
Butyl alcohols:	
Primary:	
*Iso (Isopropylcarbinol)-----	DBC, EKX, ENJ, SHC, UCC.
*Normal (n-Propylcarbinol)-----	CEL, CO, DBC, EKX, ENJ, SHC, UCC.
Secondary (Methylethylcarbinol)-----	ENJ, SHC.
Tertiary (Trimethylcarbinol)-----	SHC.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)-----	UCC.
*Ethyl alcohol, synthetic-----	CEL, DUP, EKX, ENJ, HPC, SHC, UCC, USI.
2-Ethyl-1-butanol-----	UCC.
*2-Ethyl-1-hexanol-----	CEL, EKX, ENJ, SHC, UCC.
2-Ethyl-4-methyl-1-pentanol-----	EKX.
4-Ethyl-1-octyn-3-ol-----	CUC.
Heptyl alcohol-----	EKX.
*Hexyl alcohol-----	CO, EKX, ENJ, PG, UCC.
*Hexynol-----	CUC, LIL, x.
*Iso-octyl alcohols-----	ENJ, GOC, HOU, PCC, TID, UCC.
*Isopropyl alcohol-----	ENJ, SHC, UCC.
*Methanol, synthetic-----	ACN, BOR, CEL, COM, DUP, ENJ, ESC, GOC, HN, HPC, MON, RH, TCC, UCC.
2-Methyl-3-buten-2-ol-----	CUC.
2-Methyl-3-butyne-2-ol-----	CUC.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)-----	SHC, UCC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)-----	CUC.
*1-Octanol-----	CO, DUP.
*2-Octanol (sec-Capryl alcohol)-----	RH, WTH.
Octanols, other-----	EKX, IFF.
Propyl alcohol (Propanol)-----	CEL, EKX, UCC.
2-Propyn-1-ol-----	GAF.
All other-----	CUC, EK, GOC, GYR, LIL, UCC.
*Alcohols C <sub>10</sub> or higher, unmixed:	
*Decyl alcohols-----	
3,9-Diethyl-6-tridecanol-----	CO, DUP, ENJ, GOC, HOU, PCC, TID, TNA, UCC.
Dodecyl alcohol (Lauryl alcohol) (95%)-----	GOC, UCC.
7-Ethyl-2-methyl-4-hendecanol-----	CO, DUP, PG, RH.
*1-Hexadecanol (Cetyl alcohol) (95%)-----	UCC.
Hexadecyl alcohols-----	ASH, CO, DUP, GIV, RH.
1-Octadecanol (Stearyl alcohol) (95%)-----	ENJ, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)-----	ASH, CO, DUP, PG, RH.
Tetradecyl alcohols-----	ASH, DUP.
1-Tridecanol-----	CO, PG.
2,6,8-Trimethyl-4-nonanol-----	ENJ, HOU, TID.
UCC.	
*Mixtures of alcohols:	
*C <sub>9</sub> and lower only:	
Amyl alcohols-----	ENJ, PUB, UCC.
Other-----	CEL, EKX, ENJ, GOC.
*C <sub>10</sub> and higher only-----	ASH, CO, ENJ, GOC, PG, RH, SHC, TNA, VPC.
*C <sub>6</sub> to C <sub>12</sub> and others-----	CO, EKX, GOC, PG, TNA.
<i>Polyhydric Alcohols and Their Esters and Ethers</i>	
*Polyhydric alcohols:	
1,4-Butanediol-----	GAF.
1,2(and 1,3)-Butanediol (Butylene glycol)-----	CEL.
1,2,4-Butanetriol-----	GAF, NEP.
2-Butene-1,4-diol-----	GAF.
2-Butyne-1,4-diol-----	GAF.
3-Chloro-1,2-propanediol (Glycerol α-chlorohydrin)-----	EVN, OTC.
1,10-Decanediol-----	NEP.
2,5-Dimethyl-2,5-hexanediol-----	CUC.
2,5-Dimethyl-3-hexyne-2,5-diol-----	CUC.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)-----	EUX.
*Ethylene glycol-----	ACP, APD, CAU, CEL, DOW, DUP, EKX, GAF, HCH, JCC, OMC, SHC, UCC, WYN.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Polyhydric Alcohols and Their Esters and Ethers--Continued</i>	
*Polyhydric alcohols--Continued	
2-Ethyl-1,3-hexanediol-----	UCC.
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol (Trimethylolpropane).	CEL.
Glycerol, synthetic-----	APD, DOW, SHC.
1,6-Hexanediol-----	CEL, UCC.
2-(Hydroxymethyl)-2-methyl-1,3-propanediol (Trimethylolthane).	COM, TRJ.
Mannitol-----	APD.
3-Mercapto-1,2-propanediol (Thioglycerol)-----	EVN.
Methylglycerol-----	APD.
2-Methyl-2,4-pentanediol (Hexylene glycol)-----	CEL, SHC, UCC.
2-Methyl-2-propyl-1,3-propanediol-----	ABB, BKL, ICO.
1,9-Nonanediol-----	ASH.
*Pentaerythritol-----	CEL, COM, HN, HPC, RCI, TRJ.
*Propylene glycol (1,2-Propanediol)-----	APD, CEL, DOW, DUP, JCC, OMC, UCC, WYN.
*Sorbitol-----	APD, BRD, MRK, PFZ.
2,2,4-Trimethyl-1,3-pentanediol-----	EKX.
All other-----	GAF, PHR, UCC, x.
*Polyhydric alcohol esters:	
1,3-Butanediol dimethacrylate-----	SAR.
2-(2-Butoxyethoxy)ethyl acetate-----	EKT, UCC.
2-Butoxyethyl acetate-----	UCC.
Diethylene glycol chloroformate-----	PPG.
2-(2-Ethoxyethoxy)ethyl acetate-----	EKT, UCC.
2-Ethoxyethyl acetate-----	DOW, EKT, ENJ, UCC.
Ethylene glycol diacetate-----	EKT, UCC.
Ethylene glycol dimercaptoacetate-----	EVN.
Ethylene glycol dimethacrylate-----	SAR.
Ethylene glycol glycolate-----	CCA.
2-Ethyl-2(hydroxymethyl)-1,3-propanediol trimethacrylate	SAR.
Glyceryl monoacetate (Monoacetin)-----	HAL.
Glyceryl triacetate (Triacetin)-----	EKT, UCC.
Glyceryl trioleate-----	GRO.
Glycol adipate-----	x.
Hexylene glycol diacetate-----	UCC.
Hydroxyethyl carbonate-----	JCC.
Hydroxyethyl methacrylate-----	AAC.
Hydroxypropyl methacrylate-----	JCC.
Hydroxypivalyl hydroxypivalate-----	EKX.
2-Methoxyethyl acetate-----	UCC.
Methoxytriethyleneglycol acetate-----	RBC.
Pentaerythritol caprylate-----	DRW.
Pentaerythritol pelargonate-----	DRW.
Polyethylene glycol dimethacrylate-----	SAR.
Sucrose octa-acetate-----	PD.
Tetraethylene glycol dimethacrylate-----	SAR.
Tri(hexylene glycol) baborate-----	USB.
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate-----	EKX.
All other-----	EK, EMR, GLY, SAR.
*Polyhydric alcohol ethers:	
3-(Allyloxy)-1,2-propanediol (Allyl glyceryl ether)-----	SHC.
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).	UCC.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether).	UCC.
Bis(hydroxyethyl) ether butynediol-----	GAF.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether).	ASL.
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl ether).	ASL, OMC.
*2-Butoxyethanol (Ethylene glycol monobutyl ether)-----	DOW, JCC, OMC, SHC, UCC.
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monobutyl ether).	DOW, SHC, UCC.
2-[2-(2-Butoxyethoxy)ethoxy]ethanol (Triethylene glycol monobutyl ether).	DOW, OMC, UCC.
1-Butoxyethoxy-2-propanol-----	UCC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Polyhydric Alcohols and Their Esters and Ethers--Continued</i>	
<i>*Polyhydric alcohol ethers--Continued</i>	
*Diethylene glycol-----	ACP, CAU, DOW, EKX, GAF, HCH, JCC, OMC, SHC, UCC, WYN.
Dimethoxyethane (Ethylene glycol dimethyl ether)-----	ASL.
*Dipropylene glycol-----	CEL, DOW, JCC, OMC, UCC, WYN.
*2-Ethoxyethanol (Ethylene glycol monoethyl ether)-----	DOW, JCC, OMC, UCC.
*2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether).	DOW, JCC, OMC, UCC.
*2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).	DOW, JCC, OMC, UCC.
2-[2-(Hexyloxy)ethoxy]ethanol-----	UCC.
Isobutoxyethanol-----	UCC.
1-Isobutoxy-2-propanol (Propylene glycol isobutyl ether).	DOW.
*2-Methoxyethanol (Ethylene glycol monomethyl ether)----	DOW, HCH, JCC, OMC, UCC.
*2-(2-Methoxyethoxy)ethanol (Diethylene glycol monomethyl ether).	DOW, JCC, OMC, UCC.
2-[2-(2-Methoxyethoxy)ethoxy]ethanol (Triethylene glycol monomethyl ether).	DOW, OMC, UCC.
2-(2-Methoxyethoxy)ethyl 2-methoxyethyl ether (Triethylene glycol dimethyl ether).	ASL.
Methoxypolyethylene glycol-----	UCC.
1-Methoxy-2-propanol-----	DOW, UCC.
3-(3-Methoxypropoxy)propanol-----	DOW, UCC.
3-[3-(3-Methoxypropoxy)propoxy]propanol-----	DOW.
Polybutylene glycol-----	NLC.
Polyethoxyethylglycerol-----	GLY.
Polyethoxyethylsorbitol-----	APD, GLY, TCH.
*Polyethylene glycol-----	ACP, DOW, DUP, GAF, HDG, JCC, NLC, OMC, UCC, WYN.
*Polypropoxy ethers:	
*Glycerol tri(polyoxypropylene) ether-----	JCC, OMC, UCC, WYN.
Other-----	AGS, APD, JCC, UCC, WYN.
*Polypropylene glycol-----	DOW, HDG, JCC, NLC, OMC, UCC, WYN.
Polytetramethylene ether glycol-----	QKO, x.
Tetraethylene glycol-----	DOW, UCC.
1,1,3,3-Tetramethoxypropane-----	KF.
2,2'-Thiodiethanol (Thiodiglycol)-----	PIC, UCC.
*Triethylene glycol-----	ACP, CAU, DOW, GAF, HCH, JCC, OMC, UCC.
Tripropylene glycol-----	DOW, UCC.
All other-----	DOW, EKX, NLC, UCC, WYN.
<i>Esters of Monohydric Alcohols</i>	
Allyl methacrylate-----	SAR.
Amyl acetates, 90%:	
Isopentyl acetate (Isoamyl acetate)-----	NW.
Mixed-----	PFW, PUB, UCC.
*Butyl acetates:	
Iso-----	EKT, PUB, UCC.
*Normal-----	CEL, EKT, ENJ, PUB, SHC, UCC.
Secondary-----	ENJ, HPC, PUB, SHC.
Mixed-----	CEL.
*Butyl acrylate-----	CEL, DBC, RH, UCC.
Butyl chloroacetate-----	MON.
Butyl formate-----	BJL.
Butyl lactate-----	COM.
Butyl maleate, mono-----	PCC.
tert-Butyl peroxyacetate-----	WTL.
tert-Butyl peroxy-2-ethylhexanoate-----	WTL.
tert-Butyl peroxyisobutyrate-----	WTL.
tert-Butyl peroxyisopropylcarbonate-----	PPG, WTL.
tert-Butyl peroxy-pivalate-----	WTL.
Cetyl lactate-----	VND.
Diallyl maleate-----	FMP.
*Dibutyl fumarate-----	MON, PFZ, RCI, RUB.
*Dibutyl maleate-----	CUC, DUP, MON, PCC, RCI, RUB.

TABLE 21B.--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Esters of Monohydric Alcohols--Continued</i>	
Diethyl sec-butylethylmalonate-----	ABB.
Diethyl butylmalonate-----	BPC.
Diethyl sec-butylmalonate-----	ABB.
Diethyl carbonate (Ethyl carbonate)-----	CTN, FMP.
Diethyl diethylmalonate (Diethyl malonic ester)-----	BPC, LIL.
Diethyl (ethoxymethylene)malonate-----	KF.
Diethyl ethylisopentylmalonate-----	LIL.
Diethyl ethylmalonate (Ethyl malonic ester)-----	LIL.
Diethyl ethyl(1-methylbutyl)malonate (Ethyl 1-methyl butyl malonic ester).	ABB.
Diethyl ethyl(1-methylpropyl)malonate-----	BPC.
Di(2-ethyl-1-hexyl) fumarate-----	RUB.
Di(2-ethyl-1-hexyl) maleate-----	RUB.
Diethyl maleate-----	ACY, UCC.
Diethyl malonate (Malonic ester)-----	ABB, KF, LIL.
Diethyl methoxymethylene malonate-----	KF.
Diethyl (1-methylbutyl)malonate-----	ABB.
Diethyl methylmalonate-----	BPC.
Diethyl (1-methylpropyl)malonate-----	BPC.
Diethyl oxalate (Ethyl oxalate)-----	FMP.
Diisobutyl maleate-----	RUB.
Di-iso-nonyl maleate-----	RUB.
Diisopropyl peroxydicarbonate (Isopropyl percarbonate)---	PPG, WTL.
*Dilauryl 3,3'-thiodipropionate-----	ACY, CCW, EVN, HAB.
Dimethyl acetylenedicarboxylate-----	EK.
2,5-Dimethylhexane 2,5-diperoctoate-----	UPR.
Dimethyl maleate-----	AAC.
Dimethyl malonate-----	KF.
Di(4-methyl-2-pentyl) maleate-----	RUB.
Dioctyl fumarate-----	RCI.
*Dioctyl maleate-----	HRT, MON, PCC, RCI.
*Distearyl 3,3'-thiodipropionate-----	ACY, CCW, EVN, HAB.
Dithiobis(stearyl propionate)-----	EVN.
Ditridecyl maleate-----	RUB.
Di(tridecyl) 3,3'-thiodipropionate-----	ACY, EVN.
*Ethyl acetate (85%)-----	CEL, EKT, ENJ, HPC, MON, PUB, UCC.
Ethyl acetoacetate-----	EKT, UCC.
*Ethyl acrylate-----	CEL, DBC, RH, UCC.
*Ethyl chloroacetate-----	DOW, KF, MON.
Ethyl chloroformate-----	CTN, FMP.
Ethylene carbonate-----	JCC.
Ethyl formate-----	COM.
2-Ethyl-1-hexyl acetate-----	EKT, UCC.
2-Ethyl-1-hexyl acrylate-----	CEL, DBC, UCC.
2-Ethyl-1-hexyl methacrylate-----	x.
Ethylidene diacetate-----	CEL.
Ethyl propionate-----	NW.
Ethyl silicate (Tetraethoxysilane)-----	MTR.
Ethyl sulfate (Diethyl sulfate)-----	UCC.
Ethyl thioglycolate-----	EVN.
Fatty acid esters, not included with plasticizers or surface-active agents:	
Dimethyl brassylate-----	EMR.
Ethyl stearate-----	ICO.
Hexadecyl stearate-----	ICI.
Isopropyl linoleate-----	VND.
Methyl esters of coconut oil-----	PG.
Methyl esters of cottonseed oil-----	BFR.
*Methyl esters of tallow-----	BFR, CHL, HUM.
Methyl 12-hydroxystearate-----	BAC, HUM.
Methyl laurate-----	PG.
Methyl myristate-----	PG.
Methyl stearate-----	PG, SUG.
Myristyl myristate-----	VND.
All other-----	EMR, ICI, SNW, SUG.
Hexyl acetate-----	ENJ.
n-Hexyl formate-----	EK.
*Isobutyl acrylate-----	DBC, RH, UCC.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Esters of Monohydric Alcohols--Continued</i>	
Isobutyl isobutyrate-----	EKX.
Isodecyl acrylate-----	UCC.
*Iso-octyl mercaptoacetate-----	CCW, EVN, HAB.
Iso-octyl 3-mercaptopropionate-----	EVN.
*Isopropyl acetate-----	EKT, ENJ, HPC, UCC.
Isopropyl chloroformate-----	CTN, OTC, PPG.
Lauryl lactate-----	VND.
Methallylidene diacetate-----	UCC.
Methyl acetate-----	EK, MON, UCC.
Methyl acetoacetate-----	EKT, UCC.
Methyl acrylate, monomer-----	CEL, DBC, RH.
Methyl borate-----	CAL, MHI, SFA.
Methyl chloroacetate-----	DOW, KF.
Methyl dichloroacetate-----	KF, PD.
Methyl formate-----	DUP.
*Methyl methacrylate, monomer-----	ACY, DUP, RH.
4-Methyl-2-pentyl acetate-----	PUB, SHC, UCC.
Methyl sulfate (Dimethyl sulfate)-----	DUP.
Methyl thioglycolate-----	EVN.
Methyl vinyl acetate-----	UCC.
Myristyl lactate-----	VND.
Octadecyl 3-mercaptopropionate-----	EVN.
*Phosphorus acid esters:	
Bis(2-ethylhexyl) hydrogen phosphate-----	SM, UCC.
Butyl phosphates-----	SM.
Chloropropyl phosphorothioate-----	TNA.
Dibutyl butylphosphonate-----	SM.
Dibutyl hydrogen phosphite-----	SM.
Didodecyl hydrogen phosphate-----	DUP.
Diethyl phosphorochloridothionate-----	SF.
Dimethyl methylphosphonate-----	SM.
Dimethyl phosphorochloridothionate-----	SF.
Iso-octyl phosphate-----	SM.
Methyl phosphates-----	HK, SM.
Tributyl phosphate-----	CCM.
Tributyl phosphite-----	SFI, SM.
Tridecyl phosphite-----	HK.
Triethyl phosphite-----	SM.
Triiso-octyl phosphite-----	SM.
Trimethyl phosphate-----	TNA.
Trimethyl phosphite-----	SM.
Trioctyl phosphite-----	HK.
Tris(2-chloroethyl) phosphite-----	SM.
Tris(2,3-dibromopropyl) phosphate-----	MCH.
Tris(2-ethylhexyl) phosphite-----	SM.
Tris(octadecyl) phosphite-----	SM.
All other-----	DUP, EK, MON, SFA, SM.
Propyl acetate-----	CEL, EKT, PUB, UCC.
Propylene carbonate-----	DOW, JCC.
Tetraoctyl orthosilicate-----	MON.
Titanic acid esters:	
Tetrabutyl titanate-----	DUP.
Tetraisopropyl titanate-----	DUP.
Tetrakis(2-ethylhexyl) titanate-----	DUP.
Other-----	DUP.
Triethyl borate-----	USB.
Triethyl orthoacetate-----	EK, KF.
Triethyl orthoformate-----	KF.
Triethyl orthopropionate-----	KF.
Triisodecyl orthoformate-----	KF.
Trimethyl orthoformate-----	KF.
*Vinyl acetate, monomer-----	BOR, CEL, CUC, DUP, MON, NSC, UCC.
All other-----	ALD, ARG, CEL, CTN, DUP, EK, FMP, PIC, PCC, RH, RSA, TNI, UCC, WTL.
<i>Halogenated Hydrocarbons</i>	
1-Bromobutane (n-Butyl bromide)-----	ABB, BPC, MCH.
2-Bromobutane (sec-Butyl bromide)-----	ABB, BPC, EK.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Halogenated Hydrocarbons--Continued</i>	
Bromochloromethane-----	DOW.
1-Bromo-3-chloropropane (Trimethylenechlorobromide)-----	DOW, MCH.
2-Bromo-2-chloro-1,1,1-trifluoroethane-----	ICI.
1-Bromododecane-----	DUP, GAF.
Bromoethane (Ethyl bromide)-----	DOW, MCH.
1-Bromo-3-methylbutane (Isoamyl bromide)-----	LIL.
1-Bromo-octadecane-----	DUP, GAF.
1-Bromopentane (n-Amyl bromide)-----	BPC.
*2-Bromopentane (1-Methylbutyl bromide)-----	ABB, LIL, PD.
1-Bromopropane (n-Propyl bromide)-----	BPC, EK.
2-Bromopropane (Isopropyl bromide)-----	BPC.
3-Bromopropene (Allyl bromide)-----	DOW.
Bromotrichloromethane-----	MCH.
Bromotrifluoromethane-----	DUP.
*Carbon tetrachloride-----	ACS, DA, DOW, FMB, FRO, PPG, SFI.
*Chlorinated paraffins:	
35%-64% chlorine-----	GCH, DA, DVC, HK, HPC, ICI, KPS, NEV.
65% or more chlorine-----	DA, DVC, NEV.
1-Chlorobutane (n-Butyl chloride)-----	PUB, UCC.
2-Chlorobutane (sec-Butyl chloride)-----	PLC, EK.
1-Chloro-1,1-difluoroethane-----	ACS, DUP.
*Chlorodifluoromethane-----	ACS, DUP, KAI, PAS, UCC.
*Chloroethane (Ethyl chloride)-----	AME, DOW, DUP, HPC, PPG, SHC, TNA.
*Chloroform-----	ACS, DA, DOW, DUP, FRO, SFI.
*Chloromethane (Methyl chloride)-----	ACS, ANM, CO, DCC, DOW, DUP, FRO, TNA, UCC.
2-Chloro-2-methylpropane (tert-Butyl chloride)-----	EK.
3-Chloro-2-methylpropene (Methallyl chloride)-----	FMP.
Chloropentafluoroethane-----	DUP.
3-Chloropropene (Allyl chloride)-----	DOW, SHC.
Chlorotrifluoroethylene (Trifluorovinyl chloride)-----	ACG, MMM.
Chlorotrifluoroethylene, polymerized-----	HK, MMM.
Chlorotrifluoromethane-----	DUP, PAS, UCC.
1,2-Dibromo-1,1-dichloroethane-----	DOW.
Dibromodifluoromethane-----	DOW.
1,2-Dibromoethane (Ethylene dibromide)-----	DOW, ETD, HCH, MCH.
Dibromoethane (Methylene bromide)-----	DOW.
1,4-Dibromopentane-----	SDW.
1,2-Dibromo-1,1,2,2-tetrafluoroethane-----	DUP.
Dichlorobutadiene-----	DUP.
1,4-Dichlorobutene-----	DUP.
*Dichlorodifluoromethane-----	ACS, DUP, KAI, PAS, UCC.
*1,2-Dichloroethane (Ethylene dichloride)-----	AME, BFG, DA, DOW, DUP, JCC, MON, OMC, PPG, TNA, UCC.
*Dichloromethane (Methylene chloride)-----	ACS, DA, DOW, DUP, FRO, SFI.
*1,2-Dichloropropane (Propylene dichloride)-----	DOW, JCC, UCC.
2,3-Dichloropropene-----	DOW, UCC.
*Dichlorotetrafluoroethane-----	ACS, DUP, PAS, UCC.
1,1-Difluoroethane-----	ACS, DUP.
Difluorotetrachloroethane-----	DUP, UCC.
Diiodomethane (Methylene iodide)-----	NTB, SDW.
Hexachloroethane-----	NES.
Hexafluoropropylene, monomer-----	DUP.
Iodoethane (Ethyl iodide), tech-----	CLB, EK, FMT.
*Iodomethane (Methyl iodide)-----	CLB, EK, FMT, RSA.
1-Iodoperfluorohexane-----	x.
Lauryl chlorides-----	BRD.
Octafluorocyclobutane-----	DUP.
Tetrabromoethane-----	DOW.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)-----	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)-----	DUP.
*Tetrachloroethylene (Perchloroethylene)-----	DA, DOW, DUP, FRO, HK, PPG, SFI, TNA, TTX.
Tetrafluoroethylene, monomer-----	DUP.
Tetrafluoroethylene, polymer-----	DUP.
Tetrafluoromethane-----	DUP.
*1,1,1-Trichloroethane (Methyl chloroform)-----	DOW, PPG, TNA.
1,1,2-Trichloroethane (Vinyl trichloride)-----	DOW, TNA, UCC.
*Trichloroethylene-----	DOW, DUP, HK, PPG, TNA, TTX.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>Halogenated Hydrocarbons--Continued</i>	
*Trichlorofluoromethane-----	ACS, DUP, KAI, PAS, UCC.
1,2,3-Trichloropropane-----	DOW, SHC.
1,2,3-Trichloropropene-----	DOW.
Trichlorotrifluoroethane-----	ACS, DUP, PAS, UCC.
*Vinyl chloride, monomer (Chloroethylene)-----	ACS, AME, BFG, CUC, DA, DOW, GNT, GYR, HN, MNO, MON, PPG, TNA, UCC.
Vinyl fluoride-----	x.
Vinylidene chloride, monomer (1,1-Dichloroethylene)-----	DOW, TNA.
Vinylidene fluoride-----	x.
All other-----	CLB, DUP, EK, RSA, SDW.
<i>All Other Miscellaneous Acyclic Chemicals</i>	
Acetyl peroxide-----	AZT, WTL.
Alkyl sulfides, mixed-----	ORO.
Aluminum isopropoxide (Aluminum isopropylate)-----	CHT.
*2-Butanone peroxide-----	AZT, CAD, NOC, RCI, WTL.
tert-Butyl hydroperoxide-----	AZT, CAD, WTL.
*tert-Butyl peroxide (Di-tert-butyl peroxide)-----	ARG, AZT, CAD, NOC, SHC, WTL.
Butyrolactone-----	GAF.
Caprolactone-----	UCC.
*Carbon disulfide-----	ACS, FMB, PAS, PPG, SFI.
2-Chloroethanol (Ethylene chlorohydrin)-----	OMC, UCC.
1-Chloro-2-propanol-----	RSA.
*Decanoyl peroxide-----	CAD, UPR, WTL.
Dialdehyde starch-----	MLS.
Dichloropropanol-----	ICO.
1,3-Dichloro-2-propanol-----	EK.
2,4-Dihydroxy-3,3-dimethylbutyric acid, gammalactone (Pantolactone).-----	CKL, PD.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane-----	WTL.
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3-----	WTL.
Epoxides, ethers, and acetals:	
Acetone dimethylacetal (2,2-Dimethoxypropane)-----	DOW.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)---	SHC.
Bis(2-chloroethoxy)methane (Dichloroethylformal)-----	TKL.
Bis(2-Chloroethyl) ether (Dichlorodiethyl ether)-----	DOW, UCC.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether).-----	DOW.
1-Butoxy-2,3-epoxypropane (Butyl glycidyl ether)-----	DOW, SHC.
Butylene oxide-----	DOW.
Butyl ether (Di-n-butyl ether)-----	UCC.
Butyl vinyl ether-----	UCC.
2-Chloro-1,1-dimethoxyethane (Dimethyl chloracetal)----	LIL.
2-Chloroethyl vinyl ether-----	UCC.
Chloromethyl methyl ether-----	HK, RH.
2,2-Dichloro-1,1-difluoroethyl methyl ether-----	DOW.
Epichlorohydrin-----	DOW, SHC.
*Ethylene oxide-----	ACP, CAU, DOW, EKX, GAF, HCH, JCC, OMC, SNO, UCC, WYN.
*Ethyl ether:	
Absolute-----	MAL.
Tech-----	ENJ, HPC, UCC, USI.
U.S.P-----	MAL, CMS.
Ethyl vinyl ether-----	GAF, UCC.
Glycidol (2,3-Epoxy-1-propanol)-----	DIX, OTC.
Isobutyl vinyl ether-----	GAF.
*Isopropyl ether-----	ENJ, SHC, UCC.
Methylal (Dimethoxymethane)-----	CEL.
*Methyl ether (Dimethyl ether)-----	COM, DUP, UCC.
Methyl vinyl ether-----	GAF, UCC.
*Propylene oxide-----	CEL, DOW, JCC, OMC, UCC, WYN.
Other-----	EK, HDG, UCC.
Ethanedithiol-----	RBC.
Ethanethiol-----	EK.
2-(Ethylmercapto)ethanol-----	PAS, PLC.
Fats and oils, chemically modified-----	ABB, CHL, DOM, RT.
Glucono-delta-lactone-----	DLI, PFZ.

TABLE 21B. --Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1967--Continued

Chemical	Manufacturers' identification codes (according to list in table 22)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
<i>All Other Miscellaneous Acyclic Chemicals--Continued</i>	
Glucuheptonolactone-----	PFN.
Glutaraldehyde bis(sodium bisulfite)-----	IDC.
Hexachlorodimethyl sulfone-----	SFA.
n-Hexadecyl disulfide-----	PAS.
Hydrocarbons:	
1-Butyne (Ethylacetylene)-----	CUC.
n-Dodecane-----	HMY.
Ethylene, from ethyl alcohol, medicinal grade-----	OH.
Hexadecane-----	HMY.
Myrcene-----	IFF, NCI.
1-Octadecene-----	HMY.
n-Octane-----	HMY.
Propyne (Methylacetylene)-----	CUC.
Other-----	EK, HMY.
*Lauroyl peroxide-----	ARG, AZT, CAD, UPR, WTL.
Magnesium methylate-----	MRT, SFA.
Methanesulfanol-----	PAS.
Methyl disulfide-----	CRZ.
Methyl sulfide (Dimethyl sulfide)-----	CRZ, PAS.
Methyl sulfoxide-----	CRZ.
1-Octanethiol (n-Octyl mercaptan)-----	PAS.
Organo-aluminum compounds:	
Ethylaluminum chlorides-----	TNA, TSA.
Isobutylaluminum chlorides-----	TNA, TSA.
Methylaluminum chlorides-----	TNA, TSA.
Other-----	TNA, TSA.
Organo-boron compounds-----	ACS, CAL, SFA.
Organo-lead compounds:	
*Tetraethyllead-----	DUP, HCH, NLC, TNA.
*Tetramethyllead-----	DUP, NLC, TNA.
*Tetra(methyl-ethyl)lead-----	DUP, HCH, TNA.
Organo-lithium compounds-----	FTE.
Organo-magnesium compounds-----	ARA, x.
Organo-mercury compounds-----	NTB.
Organo-silicon compounds:	
Monomers-----	DCC, PIC, UCC.
*Polymers-----	DCC, ORO, SFA, SPD, UCC.
Organo-tin compounds:	
Bis(tributyltin) oxide-----	CCW, x.
Dibutylmethoxytin (Dibutyltin methoxide)-----	CCA.
Dibutyltin dichloride-----	CCW, x.
Other-----	CCA, CCW, x.
Perchloromethanethiol (Perchloromethyl mercaptan)-----	CHO.
Perlargonyl peroxide-----	WTL.
*Phosgene (Carbonyl chloride)-----	ACS, CTN, DUP, MOB, OMC, OTC, PPG, RUC, UCC, UPJ, VDM.
Pine oil, synthetic-----	CBY, NCI.
β-Propiolactone-----	CEL.
Propionyl peroxide-----	WTL.
Rare sugars-----	PFN, RSA.
Sodium ethoxide-----	FMP.
Sodium formaldehyde bisulfite-----	EK, IDC.
*Sodium formaldehyde sulfoxylate-----	DA, RH, ROY.
*Sodium methoxide (Sodium methylate)-----	BFR, DA, DUP, KF, OMC, RBC, SFA.
Sodium octylate-----	DA.
Succinyl peroxide-----	WTL.
Tetrakis(hydroxymethyl)phosphonium chloride-----	HK.
Tributylphosphine-----	CCW, x.
Tridecyl mercaptan-----	PAS.
Trioctylphosphine oxide-----	EK.
*Zinc formaldehyde sulfoxylate-----	DA, RH, ROY.
Other-----	ALX, CAD, CCW, DUP, EK, GAF, KF, NES, ORO, PIC, RSA, SFA, SFI, UCC, WAY, WTL, x, x.



Directory of Manufacturers

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

For 1967, the Directory of Manufacturers lists approximately 819 primary manufacturers (see table 22). Some of the companies that report production of synthetic organic chemicals do not sell the materials, but consume their entire output in further manufacturing.

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

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967

SECTION 1. ALPHABETICAL DIRECTORY BY CODE

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff Commission for 1967 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 addresses.]

Code identification	Name of company	Code identification	Name of company
AAC	Alcolac Chemical Corp.	ARC	Armour & Co., Armour Industrial Chemical Co. Div.
AAE	American Aniline & Extract Co., Inc.	ARD	Ardmore Chemical Co.
AAP	American Aniline Products, Inc.	ARG	Argus Chemical Corp.
ABB	Abbott Laboratories	ARK	Armstrong Cork Co.
ABS	Abex Corp., American Brakeblok Div.	ARL	Arol Chemical Products Co.
ACB	Allied Chemical Corp., Fabricated Products Div.	ARM	Armour Agricultural Chemical Co.
ACC	Amoco Chemicals Corp.	ARN	Arenol Chemical Corp.
ACE	Acme Chemical Co.	ARP	Armour Pharmaceutical Co.
ACI	Aceto Industrial Chemical Co.	ARZ	Arizona Chemical Co.
ACN	Allied Chemical Corp., Agricultural Div.	ASH	Ashland Oil & Refining Co.: Ashland Chemical Co. Div.
ACP	Allied Chemical Corp., Plastics Div.		Catalin Corp. Div.
ACR	Corn Products Co., Acme Resin Co. Div.	ASL	Ansul Chemical Co.
AGS	Allied Chemical Corp., Specialty Chemicals Div.	AST	Astra Pharmaceutical Products, Inc.
ACT	Arthur C. Trask Co.	ASY	American Synthetic Rubber Corp.
ACU	Allied Chemical Corp., Union Texas Petroleum Div.	ATC	American Tartars Corp.
AGY	American Cyanamid Co.	ATL	Atlantic Chemical Corp.
AES	Amerace-Esna Corp., Chemical Specialties Div.	ATP	Atco Chemical-Industrial Products, Inc., Fine Chemicals Div.
AGP	Armour & Co., Armour Grocery Products Co. Div.	ATR	Atlantic Richfield Co., ARCO Chemical Co. Div.
AGY	Agway, Inc.	ATU	Atlantic Tubing & Rubber Co.
AKS	Arkansas Co., Inc.	AV	FMC Corp., American Viscose Div.
ALB	Ames Laboratories, Inc.	AVS	Avisun Corp.
ALC	Alco Chemical Corp.	AZT	Aztec Chemicals, Inc.
ALD	Aldrich Chemical Co., Inc.		
ALF	Allied Chemical Corp., Fibers Div.	BAC	Baker Castor Oil Co.
ALL	Alliance Color & Chemical Co.	BAL	Baltimore Paint & Chemical Corp.
ALT	Crompton & Knowles Corp., Chemicals Group, Althouse & Bates Div.	BAO	Bayoil Co., Inc.
ALX	Alox Corp.	BAR	American Rubber & Chemical Co.
AMB	American Bio-Synthetics Corp.	BAS	BASF Corp.
AMC	Amchem Products, Inc.	BAX	Baxter Laboratories, Inc.
AME	American Chemical Corp.	BCM	Belding Chemical Industries
AML	Amalgamated Chemical Corp.	BCN	Lehn & Fink Products Corp., Beacon Div.
AMO	American Oil Co. (Texas)	BDO	Benzenoid Organics, Inc.
AMP	American Potash & Chemical Corp.	BEN	Bennett's
AMR	Pacific Resins & Chemical Co.	BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.
AMS	Martin-Marietta Corp., Ridgway Color & Chemical Div.	BFR	Branchflower Co.
ANM	Ancon Chemical Corp.	BJL	Burdick & Jackson Laboratories, Inc.
APD	Atlas Chemical Industries, Inc.	BKC	J. T. Baker Chemical Co.
APR	Atlas Processing Co.	BKL	Millmaster Onyx Corp., Millmaster Chemical Div., Berkeley Chemical Dept.
APV	Armstrong Paint & Varnish Works, Inc.	BKM	Buckman Laboratories, Inc.
APX	Apex Chemical Co., Inc.	BKS	Tenneco Chemicals, Inc., Tenneco Colors Div.
ARA	Arapahoe Chemicals Div. of Syntex Corp.	BL	Belle Chemical Co., Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
BLA	Astor Products, Blue Arrow Div.	CLY	W. A. Cleary Corp.
BLS	Beech-Nut Inc.	CM	Carpenter-Morton Co.
BME	Bendix Corp., Friction Materials Div.	CMG	Nyanza, Inc.
BOR	Borden Co., Borden Chemical Co. Div.	CMP	Commercial Products Co., Inc.
BOY	Walter N. Boysen Co.	CNC	Columbia Nitrogen Corp.
BPC	Cowles Chemical Co., Benzol Products Div.	CNP	Columbia Nipro Corp.
BPL	Brand Plastics Co.	CO	Continental Oil Co.
BRD	Baird Chemical Industries, Inc.	COK	Cockerville Chemicals, Inc.
BRS	Bristol-Meyers Co., Bristol Laboratories Div.	COL	Collier Carbon & Chemical Corp.
BRU	M. A. Bruder & Sons, Inc.	COM	Commercial Solvents Corp.
BRY	Bryant Chemical Corp.	CON	Concord Chemical Co., Inc.
BST	Occidental Petroleum Corp., Occidental Chemical Co. Div.	COP	Coopers Creek Chemical Corp.
BSW	Original Bradford Soap Works, Inc.	COR	Commonwealth Oil Refining Co., Inc.
BUC	Blackman-Uhler Chemical Co.	CP	Colgate-Palmolive Co.
BUK	Buckeye Cellulose Corp.	CPC	Childs Pulp Colors, Inc.
BUR	Burroughs-Wellcome & Co. (U.S.A.), Inc.	CPD	Chemical Products Corp.
BXT	J. H. Baxter & Co.	CPP	Charmin Paper Products Co.
GAD	Cadet Chemical Corp., a subsidiary of Chemetron Noury Corp.	CPV	Cook Paint & Varnish Co.
CAL	Callery Chemical Co.	CPY	Copolymer Rubber & Chemical Corp.
CAP	Cap-Roc, Inc.	CRD	Croda, Inc.
CAU	Calcasieu Chemical Corp.	CRN	Corn Products Co.
CBA	Ciba Corp.: Ciba Argochemical Co. Ciba Products Co.	CRS	Carus Chemical Co., Inc.
CBC	Georgia-Pacific Corp., Coos Bay Div.	CRT	Crest Chemical Corp.
CBD	Chembond Corp.	CRY	Tenneco Manufacturing Co., Tenneco Plastics Div.
CBM	Carborundum Co., Coated Abrasives Div.	CRZ	Crown Zellerbach Corp., Chemical Products Div.
CBN	Columbian Carbon Co., Inc. and Chemicals Div.	CSB	Imoco Corp., Chemical Services Div.
CBP	Ciba Corp., Ciba Pharmaceutical Co. Div.	CSD	Cosden Oil & Chemical Co.
CBR	Colab Resin Corp.	CSS	Cities Service Oil Co.
CBT	Samuel Cabot, Inc.	CSP	Coastal States Petrochemical Co.
CBY	Crosby Chemicals, Inc.	CST	Charles S. Tanner Co.
CCA	Carlisle Chemical Works, Inc., Advance Div.	CTA	Chemetron Corp., Chemetron Chemicals, Organic Chemical Dept.
CCC	Chase Chemical Corp.	CTL	Continental Chemical Co.
CCH	Pearsall Chemical Co.	CTN	Chemetron Corp., Chemetron Chemicals Organic Chemical Dept.
CCL	Charlotte Chemical Laboratories	CUC	Air Reduction Co., Inc., Airco Chemicals & Plastics
CCO	Chemico, Inc.	CUL	Culver Chemical Co.
CCP	Crown Central Petroleum Corp.	CUT	Cutter Laboratories, Inc.
CCW	Carlisle Chemical Works, Inc.	CW	General Mills, Inc., Chemical Div.
CD	Budd Co., Polychem Div.	CWL	Cowles Chemical Co.
CEL	Celanese Corp. of America: Celanese Chemical Co. Div. Celanese Coatings Co. Celanese Plastics Co. Fibers Co. Div.	CWN	Upjohn Co., Carwin Organic Chemicals
CFA	Cooperative Farm, Chemicals Association	CWP	Consolidated Papers, Inc.
CFC	Sun Chemical Corp. Organic Chemical Dept.	DA	Diamond Shamrock Corp.
CGL	Cargill, Inc.	DAN	Dan River Mills, Inc.
CHC	Chipman Chemical Co., Inc.	DAV	Conchemco, Inc., H. B. Davis Co. Div.
CHF	Chemical Formulators, Inc.	DBC	Dow Badische Co.
CHG	Chemagro Corp.	DCC	Dow Corning Corp.
CHL	Chemol, Inc.	DCP	Dixie Chemical Products, Inc.
CHO	Stauffer Chemical Co., Calhio Chemicals, Inc. Div.	DEG	Degen Oil & Chemical Co.
CHP	C. H. Patrick & Co., Inc.	DEP	DePaul Chemical Co., Inc.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.	DEX	Dexter Corp.
CIB	Ciba Chemical & Dye Co.	DIX	Dixie Chemical Co.
CIK	Tenneco Chemicals, Inc., Cal/Ink Div.	DLH	Hess Oil & Chemical Corp.
CIS	Chemical Insecticide Corp.	DLI	Dawe's Laboratories, Inc.
CKL	Chemlek Laboratories, Inc.	DOM	Dominion Products, Inc.
CLB	Columbia Organic Chemicals Co., Inc.	DOW	Dow Chemical Co.
CLD	Colloids, Inc.	DPP	Dixie Pine Products Co., Inc.
CLI	Clintwood Chemical Co.	DRW	Drew Chemical Corp.
CLK	Clark Oil & Refining Corp.	DSC	Dye Specialties, Inc.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	DSO	DeSoto, Inc.
CLV	Clover Chemical Co.	DUN	Frank W. Dunne Co.
		DUP	E. I. duPont de Nemours & Co., Inc.
		DVC	Dover Chemical Corp.
		DXS	Sunray DX Oil Co.
		DYS	Davies-Young Soap Co.
		ECC	Eastern Color & Chemical Co.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
EFH	E. F. Houghton & Co.	GGC	Goodrich-Gulf Chemicals, Inc.
EK	Eastman Kodak Co.	GGY	Geigy Chemical Corp.
EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.	GIL	Gilman Paint & Varnish Co.
EKX	Eastman Kodak Co., Texas Eastman Co. Div.	GIV	Givaudan Corp.
ELP	El Paso Products Co.	GLC	General Latex & Chemical Corp.
EMK	Emkay Chemical Co.	GLD	SCM Corp., Glidden-Durkee Div.
EMR	Emery Industries, Inc.	GLX	Electro-Seal Glasflex Corp.
EN	Endo Laboratories, Inc.	GLY	Glyco Chemicals, Inc.
ENJ	Enjay Chemical Co.	GNF	General Foods Corp., Maxwell House Div.
ENO	Enenco, Inc.	GNM	General Mills, Inc. & Chemical Div.
EPC	Epoxylite Corp.	GNT	General Tire & Rubber Co., Chemical Div.
ESA	East Shore Chemical Co., Inc.	GOC	Gulf Oil Corp.
ESC	Escambia Chemical Corp.	GOR	Gordon Chemical Co., Inc.
ETD	Ethyl-Dow Chemical Co.	GPM	General Plastics Manufacturing Co.
EVN	Evans Chemetics, Inc.	GPR	Grain Processing Corp.
EW	Westinghouse Electric Corp., Benolite Dept.	GRA	Great American Plastics Co.
FAB	Fabricolor Manufacturing Corp.	GRC	W. R. Grace & Co., Dubois Chemicals Div.
FAR	Farnow, Inc.	GRD	W. R. Grace & Co., Dewey & Almy Chemical Div.
FB	Fritzsche Bros., Inc.	GRG	P. D. George Co.
FBF	Rexall Chemical Co., Fiberfil Div.	GRH	W. R. Grace & Co., Hatco Chemical Div.
FBR	Fibreboard Corp.	GRL	W. R. Grace & Co., Vestal Laboratories Div.
FC	Franklin Chemical Co.	GRO	Millmaster Onyx Corp., A. Gross & Co. Div.
FCA	Farmers Chemical Association, Inc.	GRS	Pontiac Refining Corp.
FGD	France, Campbell & Darling, Inc.	GRV	Guardman Chemical Coatings, Inc.
FCL	Federal Color Laboratories, Inc.	GRW	Great Western Sugar Co.
FEL	Felton International, Inc.	GTH	Guth Chemical Co.
FER	Ferro Corp., Ferro Chemical Div.	GTL	Great Lakes Chemical Corp.
FG	Foster Grant Co., Inc.	GYR	Goodyear Tire & Rubber Co.
FH	Foster-Heaton Co.	HAB	Halby Products Co., Inc.
FIN	Fine Organics, Inc.	HAL	C. P. Hall Co. of Illinois
FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.	HAM	Hampden Color & Chemical Co.
FIS	Fisher Chemicals Co., Inc. & Fisher Melamine Corp.	HAN	Hanna Paint Manufacturing Co., Inc.
FLH	H. B. Fuller Co.	HAP	Applied Plastics Co., Inc.
FLM	Fleming Laboratories, Inc.	HCH	Houston Chemical Corp.
FLO	Florasynth, Inc.	HCR	Hercor Chemical Corp.
FLW	Fuller-O'Brien Corp.	HDG	Hodag Chemical Corp.
FMB	FMC Corp., Inorganic Chemicals Div. & Organic Chemicals Div.	HER	Heresite & Chemical Co.
FMN	FMC Corp., Niagara Chemical Div.	HET	Heterochemical Corp.
FMP	FMC Corp., Organic Chemicals Div. & Nitro Plant	HEW	Hewitt Soap Co.
FMT	Fairmount Chemical Co., Inc.	HEX	Hexagon Laboratories, Inc.
FOC	Farac Oil & Chemical Co., Div of Handschy Chemical Co.	HFT	Hoffman-Taff, Inc.
FQM	Formica Corp.	HK	Hooker Chemical Corp.
FOR	El Dorado Chemical Co.	HKD	Hooker Chemical Corp., Durex Div.
FRE	Freeman Chemical Corp.	HKY	Hawkeye Chemical Co.
FRL	Firestone Tire & Rubber Co., Firestone Industrial Rubber Products Co. Div.	HLI	Haag Laboratories, Inc.
FRM	Farmer's Chemical Co.	HMP	W. R. Grace & Co., Hampshire Chemical Div.
FRO	Vulcan Materials Co., Chemicals Div.	HMY	Humphrey Chemical Co.
FRP	Filtered Rosin Products Co.	HN	Tenneco Chemicals, Inc.
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.	HNC	H & N Chemical Co.
FSH	Frisch & Co., Inc.	HNT	Huntington Laboratories, Inc.
FST	First Chemical Corp.	HNW	Tenneco Chemicals, Inc., Newport Div.
FTE	Foote Mineral Co.	HNX	Tenneco Chemicals, Inc., Nuodex Div.
FTX	Central Farmers Fertilizer Co., Fel-Tex Plant	HOF	Hoffmann-LaRoche, Inc.
GAF	General Aniline & Film Corp.: Dyestuff & Chemical Div. Textile Finishes Dept., Textile Chemical Div.	HOU	Air Products & Chemicals, Inc., Houdry Process & Chemical Div.
GAN	Gane's Chemical Works, Inc.	HPC	Hercules, Inc.
GCC	W. R. Grace & Co., Agricultural Products Div.	HRS	Grow Chemical Corp., Harris Paint Co. Div.
GE	General Electric Co., & Chemical Materials Dept.	HRT	Hart Products Corp.
GEI	General Electric Co., Insulating Materials Dept.	HSC	Holland-Suco Color Co.
GFS	G. Frederick Smith Chemical Co.	HSB	Harshaw Chemical Co., Div. of Kewanee Oil Co.
		HST	American Hoechst Corp.
		HSY	Hershey Estates, Inc.
		HUM	National Dairy Products Corp., Humko Products Chemical Div.
		HUS	Husky Briquetting, Inc.
		HVG	Haveg Industries, Inc.
		HYC	Dexter Corp., Hysol Co. Div.
		HYN	Hynson, Westcott & Dunning, Inc.
		IBI	Industrial Biochemicals, Inc.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
ICG	Interchemical Corp., Color & Chemicals Div.	LUR	Laurel Products Corp.
ICF	Interchemical Corp., Finishes Div.	LVR	C. Lever Co., Inc.
ICI	I.C.I./Organics/Inc.	LVY	Fred'k H. Levey Co.; Inc.
ICO	Interchemical Corp., Organic Chemicals Dept.		
IDC	Industrial Dyestuff Co.	MAH	Maher Color & Chemical Co.
IFF	International Flavors & Fragrances, Inc.	MAL	Mallinckrodt Chemical Works
ILC	International Latex & Chemical Corp.	MAN	Pickands Mather & Co. Manganese Chemical Co. Div.
IMC	International Minerals & Chemical Corp.	MAR	American Can Co., Marathon Products/Chemical
IMP	Hercules, Inc., Imperial Color & Chemical Dept.	MAY	Otto B. May, Inc.
INL	Inland Steel Co., Inland Steel Container Co. Div.	MCA	Masonite Corp., Alpine Chemical Div.
IOC	Ritter Pfaudler Corp., Ionac Chemical Co. Div.	MCB	Borg-Warner Corp., Marbon Chemical Div.
IPC	Interplastic Corp., Commercial Resins Div.	MCC	McCloskey Varnish Co.
IPI	Isocyanate Products, Inc.	MCH	Michigan Chemical Corp.
IPR	Inter-Pacific Resins, Inc.	MCI	Mooney Chemicals, Inc.
IRC	IRC, Inc.	MCP	Moretex Chemical Products, Inc.
IRI	Ironsides Resins, Inc.	MED	Medical Chemicals Corp.
		MEE	Maumee Chemical Co.
JCC	Jefferson Chemical Co., Inc.	MER	Merichem Co.
JDC	Nipak, Inc.	MET	M & T Chemicals, Inc.
JEN	Jennison-Wright Corp.	MFG	Molded Fiber Glass Body Co.
JMS	J. Meyer & Sons, Inc.	MGK	McLaughlin Gormley King Co.
JNS	S. C. Johnson & Son, Inc.	MGR	Magruder Color Co., Inc.
JOB	Jones-Blair Paint Co.	MHI	Ventron Corp.
JOR	Jordan Chemical Co.	MID	Midland Industrial Finishes Co.
JRG	Andrew Jergens Co.	MIR	Miranol Chemical Co., Inc.
JSC	Jersey State Chemical Co.	MLD	Metalead Products Corp.
JTC	Joseph Turner & Co.	MLS	Miles Laboratories, Inc., Marschall Div.
JWL	Jewel Paint & Varnish Co.	MMM	Minnesota Mining & Manufacturing Co.
		MNO	Monochem, Inc.
KAI	Kaiser Aluminum & Chemical Corp., Kaiser Chemicals Div.	MNP	Minnesota Paints, Inc.
KAL	Kali Manufacturing Co.	MOA	Mona Industries, Inc.
KCC	Kennecott Copper Corp., Chino Mines Div.	MOB	Mobay Chemical Co.
KCH	Keystone Chemurgic Corp.	MOC	Marathon Oil Co., Texas Refining Div.
KCU	Kennecott Copper Corp., Utah Copper Div.	MON	Monsanto Co.
KCW	Keystone Color Works, Inc.	MOR	Mineral Oil Refining Co.
KEL	Kelly-Pickering Chemical Corp.	MOT	Motomco, Inc.
KEN	Witco Chemical Co. Inc., Kendall Refining Div.	MR	Benjamin Moore & Co.
KET	Ketona Chemical Corp.	MRA	Metro-Atlantic, Inc.
KF	Kay-Fries Chemicals, Inc.	MRB	Marblette Co. Div. of Allied Products Corp.
KMC	Kohler-McLister Paint Co.	MRD	Marden-Wild Corp.
KMP	Kelly-Moore Paint Co.	MRK	Merck & Co., Inc.
KND	Knoedler Chemical Co.	MRN	International Latex & Chemical Corp., Paisley Products Div.
KNG	Far-Best Corp., O. L. King Div.	MRO	W. R. Grace & Co., Marco Chemical Div.
KNP	Knapp Products, Inc.	MRT	Morton Chemical Co.
KON	H. Kohnstamm & Co., Inc.	MRV	Marlowe-Van Loan Corp.
KPI	Kenrich Petrochemicals, Inc.	MRX	Max Marx Color & Chemical Co.
KPP	Sinclair-Koppers Co.	MSC	Mississippi Chemical Corp.
KPS	Koppers Pittsburgh Co.	MTO	Montrose Chemical Corp. of California
KPT	Koppers Co., Inc., Organic Materials Div.	MTR	Baldwin-Montrose Chemical Co., Inc., Montrose Chemical Div.
KRM	Lawter Chemicals, Inc., Krumbhaar Resin Div.	MYW	Stepan Chemical Co., Maywood Div.
KYN	Kyanize Paints, Inc.		
KYS	Keysor Chemical Co.	NCA	Northrop Carolina, Inc.
		NCI	Union Camp Corp., Chemicals Div.
LAK	Lakeway Chemical Co.	NCW	Nostrip Chemical Works, Inc.
LAM	LaMotte Chemical Products Co.	NEO	Norda Essential Oil & Chemical Co., Inc.
LAS	Lasco Industries, Inc.	NEP	Nepera Chemical Co., Inc.
LEA	Leatex Chemical Co.	NES	Nease Chemical Co., Inc.
LEB	Lebanon Chemical Corp.	NEV	Neville Chemical Co.
LEM	B. L. Lemke & Co., Inc.	NIL	Nilok Chemicals, Inc.
LEN	Leonard Refineries, Inc.	NIT	Nitrin, Inc.
LEV	Lever Brothers Co.	NLC	Nalco Chemical Co.
LIL	Eli Lilly & Co.	NMC	National Milling & Chemical Co., Inc.
LKL	Lakeside Laboratories, Div. of Colgate-Palmolive Co.	NOC	Norac Co., Inc. & Mathe Chemical Co. Div.
LKY	Lake States, Div. of St. Regis Paper Co.	NON	A. P. Nonweiler Co.
LMI	North American Chemical Co.	NOR	Norwich Pharmacal Co.
LPC	Lignin Products Co.	NPC	Northwest Petrochemical Corp.
LUB	Lubrizol Corp.	NPI	National Polychemicals, Inc.
LUE	George Lueders & Co., Inc.		

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
NPP	Enjay Chemical Co., Enjay Fibers & Laminates Co. Div.	PLU	Plumb Chemical Corp.
NPR	Safeway Stores, Inc., Newport Products Co. Div.	PLX	Plex Chemical Corp.
NPV	Norris Paint & Varnish Co.	PMC	Plastics Manufacturing Co.
NRS	Norse Chemical Corp.	PMP	Premier Malt Products, Inc.
NSC	National Starch & Chemical Corp.	PNT	Pantasote Co. of New York, Inc.
NTB	National Biochemical Co.	PNX	Phoenix Oil Co.
NTC	National Casein Co.	POL	Polymer Corp.
NTL	National Lead Co.	PPC	Premier Petrochemical Co.
NVF	NVF Co.	PPG	Pittsburgh Plate Glass Co.
NVT	Novamont Corp., Neal Works	PPL	Pioneer Plastics Corp., Chemical Div.
NW	Northwestern Chemical Co.	PRC	Products Research & Chemical Corp.
NYC	Tenneco Chemicals, Inc., New York Color Div.	PRD	Productol Chemical Co., Inc.
OBC	O'Brien Corp.	PRT	Pratt & Lambert, Inc.
OCF	Owens-Corning Fiberglas Corp.	PRX	Purex Corp., Ltd.
OH	Air Reduction Co., Inc., Ohio Medical Products Div.	PSC	Passaic Color & Chemical Co.
QMC	Olin Mathieson Chemical Corp., & Agricultural Div.	PSP	Georgia-Pacific Corp., Bellingham Div.
QMS	E. R. Squibb & Sons, Inc.	PTO	Puerto Rico Chemical Co., Inc.
ONX	Millmaster Onyx Corp., Onyx Chemical Div.	PTP	Preservative Paint Co.
OPC	Orbis Products Corp.	PTT	Petro-Tex Chemical Corp.
ORG	Organics, Inc.	PUB	Publicker Industries, Inc.
ORO	Chevron Chemical Co.	PUR	Puritan Chemical Co.
ORT	Roehr Chemicals, Inc.	PVI	Polyvinyl Chemicals, Inc.
OSB	C. J. Osborn Co.	PYL	Polychemical Laboratories, Inc.
OTA	Ottawa Chemical Co.	PYR	Poly Resins
OTC	Ott Chemical Co.	PYZ	Polyrez Co., Inc.
OTH	Chevron Chemical Co.	QCP	Quaker Chemical Corp.
PAI	Pennsylvania Industrial Chemical Corp.	QKO	Quaker Oats Co.
PAN	Pan American Petroleum Corp.	QUN	K. J. Quinn & Co., Inc.
PAR	Pennsylvania Refining Co.	RAB	Raybestos-Manhattan, Inc., Raybestos Div.
PAS	Pennsalt Chemicals Corp.	RAY	ITT Rayonier, Inc.
PAT	Patent Chemicals, Inc.	RBC	Roberts Chemicals, Inc.
PBI	Private Brands, Inc.	RCC	Rexall Chemical Co.
PBY	Pillsbury Co.	RCD	Richardson Co.
PC	Proctor Chemical Co., Inc.	RCI	Reichhold Chemicals, Inc.
PCC	USS Chemicals, Div. of U.S. Steel Corp.	RDA	Rhodia, Inc.
PCH	Peerless Chemical Co.	RED	Red Spot Paint Co., Inc.
PCI	Pioneer Chemical Works, Inc.	REH	Reheis Chemical Co., Div. of Armour Pharmaceutical Co.
PCR	Princeton Chemical Research, Inc.	REL	Reliance Universal, Inc. & Rel-Rez Div.
PCS	Emery Industries, Inc., Western Div.	REM	Remington Arms Co., Inc.
PCW	Pfister Chemical, Inc.	REN	Renroh Resins
PD	Parke, Davis & Co.	REZ	Rezolin, Inc.
PDC	Berncolors-Foughkeepsie, Inc.	RG	Rogers Corp.
PDJ	Joseph Davis Plastics Co.	RH	Rohm & Haas Co.
PEK	Peck's Products Co.	RIK	Riker Laboratories, Div. of Rexall Drug & Chemical Co.
PEL	Pelron Corp.	RIL	Reilly Tar & Chemical Corp.
PEN	S. B. Penick & Co.	RIV	Riverdale Chemical Co.
PER	Perry & Derrick Co.	RLS	Rachelle Laboratories, Inc.
PFN	Pfanstiehl Laboratories, Inc.	ROB	Robeco Chemicals, Inc.
PFP	Phelan-Faust Paint Manufacturing Co., Phelan's Resins & Plastics Div.	ROC	Rock Hill Printing & Finishing Co.
PFW	Polak's Frutal Works	ROM	United Merchants & Manufacturers, Inc., Roma Chemical Div.
PFZ	Chas. Pfizer & Co., Inc.	ROY	Royce Chemical Co.
PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co.	RPC	Refined Products Co.
PGU	Gulf Oil Corp., Perkins Glue, Chemicals Dept.	RSA	R.S.A. Corp.
PHF	Peter Hand Foundation, Inc.	RSB	Rosenberg Bros. & Co.
PHR	Pharmachem Corp.	RT	F. Ritter & Co.
PIC	Pierce Organics, Inc.	RTC	Ritter Chemical Co., Inc.
PII	Polymer Industries, Inc.	RTF	Retzliff Chemical Co.
PIL	Pilot Chemical Co.	RUB	Hooker Chemical Corp., Ruco Div.
PIT	Pitt-Consol Chemical Co.	RUC	Rubicon Chemicals, Inc.
PLA	Richardson Co., Richardson Polymers Div.	S	Sandoz, Inc. & Dyestuff & Chemical Div.
PLB	P-L Biochemicals, Inc.	SAC	Southeastern Adhesives Co.
PLC	Phillips Petroleum Co.	SAL	Salsbury Laboratories
PLS	Plastics Engineering Co.	SAR	Sartomer Resins, Inc.
		SBC	Scher Bros., Inc.
		SBI	Southern Biochemical Corp.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
SBP	Sugar Beet Products Co.	SRL	G. D. Searle & Co.
SCC	Standard Chlorine Chemical Co., Inc.	SRR	Stresen-Reuter International, International Minerals & Chemical Corp.
SCF	Schaefer Varnish Co.	STA	A. E. Staley Manufacturing Co.
SCH	Schering Corp.	STC	Sou-Tex Chemical Co., Inc.
SCN	Schenectady Chemicals, Inc.	STG	Stange Co.
SCO	Scholler Bros., Inc.	STP	Stepan Chemical Co., Industrial Chemicals Div., Millsdale Works
SCP	Standard Chemical Products, Inc.	SUG	Colonial Sugars Co., Sucro-Chemical Div.
SCR	R. P. Scherer Corp.	SUM	Summit Chemical Products Corp.
SDC	Martin-Marietta Corp., Southern Dyestuff Co. Div.	SUN	Sun Oil Co.
SDG	Sterling Drug, Inc., Glenbrook Laboratories Div.	SVC	Sullivan Varnish Co.
SDH	Sterling Drug, Inc., Hilton-Davis Chemical Co. Div.	SVT	Solvent Chemical Co., Inc.
SDW	Sterling Drug, Inc., Winthrop Laboratories Div.	SW	Sherwin-Williams Co.
SEA	Seaboard Chemicals, Inc.	SWT	Swift & Co.
SED	Conchemco, Inc., Seidlitz Paint Div.	SYC	Synthetic Chemicals, Inc.
SEK	Plastic Systems Corp.	SYP	Synthetic Products Co.
SEL	Selney Co., Inc.	SYV	Synvar Corp.
SEY	Seydel-Woolley & Co.	TAE	Chemetron Corp., National Cylinder Gas Div.
SF	Stauffer Chemical Co., Agricultural Div.	TCC	Tanatex Chemical Corp.
SFA	Stauffer Chemical Co., Specialty Chemical Div.	TCH	Trylon Chemical, Corp.
SFD	Sonford Chemical Co.	TCI	Norwich Pharmacal Co., Texize Chemicals, Inc. Div.
SFI	Stauffer Chemical Co., Industrial Div.	TDC	Diversey Corp.
SH	Stein, Hall & Co., Inc.	TEK	Teknor Apex Co.
SHA	Shanco Plastics & Chemicals, Inc.	TEN	Tennessee Copper Co., Div. of Tennessee Corp.
SHC	Shell Oil Co., Shell Chemical Co. Div.	TER	Terra Chemicals International, Inc.
SHF	National Dairy Products Corp., Sheffield Chemical Div.	TGL	Triangle Chemical Co.
SHL	Shulton, Inc.	THC	Thompson Apex Co., Div. of Continental Oil Co.
SHO	Shell Oil Co.	THM	Wm. T. Thompson Co., Thompson Chemicals Div.
SHP	Shepherd Chemical Co.	TIC	Ticonderoga Chemical Corp.
SIC	Vistron Corp., Silmar Div.	TID	Getty Oil Co.
SID	George F. Siddall Co., Inc.	TKL	Thiokol Chemical Corp.
SIM	Simpson Timber Co.	TMH	Thompson-Hayward Chemical Co.
SIN	Sinclair Refining Co.	TMS	Sterling Drug, Inc., Thomasset Colors Div.
SIO	Standard Oil Co. of Ohio	TNA	Ethyl Corp.
SIP	James P. Sipe & Co.	TNI	Gillette Chemical Co., Div. of Gillette Co.
SK	Smith, Kline & French Laboratories	TOC	Tenneco Oil Co.
SKC	Sinclair-Koppers Chemical Co.	TRC	Toms River Chemical Corp.
SKG	Sunkist Growers, Inc.	TRJ	Jeras Corp.
SKO	Skelly Oil Co.	TRO	Troy Chemical Co.
SKT	Textron, Inc., Spencer Kellogg Div.	TSA	Texas Alkyls, Inc.
SLC	Soluol Chemical Co., Inc.	TTX	Detrex Chemical Industries, Inc.
SLV	Sterling Drug, Inc., Salvo Chemical Div.	TUS	Texas-U.S. Chemical Co.
SM	Mobil Chemical Co.	TV	Sun Chemical Corp., Industrial Coatings Div.
SM	Mobil Oil Corp. & Mobil Chemical Co. Div., Industrial Chemical Div.	TX	Texaco, Inc.
SMC	Stamford Chemical Industries, Inc.	TXC	Tex Chem Co.
SNA	Sun Chemical Corp., Pigments Div.	TXN	Textilana-Nease, Inc.
SNC	Sonoco Products Co.	TXT	Textilana Corp.
SNI	Kaiser Aluminum & Chemicals Corp., Kaiser Agricultural Chemicals Div.	TZC	Tizon Chemical Corp.
SNO	SunOlin Chemical Co.	UBS	A. E. Staley Manufacturing Co., U B S Chemical Co. Div.
SNT	Suntide Refining Co.	UCC	Union Carbide Corp.
SNW	Sun Chemical Corp., Chemical Div.	UDI	Petrochemicals Co., Inc.
SOC	Standard Oil Co. of California, Chevron Chemical Co.	UHL	Paul Uhlich & Co., Inc.
SOG	Signal Oil & Gas Co.	UNG	Ungerer & Co.
SOH	Solar Nitrogen Chemicals, Inc. & Vistron Corp.	UNN	United Chemical Corp. of Norwood
SOI	American Oil Co. (Maryland)	UNO	United Oil Manufacturing Co.
SOL	Solar Chemical Corp.	UNP	United Chemical Products Corp.
SOP	Southern Chemical Products Co.	UNS	Union Starch & Refining Co., Inc.
SOR	Thomason Industries, Inc., Southern Resin Div.	UOC	Union Oil Co. of California
SOS	Southern Sizing Co.	UOP	Universal Oil Products Co., UOP Chemical Div.
SPC	Sinclair Paint Co.	UPF	United States Pipe & Foundry Co.
SPD	General Electric Co., Silicone Products Dept.	UPJ	Upjohn Co.
SPI	Sinclair Petrochemicals, Inc.	UPL	United States Plywood-Champion Papers, Inc., California Div., Shasta Operations.
SPL	Spaulding Fibre Co., Inc.	UPM	Universal Oil Products Co.
SPY	Standard Pyroxoloid Corp.	UPR	Argus Chemical Corp., U.S. Peroxygen Div.
		URC	United Carbon Co.

TABLE 22.--Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Code identification	Name of company	Code identification	Name of company
USB	U.S. Borax Research Corp.	WHC	Whittaker Corp., Research & Development/San Diego
USI	National Distillers & Chemical Corp.: National Petro Chemical Corp. Div. U.S. Industrial Chemicals Co. Div.	WHI	White & Hodges, Inc.
USO	U.S. Oil Co.	WHL	Whitmoyer Laboratories, Inc.
USR	Uniroyal, Inc., Chemical Div.	WHW	Whittemore-Wright Co., Inc.
UTR	Utah Resin Co., Inc.	WIC	Wica Chemicals, Inc.
UVV	Universal Chemicals Corp.	WIL	Wilson Pharmaceutical & Chemical Corp., Wilson Laboratories Div.
VAC	Northern Petrochemical Co., Varney Div.	WJ	Warner-Jenkinson Manufacturing Co.
VAL	Valchem	WLI	White Laboratories, Inc.
VB	Vermilyle-Bell	WLM	Wilnot & Cassidy, Inc.
VDM	Van De Mark Chemical Co.	WM	Wilson Pharmaceutical & Chemical Corp. Wilson-Martin Div.
VEL	Velsicol Chemical Corp.	WMP	Warner Machine Products, Inc., Warner Chemical Div.
VGC	Virginia Chemicals, Inc.	WOB	Woburn Chemical Corp.
VIN	Vineland Chemical Co.	WOD	Woodbury Chemical Co.
VLN	Valley Nitrogen Producers, Inc.	WON	Woonsocket Color & Chemical Co.
VLY	Chem-Fleur, Inc.	WRC	Wood Ridge Chemical Corp.
VNC	Vanderbilt Chemical Corp.	WRD	Weyerhaeuser Co., Wood Products Div.
VND	Van Dyk & Co., Inc.	WSN	Washine Chemical Corp.
VPC	Verona-Pharma Chemical Corp.	WTC	Witco Chemical Co., Inc.
VPT	Vickers Refining Co., Inc.	WTH	Wallace & Tiernan, Inc., Harchem Div.
VSV	Valentine Sugars, Inc.	WTL	Wallace & Tiernan, Inc., Lucidol Div.
VEM	Vitamins, Inc.	WVA	West Virginia Pulp & Paper Co.: Chemical Div., Tall Oil Dept. Polychemicals Div.
WAW	W. A. Wood Co.	WYC	Wycon Chemical Co.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemical Div.	WYN	Wyandotte Chemicals Corp.
WBC	Worthington Biochemical Corp.	WYT	Wyeth Laboratories, Inc., Div. of American Home Products Corp.
WBG	White & Bagley Co.		
WCA	West Coast Adhesives Co.		
WCC	Witfield Chemical Corp.		
WES	Weston Chemical Co., Inc.	YAW	Young Aniline Works, Inc.

Table 22. -- Synthetic organic chemicals: Directory of manufacturers, 1967--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 1967 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]

Identification code	Name of company	Office address
ABB	Abbott Laboratories-----	14th St. and Sheridan Rd., N. Chicago, IL 60664.
ABS	Abex Corp., American Brakeblok Div-----	900 W. Maple Rd., Troy, MI 48084.
ACI	Aceto Industrial Chemical Co.-----	126-02 Northern Blvd., Flushing, New York, NY 11368.
ACE	Acme Chemical Co-----	2506 N. 32d St., Milwaukee, WI 53245.
AGY	Agway, Inc.-----	1446 Buffalo St., Olean, NY 10760.
HOU	Air Products & Chemicals, Inc., Houndry Process & Chemical Div. Air Reduction Co., Inc.:	1339 Chestnut St., Philadelphia, PA 19107.
CUC	Airco Chemicals & Plastics-----	150 E. 42d St., New York, NY 10017.
OH	Ohio Medical Products Div-----	1400 E. Washington Ave., Madison, WI 53701.
ALC	Alco Chemical Corp-----	Trenton Ave. and William St., Philadelphia, PA 19134.
AAC	Alcolac Chemical Corp-----	3440 Fairfield Rd., Baltimore, MD 21226.
AID	Aldrich Chemical Co., Inc-----	2371 N. 30th St., Milwaukee, WI 53210.
ALL	Alliance Color & Chemical Co----- Allied Chemical Corp.:	P.O. Box 326, Ridgefield, NJ 07657.
ACN	Agricultural Div-----	40 Rector St., New York, NY 10006.
ACB	Fabricated Products Div-----	40 Rector St., New York, NY 10006.
ALF	Fibers Div-----	1450 Broadway, New York, NY 10018.
ACP	Plastics Div-----	P.O. Box 365, Morristown, NJ 07960.
AGS	Specialty Chemicals Div-----	Columbia Rd. & Park Ave., Morristown, NJ 07960.
ACU	Union Texas Petroleum Div-----	P.O. Box 2120, Houston, TX 77001.
ALX	Alox Corp-----	3943 Buffalo Ave., Niagara Falls, NY 14302.
AML	Amalgamated Chemical Corp-----	Ontario and Rorer Sts., Philadelphia, PA 19134.
AMC	Amchem Products, Inc-----	Brookside Ave., Ambler, PA 19002.
AES	Amerace-Esna Corp., Chemical Specialities Div.	74 Hudson Ave., Tenafly, NJ 07670.
AAE	American Aniline & Extract Co., Inc-----	Venango and F Sts., Philadelphia, PA 19134.
AAP	American Aniline Products, Inc-----	P.O. Box 3063, Paterson, NJ 07509.
AMB	American Bio-Synthetics Corp-----	710 W. National Ave., Milwaukee, WI 53204.
MAR	American Can Co., Marathon Products/Chemical--	708 3d Ave., New York, NY 10017.
AME	American Chemical Corp-----	P.O. Box 9247, Long Beach, CA 90810.
ACY	American Cyanamid Co-----	Wayne, NJ 07470.
HST	American Hoechst Corp-----	129 Quidnick St., Coventry, RI 02816.
SOI	American Oil Co. (Maryland)-----	910 S. Michigan Ave., Chicago, IL 60680.
AMO	American Oil Co. (Texas)-----	910 S. Michigan Ave., Chicago, IL 60680.
AMP	American Potash & Chemical Corp-----	3000 W. 6th St., Los Angeles, CA 90005.
BAR	American Rubber & Chemical Co-----	P.O. Box 1034, Louisville, KY 40201.
ASY	American Synthetic Rubber Corp-----	P.O. Box 360, 4500 Camp Ground Rd., Louisville, KY 40201.
ATC	American Tartars Corp-----	420 Lexington Ave., New York, NY 10017.
ATB	Ames Laboratories, Inc-----	200 Rock Lane, Milford, CT 06460.
ACC	Amoco Chemicals Corp-----	130 E. Randolph Dr., Chicago, IL 60601.
ANM	Ancon Chemical Corp-----	1 Stanton St., Marinette, WI 54143.
ASL	Ansul Chemical Co-----	1 Stanton St., Marinette, WI 54143.
APX	Apex Chemical Co., Inc-----	200 S. 1st St., Elizabethport, NJ 07206.
HAP	Applied Plastics Co., Inc-----	130 Penn St., El Segundo, CA 90246.
ARA	Arapahoe Chemicals, Div. of Syntex Corp-----	2855 Walnut St., Boulder, CO 80302.
ARD	Ardmore Chemical Co-----	840 Valley Brook Ave., Lyndhurst, NJ 07071.
ARN	Arenol Chemical Corp-----	40-33 23d St., Long Island City, NJ 11101.
ARG	Argus Chemical Corp-----	633 Court St., Brooklyn, NY 11231.
UPR	U.S. Peroxygen Div-----	840 Morton Ave., Richmond, CA 94804.
ARZ	Arizona Chemical Co-----	Wayne, NJ 07470.
AKS	Arkansas Co., Inc----- Armour & Co.:	185 Foundry St., Newark, NJ 07105.
AGP	Armour Grocery Products Co. Div-----	100 S. Wacker Dr., Chicago, IL 60606.
ARC	Armour Industrial Chemical Co. Div-----	401 N. Wabash Ave., Chicago, IL 60690.
ARM	Armour Agricultural Chemical Co-----	P.O. Box 1685, Atlanta, GA 30301.
ARP	Armour Pharmaceutical Co-----	P.O. Box 511, Kankakee, IL 60901.
ARK	Armstrong Cork Co-----	Liberty and Charlotte Sts., Lancaster, PA 17604.
APV	Armstrong Paint & Varnish Works, Inc-----	1330 S. Kilbourn Ave., Chicago, IL 60623.
ARL	Arol Chemical Products Co-----	371 Wayne St., Jersey City, NJ 07302.
ASH	Ashland Oil & Refining Co----- Ashland Chemical Co. Div----- Catalin Corp. Div-----	1401 Winchester Ave., Ashland KY 41101. Henry St., Bethel, CT 06801 and P.O. Box 2458, Columbus, OH 43216. 170 N. High St., Columbus, OH 43215.



TABLE 22. -- Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
AST	Astra Pharmaceutical Products, Inc-----	7-1/2 Neponset St., Worcester, MA 01606.
BLA	Astor Products, Blue Arrow Div-----	5050 Edgewood Ct., Jacksonville, FL 32203.
ATP	Atco Chemical-Industrial Products, Inc., Fine Chemical Div.	93 Main St., Franklin, NJ 07416.
ATL	Atlantic Chemical Corp-----	P.O. Box 216, Nutley, NJ 07110.
ATR	Atlantic Richfield Co., ARCO Chemical Co. Div	260 S. Broad St., Philadelphia, PA 19101.
ATU	Atlantic Tubing & Rubber Co-----	Mill St., Cranston, RI 02905.
APD	Atlas Chemical Industries, Inc-----	Wilmington, DE 19899.
APR	Atlas Processing Co-----	P.O. Box 9188, 3546 Midway St., Shreveport, LA 71109.
AVS	Avisun Corp-----	P.O. Box 312, New Castle, DE 19720.
AZT	Aztec Chemicals, Inc-----	P.O. Box 756, Elyria, OH 44035.
BAS	BASF Corp-----	866 3d St., New York, NY 10022.
BRD	Baird Chemical Industries, Inc-----	185 Madison Ave., New York, NY 10016.
BAC	Baker Castor Oil Co-----	40 Avenue A, Bayonne, NJ 07002.
BKC	J. T. Baker Chemical Co-----	222 Red School Lane, Phillipsburg, NJ 08865.
MTR	Baldwin-Montrose Chemical Co., Inc., Montrose Chemical Div.	100 Lister Ave., Newark, NJ 07105.
BAL	Baltimore Paint & Chemical Corp-----	2325 Hollins Ferry Rd., Baltimore, MD 21230.
BXT	J. H. Baxter & Co-----	1700 South El Camino Real, San Mateo, CA 94402.
BAX	Baxter Laboratories, Inc-----	6301 N. Lincoln Ave., Morton Grove, IL 60053.
BAO	Bayoil Co., Inc-----	2 Union St., Peabody, MA 01960.
BIS	Beech-Nut, Inc-----	Church St., Canajoharie, NY 13317.
BCM	Belding Chemical Industries-----	1407 Broadway, New York, NY 10018.
BL	Belle Chemical Co., Inc-----	P.O. Box 848, Lowell, NC 28098.
BME	Bendix Corp., Friction Materials Div-----	P.O. Box 238, Troy, NY 12180.
BEN	Bennett's-----	65 W. 1st South St., Salt Lake City, UT 84110.
BDO	Benzenoid Organics, Inc-----	P.O. Box 156, Bellingham, MA 02019.
PDC	Berncolors-Poughkeepsie, Inc-----	75 N. Water St., Poughkeepsie, NY 12601.
BUC	Blackman-Uhler Chemical Co-----	P.O. Box 5627, Spartanburg, SC 29301.
BOR	Borden Co., Borden Chemical Co. Div-----	350 Madison Ave., New York, NY 10017.
MCB	Borg-Warner Corp., Marbon Chemical Div-----	P.O. Box 68, Washington, WV 26181.
BOY	Walter N. Boysen Co-----	1001 42d St., Oakland, CA 94608.
BFR	Branchflower Co-----	4501 Shilshole Ave., NW., Seattle, WA 98101.
BPL	Brand Plastics Co-----	130 E. Randolph Dr., Chicago, IL 60601.
BRS	Bristol-Meyers Co., Bristol Laboratories Div--	P.O. Box 657, Syracuse, NY 13201.
BRU	M. A. Bruder & Sons, Inc-----	52d St. and Grays Ave., Philadelphia, PA 19143.
BRY	Bryant Chemical Corp-----	6 North St., N. Quincy, MA 02171.
BUK	Buckeye Cellulose Corp-----	2899 Jackson Ave., Memphis, TN 38108.
BKM	Buckman Laboratories, Inc-----	1256 N. McLean Blvd., Memphis, TN 38108.
CD	Budd Co., Polychem Div-----	70 S. Chapel St., Newark, DE 19711.
BJL	Burdick & Jackson Laboratories, Inc-----	1953 S. Harvey St., Muskegon, MI 49442.
BUR	Burroughs-Wellcome & Co. (U.S.A.), Inc-----	1 Scarsdale Rd., Tuckahoe, NY 10707.
CBT	Samuel Cabot, Inc-----	246 Summer St., Boston, MA 02210.
CAD	Cadet Chemical Corp., Subsidiary of Chemetron Noury Corp.	2153 Lockport-Olcott Rd., Burt, NY 14028.
CAU	Calcasieu Chemical Corp-----	P.O. Box 1522, Lake Charles, LA 70601.
CAL	Callery Chemical Co-----	Callery, PA 16024.
CAP	Cap-Roc, Inc-----	300 State St., Rochester, NY 14614.
CBM	Carborundum Co., Coated Abrasives Div-----	P.O. Box 477, Niagara Falls, NY 14302.
CGL	Cargill, Inc-----	Room 2008, 3 Penn Center Plaza, Philadelphia, PA 19102.
CCW	Carlisle Chemicals Works, Inc-----	West St., Reading OH 45215.
CCA	Advance Div-----	500 Jersey Ave., New Brunswick, NJ 08903.
CM	Carpenter-Morton Co-----	376 3d St., Everett, MA 02149.
CRS	Carus Chemical Co., Inc-----	1375 8th St., LaSalle, IL 61301.
CEL	Celanese Corp. of America: Celanese Chemical Co. Div----- Celanese Coatings Co----- Celanese Plastics Co----- Fibers Co. Div-----	245 Park Ave., New York, NY 10036. 1481 S. 11th St., Louisville, KY 40208. 550 Broad St., Newark, NJ 07102. P.O. Box 1414, Charlotte, NC 28201.
FTX	Central Farmers Fertilizer Co., Fel-Tex Plant-	P.O. Box 68, Fremont, NB 68025.
CCL	Charlotte Chemical Laboratories-----	P.O. Box 948, Charlotte, NC 28201.
CPP	Charmin Paper Products Co-----	800 Hoberg St., Green Bay, WI 54305.
CCC	Chase Chemical Corp-----	3527 Smallman St., Pittsburgh, PA 15201.
CHT	Chattem Drug & Chemical Co., Chattem Chemicals Div.	1715 W. 38th St., Chattanooga, TN 37409.
CHG	Chemagro Crop-----	P.O. Box 4913, Station "F", Kansas City, MO 64120.
CBD	Chembond Corp-----	P.O. Box 270, Springfield, OR 97477.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identifi- cation code	Name of company	Office address
	Chemetron Corp.:	
CTN & CTA	Chemetron Chemicals, Organic Chemical Dept.	393 7th Ave., New York, NY and Wilmington Industrial Park, Wilmington, DE 19801.
TAE	National Cylinder Gas Div-----	840 N. Michigan Ave., Chicago, IL 60611.
VLY	Chem-Fleur, Inc-----	200 Pulaski St., Newark, NJ 07105.
CHF	Chemical Formulators, Inc-----	P.O. Box 26, Nitro, WV 25143.
CIS	Chemical Insecticide Corp-----	20 Whitman Ave., Metuchen, NJ 08840.
CPD	Chemical Products Corp-----	P.O. Box 449, Cartersville, GA 30120.
CCO	Chemico, Inc-----	2508 E. Bailey Rd., Cuyahoga Falls, OH 44221.
CKL	Chemlek Laboratories, Inc-----	4040 W. 123d St., Alsip, IL 60658.
CHL	Chemol, Inc-----	P.O. Box 20687, Greensboro, NC 27420.
OTH & ORO	Chevron Chemical Co-----	940 Hensley St., Richmond, CA 94801 and 200 Bush St., San Francisco, CA 94120.
CPC	Childs Pulp Colors, Inc-----	43 Summit St., Brooklyn, NY 11231.
CHC	Chipman Chemical Co., Inc-----	120 Jersey Ave., New Brunswick, NJ 08903.
CIB	Ciba Chemical & Dye Co----- Ciba Corp.:	Route 208, Fair Lawn, NJ 07410.
CBA	Ciba Argochemical Co-----	556 Morris Ave., Summit, NJ 07901.
CBP	Ciba Pharmaceutical Co. Div-----	556 Morris Ave., Summit, NJ 07901.
CBA	Ciba Products Co-----	556 Morris Ave., Summit, NJ 07901.
CSO	Cities Service Oil Co-----	P.O. Box 300, Tulsa, OK 74101.
CLK	Clark Oil & Refining Corp-----	131st St. and Kedzie Ave., Blue Island, IL 60406.
CLY	W. A. Cleary Corp-----	P.O. Box 749, New Brunswick, NJ 08903.
CLI	Clintwood Chemical Co-----	4342 S. Wolcott Ave., Chicago, IL 60609.
CLV	Clover Chemical Co-----	P.O. Box 146, Eighty Four, PA 15330.
CSP	Coastal States Petrochemical Co-----	6th Fl., Lincoln Liberty Life Bldg., Houston, TX 77002.
COK	Cokerille Chemicals, Inc-----	Greenwood, VA 22943.
CBR	Colab Resin Corp-----	Main St., Tewksbury, MA 01876.
CP	Colgate-Palmolive Co-----	300 Park Ave., New York, NY 10022.
COL	Collier Carbor & Chemical Corp-----	714 W. Olympic Blvd., Los Angeles, CA 90015.
CLD	Colloids, Inc-----	394 Frelinghuysen Ave., Newark, NJ 07114.
SUG	Colonial Sugars Co., Sucro-Chemical Div-----	Drawer G, Gramercy, LA 70052.
CNC	Columbia Nitrogen Corp-----	P.O. Box 1483, Augusta, GA 30903.
CNP	Columbia Nipro Corp-----	P.O. Box 1483, Augusta, GA 30903.
CLB	Columbia Organic Chemicals Co., Inc-----	912 Drake St., Columbia, SC 29205.
CBN	Columbian Carbon Co----- Chemicals Div-----	380 Madison Ave., New York, NY 10017. P.O. Box 1522, Lake Charles, LA 70601.
CMP	Commercial Products Co., Inc-----	117 Ethel Ave., Hawthorne, NJ 07641.
COM	Commercial Solvents Corp-----	245 Park Ave., New York, NY 10017.
COR	Commonwealth Oil Refining Co., Inc----- Conchemco, Inc.:	G.P.O. Box 4065, San Juan, PR 00936.
DAV	H.B. Davis Co. Div-----	Bayard & Severn Sts., Baltimore, MD 21230.
SED	Seidlitz Paint Co. Div-----	18th & Garfield Sts., Kansas City, MO 64127.
CON	Concord Chemical Co., Inc-----	205 S. 2d St., Camden, NJ 08103.
CWP	Consolidated Papers, Inc-----	P.O. Box 50, Wisconsin Rapids, WI 54494.
CTL	Continental Chemical Co-----	270 Clifton Blvd., Clifton, NJ 07015.
CO	Continental Oil Co-----	9 Rockefeller Plaza, New York, NY 10020.
CPV	Cook Paint & Varnish Co-----	1412 Knox, N. Kansas City, MO 64116.
CFA	Cooperative Farm Chemicals Association-----	P.O. Box 308, Lawrence, KS 66044.
COP	Coopers Creek Chemical Corp-----	River Rd., W. Conshohocken, PA 19428.
CPY	Copolymer Rubber & Chemical Corp-----	P.O. Box 2591, Baton Rouge, LA 70821.
CRN	Corn Products Co-----	717 5th Ave., New York, NY 10022.
ACR	Acme Resin Co. Div-----	1401 S. Circle Ave., Forest Park, IL 60130.
CSD	Cosden Oil & Chemical Co-----	P.O. Box 1311, Big Spring, TX 79720.
JWL	Cowles Chemical Co-----	12000 Shaker Blvd., Cleveland, OH 44120.
BPC	Benzol Products Div-----	Mento Park Office Bldg., Edison, NJ 08817.
CRT	Crest Chemical Corp-----	225 Emmet St., Newark, NJ 07114.
CRD	Croda, Inc-----	51 Madison Ave., New York, NY 10010.
ALT	Crompton & Knowles Corp., Chemicals Group, Althouse & Bates Div.	500 Pear St., Reading PA 19603.
CBY	Crosby Chemicals, Inc-----	P.O. Drawer 32, DeRidder, LA 70634.
GCP	Crown Central Petroleum Corp-----	P.O. Box 1168, Baltimore, MD 21203.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	Camas, WA 98607.
CUL	Culver Chemical Co-----	1502 N. 25th St., Melrose Park, IL 60160.
CUT	Cutter Laboratories, Inc-----	4th and Parker Sts., Berkeley, CA 94710.
DAN	Dan River Mills, Inc-----	Danville, VA 24541.
DYS	Davies-Young Soap Co-----	705 Albany St., Dayton, OH 45401.
PDJ	Joseph Davis Plastics Co-----	450 Schuyler Ave., Kearny, NJ 07032.
DLI	Dawe's Laboratories, Inc-----	4800 S. Richmond St., Chicago, IL 60632.

TABLE 22. --Synthetic organic chemicals; Directory of manufacturers, 1967 --Continued

Identification code	Name of company	Office address
DEG	Degen Oil & Chemical Co-----	200 Kellogg St., Jersey City, NJ 07305.
DEP	DePaul Chemical Co., Inc-----	44-27 Purvis St., Long Island City, NY 11101.
DSO	DeSoto, Inc-----	1700 S. Mt. Prospect Ave., Des Plaines, IL 60018.
TTX	Detrex Chemical Industries, Inc-----	14331 Woodrow Wilson, Detroit, MI 48232.
DEX	Dexter Corp-----	845 Edgewater Rd., Bronx, NY 10474.
HYC	Hysol Co. Div-----	211 Franklin St., Olean, NY 14760.
DA	Diamond Shamrock Corp-----	300 Union Commerce Bldg., Cleveland, OH 44114.
TDC	Diversey Corp-----	212 W. Monroe St., Chicago, IL 60606.
DIX	Dixie Chemical Co-----	P.O. Box 13410, Houston, TX 77019.
DCP	Dixie Chemical Products, Inc-----	P.O. Box 13410, Houston, TX 77019.
DPP	Dixie Pine Products Co., Inc-----	P.O. Box 470, Hattiesburg, MS 39401.
DOM	Dominion Products, Inc-----	882 3d Ave., Brooklyn, NY 11232.
DVC	Dover Chemical Co-----	15th and Davis Sts., Dover, OH 44622.
DBC	Dow Badische Co-----	Drawer D, Williamsburg, VA 23185.
DOW	Dow Chemical Co-----	Hopkins Bldg., Midland, MI 48640.
DCC	Dow Corning Corp-----	P.O. Box 582, Midland, MI 48640.
DRW	Drew Chemical Corp-----	416 Division St., Boonton, NJ 07005.
DUN	Frank W. Dunne Co-----	1007 41st St., Oakland, CA 94608.
DUP	E. I. duPont de Nemours & Co., Inc-----	DuPont Bldg., Wilmington, DE 19898.
DSC	Dye Specialties, Inc-----	26 Journal Sq., Jersey City, NJ 07306.
ECC	Eastern Color & Chemical Co-----	35 Livingston St., Providence, RI 02904.
EK	Eastman Kodak Co-----	343 State St., Rochester, NY 14650.
EKT	Tennessee Eastman Co. Div-----	P.O. Box 511, Kingsport, TN 37662.
EKX	Texas Eastman Co. Div-----	P.O. Box 2068, Longview, TX 75601.
ESA	East Shore Chemical Co., Inc-----	1180 Michigan Ave., Muskegon, MI 49440.
FOR	El Dorado Chemical Co-----	P.O. Box 599, Oakland, CA 94604.
GLX	Electro-Seal Glasflex Corp-----	Stirling, NJ 07980.
ELP	El Paso Products Co-----	P.O. Box 3986, Odessa, TX 79760.
EMR	Emery Industries, Inc-----	4300 Carew Tower, Cincinnati, OH 45202.
PCS	Western Div-----	8733 S. Dice Rd., Santa Fe Springs, CA 90670.
EMK	Enkay Chemical Co-----	319 2d St., Elizabeth, NJ 07206.
EN	Endo Laboratories, Inc-----	1000 Stewart Ave., Garden City, NY 11530.
ENO	Enenco, Inc-----	P.O. Box 398, Memphis, TN 38101.
ENJ	Enjay Chemical Co-----	60 W. 49th St., New York, NY 10020.
NPP	Enjay Fibers & Laminates Co. Div-----	Odenton, MD 21113.
EPC	EpoxyLite Corp-----	P.O. Box 3397, 1428 N. Tyler Ave., S. El Monte, CA 91733.
ESC	Escambia Chemical Corp-----	P.O. Box 467, Pensacola, FL 32502.
TNA	Ethyl Corp-----	330 S. 4th St., Richmond, VA 23217.
ETD	Ethyl-Dow Chemical Co-----	Midland, MI 48640.
EVN	Evans Chemetics, Inc-----	250 E. 43d St., New York, NY 10017.
	FMC Corp.:	
AV	American Viscose Div-----	1617 John F. Kennedy Blvd., Philadelphia, PA 19103.
FMB	Inorganic Chemicals Div-----	P.O. Box 8127, S. Charleston, WV 25303 and Sawyer Ave. & River Rd., Town of Tonawanda, NY 14150.
FMN	Niagara Chemical Div-----	100 Niagara St., Middleport, NY 14105.
FMB	Organic Chemicals Div-----	633 3rd Ave., New York, NY 10017.
FMP	Organic Chemicals Div-----	1701 Patapsco Dr., Baltimore, MD 21226.
	Nitro Plant-----	P.O. Box 547, Nitro, WV 25143.
FAB	Fabricolor Manufacturing Corp-----	24-1/2 Van Houten St., Paterson, NJ 07505.
FMT	Fairmount Chemical Co., Inc-----	117 Blanchard St., Newark, NJ 07105.
FOC	Parac Oil & Chemical Co., Div. of Handschy Chemical Co.	147th St. and Indiana Ave., Chicago, IL 60627.
KNG	Far-Best Corp., O. L. King Div-----	640 Gilman St., Berkeley, CA 94710.
FCA	Farmers Chemical Association, Inc-----	P.O. Box 67, Tyner, TN 37392.
FRM	Farmer's Chemical Co-----	P.O. Box 591, 3713 W. Main St., Kalamazoo, MI 49005.
FAR	Farnow, Inc-----	77 Jacobus Ave., S. Kearny, NJ 07032.
FCL	Federal Color Laboratories, Inc-----	4526 Chickering Ave., Cincinnati, OH 45232.
FEL	Felton International, Inc-----	599 Johnson Ave., Brooklyn, NY 11237.
FER	Ferro Corp., Ferro Chemical Div-----	P.O. Box 349, 7050 Krick Rd., Bedford, OH 44014.
FBR	Fibreboard Corp-----	P.O. Box 4314, Oakland, CA 94623.
FRP	Filtered Rosin Products Co-----	P.O. Box 349, Baxley, GA 31513.
FIN	Fine Organics, Inc-----	205 Main St., Lodi, NJ 07644.
	Firestone Tire & Rubber Co.:	
FRL	Firestone Industrial Rubber Products Div-----	P.O. Box 2290, Fall River, MA 02777.
FIR	Firestone Plastics Co. Div-----	P.O. Box 699, Pottstown, PA 19464.
FRS	Firestone Synthetic Rubber & Latex Co. Div-----	381 W. Wilbeth Rd., Akron, OH 44301.
FST	First Chemical Corp-----	P.O. Box 1427, Pascagoula, MS 39567.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identifi- cation code	Name of company	Office address
FIS	Fisher Chemical Co., Inc-----	580 Sylvian Ave., Englewood, NJ 07632.
FIS	Fisher Melamine Corp-----	410 Park Ave., New York, NY 10022.
FIM	Fleming Laboratories, Inc-----	P.O. Box 10372, Charlotte, NC 28201.
FLO	Florasynth Laboratories, Inc-----	900 Van Nest Ave., Bronx, NY 10462.
FTE	Foote Mineral Co-----	Route 100, Exton, PA 19341.
FCM	Formica Corp-----	4614 Spring Grove Ave., Cincinnati, OH 45232.
FG	Foster Grant Co., Inc-----	289 N. Main St., Leominster, MA 01453.
FH	Foster-Heaton Co-----	16 E. 5th St., Paterson, NJ 07524.
FCD	France, Campbell & Darling, Inc-----	N. Michigan Ave., Kenilworth, NJ 07033.
FC	Franklin Chemical Co-----	2020 Bruck St., Columbus, OH 43207.
FRE	Freeman Chemical Corp-----	222 E. Main St., Port Washington, WI 53074.
FSH	Frisch & Co., Inc-----	88 E. 11th St., Paterson, NJ 07524.
FB	Fritzsche Bros., Inc-----	76 9th Ave., New York, NY 10011.
FLH	H. B. Fuller Co-----	1150 Eustic St., St. Paul, MN 55108.
FLW	Fuller-O'Brien Corp-----	450 E. Grand Ave., S. San Francisco, CA 94080.
GAN	Gane's Chemical Works, Inc-----	535 5th Ave., New York, NY 10017.
GGY	Geigy Chemical Corp-----	444 Saw Mill River Rd., Ardsley, NY 10502.
GAF	General Aniline & Film Corp.: Dyestuff & Chemical Div----- Textile Finishes Dept., Textile Chemical Div.	P.O. Box 12, Linden, NJ 07036. 1228 Chestnut St., Chattanooga, TN 37402.
GE	General Electric Co.: Chemical Materials Dept-----	1 Plastics Ave., Coshocton, OH 43812, and 1 Plastics Ave., Pittsfield, MA 01203.
GEI	Insulating Materials Dept-----	1 River Rd., Schenectady, NY 12305.
SPD	Silicone Products Dept-----	Mechanicville Rd., Waterford, NY 12188.
GNF	General Foods Corp., Maxwell House Div-----	1125 Hudson St., Hoboken, NJ 07030.
GLC	General Latex & Chemical Corp-----	666 Main St., Cambridge, MA 02139.
GNM	General Mills, Inc-----	S. Kensington Rd., Kankakee, IL 60901.
CW	Chemical Div-----	Quimby St., Ossining, NY 10562.
GFM	General Plastics Manufacturing Co-----	3481 S. 35th St., Tacoma, WA 98409.
GNT	General Tire & Rubber Co., Chemical Div-----	1708 Englewood Ave., Akron, OH 44309.
GRG	P. D. George Co----- Georgia-Pacific Corp.:	5200 N. 2d St., St. Louis, MO 63147.
PSC	Bellingham Div-----	P.O. Box 1236, Bellingham, WA 98225.
CBC	Coos Bay Div-----	P.O. Box 869, Coos Bay, OR 97420.
TID	Getty Oil Co-----	Delaware City, DE 19706.
TNI	Gillette Chemical Co., Div. of Gillette Co-----	P.O. Box 362, N. Chicago, IL 60064.
GIL	Gilman Paint & Varnish Co-----	W. 8th and Pine Sts., Chattanooga, TN 37401.
GIV	Givaudan Corp-----	125 Delawanna Ave., Clifton, NJ 07014.
GLY	Glyco Chemicals, Inc-----	417 5th Ave., New York, NY 10016.
BFG	B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	3135 Euclid Ave., Cleveland, OH 44137.
GGC	Goodrich-Gulf Chemicals, Inc-----	1717 E. 9th St., Cleveland, OH 44114.
GYR	Goodyear Tire & Rubber Co-----	1144 E. Market St., Akron, OH 44316.
GOR	Gordon Chemical Co., Inc----- W. R. Grace & Co.:	88 Webster St., Worcester, MA 01603.
GCC	Agricultural Products Div-----	P.O. Box 277, 147 Jefferson Ave., Memphis, TN 38101.
GRD	Dewey & Almy Chemical Div-----	62 Whittemore Ave., Cambridge, MA 02140.
GRC	Dubois Chemicals Div-----	634 Broadway, Cincinnati, OH 45202.
HMP	Hampshire Chemical Div-----	Poisson Ave., Nashua, NH 03060.
GRH	Hatco Chemical Div-----	629 Amboy St., Edison, NJ 08817.
MRO	Marco Chemical Div-----	1711 W. Elizabeth Ave., Linden, NJ 07036.
GRL	Vestal Laboratories Div-----	4963 Manchester Ave., St. Louis, MO 63110.
GPR	Grain Processing Corp-----	1600 Oregon St., Muscatine, IA 52761.
GRA	Great American Plastics Co-----	85 Water St., Fitchburg, MA 01420.
GTL	Great Lakes Chemical Corp-----	P.O. Box 2200, West Lafayette, IN 47906.
GRW	Great Western Sugar Co-----	P.O. Box 5308, Terminal Annex, Denver, CO 80217.
HRS	Grow Chemical Corp., Harris Paint Co. Div-----	1010-26 N. 19th St., Tampa, FL 33601.
GRV	Guardsman Chemical Coatings, Inc-----	1350 Steele Ave. SW., Grand Rapids, MI 49502.
GOC	Gulf Oil Corp-----	P.O. Box 2100, Houston, TX 77001.
PGU	Perkins Glue, Chemicals Dept-----	632 Cannon Ave., Lansdale, PA 19446.
GTH	Guth Chemical Co-----	332 S. Center St., Hillside, IL 60162.
HNC	H & N Chemical Co-----	90 Maltese Dr., Totowa, NJ 07512.
HLI	Haag Laboratories, Inc-----	14010 S. Seeley, Blue Island, IL 60406.
HAB	Halby Products Co., Inc-----	P.O. Box 366, Wilmington, DE 19899.
HAL	C. P. Hall Co. of Illinois-----	7300 S. Central Ave., Chicago, IL 60638.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identi- fication code	Name of company	Office address
HAM	Hampden Color & Chemical Co-----	5 Albany St., Springfield, MA 01101.
HAN	Hanna Paint Manufacturing Co., Inc-----	P.O. Box 147, Columbus, OH 43216.
HSH	Harshaw Chemical Co., Div. of Kewanee Oil Co--	1945 E. 97th St., Cleveland, OH 44106.
HRT	Hart Products Corp-----	1440 Broadway, New York, NY 10018.
HVG	Haveg Industries, Inc-----	900 Greenbank Rd., Wilmington, DE 19808.
HKY	Hawkeye Chemical Co-----	P.O. Box 899, Clinton, IA 52733.
HCR	Hercor Chemical Corp-----	P.O. Box 4198, Ponce, PR 00731.
HPC	Hercules, Inc-----	Hercules Tower, 910 Market St., Wilmington, DE 19899.
IMP	Imperial Color & Chemical Dept-----	P.O. Box 231, Glens Falls, NY 12803.
HER	Heresite & Chemical Co-----	822 S. 14th St., Manitowoc, WI 54220.
HSY	Hershey Estates, Inc-----	1 W. Chocolate Ave., Hershey, PA 17033.
DLH	Hess Oil & Chemical Corp-----	State St., Perth Amboy, NJ 08862.
HET	Heterochemical Corp-----	111 E. Hawthorne Ave., Valley Stream, NY 11757.
HEW	Hewitt Soap Co-----	333 Linden Ave., Dayton, OH 45403.
HEX	Hexagon Laboratories, Inc-----	3536 Peartree Ave., Bronx, NY 10469.
HDG	Hodag Chemical Corp-----	7247 N. Central Park Ave., Skokie, IL 60076.
HOF	Hoffmann-LaRoche, Inc-----	324 Kingsland Rd., Nutley, NJ 07110.
HFT	Hoffman-Taff, Inc-----	P.O. Box 1246 S.S.S., Springfield, MO 65805.
HSC	Holland-Suco Color Co-----	P.O. Box 2166, Huntington, WV 25722.
HK	Hooker Chemical Corp-----	Buffalo Ave. & 47th St. Niagara Falls, NY 14302.
HKD	Durez Div-----	Walck Rd., N. Tonawanda, NY 14121.
RUB	Ruco Div-----	New South Rd., Hicksville, L.I., NY 11802.
EFH	E. F. Houghton & Co-----	303 W. Lehigh Ave., Philadelphia, PA 19133.
HCH	Houston Chemical Corp-----	1 Gateway Center, Pittsburgh, PA 15222.
HMY	Humphrey Chemical Co-----	Devine St., North Haven, CT 06473.
WAY	Philip A. Hunt Chemical Corp., Wayland Chemi- cal Div.	P.O. Box 0, Lincoln, RI 02865.
HNT	Huntington Laboratories, Inc-----	P.O. Box 710, Huntington, IN 46750.
HUS	Husky Briquetting, Inc-----	P.O. Box 380, Cody, WY 82414.
HYN	Hynson, Westcott & Dunning, Inc-----	Charles and Chase Sts., Baltimore, MD 21201.
ICI	I.C.I./Organics/Inc-----	P.O. Box 1274, 151 South St., Stamford, CT 06904.
IRC	IRC, Inc-----	401 N. Broad St., Philadelphia, PA 19108.
RAY	ITT Rayonier, Inc-----	161 E. 42d St., New York, NY 10017.
CSB	Imoco Corp., Chemical Services Div-----	Howard & West Sts., Baltimore, MD 21230-
IBI	Industrial Biochemicals, Inc-----	U.S. Highway #1, Edison, NJ 08817.
IDC	Industrial Dyestuff Co-----	P.O. Box 4249, E. Providence, RI 02914.
INL	Inland Steel Co., Inland Steel Container Co-- Interchemical Corp.:	4300 W. 130th St., Chicago, IL 60658.
ICC	Color & Chemicals Div-----	150 Wagaraw Rd., Hawthorne, NJ 07506.
ICF	Finishes Div-----	5935 Milford Ave., Detroit, MI 48210.
ICO	Organic Chemicals Dept-----	Berry Ave. and Route 17, Carlstadt, NJ 07072.
IFF	International Flavors & Fragrances, Inc-----	521 W. 57th St., New York, NY 10019.
ILC	International Latex & Chemical Corp-----	P.O. Drawer K, Playtex Park, Dover, DE 19901.
MRN	Paisley Products Div-----	1770 Canalport Ave., Chicago, IL 60616.
IMC	International Minerals & Chemical Corp-----	5401 Old Orchard Rd., Skokie, IL 60078.
IPR	Inter-Pacific Resins, Inc-----	P.O. Box 445, 1602 N. 18th Ave., Sweet Home, OR 97386.
IPC	Interplastic Corp., Commercial Resins Div----	2015 NE. Broadway St., Minneapolis, MN 55413.
IRI	Ironsides Resins, Inc-----	270 W. Mound St., Columbus, OH 43216.
IPI	Isocyanate Products, Inc-----	900 Wilmington Rd., New Castle, DE 19720.
JCC	Jefferson Chemical Co., Inc-----	P.O. Box 53300, Houston, TX 77052
JEN	Jennison-Wright Corp-----	P.O. Box 691, Toledo, OH 43601.
TRJ	Jeras Corp-----	17 N. 7th St., Allentown, PA 18105.
JRG	Andrew Jergens Co-----	2535 Spring Grove Ave., Cincinnati, OH 45214.
JSC	Jersey State Chemical Co-----	59 Lee Ave., Haledon, NJ 07508.
JWL	Jewel Paint & Varnish Co-----	345 N. Western Ave., Chicago, IL 60612.
JNS	S. C. Johnson & Son, Inc-----	1525 Howe St., Racine, WI 53403.
JOB	Jones-Blair Paint Co-----	6969 Denton Dr., Dallas, TX 75235.
JOR	Jordan Chemical Co-----	325 Barclay Bldg.; 1 Belmont Ave., Bala Cynwyd, PA 19004.
	Kaiser Aluminum & Chemical Corp.:	
SNI	Kaiser Agricultural Chemicals Div-----	P.O. Box 246, Savannah, GA 31402.
KAI	Kaiser Chemicals Div-----	P.O. Box 337, Gramercy, LA 70052.
KAL	Kali Manufacturing Co-----	427 Moyer St., Philadelphia, PA 19125.
KF	Kay-Fries Chemicals, Inc-----	360 Lexington Ave., New York, NY 10017.
KMP	Kelly-Moore Paint Co-----	1015 Commercial St., San Carlos, CA 94070.
KEL	Kelly-Pickering Chemical Corp-----	956 Bransten Rd., San Carlos, CA 94070.
	Kennecott Copper Corp.:	
KCC	Chino Mines Div-----	Hurley, NM 88043.
KCU	Utah Copper Div-----	P.O. Box 11299, Salt Lake City, UT 84111.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
KPI	Kenrich Petrochemicals, Inc-----	Foot of E. 22d St., Bayonne, NJ 07002.
KET	Ketona Chemical Corp-----	P.O. Box 6565, Tarrant Branch, Birmingham, AL 35217.
KYS	Keysor Chemical Co-----	26000 Bouquet Canyon Rd., Saugus, CA 91350.
KCH	Keystone Chemurgic Corp-----	R.D. 2, Bethlehem, PA 18017.
KCW	Keystone Color Works, Inc-----	151 W. Gay Ave., York, PA 17403.
KNP	Knapp Products, Inc-----	180 Hamilton Ave., Lodi, NJ 07644.
KND	Knoedler Chemical Co-----	651 High St., Lancaster, PA 17604.
KMC	Kohler-McLister Paint Co-----	P.O. Box 546, Denver, CO 80201.
KON	H. Kohnstamm & Co., Inc-----	161 Avenue of the Americas, New York, NY 10013.
KPT	Koppers Co., Inc., Organic Materials Div-----	Koppers Bldg., Pittsburgh, PA 15219.
KPS	Koppers Pittsburgh Co-----	Koppers Bldg., Pittsburgh, PA 15219.
KYN	Kyanize Paints, Inc-----	2d and Boston Sts., Everett, MA 02149.
LKL	Lakeside Laboratories, Div. of Colgate- Palmolive Co.	1707 E. North Ave., Milwaukee, WI 53201.
LKY	Lake States, Div. of St. Regis Paper Co-----	603 W. Davenport St., Rhinelander, WI 54501.
LAK	Lakeway Chemical Co-----	5025 Evanston Ave., Muskegon, MI 49443.
LAM	LaMotte Chemical Products Co-----	Chestertown, MD 21620.
LAS	Lasco Industries, Inc-----	1561 Chapin Rd., Montebello, CA 90640.
LJR	Laurel Products Corp-----	2600 E. Tioga St., Philadelphia, PA 19134.
KRM	Lawter Chemicals, Inc., Krumbhaar Resin Div----	3550 Touhy Ave., Chicago, IL 60645.
LEA	Leatex Chemical Co-----	2722 N. Hancock St., Philadelphia, PA 19133.
LEB	Lebanon Chemical Corp-----	P.O. Box 180, Lebanon, PA 17042.
BCN	Lehn & Fink Products Corp., Beacon Div-----	33 Richdale Ave., Cambridge, MA 02140.
LEM	B. L. Lemke & Co., Inc-----	199 Main St., Lodi, NJ 07644.
LEN	Leonard Refineries, Inc-----	E. Superior St., Alma, MI 48801.
LEV	Lever Brothers Co-----	390 Park Ave., New York, NY 10022.
LVR	C. Lever Co., Inc-----	Howard and Huntington Sts., Philadelphia, PA 19133.
LVY	Fred'k H. Levey Co., Inc-----	380 Madison Ave., New York, NY 10017.
LPC	Lignin Products Co-----	P.O. Box 960, Erie, PA 16512.
LIL	Eli Lilly & Co-----	740 S. Alabama St., Indianapolis, IN 46206.
LUB	Lubrizon Corp-----	29400 Lakeland Blvd., Wickliffe, OH 44117.
LUE	George Lueders & Co., Inc-----	427 Washington St., New York, NY 10013.
MET	M & T Chemicals, Inc-----	Woodbridge Rd. and Randolph Ave., Rahway, NJ 07065.
MGR	Magruder Color Co., Inc-----	1 Virginia St., Newark, NJ 07114.
MAH	Maher Color & Chemical Co-----	1700 N. Elston Ave., Chicago, IL 60622.
MAL	Mallinckrodt Chemical Works-----	3600 N. 2nd St., St. Louis, MO 63147.
MOC	Marathon Oil Co., Texas Refining Div-----	P.O. Box 1191, Texas City, TX 77590.
MRB	Marblette Co., Div. of Allied Products Corp-----	37-31 30th St., Long Island City, NY 11101.
MRD	Marden-Wild Corp-----	500 Columbia St., Somerville, MA 02143.
MRV	Marlowe-Van Loan Corp-----	1511 Joshua Circle, High Point, NC 27260.
AMS	Martin-Marietta Corp.: Ridgway Color & Chemical Div-----	75 Front St., Ridgway, PA 15853.
SDC	Southern Dyestuff Co. Div-----	P.O. Box 10098, Charlotte, NC 28201.
MRX	Max Marx Color & Chemical Co-----	192 Coit St., Irvington, NJ 07111.
MCA	Masonite Corp., Alpine Chemical Div-----	P.O. Box 2392, Gulfport, MS 39503.
NOC	Mathe Chemical Co., Div. of Norac Co., Inc-----	169 Kennedy Dr., Lodi, NJ 07644.
MEE	Maumee Chemical Co-----	1310 Expressway Dr., Toledo, OH 43608.
MAY	Otto B. May, Inc-----	52 Amsterdam St., Newark, NJ 07105.
MCC	McCloskey Varnish Co-----	7600 State Rd., Philadelphia, PA 19136.
MCK	McLaughlin Gormley King Co-----	1715 SE. 5th St., Minneapolis, MN 55414.
MED	Medical Chemicals Corp-----	4541 W. Grand Ave., Chicago, IL 60639.
MRK	Merck & Co., Inc-----	126 E. Lincoln Ave., Rahway, NJ 07065.
MER	Merichem Co-----	1914 Haden Rd., Houston, TX 77015.
MID	Metalead Products Corp-----	P.O. Box 11005, 2901 Park Blvd., Palo Alto, CA 94306.
MRA	Metro-Atlantic, Inc-----	2027 Smith St., Centerdale, RI 02911.
JMS	J. Meyer & Sons, Inc-----	4321 N. 4th St., Philadelphia, PA 19140.
MCH	Michigan Chemical Corp-----	2 N. Riverside Plaza, Chicago, IL 60606.
MID	Midland Industrial Finishes Co-----	E. Water, St., Waukegan, IL 60086.
MLS	Miles Laboratories, Inc., Marschall Div-----	Myrtle and McNaughton Sts., Elkhart, IN 46514.
BKL	Millmaster Onyx Corp.: Millmaster Chemical Div., Berkeley Chemical Dept.	99 Park Ave., New York, NY 10016.
GRO	A. Gross & Co. Div-----	295 Madison Ave., New York, NY 10017.
ONX	Onyx Chemical Div-----	Warren and Morris Sts., Jersey City, NJ 07302.
MOR	Mineral Oil Refining Co-----	4401 Park Ave., Dickinson, TX 77539.
MMM	Minnesota Mining & Manufacturing Co-----	3M Center, St. Paul, MN 55101.
MNP	Minnesota Paints, Inc-----	1101 S. 3d St., Minneapolis, MN 55415.
MIR	Miranol Chemical Co., Inc-----	277 Coit St., Irvington, NJ 07111.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
MSC	Mississippi Chemical Corp-----	P.O. Box 388, Yazoo City, MS 39191.
MOB	Mobay Chemical Co-----	Penn Lincoln Parkway, W. Pittsburgh, PA 15205.
SM	Mobil Chemical Co-----	P.O. Box 3868, Beaumont, TX 77704; 7301 Bessemer Ave., Cleveland, OH 44127; 12815 Elmwood St., Cleveland, OH 44111; P.O. Box 250, Edison, NJ 08817 and 1630 W. Hill St., Louisville, KY 40210.
SM	Mobil Oil Corp-----	612 S. Flower St., Los Angeles, CA 90054.
	Mobil Chemical Co. Div., Industrial Chemical Div.	401 E. Main St., Richmond, VA 23208.
MFG	Molded Fiber Glass Body Co-----	4601 Benefit Ave., Ashtabula, OH 44004.
MOA	Mona Industries, Inc-----	65 E. 23d St., Paterson, NJ 07524.
MNO	Monochem, Inc-----	P.O. Box 488, Geismar, LA 70734.
MON	Monsanto Co-----	800 N. Lindbergh Blvd., St. Louis, MO 63166.
	Bircham Bend Plant-----	190 Grochmal Ave., Indian Orchard, MA 01051.
	Chocolate Bayou Plant-----	P.O. Box 711, Alvin, TX 77511.
	Gering Plastics Dept-----	200 N. 7th St., Kenilworth, NJ 07033.
	Plastics Div-----	730 Worcester St., Springfield, MA 01101; 5100 W. Jefferson Ave., Trenton, MI 48183; River Rd., Addyston, OH 45001, and P.O. Box 1311, Texas City, TX 77591.
	Textiles Div-----	800 N. Lindbergh Blvd., St. Louis, MO 63166.
	Western Div-----	9229 E. Marginal Way S., Seattle, WA 98108.
MTO	Montrose Chemical Corp. of California-----	500 S. Virgil Ave., Los Angeles, CA 90005.
MCI	Mooney Chemicals, Inc-----	2301 Scranton Rd., Cleveland, OH 44113.
MR	Benjamin Moore & Co-----	548 5th Ave., New York, NY 10036.
MCP	Moretex Chemical Products, Inc-----	314 W. Henry St., P.O. Box 1799, Spartanburg, SC 29301.
MRT	Morton Chemical Co-----	110 N. Wacker Dr., Chicago, IL 60606.
MOT	Motomco, Inc-----	89 Terminal Ave., Clark, NJ 07066.
NVF	NVF Co-----	700 Maryland Ave., Wilmington, DE 19805.
NLC	Nalco Chemical Co-----	180 N. Michigan Ave., Chicago, IL 60601.
NTB	National Biochemical Co-----	3127 W. Lake St., Chicago, IL 60612.
NTC	National Casein Co-----	601 W. 80th St., Chicago, IL 60620.
	National Dairy Products Corp.:	
	Humko Products Chemical Div-----	5050 Poplar Ave., Memphis, TN 38117.
	Sheffield Chemical Div-----	2400 Morris Ave., Union, NJ 07083.
HUM	National Distillers & Chemical Corp.:	
	National Petro Chemical Corp. Div-----	99 Park Ave., New York, NY 10016.
	U.S. Industrial Chemicals Co. Div-----	99 Park Ave., New York, NY 10016.
NTL	National Lead Co-----	111 Broadway, New York, NY 10006.
NMC	National Milling & Chemical Co., Inc-----	4601 Flat Rock Rd., Philadelphia, PA 19127.
NPI	National Polychemicals, Inc-----	51 Eames St., Wilmington, MA 01887.
NSC	National Starch & Chemical Corp-----	750 3d Ave., New York, NY 10017.
NES	Nease Chemical Co., Inc-----	P.O. Box 221, State College, PA 16801.
NEP	Nepera Chemical Co., Inc-----	Route 17, Harriman, NY 10926.
NEV	Neville Chemical Co-----	Neville Island P.O., Pittsburgh, PA 15225.
NIL	Nilok Chemicals, Inc-----	Mill St. and N. Transit Rd., Lockport, NY 14094.
JDC	Nipak, Inc-----	301 S. Harwood St., Dallas, TX 75221.
NIT	Nitrin, Inc-----	P.O. Box 233, Cordova, IL 61242.
NON	A. P. Nonweiler Co-----	P.O. Box 1007, Oshkosh, WI 54901.
NOC	Norac Co., Inc-----	405 S. Motor Ave., Azusa, CA 91703.
NEO	Norda Essential Oil & Chemical Co., Inc-----	475 10th Ave., New York, NY 10001.
NPV	Norris Paint & Varnish Co-----	P.O. Box 2023, Salem, OR 97308.
NRS	Norse Chemical Corp-----	2121 Norse Ave., Cudahy, WI 53110.
IMI	North American Chemical Co-----	19 S. Canal St., Lawrence, MA 01843.
VAC	Northern Petrochemical Co., Varney Div-----	2001 Afton Rd., Janesville, WI 53545.
NCA	Northrop Carolina, Inc-----	P.O. Box 3049, Asheville, NC 28802.
NW	Northwestern Chemical Co-----	120 N. Aurora St., W. Chicago, IL 60185.
NPC	Northwest Petrochemical Corp-----	P.O. Box 99, Anacortes, WA 98221.
NOR	Norwich Pharmacal Co-----	17 Eaton Ave., Norwich, NY 13815.
TGI	Texize Chemicals, Inc. Div-----	P.O. Box 368, Greenville, SC 29602.
NCW	Nostrip Chemical Works, Inc-----	182 Liberty Ave., Jamaica, NY 11433.
NVT	Novamont Corp., Neal Works-----	P.O. Box 189, Kenova, WV 25530.
CMG	Nyanza, Inc-----	P.O. Box 349, Ashland, MA 01721.
OBC	O'Brien Corp-----	2001 W. Washington Ave., South Bend, IN 46621.
BST	Occidental Petroleum Corp., Occidental Chemical Co. Div.	P.O. Box 198, Lathrop, CA 95330.
OMC	Olin Mathieson Chemical Corp-----	445 W. 59th St., New York, NY 10019.
	Agricultural Div-----	1120 Marshall St., Little Rock, AR 72203.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identifi- cation code	Name of company	Office address
OPC	Orbis Products Corp-----	475 10th Ave., New York, NY 10018.
ORG	Organics, Inc-----	1724 Greenleaf Ave., Chicago, IL 60628.
BSW	Original Bradford Soap Works, Inc-----	200 Providence St., W. Warwick, RI 02893.
OSB	C. J. Osborn Co-----	1301 W. Blancke St., Linden, NJ 07036.
OTA	Ottawa Chemical Co-----	700 N. Wheeling St., Toledo, OH 43605.
OTC	Ott Chemical Co-----	500 Agard Rd., Muskegon, MI 49945.
OCF	Owens-Corning Fiberglas Corp-----	P.O. Box 901, Toledo, OH 43614.
PLB	P-L Biochemicals, Inc-----	1037 W. McKinley Ave., Milwaukee, WI 53205.
AMR	Pacific Resins & Chemical Co-----	3400 13th Ave. SW., Seattle, WA 98134.
PAN	Pan American Petroleum Corp-----	P.O. Box 591, Tulsa, OK 74102.
PNT	Pantasote Co. of New York, Inc-----	26 Jefferson St., Passaic, NJ 07056.
PD	Parke, Davis & Co-----	Foot of Jos. Campau, Detroit, MI 48232.
PSC	Passaic Color & Chemical Co-----	28-36 Paterson St., Paterson, NJ 07501.
PAT	Patent Chemicals, Inc-----	335 McLean Blvd., Paterson, NJ 07504.
CHP	C. H. Patrick & Co., Inc-----	P.O. Box 2526, Greenville, SC 29602.
CCH	Pearsall Chemical Co-----	P.O. Box 108, Phillipsburg, NJ 08865.
PEK	Peck's Products Co-----	610 E. Clarence Ave., St. Louis, MO 63147.
PCH	Peerless Chemical Co-----	3850 Oakman Blvd., Detroit, MI 48204.
PEL	Pelron Corp-----	7847 W. 47th St., Lyons, IL 60534.
PEN	S. B. Penick & Co-----	100 Church St., New York, NY 10008.
PAS	Pennsalt Chemicals Corp-----	3 Penn Center, Philadelphia, PA 19102.
PAI	Pennsylvania Industrial Chemical Corp-----	120 State St., Clairton, PA 15025.
PAR	Pennsylvania Refining Co-----	Union Bank Bldg., Butler, PA 16001.
PER	Perry & Derrick Co-----	2510 Highland Ave., Norwood, OH 45212.
PHF	Peter Hand Foundation, Inc-----	2 E. Madison St., Waukegan, IL 60085.
UDI	Petrochemicals Co., Inc-----	1825 E. Spring St., Long Beach, CA 90806.
PTT	Petro-Tex Chemical Corp-----	P.O. Box 2584, Houston, TX 77001.
PFN	Pfanstiehl Laboratories, Inc-----	1219 Glen Rock Ave., Waukegan, IL 60085.
PCW	Pfister Chemical, Inc-----	Linden Ave., Ridgefield, NJ 07657.
PFZ	Chas. Pfizer & Co., Inc-----	235 E. 42d St., New York, NY 10017.
PHR	Pharmachem Corp-----	Broad and Wood Sts., Bethlehem, PA 18018.
PFPP	Phelan-Faust Paint Manufacturing Co., Phelan's Resins & Plastics Div.	P.O. Box 189, Burlington, IA 52602.
PLC	Phillips Petroleum Co-----	841-A Adams Bldg., Bartlesville, OK 74003.
PNX	Phoenix Oil Co-----	9505 Cassius Ave., Cleveland, OH 44105.
MAN	Pickands Mather & Co., Manganese Chemical Co. Div.	2000 Union Commerce Bldg., Cleveland, OH 44115.
PIC	Pierce Organics, Inc-----	P.O. Box 98, Rockford, IL 61105.
PBY	Pillsbury Co-----	608 2nd Ave. S., Minneapolis, MN 55402.
PIL	Pilot Chemical Co-----	11756 Burke St., Santa Fe Springs, CA 90670.
PCI	Pioneer Chemical Works, Inc-----	P.O. Box 237, Maple Shade, NJ 08052.
PPL	Pioneer Plastics Corp., Chemical Div-----	Pionite Rd., Auburn, ME 04210.
PIT	Pitt-Consol Chemical Co-----	191 Doremus Ave., Newark, NJ 07105.
PPG	Pittsburgh Plate Glass Co-----	1 Gateway Center, Pittsburgh, PA 15222.
PLS	Plastics Engineering Co-----	1607 Geele Ave., Sheboygan, WI 53082.
PMC	Plastics Manufacturing Co-----	2700 S. Westmoreland, Dallas, TX 75224.
SEK	Plastic Systems Corp-----	666 Dietrich Ave., Hazelton, PA 18201.
PLX	Plex Chemical Corp-----	1205 Atlantic St., Union City, CA 94587.
PLU	Plumb Chemical Corp-----	4837 James St., Philadelphia, PA 19137.
PFW	Polak's Frutal Works-----	33 Sprague Ave., Middletown, NY 10940.
PYL	Polychemical Laboratories, Inc-----	490 Hunts Point Ave., New York, NY 10059.
POL	Polymer Corp-----	2120 Fairmont Ave., Reading, PA 19603.
PII	Polymer Industries, Inc-----	Viaduct Rd., Springdale, CT 06879.
PYR	Poly Resins-----	11655 Wicks St., Sun Valley, CA 91352.
PYZ	Polyrez Co., Inc-----	P.O. Box 320, Woodbury, NJ 08096.
PVI	Polyvinyl Chemicals, Inc-----	730 Main St., Wilmington, MA 01887.
GRS	Pontiac Refining Corp-----	1801 Nueces Bay Blvd., Corpus Christi, TX 78403.
PRT	Pratt & Lambert, Inc-----	P.O. Box 22, Buffalo, NY 14240.
PMP	Premier Malt Products, Inc-----	917 W. Juneau Ave., Milwaukee, WI 53201.
PPC	Premier Petrochemical Co-----	P.O. Box 100, Pasadena, TX 77501.
PTP	Preservative Paint Co-----	5410 Airport Way, S., Seattle, WA 98108.
PCR	Princeton Chemical Research, Inc-----	P.O. Box 652, Princeton, NJ 08540.
PBI	Private Brands, Inc-----	300 S. 3d St., Kansas City, KS 66118.
PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co.	Ivorydale Technical Ctr., RM. 2S22, Cincinnati, OH 45217.
PC	Proctor Chemical Co., Inc-----	P.O. Box 399, Salisbury, NC 28144.
PRD	Productol Chemical Co., Inc-----	615 S. Flower St., Los Angeles, CA 90017.
PRC	Products Research & Chemical Corp-----	2919 Empire Ave., Burbank, CA 91504.
PUB	Publicker Industries, Inc-----	1429 Walnut St., Philadelphia, PA 19102.



TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
PTO	Puerto Rico Chemical Co., Inc-----	P.O. Box 157, Arecibo, PR 00612.
PRX	Purex Corp., Ltd-----	5101 Clark Ave., Lakewood, CA 90712, and 2244 N. Elston Ave., Chicago, IL 60614.
PUR	Puritan Chemical Co-----	916 Ashby St., NW., Atlanta, GA 30318.
QCP	Quaker Chemical Corp-----	Lime, Elm and Sandy Sts., Conshohocken, PA 19428.
QKO	Quaker Oats Co-----	345 Merchandise Mart Plaza, Chicago, IL 60654.
QUN	K. J. Quinn & Co., Inc-----	195 Canal St., Malden, MA 02148.
RSA	R.S.A. Corp-----	690 Saw Mill River Rd., Ardsley, NY 10502.
RLS	Rachelle Laboratories, Inc-----	P.O. Box 9095, 700 Henry Ford Ave., Long Beach, CA 90810.
RAB	Raybestos-Manhattan, Inc., Raybestos Div-----	75 E. Main St., Stratford, CT 06601.
RED	Red Spot Paint Co., Inc-----	110 Main St., Evansville, IN 47708.
RPC	Refined Products Co-----	624 Schuyler Ave., Lyndhurst, NJ 07071.
REH	Reheis Chemical Co., Div. of Armour Pharmaceutical Co.	325 Snyder Ave., Berkeley Heights, NJ 07922.
RCI	Reichhold Chemicals, Inc-----	525 N. Broadway, White Plains, NY 10602.
RIL	Reilly Tar & Chemical Corp-----	11 S. Meridan St., Indianapolis, IN 46204.
REL	Reliance Universal, Inc----- Rel-Rez Div-----	6901 Cavalcade, Houston, TX 77001. 4730 Crittenden Dr., Louisville, KY 40221.
REM	Remington Arms Co., Inc-----	939 Barnum Ave., Bridgeport, CT 06602.
REN	Renroh Resins-----	P.O. Box 1191, New Bern, NC 28560.
RTF	Retzloff Chemical Co-----	P.O. Box 45296, Houston, TX 77045.
RCC	Rexall Chemical Co-----	P.O. Box 37, Paramus, NJ 07652.
FBF	Fiberfil Div-----	1701 N. Heidelberg Ave., Evansville, IN 47717.
REZ	Rezolin, Inc-----	20701 Nordhoff St., Chatsworth, CA 91311.
RDA	Rhodia, Inc-----	600 Madison Ave., New York, NY 10022.
RCD	Richardson Co-----	27th Ave. & Lake St., Melrose Park, IL 60160.
PLA	Richardson Polymers Div-----	425 Morgan Lane, West Haven, CT 06516.
RIK	Riker Laboratories, Div. of Rexall Drug & Chemical Co.	19901 Nordhoff St., Northridge, CA 91324.
RT	F. Ritter & Co-----	4001 Goodwin Ave., Los Angeles, CA 90039.
RTC	Ritter Chemical Co., Inc-----	403 W. Main St., Armsterdam, NY 12010.
IOC	Ritter Pfadler Corp., Ionac Chemical Co. Div.	Birmingham, NJ 08011.
RIV	Riverdale Chemical Co-----	220 E. 17th St., Chicago Heights, IL 60411.
ROB	Robeco Chemicals, Inc-----	51 Madison Ave., New York, NY 10010.
RBC	Roberts Chemicals, Inc-----	P.O. Box 546, Nitro, WV 25143.
ROC	Rock Hill Printing & Finishing Co-----	Rock Hill, SC 29730.
ORT	Roehr Chemicals, Inc-----	52-20 37th St., Long Island City, NY 11101.
RGC	Rogers Corp-----	Main St., Rogers, CT 06263.
RH	Rohm & Haas Co-----	Independence Mall West, Philadelphia, PA 19105.
RSB	Rosenberg Bros. & Co-----	100 Landing Ave., Smithtown, NY 11787.
ROY	Royce Chemical Co-----	E. Rutherford P.O., E. Rutherford, NJ 07073.
RUC	Rubicon Chemicals, Inc-----	P.O. Box 517, Geismar, LA 70734.
SAL	Salsbury Laboratories-----	500 Gilbert St., Charles City, IA 50616.
GLD	SCM Corp., Glidden-Durkee Div-----	2333 W. Logan Blvd., Chicago, IL 60647, and 900 Union Commerce Bldg., Cleveland, OH 44115.
NPR	Safeway Stores, Inc., Newport Products Co. Div	1501 Mariposa St., San Francisco, CA 94107.
S	Sandoz, Inc----- Dyestuff & Chemical Div-----	P.O. Box 357, Fair Lawn, NJ 07410. Route No. 10, Hanover, NJ 07936.
SAR	Sartomer Resins, Inc-----	P.O. Box 56, Essington, PA 19029.
SCF	Schaefer Varnish Co-----	1350 S. 15th St., Louisville, KY 40210.
SCN	Schenectady Chemicals, Inc-----	Congress St. and 10th Ave., Schenectady, NY 12301.
SBC	Scher Bros., Inc-----	P.O. Box 538, Allwood Station, Clifton, NJ 07012.
SCR	R. P. Scherer Corp-----	9425 Grinnell Ave., Detroit, MI 48213.
SCH	Schering Corp-----	1011 Morris Ave., Union, NJ 07083.
SCO	Scholler Bros., Inc-----	Collins and Westmoreland Sts., Philadelphia, PA 19134.
SEA	Seaboard Chemicals, Inc-----	30 Foster St., Salem, MA 01970.
SRL	G. D. Searle & Co-----	P.O. Box 5110, Chicago, IL 60680.
SEL	Selney Co., Inc-----	7 Park Ave., New York, NY 10016.
SEY	Seydel-Woolley & Co-----	762 Marietta Blvd., NW., Atlanta, GA 30318.
SHA	Shanco Plastics & Chemicals, Inc-----	111 Wales St., Tonawanda, NY 14150.
SHO	Shell Oil Co-----	52 W. 52d St., New York, NY 10019.
SHC	Shell Chemical Co. Div-----	52 W. 52d St., New York, NY 10019.
SHP	Shepherd Chemical Co-----	5000 Poplar St., Cincinnati, OH 45212.
SW	Sherwin-Williams Co-----	101 Prospect Ave. NW., Cleveland, OH 44101.
SHL	Shulton, Inc-----	697 Route 46, Clifton, NJ 07015.
SID	George F. Siddall Co., Inc-----	P.O. Box 925, Spartanburg, SC 29301.
SOG	Signal Oil & Gas Co-----	P.O. Box 5008, Houston, TX 77012.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
SIM	Simpson Timber Co-----	2301 N. Columbia Blvd., Portland, OR 97217.
SKC	Sinclair-Koppers Chemical Co-----	9822 La Porte Freeway, Houston, TX 77012.
KPP	Sinclair-Koppers Co-----	900 Koppers Bldg., Pittsburgh, PA 15219.
SPC	Sinclair Paint Co-----	3960 E. Washington Blvd., Los Angeles, CA 90023.
SPI	Sinclair Petrochemicals, Inc-----	600 5th Ave., New York, NY 10020.
SIN	Sinclair Refining Co-----	600 5th Ave., New York, NY 10020.
SIP	James B. Sipe & Co-----	P.O. Box 13090, Pittsburgh, PA 15243.
SKO	Skelly Oil Co-----	P.O. Box 1650, Tulsa, OK 74102.
GFS	G. Frederick Smith Chemical Co-----	867 McKinley Ave., Columbus, OH 43223.
SK	Smith, Kline & French Laboratories-----	1500 Spring Garden St., Philadelphia, PA 19101.
SOL	Solar Chemical Corp-----	Solar Park, Leominster, MA 01453.
SOH	Solar Nitrogen Chemicals, Inc-----	1434 Midland Bldg., Cleveland, OH 44115.
SLC	Soluol Chemical Co., Inc-----	Green Hill and Market Sts., W. Warwick, RI 02893.
SVT	Solvent Chemical Co., Inc-----	341 Commercial St., Malden, MA 02148.
SFD	Sonford Chemical Co-----	P.O. Box 127, Port Neches, TX 77651.
SNC	Sonoco Products Co-----	Hartsville, SC 29550.
STC	Sou-Tex Chemical Co., Inc-----	E. Catawba Ave., Mount Holly, NC 28120.
SAC	Southeastern Adhesives Co-----	P.O. Box 791, Lenoir, NC 28645.
SBI	Southern Biochemical Corp-----	P.O. Box 2526, Greenville, SC 29602.
SOP	Southern Chemical Products Co-----	420 Lower Boundary St., P.O. Box 205, Macon, GA 31202.
SOS	Southern Sizing Co-----	3056 SE. Main St., East Point, GA 30344.
SPL	Spaulding Fibre Co., Inc-----	310 Wheeler St., Tonawanda, NY 14150.
QMS	E. R. Squibb & Sons, Inc-----	460 Park Ave., New York, NY 10022.
STA	A. E. Staley Manufacturing Co-----	22d and Eldorado Sts., Decatur, IL 62525.
UBS	U B S Chemical Co. Div-----	491 Main St., Cambridge, MA 02142.
SMC	Stamford Chemical Industries, Inc-----	P.O. Box 1131, Stamford, CT 06940.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	1251 Beaver Channel Parkway, Clinton, IA 52733.
SCP	Standard Chemical Products, Inc-----	1301 Jefferson St., Hoboken, NJ 07030.
SCC	Standard Chlorine Chemical Co., Inc-----	1035 Belleville Turnpike, Kearny, NJ 07032.
SOC	Standard Oil Co. of California, Chevron Chemical Co.	200 Bush St., San Francisco, CA 94120.
SIO	Standard Oil Co. of Ohio-----	Midland Bldg., Cleveland, OH 44115.
SPY	Standard Pyroxoloid Corp-----	85 Pleasant St., Leominster, MA 01453.
STG	Stange Co-----	342 N. Western Ave., Chicago, IL 60612.
	Stauffer Chemical Co.:	
SF	Agricultural Div-----	299 Park Ave., New York, NY 10017.
CHO	Calhio Chemicals, Inc. Div-----	299 Park Ave., New York, NY 10017.
SFI	Industrial Div-----	299 Park Ave., New York, NY 10017.
SFA	Specialty Chemical Div-----	299 Park Ave., New York, NY 10017.
SH	Stein, Hall & Co., Inc-----	605 3d Ave., New York, NY 10016.
STP	Stepan Chemical Co.:	
	Industrial Chemicals Div., Millsdale Works--	Elwood, IL 60421.
MYW	Maywood Div-----	100 W. Hunter Ave., Maywood, NJ 07607.
	Sterling Drug, Inc.:	
SDG	Glenbrook Laboratories Div-----	90 Park Ave., New York, NY 10018.
SDH	Hilton-Davis Chemical Co. Div-----	2235 Langdon Farm Rd., Cincinnati, OH 45237.
SLV	Salvo Chemical Div-----	Military Rd., Rothschild, WI 54474.
TMS	Thomasset Colors Div-----	120 Lister Ave., Newark, NJ 07105.
SDW	Winthrop Laboratories Div-----	90 Park Ave., New York, NY 10016.
SRR	Stresen-Reuter International, International Minerals & Chemical Corp.	400 W. Roosevelt Ave., Bensenville, IL 60106.
SBP	Sugar Beet Products Co-----	302 Waller St., Saginaw, MI 48605.
SVC	Sullivan Varnish Co-----	410 N. Hart St., Chicago, IL 60622.
SUM	Summit Chemical Products Corp-----	11 William St., Belleville, NJ 07109.
	Sun Chemical Corp.:	
SNW	Chemicals Div-----	Wood River Junction, RI 02894.
TV	Industrial Coatings Div-----	135 W. Lake St., North Lake, IL 60164.
CFC	Organic Chemical Dept-----	P.O. Box 153, Harrison, NJ 07029.
SNA	Pigments Div-----	441 Tompkins Ave., Staten Island, NY 10305.
SKG	Sunkist Growers, Inc-----	720 E. Sunkist St., Ontario, CA 91764.
SUN	Sun Oil Co-----	1608 Walnut St., Philadelphia, PA 19103.
SNO	SunOlin Chemical Co-----	P.O. Box F, Claymont, DE 19703.
DXS	Sunray DX Oil Co-----	P.O. Box 2039, Tulsa, OK 74102.
SNT	Suntide Refining Co-----	P.O. Box 2608, Corpus Christi, TX 78403.
SWT	Swift & Co-----	115 W. Jackson Blvd., Chicago, IL 60604.
SYC	Synthetic Chemicals, Inc-----	335 McLean Blvd., Paterson, NJ 07504.
SYP	Synthetic Products Co-----	1636 Wayside Rd., Cleveland, OH 44112.
SYV	Synvar Corp-----	917 Washington St., Wilmington, DE 19899.

TABLE 22. --Synthetic organic chemicals: Directory of manufacturers, 1967--Continued

Identification code	Name of company	Office address
TCC	Tanatex Chemical Corp-----	P.O. Box 388, Lyndhurst, NJ 07071.
CST	Charles S. Tanner Co-----	450 Furman Hall Rd., Greenville, SC 29608.
TEK	Teknor Apex Co-----	505 Central Ave., Pawtucket, RI 02662.
HN	Tenneco Chemicals, Inc-----	300 E. 42d St., New York, NY 10017.
CIK	Cal/Ink Div-----	711 Camelia St., Berkeley, CA 94710.
HNW	Newport Div-----	P.O. Box 911, Pensacola, FL 32502.
NYC	New York Color Div-----	374 Main St., Belleville, NJ 07109.
HNX	Nuodex Div-----	P.O. Box 2, Piscataway, NJ 08854.
BKS	Tenneco Colors Div-----	11th & Bern Sts., Reading, PA 19604.
CRY	Tenneco Manufacturing Co., Tenneco Plastics Div.	P.O. Box 2, Piscataway, NJ 08854.
TOC	Tenneco Oil Co-----	P.O. Box 2511, Houston, TX 77001.
TEN	Tennessee Copper Co., Div. of Tennessee Corp--	Copperhill, TN 37317.
TER	Terra Chemicals International, Inc-----	Davidson Bldg., Sioux City, IA 51102.
TX	Texaco, Inc-----	1111 Rush Ave., Houston, TX 77052.
TSA	Texas Alkyls, Inc-----	P.O. Box 600, Deer Park, TX 77536.
TUS	Texas-U.S. Chemical Co-----	P.O. Box 667, Port Neches, TX 77651.
TXC	Tex Chem Co-----	20-21 Wagaraw Rd., Fair Lawn, NJ 07410.
TXT	Textilana Corp-----	12607 Cerise Ave., Hawthorne, CA 90250.
TXN	Textilana-Nease, Inc-----	2140 S. 88th St., Edwardsville, KS 66022.
SKT	Textron, Inc., Spencer Kellogg Div-----	120 Delaware Ave., Buffalo, NY 14240.
TKL	Thiokol Chemical Corp-----	P.O. Box 27, Bristol, PA 19007.
SCR	Thomason Industries, Inc., Southern Resin Div--	P.O. Drawer 1600, Fayetteville, NC 28302.
THC	Thompson Apex Co., Div. of Continental Oil Co--	505 Central Ave., Pawtucket, RI 02862.
THM	Wm. T. Thompson Co., Thompson Chemicals Div--	3028 Locust St., St. Louis, MO 63103.
TMH	Thompson-Hayward Chemical Co-----	5200 Speaker Rd., Kansas City, KS 66110.
TIC	Ticonderoga Chemical Corp-----	Marguerite Ave., Leominster, MA 01453.
TZC	Tizon Chemical Corp-----	Flemington, NJ 08822.
TRC	Toms River Chemical Corp-----	P.O. Box 71, Toms River, NJ 08753.
ACT	Arthur C. Trask Co-----	327 S. LaSalle St., Chicago, IL 60604.
TGL	Triangle Chemical Co-----	206 Lower Elm St., P.O. Box 4528, Macon, GA 31208.
TRO	Troy Chemical Co-----	338 Wilson Ave., Newark, NJ 07105.
TCH	Trylon Chemical Corp-----	P.O. Box 607, Mauldin, SC 29662.
JTC	Joseph Turner & Co-----	Pleasant View Terrace, Ridgefield, NJ 07451.
PCC	USS Chemicals, Div. of U.S. Steel Corp-----	Grant Bldg., Pittsburgh, PA 15219.
UHL	Paul Uhlich & Co., Inc-----	90 West St., New York, NY 10006.
UNG	Ungerer & Co-----	161 Avenue of the Americas, New York, NY 10013.
NCI	Union Camp Corp., Chemicals Div-----	P.O. Box 6170, Jacksonville, FL 32205.
UCC	Union Carbide Corp-----	270 Park Ave., New York, NY 10017.
UOC	Union Oil Co. of California-----	461 S. Boylston St., Los Angeles, CA 90017.
UNS	Union Starch & Refining Co., Inc-----	900 19th St., Granite City, IL 62040.
USR	Uniroyal, Inc., Chemical Div-----	Naugatuck, CT 06771.
URC	United Carbon Co-----	P.O. Box 149, Baytown, TX 77520.
UNN	United Chemical Corp. of Norwood-----	Endicott St., Norwood, MA 02062.
UNP	United Chemical Products Corp-----	York and Colgate Sts., Jersey City, NJ 07302.
RCM	United Merchants & Manufacturers, Inc., Roma Chemical Div.	749 Quequechan St., Fall River, MA 02721.
UNO	United Oil Manufacturing Co-----	2d and Cascade Sts., Erie, PA 16512.
USB	U.S. Borax Research Corp-----	3075 Wilshire Blvd., Los Angeles, CA 90005.
USO	U.S. Oil Co-----	P.O. Box 4228, E. Providence, RI 02914.
UPF	United States Pipe & Foundry Co-----	3300 1st Ave. N., Birmingham, AL 35202.
UPL	United States Plywood-Champion Papers, Inc., California Div., Shasta Operations.	P.O. Box 2317, Redding, CA 96002.
UVC	Universal Chemicals Corp-----	1224 Mendon Rd., Ashton, RI 02864.
UPM	Universal Oil Products Co-----	30 Algonquin Rd., Des Plaines, IL 60018.
	UOP Chemical Div-----	State Highway 17, E. Rutherford, NJ 07073.
UPJ	Upjohn Co-----	7000 Portage Rd., Kalamazoo, MI 49001.
CWN	Carwin Organic Chemicals-----	Sackett Point Rd., North Haven, CT 06473.
UTR	Utah Resin Co., Inc-----	604-605 Kearns Bldg., Salt Lake City, UT 84101.
VAL	Valchem-----	1407 Broadway, New York, NY 10018.
VSV	Valentine Sugars, Inc-----	726 Whitney Bldg., New Orleans, LA 70130.
VLN	Valley Nitrogen Producers, Inc-----	1221 Van Ness Ave., Fresno, CA 93721.
VDM	Van De Mark Chemical Co., Inc-----	N. Transit Rd., Lockport, NY 14094.
VNC	Vanderbilt Chemical Corp-----	31 Taylor Ave., Bethel, CT 06801.
VND	Van Dyk & Co., Inc-----	Main & William Sts., Belleville, NJ 07109.
VEL	Velsicol Chemical Corp-----	341 E. Ohio St., Chicago, IL 60611.
MHI	Ventron Corp-----	Congress St., Beverly, MA 01915.

TABLE 22. --Synthetic organic chemicals; Directory of manufacturers, 1967--Continued

Identifi- cation code	Name of company	Office address
VB	Vermilye-Bell-----	21707 Bothell Way, Bothell, WA 98011.
VPC	Verona-Pharma Chemical Corp-----	Iorio Ct., Union, NJ 07083.
VPT	Vickers Refining Co., Inc-----	P.O. Box 2240, Wichita, KS 67201.
VIN	Vineland Chemical Co-----	W. Wheat Rd., Vineland, NJ 08360.
VGC	Virginia Chemicals, Inc-----	Portsmouth, VA 23703.
SOH	Vistron Corp-----	1434 Midland Bldg., Cleveland, OH 44115.
SIC	Silmar Div-----	12335 S. Van Ness Ave., Hawthorne, CA 90250.
VIM	Vitamins, Inc-----	401 N. Michigan Ave., Suite 2730, Chicago, IL 60611.
FRO	Vulcan Materials Co., Chemicals Div-----	P.O. Box 545, Wichita, KS 67201.
	Wallace & Tiernan, Inc.:	
WTH	Harchem Div-----	110 E. Hanover Ave., Cedar Knolls, NJ 07927.
WTL	Lucidol Div-----	1740 Military Rd., Buffalo, NY 14240.
WJ	Warner-Jenkinson Manufacturing Co-----	2526 Baldwin St., St. Louis, MO 63106.
WMP	Warner Machine Products, Inc., Warner Chemical Div.	1200 Rochester Ave., Muncie, IN 47302.
WSN	Washine Chemical Corp-----	165 Main St., Lodi, NJ 07644.
WCA	West Coast Adhesives Co-----	11104 NW. Front Ave., Portland, OR 97231.
EW	Westinghouse Electric Corp., Benolite Dept-----	Manor, PA 15665.
WES	Weston Chemical Co., Inc-----	104 E. 40th St., New York, NY 10016.
WVA	West Virginia Pulp & Paper Co.:	
	Chemical Div., Tall Oil Dept-----	P.O. Box 5207, N. Charleston, SC 29406.
	Polychemicals Div-----	P.O. Box 5207, N. Charleston, SC 29406.
WRD	Weyerhaeuser Co., Wood Products Div-----	115 S. Palmetto St., Marshfield, WI 54449.
WBG	White & Bagley Co-----	P.O. Box 1171, Worcester, MA 01601.
WHI	White & Hodges, Inc-----	576 Lawrence St., Lowell, MA 01852.
WLI	White Laboratories, Inc-----	Galloping Hill Rd., Kenilworth, NJ 07033.
WHL	Whitmoyer Laboratories, Inc-----	19 N. Railroad St., Myerstown, PA 17067.
WHC	Whittaker Corp., Research & Development/San Diego.	3540 Aero Ct., San Diego, CA 92123.
WHW	Whittemore-Wright Co., Inc-----	62 Alford St., Boston, MA 02129.
WIC	Wica Chemicals, Inc-----	P.O. Box 506, Charlotte, NC 28201.
WIM	Wilmot & Cassidy, Inc-----	108 Provost St., Brooklyn, NY 11222.
	Wilson Pharmaceutical & Chemical Corp.:	
WIL	Wilson Laboratories Div-----	4221 S. Western Blvd., Chicago, IL 60609.
WM	Wilson-Martin Div-----	Jackson and Swanson Sts., Philadelphia, PA 19148.
WTC	Witco Chemical Co., Inc-----	P.O. Box 305, Paramus, NJ 07652.
KEN	Kendall Refining Co. Div-----	77 N. Kendall Ave., Bradford, PA 16701.
WCC	Witfield Chemical Corp-----	P.O. Box 1243, Wilmington, CA 90744.
WOB	Woburn Chemical Corp-----	1200 Harrison Ave., Harrison, NJ 07029.
WOD	Woodbury Chemical Co-----	P.O. Box 788, St. Joseph, MO 64502.
WAW	W. A. Wood Co-----	108 Spring St., Everett, MA 02149.
WRC	Wood Ridge Chemical Corp-----	Park Pl. E., Wood Ridge, NJ 07075.
WON	Woonsocket Color & Chemical Co-----	176 Sunnyside Ave., Woonsocket, RI 02895.
WBC	Worthington Biochemical Corp-----	Route 9, Freehold, NJ 07728.
WYN	Wyandotte Chemicals Corp-----	1609 Biddle Ave., Wyandotte, MI 48192.
WYC	Wycon Chemical Co-----	P.O. Box 1087, Colorado Springs, CO 80901.
WYT	Wyeth Laboratories, Inc., Div. of American Home Products Corp.	P.O. Box 8299, Paoli, PA 19101.
YAW	Young Aniline Works, Inc-----	2731 Boston St., Baltimore, MD 21224.

## APPENDIX

### U.S. Imports of Benzenoid Intermediates and Finished Benzenoid Products

Table 23 summarizes, for 1966 and 1967, U. S. imports of benzenoid chemicals and products entered under the Tariff Schedules of the United States (TSUS), schedule 4, part 1, subparts B and C. The data, which were obtained by analyzing invoices covering imports through U. S. customs districts, are given in detail in a separate report of the Tariff Commission.<sup>1</sup>

In 1967, general imports of benzenoid intermediates entered under part 1B, comprised 617 items with a total weight of 71.8 million pounds, and an invoice value of \$28.2 million, compared with 68.9 million pounds, with an invoice value of \$31.2 million, in 1966. Half of these intermediate products were declared to be "competitive" (duty based on "American selling price"). In terms of value, 47 percent of all the intermediates imported in 1967 came from West Germany; 12 percent, from the United Kingdom; and 10 percent, from Japan. The remaining imports came mainly from Italy, Switzerland, Canada and France. Imports from West Germany in 1967 increased to \$13.2 million from \$12.1 million in 1966. In 1967, imports from Italy increased to \$2.6 million, from \$1.9 million in 1966. Imports in 1967 from Canada increased to \$2.3 million from \$2.1 million in 1966. Imports from Japan amounted to \$2.7 million in 1967, compared with

TABLE 23.--Benzenoid intermediates and finished benzenoid products: U.S. general imports, classified by use, 1966 and 1967

Product	1966		1967	
	Quantity	Invoice value	Quantity	Invoice value
Intermediates <sup>1</sup> -----	1,000 pounds 68,919	1,000 dollars 31,217	1,000 pounds 71,779	1,000 dollars 28,230
Finished benzenoid products, total-----	47,875	56,859	45,907	54,340
Dyes, total-----	13,715	25,817	12,812	23,382
Acid-----	2,555	...	2,168	...
Azoic dyes-----	14	...	5	...
Azoic components:				
Fast color bases-----	520	...	648	...
Fast color salts-----	269	...	273	...
Naphthol AS and its derivatives-----	1,558	...	749	...
Basic-----	1,136	...	1,198	...
Direct-----	1,159	...	794	...
Disperse-----	2,494	...	2,358	...
Fiber-reactive-----	1,249	...	1,188	...
Fluorescent brightening agents-----	247	...	250	...
Mordant-----	362	...	367	...
Solvent-----	265	...	203	...
Sulfur-----	45	...	89	...
Vat-----	1,761	...	2,455	...
All other-----	81	...	67	...
Benzenoid pigments (toners and lakes)-----	1,010	1,738	1,485	2,944
Medicinals and pharmaceuticals-----	4,674	10,855	4,581	11,935
Flavor and perfume materials-----	2,564	4,033	1,740	2,758
All other-----	<sup>3</sup> 25,912	14,416	<sup>3</sup> 25,289	13,321

<sup>1</sup> Includes small quantities of rubber-processing chemicals.

<sup>2</sup> Includes ingrain dyes.

<sup>3</sup> Includes organic pesticides and related products, plasticizers, surface-active agents, and textile assistant.

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

<sup>1</sup> Imports of Benzenoid Chemicals and Products, 1967, TC Publication 264, 1968 [processed].

\$4.3 million in 1966, while imports from Switzerland totaled \$2.5 million, compared with \$4.2 million in 1966.

In 1967, 10 chemicals accounted for approximately 67 percent of the quantity of imports of benzenoid intermediates. The large-volume intermediates imported in 1967 were styrene, polyalkylbenzene, phenol, phthalic anhydride, N-isopropylaniline, 1,4-cyclohexanedimethanol, acetoacetanilide, 4-(p-chlorophenoxy)phenyl isocyanate, anthraquinone, and cyclohexanone. In 1967, imports of styrene amounted to 16.6 million pounds and came from Canada and Italy. Imports of polyalkylbenzene amounted to 14.2 million pounds and all came from Italy. Imports of phenol in 1967 totaled 4.4 million pounds, compared with 8.6 million pounds in 1966 and came from France and Italy. Imports of phthalic anhydride in 1967 amounted to 3.3 million pounds and imports of N-isopropylaniline amounted to 2.4 million pounds. Phthalic anhydride came principally from Italy, Japan, and the United Kingdom; N-isopropylaniline all came from Canada. In 1967, imports of 1,4-cyclohexanedimethanol, which came from West Germany, amounted to 2.4 million pounds; acetoacetanilide, which came principally from the United Kingdom, Switzerland, and West Germany, amounted to 1.4 million pounds; 4-(p-chlorophenoxy)phenyl isocyanate, which all came from West Germany, totaled 1.2 million pounds; anthraquinone, which came from Japan, the United Kingdom, and West Germany, totaled 1.2 million pounds; and imports of cyclohexanone, which came from Italy and the United Kingdom, totaled 810,000 pounds.

Imports in 1967 of all finished benzenoid products that are dutiable under part 1C comprise 2,227 listed items, with a total weight of 45.9 million pounds and an invoice value of \$54.3 million. In 1966, imports consisted of 2,401 items, with a total weight of 47.9 million pounds and an invoice value of \$56.9 million. The most important group of finished benzenoid products imported in 1967 was benzenoid dyes. Imports of dyes amounted to \$23.4 million (invoice value), or 43.0 percent of the value of all imports under part 1C. In 1966, imports of dyes amounted to \$25.8 million (invoice value), or 45.4 percent of the value of all imports under part 1C.

Imports of medicinals and pharmaceuticals, the next most important group of products entered under part 1C in 1967, increased in 1967, compared with 1966. In 1967, imports of medicinals and pharmaceuticals were valued at \$11.9 million (invoice value), or 22.0 percent of the total value of imports under part 1C. In 1966, imports of medicinals and pharmaceuticals were valued at \$10.9 million, or 19.1 percent of the total value of imports under part 1C.

As in 1966, imports of benzenoid pigments increased in 1967. In 1967, imports of these products were valued at \$2.9 million, compared with \$1.7 million in 1966.

Imports of benzenoid flavor and perfume materials in 1967 (\$2.8 million) were 30 percent less than in 1966 (\$4.0 million). In 1967 imports of other benzenoid products entered under part 1C (chiefly polyamide resins and pesticides) were valued at \$13.3 million, compared with \$14.4 million in 1966.