UNITED STATES TARIFF COMMISSION

SYNTHETIC ORGANIC CHEMICALS

United States Production and Sales, 1960

TC Publication 34

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UNITED STATES TARIFF COMMISSION

SYNTHETIC ORGANIC CHEMICALS

United States Production and Sales, 1960

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

UNITED STATES
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TC Publication 34

UNITED STATES TARIFF COMMISSION

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NOTE: The system of numbering Tariff Commission publications has been revised. From Janua the publication numbers begin anew with 1; the designations "Second Series" and "Miscellaneous Se been discontinued. Although the first eight publications of 1961 (released before the revised system effect) bear no numbers, they have been assigned TC publication numbers as follows: 1—Nepheline Sye Canada . . .; 2—Flaxseed, Linseed Oil and Peanut Oil . . .; 3—Forty-fourth Annual Report . . .; 4—Re of Trade-Agreement Reductions in Import-Duty Rates to Imports from Poland; 5—Ultramarine 6—Plastic Film Raincoats . . .; 7—Cantaloups . . .; 8—Shrimp . . . .

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CONTENTS

Introduction

.s is the forty-fourth annual report of the U.S. Tariff Commission on domestic production
:s of synthetic organic chemicals and the raw materials from which they are made. The
›resents statistics for 1960 on production and sales of crude organic chemicals derived
al, natural gas, and petroleum; of intermediates; and of finished synthetic organic chem-
ducts. The finished products are grouped according to their principal use--dyes, toners
:s, medicinal chemicals, flavor and perfume materials, plastics and resin materials,
processing chemicals, elastomers, plasticizers, surface-active agents, pesticides and
:ganic agricultural chemicals, and miscellaneous chemicals. The use classifications of
synthetic organic chemicals are based principally on the manufacturers' annual reports
ariff Commission; other sources include trade associations, the chemical literature,
ıl dictionaries, encyclopedias, and consultants in the chemical industry. With a few ex-
s, the report does not cover organic chemicals (such as wood-distillation products, essen-
, and naval stores) that are derived from natural (vegetable) sources by simple extraction
llation. The Commission has compiled the statistics presented in this report from infor-
supplied by the 715 primary manufacturers listed in part III.

.s report incorporates a number of changes based on suggestions made by the Committee
nicals of the Advisory Council on Federal Reports. The most important of these changes
eplacement of the numerical identification code previously used to identify manufacturers,
lphabetical code. Each reporting company has been assigned an identification symbol con-
of a combination of not more than three capital letters, selected in most instances with
roval of the manufacturer. The identification symbols are permanent and, except for such
as may be necessary, will be used in all future reports in this series. Important changes
corporated in the Commission's 1958 report and continued in this report include the larger
certain revisions of the basic definitions, and adoption of the new *Colour Index* classifica-
l terminology for dyes and toners and lakes. This report, like the 1958 and 1959 reports,
s data on only those individual chemicals for which the volume of production or sales in the
vered exceeded 1,000 pounds or for which the value of sales exceeded $1,000.

e raw materials referred to in this report are obtained from coal, crude petroleum,
gas, and certain other natural materials, such as vegetable oils, fats, rosin, and grains.
›rganic chemicals are derived from coal by thermal decomposition, from petroleum and
gas by catalytic cracking and by distillation or absorption, and from other natural sources
ıentation. Production of these crude organic chemicals is the first step in the manufacture
ıetic organic chemicals. From these crudes, intermediates are obtained by synthesis or
; most of the intermediates are then converted into finished chemical products, such as
ıal chemicals, plastics and resin materials, and dyes. Intermediates usually are not sold
r to the ultimate consumer, but are used by the producing companies themselves--or by
ıdustrial concerns--in their manufacturing processes.

this report, the statistics on production of the individual chemicals reported by manufac-
include the total output of the companies' plants, i.e., the quantities produced for con-
›n within the producing plants, as well as the quantities produced for sale. The quantities
d as produced, therefore, generally exceed the quantities reported as sold. Some of these
ıces, however, are attributable to changes in inventories. As specified in the reporting
tions that the Commission sends to manufacturers, and as used in this report, production
es (unless otherwise specifically indicated) are defined as follows:

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

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

---

ll agreement is an agreement between two firms, under which one firm furnishes the raw materials and pays the processing costs her 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 inst: tions;
(2) Intermediate products that are formed in the manufacturing process but are no isolated from the reaction system--that is, not weighed, analyzed, or other measured; and
(3) Materials that are used in the process but are recovered for reuse or sale; an waste products that have no economic significance.

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

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

Sales exclude--

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

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

Data on the chemicals covered in this report are usually given in terms of undiluted rials. Products that assay 95 percent pure or more are considered to be 100 percent pur principal exceptions are the statistics on dyes and a few solvents, which are reported in of commercial concentrations; the statistics on certain plastics and resins, which are re on a dry basis; and the data on sales of antibiotics, which are reported on the basis of sp conditions mentioned in the section on medicinal chemicals. The report specifically note 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 accompa this report are weighted averages for products which vary widely in unit values and in th quantities sold.

In this report, statistics are presented in as great detail as is possible without reve the operations of individual producers. Statistics for an individual chemical or group of c icals are not given if there are fewer than three producers. Moreover, even when there three or more producers, statistics are not given if there is any possibility that their pul tion would violate the statutory provisions relating to unlawful disclosure of information cepted in confidence by the Commission.[2]

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

Statistics on U.S. imports in 1960 of coal-tar intermediates and finished coal-tar pr that entered under paragraphs 27 and 28 of the Tariff Act of 1930 are given in appendix A Appendix B includes a table that shows the number of technically trained research worke the synthetic organic chemical industry and the cost of research in the industry. Appendi a glossary of the common, or trivial, names of coal-tar intermediates usually encounter the trade, together with their equivalent standard (or *Chemical Abstracts*) names. Appendix cross-reference list of the *Colour Index* and common names of toners and lakes.

[2] 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
ıcts from petroleum and natural gas in 1960 was 96,729 million pounds--7.6 percent more
the output in 1959 (see table 1). Sales in 1960, which totaled 55,538 million pounds, valued
,507 million, were 4.8 percent larger than in 1959 in terms of quantity and 3.3 percent
r in terms of value. Since these figures include data on production and sales of chemicals
veral successive steps in the manufacturing process, they necessarily contain considerable
cation.

n 1960, production of all synthetic organic chemicals, including cyclic intermediates and
ıed products, totaled 53,952 million pounds, or 7.2 percent more than the output in 1959.
›roduction of cyclic intermediates (9,602 million pounds) was 13.5 percent larger in 1960
in 1959; that of plasticizers was 11.7 percent larger; that of pesticides and other organic
ultural chemicals was 10.6 percent larger; and that of flavor and perfume materials was
ercent larger.

Production of several other groups of synthetic organic chemicals was also larger in 1960
in 1959. Production of medicinal chemicals (114 million pounds) was 6.8 percent larger;
›f miscellaneous organic chemicals (31,908 million pounds) was 6.5 percent larger; that of
ics and resin materials (6,143 million pounds) was 4.7 percent larger; that of elastomers
hetic rubbers) (2,952 million pounds) was 4.5 percent larger; and that of surface-active
:s (1,532 million pounds) was 1.9 percent larger. Production of three groups of synthetic
ıic chemicals was smaller in 1960 than in 1959. Production of coal-tar dyes (156 million
ls) was 8.0 percent smaller; that of toners and lakes (40 million pounds) was 5.7 percent
ler; and that of rubber-processing chemicals (200 million pounds) was 5.0 percent smaller.

ıBLE 1.--*Synthetic organic chemicals and their raw materials: U.S. production and sales, 1959 and 1960*

Chemical	Production			Sales					
				Quantity			Value		
	1959	1960	Increase or decrease (-), 1960 over 1959[1]	1959	1960	Increase or decrease (-), 1960 over 1959[1]	1959	1960	Increase or decrease (-), 1960 over 1959[1]
	Million pounds	*Million pounds*	*Percent*	*Million pounds*	*Million pounds*	*Percent*	*Million dollars*	*Million dollars*	*Percent*
Grand total	89,874	96,729	7.6	52,973	55,538	4.8	7,267	7,507	3.3
----------	6,690	7,094	6.0	3,497	3,333	-4.7	44	43	-3.0
ıdes----------	8,447	9,536	12.9	5,353	5,771	7.8	142	154	8.4
›roducts from petroleum and :al gas----------	24,422	26,147	7.1	16,599	17,674	6.5	583	648	11.2
:ic organic chemicals, total--	50,315	53,952	7.2	27,524	28,760	4.5	6,498	6,662	2.5
:mediates----------	8,459	9,602	13.5	3,511	3,964	12.9	556	622	12.0
----------	170	156	-8.0	159	148	-7.0	206	192	-6.7
:s and lakes----------	43	40	-5.7	33	33	-1.9	66	64	-2.1
:inal chemicals----------	107	114	6.8	87	88	.7	582	557	-4.3
›r and perfume materials------	50	55	9.9	45	47	3.7	57	60	6.1
:ics and resin materials------	5,865	6,143	4.7	5,170	5,347	3.4	1,640	1,653	.8
:r-processing chemicals-------	210	200	-5.0	159	153	-4.1	102	101	-.8
:omers (synthetic rubbers)----	2,825	2,952	4.5	2,601	2,551	-1.9	693	698	.8
:icizers----------	539	602	11.7	477	500	5.0	142	149	4.6
ıce-active agents----------	1,504	1,532	1.9	1,372	1,399	2.0	271	278	2.6
:cides and other organic :icultural chemicals----------	585	648	10.6	503	570	13.4	225	262	16.1
:llaneous chemicals----------	29,958	31,908	6.5	13,407	13,960	4.1	1,958	2,026	3.4

:centages calculated from figures rounded to thousands.

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

Tars

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

The quantity of tar produced in the United States from all sources in 1960 was 709 million ons, or 6.0 percent more than the 669 million gallons produced in 1959. Of the total quantity uced in 1960, 687 million gallons was coal tar and 22 million gallons was water-gas and gas tar (see table 2).

TABLE 2.--*Tar: U.S. production and consumption, 1959 and 1960*

[In thousands of gallons]

Product	1959	1960
PRODUCTION		
Total	669,018	709,360
-gas and oil-gas tar[1]	15,290	21,800
tar from coke-oven byproduct plants,[2] total	653,728	687,560
nts not owned by city gas companies	648,838	(3)
nts owned by city gas companies (public utilities)	4,890	(3)
CONSUMPTION		
Total	670,585	721,190
onsumed by distillation, total	534,112	616,105
er-gas and oil-gas tar distilled by producers and tar distillers[4]	10,400	8,535
l tar distilled or topped by coke-oven operators[2]	205,797	275,310
l tar distilled by tar distillers[5]	317,915	332,260
onsumed chiefly as fuel, total	109,447	85,146
er-gas and oil-gas tar consumed as fuel[6]	...	...
l tar sold or consumed as fuel by coke-oven operators[2]	109,447	85,146
onsumed otherwise than by distillation or as fuel, total	27,026	19,939
l tar consumed at coke-oven plants for roads and upkeep[2]	1,537	714
l tar, water-gas tar, and oil-gas tar processed at tar refineries, crude tar onsumed for upkeep at such refineries, and tar consumed in making gas and in pecial-purpose tar blends[6]	25,489	19,225

eported to the American Gas Association.
eported to the U.S. Bureau of Mines.
ot available.
eported to the U.S. Tariff Commission.
epresents tar purchased from companies operating coke ovens and gas-retort plants and distilled by companies ting tar-distillation plants.
eported to the American Gas Association and to the U.S. Tariff Commission.

Total consumption of tar in 1960 amounted to 721 million gallons, of which 616 million gal- was consumed by distillation, 85 million gallons as fuel, and 20 million gallons in miscel- ous uses.

Tar Crudes

Tar crudes are obtained from coke-oven gas and by distilling coal tar, water-gas ta oil-gas tar. The most important tar crudes are benzene, toluene, xylene, naphthalene, creosote oil. Some of the products produced from coal tar are identical with those produ from petroleum and natural gas. Data for materials derived from these latter sources a the most part, included in or with the statistics for materials derived from coal tar, wl shown in tables 3 and 4A.[1]

Total domestic production of industrial and specification grades of benzene in 1960 a to 457 million gallons--31.7 percent more than the 347 million gallons reported for 1959 totals include data for benzene produced from domestic tars, from imported and domesti light oil, from domestic petroleum, and from imported motor-grade benzene. Sales of b in 1960 amounted to 377 million gallons, valued at $118 million, compared with 330 mill lons, valued at $96 million, in 1959. The output of toluene from all sources (including m produced for use in blending in aviation fuel) amounted to 274 million gallons--2.6 perce than the 282 million gallons reported for 1959. Sales of toluene in 1960 were 200 million valued at $39 million, compared with 167 million gallons, valued at $33 million, in 1959 output of xylene in 1960 (including that produced for blending in motor fuels) was 282 mil lons, compared with 241 million gallons in 1959. More than 97 percent of the xylene proc in 1960 was obtained from petroleum sources.

TABLE 3.--*Tar and tar crudes: Summary of U.S. production of specified products, average 1950-54 annual 1959 and 1960*

Chemical	Unit of quantity	Average 1950-54	1959	1960	Increase, or decre	
					1960 over 1950-54	196 1
					Percent	*Pe*
Tar[1]	1,000 gal--	876,070	669,018	709,360	-19.0	
Benzene:[2]						
Tar distillers[3]	1,000 gal--	41,389	18,498	12,787	-69.1	
Coke-oven operators	1,000 gal--	163,356	119,831	135,327	-17.2	
Petroleum operators	1,000 gal--	46,635	208,789	309,210	563.0	
Total	1,000 gal--	251,380	347,118	457,324	81.9	
Toluene:						
Tar distillers	1,000 gal--	7,497	3,670	3,232	-56.9	
Coke-oven operators	1,000 gal--	32,981	26,964	30,399	-7.8	
Petroleum operators	1,000 gal--	80,725	[4] 250,980	[4] 240,768	198.3	
Total	1,000 gal--	121,203	281,614	274,399	126.4	
Xylene:						
Tar distillers	1,000 gal--	1,373	484	369	-73.1	
Coke-oven operators	1,000 gal--	9,028	7,524	8,076	-10.5	
Petroleum operators	1,000 gal--	78,188	[4] 233,459	[4] 274,017	250.4	
Total	1,000 gal--	88,589	241,467	282,462	218.8	
Naphthalene, crude (solidifying at less than 79° C.)[5]	1,000 lb---	307,537	425,293	510,039	65.8	
Creosote oil (Dead oil)[6]	1,000 gal--	109,946	81,982	82,004	-25.4	

[1] Includes data for oil-gas, water-gas, and gas-retort tar reported to the American Gas Association, and tar reported to the Division of Bituminous Coal, U.S. Bureau of Mines.
[2] Includes data for motor-grade benzene in 1950-54. Separate statistics on production of motor-grade benz not been published since 1954. Production in recent years, if any, has been negligible.
[3] Includes data for benzene produced from imported crude light oil.
[4] Includes data for material produced for use in blending motor fuels.
[5] Figures include production by tar distillers and coke-oven operators and represent combined data for th mercial grades of naphthalene to avoid disclosure of the operations of individual companies. Because of con between grades, the figures may include some duplication.
[6] Includes data for creosote oil produced by tar distillers and coke-oven operators and used only in wood serving. Data for production of creosote oil in coal-tar solution have been excluded because the figures fo were not comparable with the figures for 1959 and 1960. Production figures for 1950-54 are for the distilla or consumed as such, and for 1959 and 1960 the production of the distillate is on a 100-percent-creosote ba
[7] Less than 0.05 percent.

Production of crude naphthalene in 1960 amounted to 517 million pounds, compared w million pounds in 1959. Sales of naphthalene in 1960 were 310 million pounds, valued at $ lion, compared with 267 million pounds, valued at $13 million, in 1959. In 1960 the outpu creosote oil (100-percent creosote basis), used principally in wood preserving, was 93 n gallons, compared with 90 million gallons in 1959. Production of road tar in 1960 was 63 gallons, compared with 66 million gallons in 1959.

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

TABLE 4A.--*Tar crudes: U.S. production and sales, 1960*

d below are all tar crudes for which any reported data on production or sales may be published. Table 4B in :II lists separately all products for which data on production or sales were reported and identifies the manu- urers reporting to the U.S. Tariff Commission]

Product	Unit of quantity	Production	Sales		
			Quantity	Value	Unit value[1]
				1,000 dollars	
light oil: Coke-oven operators	1,000 gal-	234,501	21,280	3,846	$0.18
ediate light oil: Coke-oven operators	1,000 gal-	3,590	3,714	635	.17
oil distillates:					
ene, specification and industrial grades, total	1,000 gal-	457,324	377,427	117,563	.31
r distillers[2]	1,000 gal-	12,787	635	187	.29
ke-oven operators	1,000 gal-	135,327	137,784	44,167	.32
troleum operators	1,000 gal-	309,210	239,008	73,209	.31
ene, all grades, total[3]	1,000 gal-	274,399	200,120	38,633	.19
r distillers	1,000 gal-	3,232	2,958	728	.25
ke-oven operators	1,000 gal-	30,399	31,567	6,639	.21
troleum operators	1,000 gal-	240,768	165,595	31,266	.19
ne, total[3]	1,000 gal-	282,462	141,542	30,402	.21
r distillers	1,000 gal-	369	398	133	.33
ke-oven operators	1,000 gal-	8,076	7,854	2,061	.26
troleum operators	1,000 gal-	274,017	133,290	28,208	.21
ent naphtha, total	1,000 gal-	9,051	8,392	2,174	.26
r distillers	1,000 gal-	4,465	3,814	965	.25
ke-oven operators	1,000 gal-	4,586	4,578	1,209	.26
r light-oil distillates, total	1,000 gal-	6,978	4,760	844	.18
r distillers	1,000 gal-	2,522	2,352	478	.20
ke-oven operators	1,000 gal-	4,456	2,408	366	.15
ne crude bases (dry basis)	1,000 gal-	761	254	278	1.09
alene, crude (tar distillers and coke-oven erators), total[4]	1,000 lb--	517,039	310,300	15,872	.05
difying at--					
ss than 74° C	1,000 lb--	24,669	25,984	802	.03
° C. to less than 76° C	1,000 lb--	21,473	10,209	462	.04
° C. to less than 79° C	1,000 lb--	470,897	274,107	14,608	.05
tar-acid oils:					
distillers	1,000 gal-	962	585	236	.40
-oven operators	1,000 gal-	27,579	27,326	5,763	.21
te oil (Dead oil) (tar distillers and coke-oven erators) (100% creosote basis), total[5]	1,000 gal-	92,834	87,284	19,294	.22
illate as such (100% creosote basis)	1,000 gal-	82,004	77,378	16,264	.21
sote content of coal-tar solution (100% creosote sis)	1,000 gal-	10,830	9,906	3,030	.31
her distillate products[6]	1,000 gal-	18,980	11,676	2,067	.18
oad	1,000 gal-	62,564	61,382	10,596	.17
rude and refined) for other uses[7]	1,000 gal-	29,997	23,249	4,883	.21
of tar:					
and medium (water softening points less than 0° F., and 110° F. to 160° F.)	1,000 tons	1,221	515	18,098	35.14
(water softening point above 160° F.)	1,000 tons	684	525	20,513	39.07
h-of-tar coke and pitch emulsion	1,000 tons	28	28	1,155	41.25

dit value per gallon, pound, or ton, as specified.
cludes data for benzene produced from imported crude light oil.
cludes data for material produced for use in blending motor fuels.
atistics represent combined data for the 3 commercial grades of naphthalene. Because of conversion of naphtha- rom one grade to another, the figures may include some duplication.
atistics include data only for creosote oil sold for, or used in, wood preserving. In 1960, production of cre- in coal-tar solution (100% solution basis) amounted to 15,889 thousand gallons; sales were 15,873 thousand s, valued at 3,030 thousand dollars, with a unit value of $0.19 per gallon.
cludes data for shingle-stain oil and neutral oils produced by tar distillers, and for crude sodium phenolate ed by coke-oven operators.
cludes data for tar used for paint, pipe covering, saturating, and other uses.

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

Some of the products included in the statistics in table 4A are derived from other pr for which data are also included in the table. The statistics, therefore, involve consider duplication, and for this reason no group totals or grand totals are given. After duplicati been eliminated insofar as possible, it is estimated that the net value of production of th products and of tar burned as fuel was $413 million in 1960, compared with $360 million and $343 million in 1958.

Crude Products From Petroleum and Natural Gas for Chemical Conversion

Crude products that are derived from petroleum and natural gas are related to the i mediates and finished products made from such crudes in much the same way that crude ucts derived from the distillation of coal tar are related to their intermediates and finis products. Many of the crude products derived from petroleum are identical with those d from coal tar (e.g., benzene, toluene, and xylene). Considerable duplication exists in th tistics on the production and sales of petroleum crudes because some of these crude che are converted to other crude products derived from petroleum and because data on some tion and sales are reported at successive stages in the conversion processes (see table 5 Notwithstanding these duplications, the statistics are sufficiently accurate to indicate tre the industry and to serve as a basis for general comparison. Many of the crude products which data are included in the statistics may be used either as fuel or as basic materials which to derive other chemicals, depending on prevailing economic conditions. In this re every effort has been made to exclude data on materials that are used as fuels. However are included on toluene and xylene which are not used directly as fuel but in blending avi and motor-grade gasolines.

TABLE 5A. -- *Crude products from petroleum and natural gas for chemical conversion: U.S. produc and sales, 1960*

[Listed below are the crude products from petroleum and natural gas for chemical conversion for which any data on production or sales may be published. Table 5B in pt. III lists separately all products from pet natural gas for chemical conversion for which data on production or sales were reported and identifies th facturer of each]

Product	Production	Sales		Uni
		Quantity	Value	
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	
Grand total	26,147,216	17,674,010	648,256	
AROMATICS AND NAPHTHENES[2]				
Total	7,587,291	5,456,782	155,112	
Alkyl aromatics, distillates, and solvents	1,502,155	1,483,220	19,066	
Benzene (1° and 2°), total	2,266,509	1,751,929	73,209	
Benzene, 1°	1,440,191	1,331,231	58,261	
Benzene, 2°	826,318	420,698	14,948	
Cresylic acid, crude	36,442	17,536	423	
Naphthenic acids, total	23,801	13,947	1,634	
Acid No. 150-199	4,007	3,586	380	
Acid No. 225-249	5,546	5,117	593	
All other	14,248	5,244	661	
Toluene, all grades, total	1,743,160	1,198,908	31,266	
Nitration grade, 1°	1,229,765	1,107,358	29,066	
Pure commercial grade, 2°	255,268	58,666	1,301	
All other	258,127	32,884	899	
Xylenes, mixed, total	1,975,662	961,021	28,208	
3° and 5°	965,628	493,329	14,628	
All other[3]	1,010,034	467,692	13,580	
All other aromatics and naphthenes[4]	39,562	30,221	1,306	

See footnotes at end of table.

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

TABLE 5A.--*Crude products from petroleum and natural gas for chemical conversion: U.S. production and sales, 1960*--Continued

Product	Production	Sales		
		Quantity	Value	Unit value[1]
ALIPHATIC HYDROCARBONS	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	18,559,925	12,217,228	493,144	$0.040
rocarbons, total	6,182,037	3,490,473	164,674	.047
ne	733,943	238,660	2,398	.010
lene	5,448,094	3,251,813	162,276	.050
rocarbons, total	5,413,866	4,099,504	84,760	.021
ane	2,936,919	2,734,682	31,236	.011
ylene	2,476,947	1,364,822	53,524	.039
rocarbons, total	4,772,459	2,962,174	188,943	.064
Butadiene, grade for rubbers (elastomers)[5]	1,883,151	1,074,076	138,220	.129
diene and butylene fractions	499,096	78,035	2,101	.027
tane	507,677	344,678	4,771	.014
tene and 2-butene mixture[6]	1,190,960	941,352	30,664	.033
itane	249,056	237,710	4,045	.017
itylene	348,456	212,086	6,899	.033
other[7]	94,063	74,237	2,243	.030
rocarbons[8]	88,480	71,767	3,276	.046
her aliphatic hydrocarbons and derivatives, total	2,103,083	1,593,310	51,491	.033
obutylene (Diisobutene)	34,640	29,693	1,889	.064
decene (Tetrapropylene)	412,331	255,719	8,363	.033
butene[9]	70,679	65,929	5,075	.077
ocarbon derivatives[10]	12,720	10,136	3,482	.344
other[11]	1,572,713	1,231,833	32,682	.027

lculated from rounded figures.
e chemical raw materials designated as aromatics are in some cases identical with those obtained from the dision of coal tar. However, the statistics given in the table above relate only to such materials as are derived etroleum and natural gas. Statistics on aromatic chemicals from all sources are given in table 4A.
cludes xylene used as a solvent, as well as that which is blended in aviation and motor gasolines.
cludes data for 90-percent benzene, sodium cresylate, 1,4-methano-2,5-cyclopentadiene, mixed pyridines, sodium ate and phenate, and miscellaneous cyclic hydrocarbons.
1960 all butadiene was produced in privately owned plants. For some years prior to 1956, separate statistics ailable on butadiene production for private account and for Government account.
e statistics represent principally the butene content of crude refinery gases from which butadiene is manued.
cludes data for 1-butene, 2-butene, n-butylene, and mixed olefins.
cludes data for isoprene, pentanes, pentenes, and mixtures.
cludes compounds having a molecular weight of 3,000 or less.
ncludes data for di-tert-butyldisulfide, miscellaneous mercaptans, and aliphatic acids.
ncludes data for methane, acetylene, propane-propylene mixture, hexanes, heptanes and heptenes, octanes, ne, nonene, and hydrocarbon mixtures. The total production of acetylene for chemical processing from all s in 1960, as reported by the U.S. Bureau of the Census, amounted to 712,805 thousand pounds (acetylene pron figures converted from cubic feet to pounds as follows: 1 cu. ft. weighs 0.06897 lb. at 60° F. and 1 atmospressure).

The output of crude products derived from petroleum and natural gas as a group amounted), 147 million pounds in 1960, or 7.1 percent more than the 24,422 million pounds reported 1959. The larger output in 1960 is accounted for chiefly by increased production of benzene, lene, propylene, and xylene. Sales of crude chemicals from petroleum in 1960 were 17,674 ion pounds, valued at $648 million, compared with 16,599 million pounds, valued at $583 ion, in 1959.

The output of all aromatic and naphthenic products amounted to 7,587 million poun 1960, compared with 6,750 million pounds in 1959. Sales in 1960, which amounted to 5, lion pounds, valued at $155 million, were 543 million pounds larger, and valued at $22 more, than those in 1959. Benzene and xylene were produced from petroleum sources i stantially greater quantities in 1960 than in 1959, and production of naphthenic acids wa percent larger. The output of 1° and 2° benzene from petroleum amounted to 2,267 mill in 1960--48.1 percent more than the 1,530 million pounds produced in 1959. The output in 1960 was 1,743 million pounds--4.1 percent less than the 1,817 million pounds produ 1959. Production of xylene was 1,976 million pounds in 1960, compared with 1,683 mill in 1959. These figures include toluene and xylene used in blends in aviation and motor gasolines. The output of naphthenic acids amounted to 24 million pounds in 1960, compa 20 million pounds in 1959. Production of cresylic acid in 1960--36 million pounds--was cent less than in 1959.

Production of all aliphatic hydrocarbons and derivatives from petroleum and natura 18,560 million pounds in 1960, compared with 17,672 million pounds in 1959. Sales of t products were 12,217 million pounds, valued at $493 million, in 1960, compared with 1 million pounds, valued at $450 million, in 1959. The statistics on production and sales lene (footnote 11, table 5A) include only acetylene produced from calcium carbide and fr natural gas and used as a raw material in the production of other chemicals; they exclud lene used for welding and cutting. Total production of acetylene (principally from calciu bide), as reported to the U.S. Bureau of the Census, amounted to 713 million pounds in compared with 708 million pounds in 1959 (see footnote 11, table 5A, for conversion fac Production of ethylene was 5,448 million pounds in 1960, or 6.8 percent more than the million pounds produced in 1959. The output of propane and propylene was 5,414 million in 1960--5.6 percent more than the 5,125 million pounds produced in 1959. Production 1,3-butadiene, one of the principal ingredients of S-type synthetic rubber, was 1,883 m pounds in 1960, compared with 1,816 million pounds in 1959. The output of 1,3-butadien 1960--the largest on record--was 3.7 percent more than that in 1959.

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

General

ı the basis of their principal uses, the synthetic organic chemicals covered in this report ıssified either as intermediates or as finished products. Finished products, in turn, are :d as follows: Dyes, toners and lakes, medicinal chemicals, flavor and perfume materials, :s and resin materials, rubber-processing chemicals, elastomers (synthetic rubbers), :izers, surface-active agents, pesticides and other organic agricultural chemicals, and :laneous synthetic organic chemicals. Most of these groups are further subdivided, ac- g to chemical classes, into cyclic and acyclic compounds. As most of the intermediates ed in the manufacture of finished products, aggregate figures that cover both inter- :es and finished products necessarily include much duplication.

otal production of synthetic organic chemicals (intermediates and finished products com- in 1960 was 53,952 million pounds, or 7.2 percent more than the output of 50,315 million ; in 1959 (see table 6). Sales totaled 28,760 million pounds, valued at $6,662 million, in compared with 27,524 million pounds, valued at $6,498 million, in 1959. Production of :lic products (intermediates and finished products combined) in 1960 totaled 17,818 million ;, or 8.8 percent more than the 16,372 million pounds produced in 1959. In 1960 the output :lic organic chemicals was 36,134 million pounds, or 6.5 percent more than the 33,943 n pounds produced in 1959.

LE 6.--*Synthetic organic chemicals*: *Summary of U.S. production and sales of intermediates and finished products, average 1950-54, annual 1959 and 1960*

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

Chemical	Average 1950-54	1959	1960	Increase, or decrease (-)	
				1960 over 1950-54	1960 over 1959
chemicals, cyclic and acyclic, :and total:				*Percent*	*Percent*
iuction	26,708,705	50,314,692	53,952,190	102.0	7.2
:s	14,490,020	27,524,428	28,760,172	98.5	4.5
:s value	3,692,368	6,498,314	6,662,095	80.4	2.5
:, total:					
iuction	8,727,657	16,372,032	17,817,908	104.2	8.8
:s	5,552,600	10,245,044	10,734,631	93.3	4.8
:s value	1,914,275	3,111,095	3,236,796	69.1	4.0
lc, total:					
iuction	17,981,048	33,942,660	36,134,282	101.0	6.5
:s	8,937,420	17,279,384	18,025,541	101.7	4.3
:s value	1,778,093	3,387,219	3,425,299	92.6	1.1
1. Intermediates, Cyclic					
ion	4,281,640	8,459,308	9,602,147	124.3	13.5
	1,699,407	3,511,311	3,964,213	133.3	12.9
alue	305,623	555,695	622,414	103.7	12.0
2. Dyes, Cyclic					
ion	167,359	169,503	155,896	-6.8	-8.0
	157,224	158,939	147,738	-6.0	-7.0
alue	173,198	205,873	192,107	10.9	-6.7
3. Toners and Lakes, Cyclic					
ion	43,501	42,675	40,238	-7.5	-5.7
	38,197	33,309	32,687	-14.4	-1.9
alue	53,144	65,634	64,264	20.9	-2.1

TABLE 6.--*Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and products, average 1950-54, annual 1959 and 1960*--Continued

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

Chemical	Average 1950-54	1959	1960	Increase, decrease (
				1960 over 1950-54
4. Medicinal Chemicals				
Cyclic:				*Percent*
Production	51,761	73,180	76,519	47.8
Sales	41,915	57,526	55,042	31.3
Sales value	398,867	548,234	521,486	30.7
Acyclic:				
Production	12,670	33,417	37,299	194.4
Sales	10,294	29,776	32,897	219.6
Sales value	26,091	33,976	35,445	35.9
5. Flavor and Perfume Materials				
Cyclic:				
Production	18,689	29,684	33,027	76.7
Sales	15,936	24,251	25,781	61.8
Sales value	22,854	34,489	37,393	63.6
Acyclic:				
Production	12,312	20,624	22,261	80.8
Sales	11,881	21,147	21,280	79.1
Sales value	19,556	22,147	22,710	16.1
6. Plastics and Resin Materials				
Cyclic:				
Production	1,450,115	2,646,178	2,716,094	87.3
Sales	1,194,058	2,200,013	2,227,866	86.6
Sales value	323,776	605,881	627,516	93.8
Acyclic:				
Production	1,055,800	3,218,709	3,426,555	224.5
Sales	968,602	2,970,389	3,118,928	222.0
Sales value	416,943	1,034,174	1,025,272	145.9
7. Rubber-Processing Chemicals				
Cyclic:				
Production	110,695	177,722	170,465	54.0
Sales	82,154	134,329	130,155	58.4
Sales value	43,607	85,815	84,563	93.9
Acyclic:				
Production	20,301	32,492	29,294	44.3
Sales	16,734	24,673	22,381	33.7
Sales value	12,064	16,063	16,475	36.6
8. Elastomers (Synthetic Rubbers)				
Cyclic:				
Production	1,228,997	2,212,757	2,283,190	85.8
Sales	1,243,149	2,006,179	1,949,089	56.8
Sales value	288,960	463,117	469,258	62.4
Acyclic:				
Production	461,334	612,582	669,200	45.1
Sales	451,966	594,450	601,618	33.1
Sales value	177,098	230,022	229,163	29.4
9. Plasticizers				
Cyclic:				
Production	206,042	403,114	444,744	115.9
Sales	159,831	361,742	384,094	140.3
Sales value	54,381	98,306	103,308	90.0
Acyclic:				
Production	71,021	135,720	157,391	121.6
Sales	56,523	114,687	116,188	105.6
Sales value	23,557	43,765	45,296	92.3

.BLE 6.--*Synthetic organic chemicals: Summary of U.S. production and sales of intermediates and finished products, average 1950-54, annual 1959 and 1960*--Continued

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

Chemical	Average 1950-54	1959	1960	Increase, or decrease (-)	
				1960 over 1950-54	1960 over 1959
				Percent	*Percent*
10. Surface-Active Agents					
.c:					
ıduction	510,747	936,063	977,197	91.3	4.4
.es	418,230	895,229	927,300	121.7	3.6
.es value	76,622	139,348	146,960	91.8	5.5
.ic:					
ıduction	300,822	567,996	555,030	84.5	-2.3
.es	262,223	476,948	472,120	80.0	-1.0
.es value	65,955	131,774	131,186	98.9	-.4
11. Pesticides and Other Organic Agricultural Chemicals					
.c:					
ıduction	336,457	468,833	525,485	56.2	12.1
.es	277,501	409,580	455,377	64.1	11.2
.es value	103,029	172,492	202,870	96.9	17.6
Lic:					
ıduction	52,022	116,613	122,310	135.1	4.9
Les	45,721	93,272	115,020	151.6	23.3
Les value	17,794	52,977	58,919	231.1	11.2
12. Miscellaneous					
ic:					
ıduction	321,654	753,015	792,906	146.5	5.3
les	224,998	452,636	435,289	93.5	-3.8
les value	70,214	136,211	164,657	134.5	20.9
lic:					
ıduction	15,994,766	29,204,507	31,114,942	94.5	6.5
les	7,113,476	12,954,042	13,525,109	90.1	4.4
les value	1,019,035	1,822,321	1,860,833	82.6	2.1

The following tabulation shows, by chemical groups, the number of companies that reported ıduction in 1960 of one or more of the chemicals included in the groups listed in table 6:

Chemical group	*Number of companies*
:rmediates	163
;	51
ers and lakes	42
icinal chemicals	117
or and perfume materials	48
tics and resin materials	258
Rubber-processing chemicals	31
Elastomers (synthetic rubbers)	22
Plasticizers	55
Surface-active agents	154
Pesticides and other organic agricultural chemicals	82
Miscellaneous chemicals	287

Cyclic Intermediates

Cyclic intermediates are synthetic organic chemicals derived principally from coal crudes produced by destructive distillation (pyrolysis) of coal and from petroleum and n gas. Most cyclic intermediates are used in the manufacture of more advanced synthetic chemicals and finished products, such as dyes, medicinal chemicals, elastomers (synth rubbers), pesticides, and plastics and resin materials. Some intermediates, however, as end products without further processing. For example, refined naphthalene may be u raw material in the manufacture of 2-naphthol or of other more advanced intermediates, may be packaged and sold as a moth repellent or as a deodorant. In general, the way in the greater part of the output of a given chemical is consumed determines its use classi in this report. Table 7A[1] gives statistics on production and sales of cyclic intermediate Individual statistics given in the table represent more than 80 percent of the total quanti termediates produced. Since many of the intermediates included in the statistics repres cessive steps in production, the totals necessarily include considerable duplication. In 1 two-fifths of the total output of cyclic intermediates was sold; the rest was consumed chi the producing plants in the manufacture of more advanced intermediates and finished pr

Total production of cyclic intermediates in 1960--9,602 million pounds--was the lar record, and was 13.5 percent larger than the output of 8,459 million pounds reported fo The larger output of cyclic intermediates in 1960 was attributable to increased demand b number of industries that consume large quantities of intermediates, particularly those that produce elastomers and plasticizers. Sales of cyclic intermediates in 1960 amounte 3,964 million pounds, valued at $622 million, compared with 3,511 million pounds, valu $556 million, in 1959. In terms of quantity, sales of cyclic intermediates in 1960 were 1 cent larger than those in 1959 and, in terms of value, 12.0 percent larger.

TABLE 7A.--*Cyclic intermediates: U.S. production and sales, 1960*

[Listed below are all cyclic intermediates for which any reported data on production or sales may be publis (Leaders are used where the reported data are accepted in confidence and may not be published or where no reported.) Table 7B in pt. III lists alphabetically all cyclic intermediates for which data on production were reported and identifies the manufacturer of each. Appendix C lists alphabetically all the important names of cyclic intermediates usually encountered in the trade and gives the corresponding standard (*Chemic* name under which data are presented in tables 7A and 7B]

Chemical	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Total	9,602,147	3,964,213	622,414
Acetanilide, tech	2,321	1,792	541
4'-Aminoacetanilide (Acetyl-p-phenylenediamine)	218	...	...
5-Amino-2-(p-aminoanilino)benzenesulfonic acid	22	...	...
1-Aminoanthraquinone and salt	1,129	16	61
2-Aminoanthraquinone and salt	522	...	...
6-Amino-3,4'-azodi(benzenesulfonic acid)	31	...	...
1-Amino-4-benzamidoanthraquinone	78	...	...
1-Amino-4-bromo-2-anthraquinonesulfonic acid and sodium salt	170	...	...
1-Amino-5-chloroanthraquinone	112	...	...
1-Amino-5(and 8)-chloroanthraquinone	15	...	...
2-Amino-3-chloroanthraquinone	39	...	...
o-(3-Amino-4-chlorobenzoyl)benzoic acid	114	...	...
6-Amino-4-chloro-1-phenol-2-sulfonic acid	18	...	...
2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1]	1,150	...	...
4'-Amino-2',5'-diethoxybenzanilide	29	...	...
4'-Amino-N-methylacetanilide	10	1	2
2-Amino-1,5-naphthalenedisulfonic acid	29	7	12
6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)	839	...	...

See footnotes at end of table.

[1] See also table 7B, pt. III, which lists these products alphabetically and identifies the manufacturers; appendix A, which shows of intermediates and related products during 1958-60; and appendix C, which is a glossary of synonymous names of cyclic intermedi

TABLE 7A.--*Cyclic intermediates: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
)-1-naphthalenesulfonic acid (Tobias acid)	3,517	...	...	...
)-1-naphthalenesulfonic acid (Laurent's acid)	43	...	...	...
)-2-naphthalenesulfonic acid (1,6-Cleve's acid)	196	62	31	$0.50
3)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed)	393	...	...	...
)-2-naphthalenesulfonic acid (Broenner's acid)	70	...	...	...
)-1-naphthalenesulfonic acid (Peri acid)	252	...	...	...
)-2-naphthalenesulfonic acid (1,7-Cleve's acid)	349	...	...	...
)-2-naphthol	95	...	...	...
)-1-naphthol-3,6-disulfonic acid (H acid), monosodium salt	2,798	...	...	...
)-1-naphthol-5,7-disulfonic acid (Chicago acid) (2S acid), sodium salt	55	...	...	...
)-2-naphthol-4-sulfonic acid (1,2,4-acid)	1,176	...	...	...
)-1-naphthol-3-sulfonic acid (J acid), sodium salt	503	...	...	...
)-1-naphthol-3-sulfonic acid (Gamma acid), sodium salt	753	374	229	.61
)-5-nitrobenzenesulfonic acid [SO_3H=1]	59	...	...	...
)-4-nitrophenol	76	...	...	...
)-1-phenol-4-sulfonamide	32	...	...	...
)-1-phenol-4-sulfonic acid	49	...	...	...
minophenylazo)benzenesulfonic acid	124	...	...	...
)-m-toluenesulfonic acid [SO_3H=1]	204	48	46	.96
)-3,5-xylenesulfonic acid [SO_3H=1]	75	...	...	...
e (Aniline oil)	120,243	43,895	7,276	.17
omethanesulfonic acid and salt	158	...	...	...
ino-1-naphthalenesulfonic acid (Phenyl peri acid)	175	...	...	...
ino-1-naphthol-3-sulfonic acid (Phenyl J acid)	30	...	...	...
ino-1-naphthol-3-sulfonic acid (Phenyl gamma acid)	22	...	...	...
idine	1,299	520	329	.63
idinomethanesulfonic acid	122	...	...	...
nilic acid (o-Aminobenzoic acid)	579	312	331	1.06
[1,9]pyrazol-6(2H)-one (Pyrazolanthrone)	23	...	...	...
quinone, 100%	4,434	...	...	...
thraquinonedisulfonic acid	760	...	...	...
thraquinonedisulfonic acid, potassium salt	348	...	...	...
thraquinonedisulfonic acid and salt	268	...	...	...
raquinonesulfonic acid and salt	2,571	...	...	...
1,5-Anthraquinonylene)dianthranilic acid	41	...	...	...
rufin (1,5-Dihydroxyanthraquinone)	171	...	...	...
dehyde, tech	2,180	2,226	952	.43
amido-5-chloroanthraquinone	105	...	...	...
z[de]anthracen-7-one (Benzanthrone)	1,283	...	...	...
line hydrochloride and sulfate	1,208	...	...	...
c acid, tech	...	5,089	1,443	.28
oylbenzoic acid	5,258	...	...	...
-Bianthra[1,9]pyrazole]-6,6'(2H,2'H)-dione (Pyrazoleanthrone-low)	23	...	...	...
-Bi-7H-benz[de]anthracen]-7,7'-dione	327	...	...	...
s[1-anthraquinonylamino]anthraquinone	109	...	...	...
Bis[diethylamino]benzophenone (Ethyl ketone base)	97	...	...	...
Bis[dimethylamino]benzophenone (Michler's ketone)	121	...	...	...
no-7H-benz[de]anthracen-7-one (Bromobenzanthrone)	196	...	...	...
roaniline and hydrochloride	1,435	1,430	1,045	.73
roaniline	...	98	50	.51
roanthraquinone	249	...	...	...
roanthraquinone	438	...	...	...
robenzaldehyde	309	...	...	...
benzene, mono	605,312	64,874	4,544	.07
Chlorobenzoyl)benzoic acid	1,130	...	...	...
ro-2,4-dimethoxyaniline	38	...	...	...
ro-2,4-dinitrobenzene (Dinitrochlorobenzene)	5,324	...	...	...
ro-2-methylanthraquinone	128	...	...	...
ro-4-nitroaniline (o-Chloro-p-nitroaniline)	361	...	...	...
ro-2-nitroaniline (p-Chloro-o-nitroaniline)	312	151	122	.81
ro-5-nitroanthraquinone	111	...	...	...
ro-2-nitrobenzene (Chloro-o-nitrobenzene)	24,540	...	...	...
ro-2(and 4)-nitrobenzene (Chloronitrobenzenes, o- and p-)	10,037	...	...	...

footnotes at end of table.

TABLE 7A.--*Cyclic intermediates: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
4-Chloro-3-nitrobenzenesulfonamide	167	...	...
2-Chloro-5-nitrobenzenesulfonic acid and sodium salt	127	...	...
4-Chloro-3-nitrobenzenesulfonic acid	163	...	...
4-Chloro-3-nitrobenzenesulfonyl chloride	177	...	...
o-(4-Chloro-3-nitrobenzoyl)benzoic acid	157	...	...
2-Chloroquinizarin	26	...	...
α-Chlorotoluene (Benzyl chloride)	21,442	6,120	1,206
4-Chloro-o-toluidine [NH_2=1] and hydrochloride	34	...	...
5-Chloro-o-toluidine [NH_2=1] and hydrochloride	220	...	...
Cresols, total[2]	67,459	58,999	11,223
o- and p-Cresols	21,194	19,136	6,131
(m,p)-Cresol, total	28,384	22,572	2,889
From coal tar	10,186	9,351	1,195
From petroleum	18,198	13,221	1,694
(o,m,p)-Cresol[3]	17,881	17,291	2,203
Cresylic acid, refined, total[2]	55,712	34,975	3,992
From coal tar	27,786	20,153	2,498
From petroleum	27,926	14,822	1,494
Cumene	218,693	4,884	501
Cyclohexane	563,796	...	...
Cyclohexanol	...	5,600	1,344
Cyclohexylamine	4,512	2,028	864
p-Cymene	...	1,015	192
1,4-Diaminoanthraquinone	102	...	...
1,5-Diaminoanthraquinone	210	...	...
2,6-Diaminoanthraquinone	162	...	...
2,4-Diaminobenzenesulfonic acid [SO_3H=1]	47	...	...
4,4′-Diamino-2,2′-stilbenedisulfonic acid	1,266	...	...
4,6-Diamino-m-toluenesulfonic acid [SO_3H=1]	11	...	...
4,5′-Dibenzamido-1,1′-iminodianthraquinone	231	...	...
1,5-Dibenzoylnaphthalene	205	...	...
3,9-Dibromo-7H-benz[de]anthracen-7-one	237	...	...
2,5-Dichloroaniline and hydrochloride [NH_2=1]	206	140	123
1,5-Dichloroanthraquinone	120	...	...
1,8-Dichloroanthraquinone	144	...	...
o-Dichlorobenzene	24,678	23,226	2,242
o(and p)-Dichlorobenzene	18,433	16,132	1,009
p-Dichlorobenzene	63,973	58,370	5,725
3,3′-Dichlorobenzidine base and salts	1,773	1,456	1,999
2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	103	...	...
2,6-Dichloro-4-nitroaniline	41	...	...
1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	...	9	5
p-Diethylaminobenzaldehyde	19	...	...
m-Diethylaminophenol (N,N-Diethyl-3-aminophenol)	206	...	...
N,N-Diethylaniline	1,233	865	483
4,5-Dihydroxy-2,7-naphthalenedisulfonic acid (Chromotropic acid)	63	...	...
6,7-Dihydroxy-2-naphthalenesulfonic acid	353	331	960
16,17-Dihydroxyviolanthrone (Dihydroxydibenzanthrone)	227	...	...
m-Dimethoxybenzene	277	...	...
3,3′-Dimethoxybenzidine	448	375	728
16,17-Dimethoxyviolanthrone	130	...	...
N,N-Dimethylaniline	8,013	4,698	1,181
N,N-Dimethylbenzylamine	28	11	19
2,2′-Dimethyl-1,1′-bianthraquinone	86	...	...
N,N-Dimethyl-p-nitrosoaniline	41	...	...
2,4-Dinitrophenol, tech	831	...	...
4,4′-Dinitro-2,2′-stilbenedisulfonic acid	1,967	...	...
1,4-Di(p-toluidino)anthraquinone	71	...	...
Dodecylbenzene[4]	491,732	419,930	42,779
N-Ethylaniline, refined	670	...	...

See footnotes at end of table.

TABLE 7A.--*Cyclic intermediates: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
ihylanilino)-p-toluenesulfonic acid	645	...	...	...
inzene	1,660,925	53,357	3,420	$0.06
.-N-phenylbenzylamine	723	...	...	...
rlbenzenesulfonic acid (o-Sulfobenzaldehyde)	195	...	...	...
orobenzene	438	533	135	.25
izinobenzenesulfonic acid	182	...	...	...
oxy-2-naphthoic acid (B.O.N.)	2,771	...	...	...
ydroxy-1-naphthyl)acetamide	12	...	...	...
ninobis[4-aminoanthraquinone]	217	...	...	...
ninobis[5-benzamidoanthraquinone]	79	...	...	...
ninobis[1-naphthol-3-sulfonic acid]	12	...	...	...
ninobis[4-nitroanthraquinone]	162	...	...	...
ninodianthraquinone (Dianthrimide)	179	...	...	...
nic acid, 4-methyl-m-phenylene ester	43,339	41,102	29,027	.71
sopropylidenediphenol (Bisphenol A)	50,494	28,201	7,643	.27
lanthrone (Isodibenzanthrone)	48	...	...	...
1,4-diaminoanthraquinone	260	...	...	...
quinizarin (1,4,9,10-Anthratetrol)	77	...	...	...
tetrahydroxyanthraquinone	41	...	...	...
lic acid (m-Aminobenzenesulfonic acid)	775	41	24	.59
oxymetanilic acid	7	...	...	...
ylaminoanthraquinone	44	...	...	...
ylbenzo[f]quinoline	30	...	...	...
ethylenebis[N,N-diethylaniline] (Methane base)	21	...	...	...
ethylenebis[N,N-dimethylaniline]	553	...	...	...
yl-1-nitroanthraquinone	116	...	...	...
ethyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	78	...	...	...
yl-1-phenyl-2-pyrazolin-5-one (Developer Z)	385	264	464	1.76
ylstyrene	19,658	4,576	426	.09
alene, solidifying at 79° C., or above (refined flake), total-	62,136	...	...	...
. domestic crude naphthalene	40,822	...	...	...
. imported crude naphthalene	21,314	10,499	1,370	.13
phthalenedisulfonic acid	27	...	...	...
thol-3,6-disulfonic acid (R acid) and disodium salt	573	144	153	1.06
thol-6,8-disulfonic acid (G acid) and disodium salt	1,221	18	13	.72
thol-6-sulfonic acid (Schaeffer's acid)	401	...	...	...
hthylthio)acetic acid	77	...	...	...
oaniline	105	...	...	...
o-o-anisidine [NH_2=1]	91	...	...	...
o-o-anisidine [NH_2=1]	325	...	...	...
o-2-anthraquinonecarboxylic acid	41	...	...	...
o-1-anthraquinonesulfonic acid	130	...	...	...
enzene	162,308	6,171	656	.11
obenzenesulfonic acid and sodium salt	2,519	1,388	588	.42
o-p-toluenesulfonic acid [SO_3H=1]	90	...	...	...
o-o-toluenesulfonic acid [SO_3H=1]	3,399	...	...	...
o-o-toluidine [NH_2=1]	12	...	...	...
o-o-toluidine [NH_2=1]	165	...	...	...
o-p-toluidine [NH_2=1]	1,291	603	752	1.25
roviolanthrone	49	...	...	...
henol	40,752	13,159	2,755	.21
)xo-7H-benz[de]anthracen-3-ylamino)anthraquinone	225	...	...	...
(7-Oxo-7H-benz[de]anthracen-3,9-ylenediimino)dianthraquinone	337	...	...	...
l, total[2]	772,706	423,657	60,572	.14
ural, total	42,052	41,554	5,762	.14
om coal tar, total	30,527	31,395	4,238	.13
82%-84%	3,402	4,888	662	.14
Other	27,125	26,507	3,576	.13
om petroleum	11,525	10,159	1,524	.15
thetic, total	730,654	382,103	54,810	.14
om cumene	173,173	116,940	16,675	.14
ther synthetic	557,481	265,163	38,135	.14

footnotes at end of table.

TABLE 7A.--*Cyclic intermediates: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
1-Phenol-4-sulfonic acid	5,950	5,123	754
Phenylacetic acid, potassium salt	983	1,010	387
Phenylacetonitrile (α-Tolunitrile)	1,641	554	336
p-Phenylazoaniline (p-Aminoazobenzene) and hydrochloride	125	...	...
m-Phenylenediamine	836	...	...
o-Phenylenediamine	...	120	173
p-Phenylenediamine	483	446	667
Phthalic anhydride	401,143	274,735	48,225
Picolines, total[5]	2,414	1,825	1,044
2-Picoline (α-Picoline)	1,435	766	304
All other	979	1,059	740
Piperidine	...	228	572
2° Pyridine[5]	2,359	2,373	1,596
Quinaldine	12	...	...
Quinizarin	1,116	92	93
Salicylanilide	108	...	...
Salicylic acid, tech	21,801	3,918	1,494
Styrene, all grades	1,744,620	1,041,951	118,773
Terephthalic acid, dimethyl ester	...	62,119	25,468
1,4,5,8-Tetrachloroanthraquinone	52	...	...
1,4,5,8-Tetrakis[1′,1″,1‴,1⁗-anthraquinonylamino]anthraquinone (Pentanthramide)	58	...	...
3,3′-Thiobis[7H-benz[de]anthracen-7-one]	60	...	...
o-Tolidine	202	119	168
Toluene-2,4-diamine (4-m-Tolylenediamine)	800	...	...
o-(p-Toluoyl)benzoic acid	331	...	...
2,2′-(m-Tolylimino)diethanol	37	...	...
6,6′-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea)	302	...	...
Violanthrone (Dibenzanthrone)	376	...	...
o-Xylene	138,724	96,524	5,990
p-Xylene	210,439	218,036	29,897
All other cyclic intermediates	1,875,167	911,268	185,190

[1] Unit values calculated from rounded figures.
[2] Includes data for coke ovens and gas-retort ovens, reported to the Division of Bituminous Coal, U.S. Bu Mines, Department of the Interior, and for tar and petroleum refineries and other producers, reported to th Tariff Commission.
[3] Includes some mixed cresols. Figures include (o,m,p)-cresol from coal tar and from petroleum.
[4] Includes keryl-type benzenes.
[5] Includes data for coke ovens and gas-retort ovens, reported to the Division of Bituminous Coal, U.S. Bu Mines, Department of the Interior, and for tar refineries and other producers, reported to the U.S. Tariff sion.

In 1960, production of two of the largest volume intermediates exceeded 1 billion pou for the fifth successive year. The output of styrene totaled 1,745 million pounds (11.0 pe more than in 1959) and that of ethylbenzene, 1,661 million pounds (16.8 percent more tha 1959). Ethylbenzene is used almost entirely in the manufacture of styrene, which, in turn used almost entirely in the manufacture of plastics materials and synthetic rubber. Othe large-volume intermediates, the output of which was substantially larger in 1960 than in were cyclohexane (45.4 percent larger), phthalic anhydride (12.1 percent), phenol (11.7 cent), and monochlorobenzene (7.7 percent). Production of dodecylbenzene in 1960 was o slightly smaller than that in 1959. Statistics on the production of ortho-xylene were given arately for the first time in the Commission's 1959 report. Production of ortho-xylene w million pounds in 1960, compared with 62 million pounds in 1959.

Dyes

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

than two thousand are manufactured by one or more domestic producers. The large num-
dyes results from the many different types of materials to which dyes are applied, the
ent conditions of service for which dyes are required, and the costs that a particular use
ar. Dyes are sold as pastes, powders, lumps, and solutions; concentrations vary from 6
it to 100 percent. The concentration, form, and purity of a dye is determined largely by
e for which it is intended.

able 8A[2] shows U.S. production and sales of dyes in 1960, total and by individual dyes,
the new *Colour Index* classification and terminology, which was used for the first time in
58 report. Dyes for which individual statistics are given in the table represent 53 percent
total quantity produced.

otal domestic production of dyes in 1960 amounted to 156 million pounds--8.0 percent less
he 170 million pounds produced in 1959, but 11.4 percent more than the 140 million pounds
ted for 1958. Sales of dyes in 1960 amounted to 148 million pounds, valued at $192 million,
ared with 159 million pounds, valued at $206 million, in 1959. In terms of quantity, sales
s in 1960 were 7.0 percent smaller than those in 1959, and in terms of value, 6.7 percent
er.

'or many important individual low- and medium-priced dyes for which statistics are given
le 8A, production was smaller in 1960 than in 1959. The output of vat blue 1 (synthetic in-
was 7.7 million pounds in 1960, or 12.9 percent less than the 8.9 million pounds produced
9; that of direct black 38 (direct black EW) was 5.6 million pounds, or 5.6 percent less
he 5.9 million pounds reported for 1959. Other important dyes the output of which was

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*

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

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
rand total	155,896	147,738	192,107	$1.30
ACID DYES				
Total	14,306	12,715	24,185	1.90
ellow dyes, total	2,124	1,510	3,235	2.14
yellow 3	38	40	135	3.38
yellow 11	58	38	97	2.55
yellow 17	225	198	442	2.23
yellow 23	274	209	447	2.14
yellow 36	263	215	307	1.43
yellow 40	22	20	48	2.40
yellow 42	44	25	45	1.80
yellow 44	6	10	32	3.20
yellow 54	69	67	143	2.13
yellow 73	410	68	154	2.26
yellow 99	76	70	150	2.14
other	639	550	1,235	2.25
range dyes, total	1,999	1,911	2,493	1.30
orange 1	19	23	53	2.30
orange 7	768	707	585	.83
orange 8	248	253	241	.95
orange 10	296	275	371	1.35
orange 24	348	358	511	1.43
orange 60	25	...	...	...
orange 74	...	55	150	2.73
other	295	240	582	2.43
ed dyes, total	2,234	1,793	3,349	1.87
red 1	335	314	346	1.10
red 4	54	51	92	1.80
red 14	41	59	86	1.46

footnotes at end of table.

See also table 8B, pt. III, which lists these products and identifies the manufacturers, and appendix A (table 24), which shows im-
of dyes during 1958-60.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales		
		Quantity	Value	
ACID DYES--Continued				
Acid red dyes--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	
Acid red 18	117	109	117	
Acid red 26	166	129	149	
Acid red 37	37	35	90	
Acid red 73	214	198	428	
Acid red 85	97	90	145	
Acid red 87	386	53	107	
Acid red 88	185	152	207	
Acid red 89	...	24	38	
Acid red 92	11	...	...	
Acid red 99	37	54	110	
Acid red 115	...	12	16	
Acid red 137	94	125	383	
Acid red 151	...	13	28	
Acid red 167	...	27	58	
Acid red 182	39	30	94	
Acid red 183	...	4	16	
Acid red 186	22	14	34	
All other	399	300	805	
Acid violet dyes, total	432	439	950	
Acid violet 1	53	37	71	
Acid violet 3	113	143	292	
Acid violet 7	73	66	95	
Acid violet 12	...	10	15	
Acid violet 17	34	28	59	
Acid violet 43	25	18	56	
Acid violet 49	43	81	179	
All other	91	56	183	
Acid blue dyes, total	2,503	2,202	6,122	
Acid blue 7	...	50	148	
Acid blue 9	599	534	671	
Acid blue 22	46	41	144	
Acid blue 25	39	30	151	
Acid blue 40	...	14	54	
Acid blue 41	73	58	204	
Acid blue 43	13	20	106	
Acid blue 45	588	507	1,805	
Acid blue 59	...	16	53	
Acid blue 78	19	20	99	
Acid blue 90	...	8	73	
Acid blue 158 and 158A	204	154	338	
All other	922	750	2,276	
Acid green dyes, total	519	581	1,301	
Acid green 3	148	207	233	
Acid green 9	13	19	81	
Acid green 12	...	12	48	
Acid green 16	32	37	120	
Acid green 20	53	30	57	
Acid green 25	154	158	473	
Acid green 50	35	32	58	
All other	84	86	231	
Acid brown dyes, total	567	537	1,210	
Acid brown 14	231	236	319	
All other	336	301	891	
Acid black dyes, total	3,928	3,742	5,525	
Acid black 1	1,606	1,528	1,785	
Acid black 24	89	105	170	

See footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
ACID DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
)lack dyes--Continued				
l black 48	52	48	258	$5.38
other	2,181	2,061	3,312	1.61
AZOIC DYES AND COMPONENTS				
Azoic Compositions				
Total	2,607	2,337	3,576	1.53
yellow 1	120	...	...	...
yellow 2	43	30	61	2.03
orange 3	48	41	67	1.63
red dyes, total	660	512	729	1.42
ic red 1	137	123	162	1.32
ic red 2	54	54	89	1.65
ic red 6	338	207	269	1.30
other	131	128	209	1.63
violet 1	23	19	69	3.63
blue dyes, total	170	181	252	1.39
ic blue 3	56	46	68	1.48
other	114	135	184	1.36
brown 9	196	114	356	3.12
black dyes, total	1,176	1,160	1,691	1.46
)ic black 4	164	173	403	2.33
other	1,012	987	1,288	1.30
)ther azoic compositions	171	280	351	1.25
Azoic Diazo Components, Bases (Fast Color Bases)				
Total	1,000	783	1,224	1.56
; diazo component 4, base	32	43	53	1.23
; diazo component 5, base	...	6	17	2.83
; diazo component 8, base	...	37	42	1.14
; diazo component 9, base	65	59	55	.93
; diazo component 10, base	...	9	20	2.22
; diazo component 12, base	136	113	133	1.18
; diazo component 13, base	214	208	241	1.16
; diazo component 20, base	...	17	87	5.12
; diazo component 28, base	57	55	136	2.47
; diazo component 32, base	189	110	213	1.94
; diazo component 48, base	114	60	111	1.85
other azoic diazo components, bases	193	66	116	1.76
Azoic Diazo Components, Salts (Fast Color Salts)				
Total	1,546	1,496	1,649	1.10
; diazo component 1, salt	11	14	18	1.29
; diazo component 3, salt	161	181	143	.79
; diazo component 5, salt	58	60	81	1.35
; diazo component 6, salt	14	14	14	1.00
; diazo component 8, salt	53	51	50	.98
; diazo component 9, salt	127	150	104	.69
; diazo component 11, salt	15	16	29	1.81

e footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales	
		Quantity	Value
AZOIC DYES AND COMPONENTS--Continued			
Azoic Diazo Components, Salts (Fast Color Salts)--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Azoic diazo component 12, salt	70	74	88
Azoic diazo component 13, salt	384	403	305
Azoic diazo component 20, salt	23	25	71
Azoic diazo component 28, salt	225	211	253
Azoic diazo component 36, salt	87	82	153
Azoic diazo component 42, salt	...	8	21
Azoic diazo component 48, salt	63	61	67
Azoic diazo component 49, salt	9	...	...
All other azoic diazo components, salts	246	146	252
Azoic Coupling Components (Naphthol AS and Derivatives)			
Total	1,757	1,566	3,326
Azoic coupling component 2	...	268	281
Azoic coupling component 3	9	8	23
Azoic coupling component 4	9	18	32
Azoic coupling component 5	44	43	131
Azoic coupling component 7	322	305	564
Azoic coupling component 8	9	22	91
Azoic coupling component 11	...	7	16
Azoic coupling component 13	...	19	104
Azoic coupling component 14	77	57	118
Azoic coupling component 17	130	90	174
Azoic coupling component 18	427	384	479
Azoic coupling component 20	46	29	58
Azoic coupling component 21	49	23	52
Azoic coupling component 29	...	14	27
Azoic coupling component 34	32	24	59
Azoic coupling component 35	46	46	180
All other azoic coupling components	557	209	937
BASIC DYES			
Total	6,747	6,071	13,861
Basic yellow 2	499	526	1,153
Basic orange dyes, total	767	728	1,089
Basic orange 1	163	145	164
Basic orange 2	466	462	503
All other	138	121	422
Basic red dyes, total	794	...	...
Basic red 2	125	148	423
Basic red 9	...	12	44
All other	669	...	...
Basic violet 1	991	813	1,162
Basic violet 3	963	854	1,713
Basic violet 4	72	62	175
Basic violet 10	163	174	704
Basic violet 14	65	53	160
Basic blue dyes, total	766	729	2,206
Basic blue 1	21	16	57
Basic blue 7	159	118	426
Basic blue 9	267	295	637
Basic blue 26	77	63	196
All other	242	237	890

See footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
BASIC DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
green 1	62	68	226	$3.32
green 4	408	381	1,053	2.76
brown dyes, total	824	823	1,063	1.29
.c brown 1	283	267	345	1.29
.c brown 4	525	543	668	1.23
other	16	13	50	3.85
;her basic dyes[2]	373	700	2,690	3.84
DIRECT DYES				
Total	23,075	21,956	32,667	1.49
; yellow dyes, total	3,327	3,328	6,182	1.86
ect yellow 4	322	298	619	2.08
ect yellow 6	812	787	1,222	1.55
ect yellow 11	456	487	600	1.23
ect yellow 12	290	322	820	2.55
ect yellow 28	200	215	366	1.70
ect yellow 29	70	73	103	1.41
ect yellow 44	296	355	606	1.71
ect yellow 50	192	174	327	1.88
ect yellow 59	56	40	57	1.43
other	633	577	1,462	2.53
t orange dyes, total	1,527	1,388	3,315	2.39
ect orange 1	7	12	29	2.42
ect orange 8	86	92	131	1.42
ect orange 15	187	164	190	1.16
ect orange 26	36	21	47	2.24
ect orange 29	139	104	238	2.29
ect orange 34	75	67	152	2.27
ect orange 37	53	56	148	2.64
ect orange 39	41	43	89	2.07
ect orange 72	131	114	281	2.46
ect orange 73	...	101	348	3.45
ect orange 81	...	53	161	3.04
other	772	561	1,501	2.68
t red dyes, total	2,619	2,450	5,237	2.14
ect red 1	143	103	164	1.59
ect red 2	410	448	732	1.63
ect red 4	80	...	...	...
ect red 10	31	23	33	1.43
ect red 13	81	46	79	1.72
ect red 16	13	16	29	1.81
ect red 23	202	206	466	2.26
ect red 24	248	207	444	2.14
ect red 26	57	45	118	2.62
ect red 28	143	139	165	1.19
ect red 31	...	8	24	3.00
ect red 37	78	66	170	2.58
ect red 39	17	17	48	2.82
ect red 75	...	18	64	3.56
ect red 79	183	175	397	2.27
ect red 80	260	257	564	2.19
ect red 81	192	155	411	2.65
ect red 83	64	64	100	1.56
ect red 84	...	14	31	2.21
ect red 122	27	23	100	4.35
ect red 127 and 127A	...	10	28	2.80
ect red 149	...	10	27	2.70
ect red 153	...	5	14	2.80
. other	390	395	1,029	2.61

footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales	
		Quantity	Value
DIRECT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Direct violet dyes, total	178	170	541
Direct violet 1	...	10	21
Direct violet 9	48	59	143
Direct violet 22	...	5	9
All other	130	96	368
Direct blue dyes, total	4,634	4,108	5,687
Direct blue 1	157	183	391
Direct blue 2	1,910	1,650	1,500
Direct blue 6	475	437	235
Direct blue 8	49	42	75
Direct blue 14	...	63	57
Direct blue 15	40	33	38
Direct blue 22	...	22	46
Direct blue 24	16	22	33
Direct blue 25	51	33	96
Direct blue 67	6	17	65
Direct blue 71	79	63	170
Direct blue 76	123	94	122
Direct blue 78	72	73	210
Direct blue 80	172	131	210
Direct blue 86	399	368	688
Direct blue 98	125	143	240
Direct blue 100	...	21	38
Direct blue 120 and 120A	143	92	197
Direct blue 126	72	69	161
Direct blue 151	...	21	28
All other	745	531	1,087
Direct green dyes, total	1,061	808	1,569
Direct green 1	271	158	174
Direct green 6	504	372	427
Direct green 8	...	30	30
Direct green 38	...	10	35
All other	286	238	903
Direct brown dyes, total	1,815	1,692	2,396
Direct brown 1	289	281	230
Direct brown 2	231	226	326
Direct brown 6	...	39	43
Direct brown 31	82	91	244
Direct brown 74	58	43	67
Direct brown 95	487	473	329
Direct brown 111	126	111	388
Direct brown 154	171	154	195
All other	371	274	574
Direct black dyes, total	7,914	8,012	7,740
Direct black 4	235	225	201
Direct black 9	173	158	204
Direct black 22	387	427	354
Direct black 37	...	16	19
Direct black 38	5,558	5,480	4,497
Direct black 51	92	95	244
Direct black 78	78	116	227
Direct black 80	763	917	957
All other	628	578	1,037
DISPERSE DYES			
Total	6,548	7,053	14,226
Disperse yellow dyes, total	1,050	903	2,010
Disperse yellow 3	363	320	557
Disperse yellow 33	73	89	140
All other	614	494	1,313

See footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
DISPERSE DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
se orange dyes, total	518	401	772	$1.93
erse orange 3	90	69	122	1.77
erse orange 5	69	55	115	2.09
erse orange 17	164	105	120	1.14
other	195	172	415	2.41
se red dyes, total	1,048	851	2,419	2.84
erse red 1	119	126	194	1.54
erse red 5	42	42	51	1.21
erse red 9	16	9	43	4.78
erse red 13	...	7	13	1.86
erse red 15	79	80	216	2.70
erse red 17	49	41	67	1.63
other	743	546	1,835	3.36
se violet dyes, total	223	232	737	3.18
erse violet 1	43	32	109	3.41
erse violet 4	45	47	169	3.60
other	135	153	459	3.00
se blue dyes, total	2,587	3,471	6,764	1.95
erse blue 1	143	211	819	3.88
erse blue 3	533	625	1,101	1.76
erse blue 7	137	127	761	5.99
other	1,774	2,508	4,083	1.63
se black 2	22	...	...	...
se black 9	759	791	759	.96
her disperse dyes	341	404	765	1.89
FIBER-REACTIVE DYES				
reactive dyes, total	291	211	973	4.61
FLUORESCENT BRIGHTENING AGENTS				
Total	7,492	7,264	18,393	2.53
scent brightening agent 68	63	58	683	11.78
her fluorescent brightening agents	7,429	7,206	17,710	2.46
FOOD, DRUG, AND COSMETIC DYES				
Total	2,417	2,341	9,479	4.05
Food, Drug, and Cosmetic Colors				
Total	2,191	2,128	8,593	4.04
o. 1	47	43	506	11.77
No. 1	...	4	40	10.00
. 2	481	459	1,456	3.17
. 3	30	31	490	15.81
No. 5	437	427	1,365	3.20
No. 6	416	458	1,502	3.28
her food, drug, and cosmetic colors	780	706	3,234	4.58
Drug and Cosmetic Colors including external				
Total	226	213	886	4.16
. 7	8	11	34	3.09
. 9	21	...	...	...

footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales	
		Quantity	Value
FOOD, DRUG, AND COSMETIC DYES--Continued			
Drug and Cosmetic Colors including external--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Red No. 19	6	7	37
Red No. 21	34	39	131
Red No. 36	19	...	...
All other drug and cosmetic colors including external	138	156	684
MORDANT DYES			
Total	3,975	3,637	4,773
Mordant yellow dyes, total	230	180	311
Mordant yellow 5	...	12	30
Mordant yellow 8	...	5	9
Mordant yellow 10	...	4	3
All other	230	159	269
Mordant orange dyes, total	128	94	185
Mordant orange 1	55	42	66
Mordant orange 6	...	15	14
All other	73	37	105
Mordant red dyes, total	141	110	269
Mordant red 3	10	9	29
Mordant red 7	43	53	109
Mordant red 9	...	11	16
All other	88	37	115
Mordant blue 1	29	37	128
Mordant blue 9	...	15	27
Mordant brown dyes, total	379	297	682
Mordant brown 1	94	72	148
Mordant brown 33	42	40	73
Mordant brown 40	17	17	46
All other	226	168	415
Mordant black dyes, total	3,040	2,880	3,107
Mordant black 1	...	16	23
Mordant black 3	...	35	44
Mordant black 5	...	37	65
Mordant black 9	51	...	...
Mordant black 11	2,036	2,007	1,846
Mordant black 13	79	55	156
Mordant black 17	599	551	556
Mordant black 38	23	37	150
All other	252	142	267
All other mordant dyes	28	24	64
SOLVENT DYES			
Total	6,479	6,295	9,568
Solvent yellow dyes, total	1,153	857	1,841
Solvent yellow 2	54	52	79
Solvent yellow 3	...	34	59
Solvent yellow 14	869	557	710
All other	230	214	993
Solvent orange dyes, total	175	159	411
Solvent orange 3	18	12	28
Solvent orange 7	100	82	138
All other	57	65	245

See footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales		
		Quantity	Value	Unit value[1]
SOLVENT DYES--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
; red dyes, total	987	799	1,825	$2.28
ent red 24	621	439	798	1.82
ent red 26	218	219	398	1.82
ent red 49	...	21	134	6.38
other	148	120	495	4.13
; violet dyes, total	176	172	414	2.41
ent violet 13	17	22	77	3.50
other	159	160	337	2.25
; blue dyes, total	382	369	1,747	4.73
ent blue 4	47	...	...	...
ent blue 38	169	148	725	4.90
other	166	221	1,022	4.62
; green dyes, total	51	56	268	4.79
ent green 1	...	8	21	2.63
ent green 3	30	35	192	5.49
other	21	13	55	4.23
ier solvent dyes	3,555	3,883	3,062	.79
SULFUR DYES				
Total	31,022	30,558	8,233	.27
red 1	...	24	19	.79
red 6	...	44	90	2.05
blue 7	224	180	158	.88
blue 15	...	10	27	2.70
green 2	30	22	55	2.50
black 1	1,553	1,389	458	.33
ier sulfur dyes	29,215	28,889	7,426	.26
VAT DYES				
Total	46,574	43,412	45,772	1.05
llow dyes, total	3,299	3,318	4,657	1.40
yellow 2, 8-1/2%	1,664	1,529	1,512	.99
bilized vat yellow 2, 25%	11	9	28	3.11
yellow 4, 12-1/2%	897	1,112	1,366	1.23
bilized vat yellow 4, 37-1/2%	6	8	64	8.00
other	721	660	1,687	2.56
ange 1, 20%	348	288	774	2.69
lized vat orange 1, 26%	12	11	77	7.00
ange 2, 12%	269	277	658	2.38
ange 4, 6%	...	52	193	3.71
ange 5, 10%	195	256	412	1.61
lized vat orange 5, 30%	4	...	...	...
ange 9, 12%	367	121	330	2.73
ange 15, 10%	747	648	1,359	2.10
d dyes, total	873	888	2,131	2.40
red 1, 13%	362	468	743	1.59
red 10, 18%	121	119	485	4.08
red 13, 11%	119	90	251	2.79
other	271	211	652	3.09
olet dyes, total	1,323	1,275	3,097	2.43
violet 1, 11%	339	373	887	2.38
violet 2, 20%	50	52	127	2.44

footnotes at end of table.

TABLE 8A.--*Coal-tar dyes: U.S. production and sales, 1960*--Continued

Dye	Production	Sales	
		Quantity	Value
VAT DYES--Continued			
Vat violet dyes--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Vat violet 3, 15%	114	68	113
Vat violet 9, 12%	133	126	457
Vat violet 13, 6-1/4%	635	579	1,222
Vat violet 17, 12-1/2%	37	...	...
All other	15	77	291
Vat blue 1, 20%	7,710	6,786	1,754
Vat blue 4, 10%	...	106	199
Vat blue 5, 16%	372	301	289
Vat blue 6, 8-1/3%	2,198	2,262	2,625
Solubilized vat blue 6, 17-1/2%	...	29	176
Vat blue 14, 8-1/3%	218	282	331
Vat blue 18, 13%	711	673	1,118
Vat blue 20, 14%	467	525	853
Vat green 1, 6%	2,492	2,664	1,839
Solubilized vat green 1, 12-1/2%	...	62	217
Vat green 3, 10%	2,898	2,271	1,591
Solubilized vat green 3, 26%	18	12	80
Vat green 8, 8-1/2%	1,312	1,587	1,462
Vat green 9, 12-1/2%	662	698	591
Vat brown dyes, total	4,815	3,919	6,952
Vat brown 1, 11%	852	788	1,294
Vat brown 3, 11%	1,380	1,199	1,903
Vat brown 5, 13%	515	481	749
All other	2,068	1,451	3,006
Vat black dyes, total	7,008	6,795	7,927
Solubilized vat black 1, 27-1/2%	...	8	74
Vat black 25, 12-1/2%	2,533	2,575	2,346
Vat black 27, 12-1/2%	1,181	983	1,249
All other	3,294	3,229	4,258
All other vat dyes	8,256	7,306	4,080
All other dyes[3]	60	43	202

[1] Calculated from rounded figures.
[2] Includes sales of basic red dyes.
[3] Includes oxidation bases, ingrain dyes, and miscellaneous dyes.

substantially smaller in 1960 than in 1959 were mordant black 17 (53.0 percent smaller); 1 (52.5 percent); mordant black 11 (46.2 percent); vat blue 6 (31.9 percent); disperse bla (30.4 percent); basic violet 1 (30.1 percent); direct yellow 6 (24.6 percent); direct black percent); vat green 9 (22.2 percent); and vat green 1 (18.8 percent).

On the other hand, the output of a few important dyes was larger in 1960 than in 195 duction of vat black 25 in 1960 was 2.5 million pounds--43.0 percent more than the 1.8 r pounds reported for 1959. The output of vat black 27 was 59.0 percent larger in 1960 tha 1959; that of vat green 8 was 46.4 percent larger; that of vat green 3 was 30.4 percent la and that of vat brown 3 was 24.3 percent larger.

Although the revision of the *Colour Index* has resulted in a number of changes in the fication of dyes, the differences resulting from these changes are small in most instance that comparisons between the class totals for 1958, 1959, and 1960 and those for former are still significant.

Table 9 summarizes production and sales of dyes in 1960, by class of application. F classes of dyes accounted for about three-fourths of the total output of dyes in 1960: vat counted for 29.9 percent of the total; sulfur dyes, for 19.9 percent; direct dyes, for 14. cent; and acid dyes, for 9.2 percent. In 1960 the output of each of these four major class smaller than that in 1959. Production of direct dyes was 13.6 percent smaller; acid dyes percent; sulfur dyes, 2.4 percent; and vat dyes, 1.7 percent. The total output of azoic dy components--the sixth ranking class of dyes--was 6.9 million pounds in 1960, or 24.3 pe less than the 9.1 million pounds reported for 1959. The output of each of the four groups

lyes and components was smaller in 1960 than in 1959: production of fast color salts was ercent smaller; that of fast color bases, 35.5 percent smaller; that of the azoic coupling nents, 28.0 percent smaller; and that of the azoic compositions, 3.1 percent smaller. Of naining classes, the output of fiber-reactive dyes was 54.8 percent larger in 1960 than in ood, drug, and cosmetic dyes, 14.4 percent larger; and fluorescent brighteners, 6.3 per- rger. The output of mordant dyes, on the other hand, was 40.3 percent smaller in 1960 1959; that of basic dyes, 16.2 percent smaller; and that of solvent dyes, 10.4 percent r. In 1960 the fluorescent dyes were fifth in total output, but they were the fourth most ant group of dyes in terms of value of sales; sales in that year amounted to $18.4 million.

TABLE 9.--*Coal-tar dyes: U.S. production and sales, by class of application, 1960*

Class of application	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
tal	155,896	147,738	192,107	$1.30
	14,306	12,715	24,185	1.90
es and components:				
compositions	2,607	2,337	3,576	1.53
diazo components, bases (Fast color bases)	1,000	783	1,224	1.56
diazo components, salts (Fast color salts)	1,546	1,496	1,649	1.10
coupling components (Naphthol AS and derivatives)	1,757	1,566	3,326	2.12
	6,747	6,071	13,861	2.28
	23,075	21,956	32,667	1.49
	6,548	7,053	14,226	2.02
active	291	211	973	4.61
ent brightening agents	7,492	7,264	18,393	2.53
ug, and cosmetic dyes	2,417	2,341	9,479	4.05
	3,975	3,637	4,773	1.31
	6,479	6,295	9,568	1.52
	31,022	30,558	8,233	.27
	46,574	43,412	45,772	1.05
r[2]	60	43	202	4.70

ulated from rounded figures.
udes oxidation bases, ingrain dyes, and miscellaneous dyes. Statistics for these groups of dyes may not be d separately because publication would disclose information received in confidence.

able 10 shows production and sales of dyes in 1960 by chemical class. In 1960 five chem- asses of dyes accounted for more than 80 percent of all the dyes produced: azo dyes ac- d for 28.1 percent of the total; anthraquinone dyes, for 21.7 percent; sulfur dyes (not ing vat sulfur dyes), for 19.9 percent; indigoid dyes, for 6.1 percent; and stilbene dyes, 5 percent. The output of each of these five classes was smaller in 1960 than in 1959; that goid dyes was 19.4 percent smaller; that of azo dyes, 14.9 percent; that of stilbene dyes, rcent; that of sulfur dyes, 2.4 percent; and that of anthraquinone dyes, 1.2 percent. Pro- n of all but two of the remaining important chemical classes--the xanthene dyes and nitro -was smaller in 1960 than in 1959. The output of thiazine dyes was 36.1 percent smaller in han in 1959; triarylmethane dyes, 14.9 percent smaller; thiazole dyes, 14.3 percent er; and phthalocyanine dyes, 12.6 percent smaller. In terms of value of sales, the most tant classes of dyes in 1960 were the azo dyes ($67.5 million), the anthraquinone dyes 4 million), the stilbene dyes ($19.2 million), and the azoic dyes ($9.8 million).

TABLE 10.--*Coal-tar dyes: U.S. production and sales, by chemical class, 1960*

Chemical class	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Total	155,896	147,738	192,107
Anthraquinone	33,891	32,335	53,422
Azo, total	43,822	40,696	67,527
Monoazo	13,813	12,336	23,157
Disazo	13,726	12,681	21,166
Trisazo	9,763	9,404	10,375
Polyazo	1,096	1,142	2,068
Not specified	5,424	5,133	10,761
Azoic	6,914	6,187	9,782
Indigoid	9,526	8,661	4,915
Ketone imine	512	539	1,185
Nitro	501	399	877
Oxazine	28	39	138
Phthalocyanine	487	416	907
Quinoline	132	132	520
Stilbene	8,623	8,351	19,180
Sulfur[2]	31,022	30,558	8,233
Thiazine	269	297	642
Thiazole	355	362	702
Triarylmethane	4,770	4,058	9,336
Xanthene	1,216	540	2,583
All other[3]	13,828	14,168	12,158

[1] Calculated from rounded figures.
[2] Does not include vat sulfur dyes.
[3] Includes acridine, aminoketone, azine, coumarin, hydroxyketone, methine, nitroso, vat sulfur, and misc dyes. Statistics for these groups of dyes may not be published separately because publication would disclc mation received in confidence.

Toners and Lakes

As the terms are used in this report, toners and lakes are synthetic organic pigmer thetic organic pigments are used in paint and related products, in printing inks, and in p and resin materials. Full-strength toners are undiluted pigments; extended toners and l diluted pigments.

Statistics on production and sales of all toners and lakes in 1960 are given in table 1 Statistics on the commercial forms (dry, flushed, pulp, and dispersed) of a few selected ments are given in table 12. In this report, individual toners and lakes are identified by names used in the second edition of the new *Colour Index*, rather than by their common n

Total production of full-strength toners, extended toners, and lakes in 1960 was 40. lion pounds--5.7 percent less than the 42.7 million pounds produced in 1959, but 13.7 p more than the 35.4 million pounds produced in 1958. Total sales of full-strength toners, tended toners, and lakes in 1960 amounted to 32.7 million pounds, valued at $64.3 milli compared with 33.3 million pounds, valued at $65.6 million, in 1959, and 27.8 million valued at $53.4 million, in 1958. In terms of quantity, sales of full-strength toners, ext toners, and lakes in 1960 were 1.9 percent smaller than those in 1959, and 17.8 percent than those in 1958; in terms of value, sales in 1960 were 2.1 percent smaller than those and 20.3 percent larger than those in 1958.

Production of full-strength toners in 1960 amounted to 30.5 million pounds--5.6 per less than the 32.3 million pounds reported for 1959. Sales in 1960 were 24.2 million pou valued at $52.7 million, compared with 24.6 million pounds, valued at $54.4 million, ir Sales in 1960 were thus 1.7 percent smaller than in 1959 in terms of quantity, and 3.1 p smaller in terms of value. In 1960, red toners comprised 51.9 percent of the total outpu full-strength toners (15.8 million pounds). The individual toners produced in the largest ties in 1960 were the barium toner of Pigment Red 49, 2.8 million pounds; Pigment Yell 2.5 million pounds; the alpha form of Pigment Blue 15, 2.3 million pounds; Pigment Gre 2.2 million pounds; Pigment Red 3, 2.1 million pounds; Pigment Red 48, 1.7 million po

[3] See also table 11B, pt. III, which lists these products alphabetically and identifies the manufacturers; and table 24 in app which shows imports of toners and lakes during the years 1958-60.

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

nt Blue 19 and the calcium toner of Pigment Red 49, 1.5 million pounds each; the barium
of Pigment Red 53, 1.4 million pounds; and the beta form of Pigment Blue 15, 1.3 million

oduction of extended toners totaled 5.6 million pounds in 1960, or 14.5 percent less than
million pounds reported for 1959. Sales in 1960 were 5.3 million pounds, valued at $8.1
, compared with 5.8 million pounds, valued at $8.0 million, in 1959--representing a de-
of 8.4 percent in quantity and an increase of 1.2 percent in value. Pigment Green 7, the
of which was 879,000 pounds, and the alpha form of Pigment Blue 15, the output of which
8,000 pounds, were the extended toners produced in largest quantity in 1960.
oduction of lakes amounted to 4.2 million pounds in 1960, compared with 3.9 million
in 1959--showing an increase of 8.0 percent. Sales of lakes in 1960 totaled 3.2 million
, valued at $3.5 million, compared with sales in 1959 of 2.9 million pounds, valued at
illion. Sales in 1960 were thus 10.5 percent larger in quantity and 7.4 percent larger in
than in 1959. Pigment Blue 24 was the lake produced in the largest quantity in 1960; the
amounted to 2.2 million pounds.
atistics on the production and sales of the dry, flushed, pulp, and dispersed forms of 13
d colors, or groups of colors, are given in table 12. Sales of the flushed form (including
ue of the oil) were larger, in terms of value, than were sales of any other form for Pig-
lue 19, Pigment Blue 24, and Pigment Red 90. Sales of the flushed form were approxi-
equal in value to sales of the dry form for the benzidine yellows. Sales of the dry form
arger in value than sales of any other form for each of the nine other colors for which data
own.

TABLE 11A.--*Toners and lakes: U.S. production and sales, 1960*

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

Product	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
and total	40,238	32,687	64,264	$1.97
TONERS OR FULL-STRENGTH COLORS				
tal	30,456	24,191	52,674	2.18
ers, total	6,032	4,685	13,754	2.94
t Blue 1, C.I. 42 595, PMA	126	108	505	4.68
t Blue 1, C.I. 42 595, PTA	42	33	197	5.97
t Blue 9, C.I. 42 025, PTA	5	5	27	5.40
t Blue 15, C.I. 74 160, alpha modification	2,263	1,916	5,345	2.79
t Blue 15, C.I. 74 160, beta modification	1,285	1,006	3,071	3.05
t Blue 19, C.I. 42 750A	1,507	1,396	3,839	2.75
t Blue 25, C.I. 21 180	87	33	96	2.91
her	717	188	674	3.59
ners	57	35	82	2.34
ners:				
t Green 1, C.I. 42 040, PMA	7	6	30	5.00
t Green 1, C.I. 42 040, PTA	5	6	33	5.50
t Green 2, C.I. 42 040 and C.I. 49 005, PMA	41	33	172	5.21
t Green 2, C.I. 42 040 and C.I. 49 005, PTA	51	49	320	6.53
t Green 4, C.I. 42 000, PMA	8	8	26	3.25
t Green 4, C.I. 42 000, PTA	8	7	37	5.29
t Green 7, C.I. 74 260	2,168	1,782	4,198	2.36
t Green 8, C.I. 10 006	252	172	229	1.33
oners, total	555	480	1,560	3.25
t Orange 2, C.I. 12 060	...	75	107	1.43
t Orange 5, C.I. 12 075	195	157	239	1.52
t Orange 13, C.I. 21 110	74	68	221	3.25
t Orange 16, C.I. 21 160	129	115	267	2.32
her	157	65	726	11.17

otnotes at end of table.

TABLE 11A.--*Toners and lakes: U.S. production and sales, 1960*--Continued

Product	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Red toners, total	15,817	13,172	22,170
Naphthol reds, total	573	441	1,540
Pigment Red 2, C.I. 12 310	110	95	224
Pigment Red 5, C.I. 12 490	93	50	182
Pigment Red 17, C.I. 12 390	73	52	161
Pigment Red 18, C.I. 12 350	14	11	41
Pigment Red 22, C.I. 12 315	79	85	252
Pigment Red 23, C.I. 12 355	76	76	267
Other naphthol reds	128	72	413
Pigment Red 1, C.I. 12 070, dark	265	272	321
Pigment Red 1, C.I. 12 070, light	455	385	461
Pigment Red 3, C.I. 12 120	2,059	1,266	2,192
Pigment Red 4, C.I. 12 085	350	299	405
Pigment Red 6, C.I. 12 090	65	50	80
Pigment Red 38, C.I. 21 120	126	115	519
Pigment Red 48, C.I. 15 865	1,672	1,627	2,933
Pigment Red 49, C.I. 15 630, total	4,961	4,433	4,674
Barium toner	2,846	2,661	2,750
Calcium toner	1,477	1,388	1,504
Other toners and sodium salt	638	384	420
Pigment Red 52, C.I. 15 860	612	571	882
Pigment Red 53, C.I. 15 585, barium toner	1,430	1,438	1,836
Pigment Red 57, C.I. 15 850, calcium toner	735	661	999
Pigment Red 63, C.I. 15 880	60	40	78
Pigment Red 81, C.I. 45 160, PMA	91	93	571
Pigment Red 81, C.I. 45 160, PTA	98	96	617
Pigment Red 90, C.I. 45 380	1,248	507	990
All other	1,017	878	3,072
Violet toners:			
Pigment Violet 1, C.I. 45 170, PMA	17	17	94
Pigment Violet 1, C.I. 45 170, PTA	25	27	184
Pigment Violet 3, C.I. 42 535, fugitive	409	422	680
Pigment Violet 3, C.I. 42 535, PMA	326	241	674
Pigment Violet 3, C.I. 42 535, PTA	40	39	164
Yellow toners, total	4,394	2,803	7,138
Benzidine yellows:			
Pigment Yellow 12, C.I. 21 090	2,467	1,384	3,253
Pigment Yellow 13, C.I. 21 100	49	30	112
Pigment Yellow 14, C.I. 21 095	825	610	1,564
Acetoacetanisidide Yellow, dcb → aaoa	145	137	460
Other benzidine yellows	33	...	...
Hansa yellows:			
Pigment Yellow 1, C.I. 11 680	499	387	944
Pigment Yellow 3, C.I. 11 710	92	67	172
Other Hansa yellows	182	130	427
All other	102	58	206
All other toners[2]	244	207	1,129

See footnotes at end of table.

TABLE 11A.--*Toners and lakes: U.S. production and sales, 1960*--Continued

Product	Production		Sales		
	Total	Toner content	Quantity	Value	Unit value[1]
REDUCED OR EXTENDED TONERS	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
otal	5,568	1,557	5,340	8,099	$1.52
oners, reduced	213	39	224	90	.40
ners, reduced, total	2,098	539	1,889	3,222	1.71
nt Blue 1, C.I. 42 595, PMA	66	8	69	82	1.19
nt Blue 9, C.I. 42 025, PMA	4	2	4	10	2.50
nt Blue 14, C.I. 42 600, PMA	443	55	445	674	1.51
nt Blue 15, C.I. 74 160, alpha modification	868	334	755	1,322	1.75
nt Blue 15, C.I. 74 160, beta modification	116	33	86	97	1.13
ther	601	107	530	1,037	1.96
oners, reduced	6	1	5	13	2.60
oners, reduced, total	1,198	385	1,180	1,740	1.47
nt Green 1, C.I. 42 040 PMA	21	5	22	34	1.55
nt Green 2, C.I. 42 040 and C.I. 49 005, PMA	11	4	12	23	1.92
nt Green 2, C.I. 42 040 and C.I. 49 005, PTA	30	6	25	49	1.96
nt Green 7, C.I. 74 260	879	291	878	1,429	1.63
ther	257	79	243	205	.84
toners, reduced	46	4	67	322	4.81
ers, reduced, total	1,116	348	1,073	1,438	1.34
hol reds, total	200	55	233	241	1.03
ment Red 23, C.I. 12 355	58	18	90	96	1.07
er naphthol reds	142	37	143	145	1.01
nt Red 1, C.I. 12 070, dark	23	3	20	7	.35
nt Red 3, C.I. 12 120	88	21	88	74	.84
nt Red 48, C.I. 15 865	309	129	274	331	1.21
nt Red 49, C.I. 15 630, barium toner	107	26	105	52	.50
nt Red 57, C.I. 15 850	31	21	28	37	1.32
nt Red 81, C.I. 45 160, PMA	113	12	105	155	1.48
nt Red 81, C.I. 45 160, PTA	35	6	27	33	1.22
ther	210	75	193	508	2.63
toners, reduced, total	284	74	272	453	1.67
nt Violet 3, C.I. 42 535, PMA	139	33	131	188	1.44
ther	145	41	141	265	1.88
toners, reduced, total	607	167	630	821	1.30
nt Yellow 12, C.I. 21 090	63	27	50	90	1.80
nt Yellow 14, C.I. 21 095	227	62	277	214	.77
ther	317	78	303	517	1.71

Product	Production	Sales		
		Quantity	Value	Unit value[1]
LAKES OR LAKED COLORS	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	4,214	3,156	3,491	$1.11
Lakes: (Natural Black 3), C.I. 75 291	88	89	78	.88
akes, total	2,270	...	...	...
nt Blue 24, C.I. 42 090	2,226	1,354	1,677	1.24
ther	44	...	...	...
lakes	19	...	...	...
lakes	...	467	185	.40

Footnotes at end of table.

TABLE 11A.--*Toners and lakes: U.S. production and sales, 1960*--Continued

Product	Production	Sales	
		Quantity	Value
LAKES OR LAKED COLORS--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Red lakes, total	958	864	931
Pigment Red 60, C.I. 16 105	173	163	237
Pigment Red 83, C.I. 58 000	101	79	242
(Acid Red 26), C.I. 16 150	583	551	246
All other	101	71	206
Violet lakes, total	96	105	236
Pigment Violet 5, C.I. 58 055	92	100	227
All other	4	5	9
Yellow lakes, total	...	234	351
(Acid Yellow 23), C.I. 19 140	215	205	288
All other	...	29	63
All other lakes[3]	568	43	33

[1] Calculated from rounded figures.
[2] Includes all black toners and unspecified green and violet toners.
[3] Includes production of all brown and orange lakes and unspecified yellow lakes, and sales of all brown lakes and unspecified blue lakes.

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

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

The abbreviations PMA and PTA stand for phosphomolybdic and phosphotungstic (including phosphotungstomolybdic) acids, respectively. The abbreviation dcb stands for 3,3′-dichlorobenzidine, and the abbreviation aaoa, for o-acetoacetanisidide.

TABLE 12.--*Toners and lakes: U.S. production and sales of selected dry, flushed, pulp, and dispersed forms, 1960*[1]

Dry, flushed, pulp, and dispersed forms	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
Blue 15, C.I. 74 160:				
orm	2,864	2,515	6,270	$2.49
ed form	984	875	996	1.14
form	4,588	3,356	4,267	1.27
rsed form	938	934	712	.76
Blue 19, C.I. 42 750A:[3]				
orm	129	128	318	2.58
ed form	3,160	2,962	3,304	1.12
form	502	445	344	.77
Blue 24, C.I. 42 090:				
orm	387	175	195	1.11
ed form	4,051	3,124	1,940	.62
Green 7, C.I. 74 260:				
orm	1,820	1,703	4,318	2.54
ed form	300	287	334	1.16
form	1,791	1,607	1,909	1.19
rsed form	543	523	449	.86
Red 3, C.I. 12 120:				
orm	1,601	1,008	1,658	1.64
ed form	1,016	673	596	.89
form	137	129	58	.45
rsed form	117	75	42	.56
Red 49, C.I. 15 630, barium toner:[4]				
orm	2,131	2,022	1,921	.95
ed form	2,066	1,922	1,023	.53
Red 49, C.I. 15 630, calcium toner:[4]				
orm	1,253	1,177	1,151	.98
ed form	925	877	499	.57
Red 49, C.I. 15 630, sodium salt:[5]				
orm	264	256	258	1.01
ed form	294	271	159	.59
Red 53, C.I. 15 585, barium toner:[4]				
orm	1,143	1,042	1,242	1.19
ed form	1,149	1,003	689	.69
Red 90, C.I. 45 380:[5]				
orm	119	99	169	1.71
ed form	2,432	1,260	1,109	.88
Violet 3, C.I. 42 535, permanent:[3]				
orm	301	241	652	2.71
ed form	258	238	298	1.25
form	11	5	5	1.00
Violet 3, C.I. 42 535, fugitive:				
orm	282	305	415	1.36
hed form	485	429	343	.80
Yellow 12, C.I. 21 090; Pigment Yellow 13, C.I. 100; Pigment Yellow 14, C.I. 21 095; and other nzidine yellows:				
orm	1,599	1,423	3,074	2.16
hed form	5,158	4,414	3,011	.68
form	643	616	301	.49
ersed form	248	245	159	.65

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

lculated from rounded figures.

ta on the dispersed form were accepted in confidence; they may not be published because publication would the operations of individual companies.

ta on the pulp and dispersed forms were accepted in confidence; they may not be published because publication reveal the operations of individual companies.

ta on the pulp form were accepted in confidence; they may not be published because publication would reveal the ions of individual companies.

Medicinal Chemicals

In this report, medicinal chemicals are divided into three major groups: (1) Benzenoid compounds, derived principally from coal tar; (2) alicyclic and heterocyclic compounds, usually derived from vegetable products and animal tissues, but sometimes also from coal tar; and (3) acyclic compounds, usually derived from petroleum and from natural gas, or from grain by fermentation. For the purposes of this report, antibiotics prepared by synthetic or by biological processes are considered to be medicinal chemicals.

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

In 1960 the total production of all the medicinal chemicals covered in this report amounted to 113.8 million pounds (see table 13A[5]), or 6.8 percent more than the output of 106.6 million pounds reported for 1959. Total sales of medicinal chemicals in 1960 amounted to 87.9 million pounds, valued at $556.9 million, compared with sales in 1959 of 87.3 million pounds, valued at $582.2 million.

Production of all cyclic medicinal chemicals in 1960 amounted to 76.5 million pounds. Of this quantity, 54.9 million pounds consisted of benzenoid medicinal chemicals and 21.6 million pounds, of alicyclic and heterocyclic medicinal chemicals. Production of acyclic medicinal chemicals was 37.3 million pounds in 1960, compared with 33.4 million pounds in 1959. In terms of quantity, acetylsalicylic acid (aspirin) was the most important medicinal chemical produced in 1960. The output in that year was 23.6 million pounds, compared with 18.1 million pounds in 1959. Production of salicylic acid in 1960 amounted to 9.3 million pounds, compared with 6.9 million pounds in 1959. Sales of salicylic acid in 1960 amounted to 7.9 million pounds, valued at $3.1 million, compared with 6.2 million pounds, valued at $2.4 million, in 1959.

In terms of value, the antibiotics--as a group--were the most important medicinal chemicals produced in 1960. Total production in 1960 of antibiotics for human or veterinary use was 3.0 million pounds, or 18.8 percent more than the 2.5 million pounds reported for 1959. Sales of antibiotics for human or veterinary use in 1960--2.3 million pounds, valued at $323.6 million--were 4.8 percent larger than those in 1959, in terms of quantity, and 1.7 percent larger, in terms of value. Production of penicillin salts for human or veterinary use in 1960 amounted to 498 trillion international units, compared with 430 trillion international units in 1959. Sales of such salts in 1960 totaled 387 trillion international units, valued at $53.4 million, compared with 371 trillion international units, valued at $57.3 million, in 1959. Production of dihydrostreptomycin amounted to 392,000 pounds in 1960, compared with 470,000 pounds in 1959; sales in 1960 were 363,000 pounds, valued at $8.2 million, compared with 492,000 pounds, valued at $13.7 million, in 1959. The output of streptomycin in 1960 amounted to 605,000 pounds, compared with 281,000 pounds reported for 1959. Production of neomycin base amounted to 30,000 pounds in 1960; sales were 30,000 pounds, valued at $4.7 million. Production of tetracycline was 287,000 pounds in 1960, compared with 307,000 pounds in 1959; sales were 256,000 pounds, valued at $69.4 million. Production in 1960 of antibiotics for animal feed supplements, food preservation, and crop spraying totaled 1.2 million pounds, compared with the 1.4 million pounds reported for 1959. Sales of these products in 1960 amounted to 1.1 million pounds, valued at $39.4 million.

Among the other important groups of medicinal chemicals produced in 1960 were the vitamins. In 1960 the combined production of vitamins--as a group--was 11.1 million pounds, compared with 10.9 million pounds in 1959. Sales of all vitamins in 1960 totaled 8.0 million pounds, valued at $68.7 million, compared with 7.3 million pounds, valued at $73.7 million, in 1959. In terms of quantity, the 1960 output of some of the more important vitamins was as follows: Ascorbic acid and derivatives, 5.3 million pounds; niacin, 2.4 million pounds; pantothenic acid and derivatives, 927,000 pounds; niacinamide, 580,000 pounds; riboflavin, 525,000 pounds; and vitamin A (alcohol and esters), 516,000 pounds (489,454 billion U.S.P. units). In terms of value of sales, vitamin A (alcohol and esters) was the most important product in the vitamin group. Sales of this medicinal chemical in 1960 totaled 383,000 pounds, valued at $24 million. Sales of ascorbic acid were 3.4 million pounds, valued at $11.1 million; those of vitamin B_{12} were 862 pounds, valued at $10.1 million.

Production of sulfa drugs in 1960 amounted to 5.1 million pounds, compared with 5.8 million pounds reported for 1959. Production of all tranquilizers was 1.2 million pounds in 1960--270,000 pounds less than the output in 1959. By far the most important tranquilizer was 2-methyl-2-n-propyl-1,3-propanediol dicarbamate, production of which totaled 989,000 pounds; sales amounted to 970,000 pounds, valued at $3.5 million.

[5] See also table 13B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 24 in appendix A, which shows imports of coal-tar medicinal chemicals and pharmaceuticals during the years 1958-60.

TABLE 13A.--*Medicinal chemicals: U.S. production and sales, 1960*

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

Chemical	Production[1]	Sales[2]		
		Quantity	Value	Unit value[3]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
and total	113,818	87,939	556,931	$6.33
MEDICINAL CHEMICALS, CYCLIC				
otal	76,519	55,042	521,486	9.47
Benzenoid				
otal	54,911	38,490	47,807	1.24
alicylic acid (Aspirin)	23,553	18,271	9,961	.55
cids	...	2	31	15.50
benzoic acid and derivatives, total	539	488	1,186	2.43
ine hydrochloride	377	391	847	2.17
ther	162	97	339	3.49
tamines	90	...	...	...
subgallate	43	34	119	3.50
ne (p-Carbamidobenzenearsonic acid)	...	4	21	5.25
edicinal	27	22	895	40.68
rcurithiosalicylic acid, sodium salt	...	1	29	29.00
thoxyphenoxy)-1,2-propanediol (Glyceryl guaiacyl)	8	6	34	5.67
lphenethylamine (Amphetamine) base	42	...	...	...
drine hydrochloride	68	59	529	8.97
phrine hydrochloride	39	35	2,200	62.86
ic acid	9,282	7,882	3,086	.39
ic acid salts, total	595	580	459	.79
m salicylate	562	535	392	.73
ther	33	45	67	1.49
rugs	5,080	...	...	...
oxy-1,2-propanediol (o-Cresyl α-glyceryl ether)	...	45	85	1.89
. K (Menadione) (2-Methyl-1,4-naphthoquinone)	14	...	...	...
er benzenoid medicinals	15,531	11,061	29,172	2.64
Alicyclic and Heterocyclic				
otal	21,608	16,552	473,679	28.62
ds and related products, total	27	19	2,630	138.42
ropine methyl bromide	1	1	51	51.00
ther	26	18	2,579	143.28
tics for human or veterinary use, total	2,969	2,328	323,589	139.00
racin	4	5	1,185	237.00
lrostreptomycin	392	363	8,241	22.70
cin, base	30	30	4,737	157.90
illin salts, total[4]	859	677	57,391	(5)
assium penicillin	271	196	29,593	(5)
caine penicillin G[4]	500	417	12,071	(5)
lium penicillin G	26	20	1,404	(5)
. other	62	44	14,323	(5)
tomycin	605	329	7,515	22.84
cycline	287	256	69,400	271.09
ther	792	668	175,120	262.16

ootnotes at end of table.

TABLE 13A.--*Medicinal chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production[1]	Sales[2]	
		Quantity	Value
MEDICINAL CHEMICALS, CYCLIC--Continued			
Alicyclic and Heterocyclic--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Antibiotics for animal feed supplements, food preservation, and crop spraying, total	1,199	1,126	39,406
Penicillin salts	[6] 122	36	659
All other	1,077	1,090	38,747
Antihistamines, total	165	106	3,155
2-[1-(p-Chlorophenyl)-3-dimethylaminopropyl]pyridine maleate (Chlorophenylpyridamine maleate)	...	4	312
2-[3-(Dimethylamino)-1-phenylpropyl]pyridine maleate	14	11	385
All other	151	91	2,458
Barbituric acid derivatives, total	852	456	2,429
5-Allyl-5-(1-methylbutyl)barbituric acid (Secobarbital) and salt	...	16	111
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid (Pentobarbital)	...	7	41
5-Ethyl-5-(1-methyl-n-butyl)barbituric acid, sodium salt	80	34	208
5-Ethyl-5-phenylbarbituric acid (Phenobarbital) (Luminal)	270	237	703
5-Ethyl-5-phenylbarbituric acid, sodium salt	17	11	42
All other	485	151	1,324
Bile acids and salts, total	282	141	1,236
Dehydrocholic acid	63	...	...
Ketocholanic acids	35	...	...
All other	184	141	1,236
Caffeine, natural and synthetic	2,034	2,000	4,176
5-Chloro-7-iodo-8-quinolinol (Iodochlorohydroxyquinoline)	11	...	...
4,7-Dichloroquinoline	30	...	...
Dihydrocodeinone bitartrate	2	2	651
5,7-Diiodo-8-quinolinol	31	...	...
Hydrocortisone alcohol and acetate	11	7	3,373
Piperazine	975	872	1,171
Piperazine derivatives	...	332	401
8-Quinolinol base	140	...	...
Theophylline base and derivatives, total	96	55	455
Theophylline ethylenediamine (Aminophylline)	35	...	...
All other	61	55	455
Tranquilizers	175	18	555
Vitamins, total	4,861	3,242	52,184
A (Alcohol and esters),[7] from all sources	516	383	23,958
B_1 (Thiamine derivatives)	328	...	...
B_2 (Riboflavin) (100%)	525	397	4,801
B_6 (Pyridoxine)	73	...	...
B_{12}, all grades[8]	1	1	10,059
D_2 (Irradiated ergosterol)	[9] 1	([9])	164
D_3 (Irradiated animal sterol)[10]	2	1	237
Niacin (Nicotinic acid) including animal feed grade	2,435	1,244	1,742
Niacinamide	580	501	1,462
All other	400	715	9,761
All other alicyclic and heterocyclic medicinals	7,748	5,848	38,268
MEDICINAL CHEMICALS, ACYCLIC			
Total	37,299	32,897	35,445
Acetylmethionine	...	4	18

See footnotes at end of table.

TABLE 13A.--*Medicinal chemicals: U.S. production and sales, 1960*-- Continued

Chemical	Production[1]	Sales[2]		
		Quantity	Value	Unit value[3]
MEDICINAL CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
cids, total	5,163	4,212	6,299	$1.50
nine	402	376	643	1.71
ther	4,761	3,836	5,656	1.47
hydrochloride	...	26	27	1.04
and salts, total	15,176	14,605	3,573	.24
ne chloride, for animal and poultry feed, and for as an intermediate	14,980	14,406	3,389	.24
ther	196	199	184	.92
lizers: 2-Methyl-2-n-propyl-1,3-propanediol bamate	989	970	3,480	3.59
s, total	6,202	4,753	16,500	3.47
bic acid and derivatives, total	5,275	4,039	13,348	3.30
orbic acid	4,487	3,382	11,085	3.28
other	788	657	2,263	3.44
thenic acid and derivatives, total	927	714	3,152	4.41
tothenic acid, dl-calcium salt	641	550	1,311	2.38
other	286	164	1,841	11.23
er acyclic medicinals	9,769	8,327	5,548	.67

e data on production are those for medicinal chemicals in bulk; they do not include finished preparations, tablets, capsules, and ampoules, which are manufactured from bulk medicinal chemicals.
cept for antibiotics, sales include only that part of the original production which is sold in undiluted or unded form including that sold in bulk and that sold in packages (tablets, ampoules, etc.). Sales of antibi- nclude all forms (both undiluted or uncompounded and diluted or compounded) including that sold in bulk and ld in packages.
lculated from rounded figures.
ported production and sales in 1960 of penicillin salts in terms of international (U.S.P.) units are shown in lowing tabulation (the conversions to international (U.S.P.) units for all penicillin salts, except procaine lin G, are based on the penicillin G standard established by the U.S. Food and Drug Administration, i.e., nits per milligram; procaine penicillin G conversion is based on 1,000 international (U.S.P.) units per am):

Chemical	Production	Sales		
		Quantity	Value	Unit value
	Billion international units	*Billion international units*	*1,000 dollars*	*Per billion international units*
enicillin salts, total	498,130	386,760	53,391	$138.05
Potassium penicillin	205,281	148,684	25,593	172.13
Procaine penicillin G	227,022	189,138	12,071	63.82
Sodium penicillin	19,768	15,418	1,404	91.06
All other	46,059	33,520	14,323	427.30

ıction and sales of procaine penicillin G for 1958 and 1959, based on 1,000 international (U.S.P.) units per am, were as follows: 1958 production, 452,267 pounds, sales, 473,242 pounds, valued at $18,795,000; 1959 pro- ı, 510,109 pounds, sales, 446,579 pounds, valued at $14,732,000.
ommercial sales are based on international (U.S.P.) units.
ıe reported production of penicillin salts, used principally for animal feed supplements, amounted to approx- 92 trillion units in 1960.
ıantities reported in units have been converted to pounds by using as a conversion factor the average number ernational (U.S.P.) units per pound for the medicinal grade, as determined by the U.S. Food and Drug Adminis- ı. Production of vitamin A alcohol and esters from all sources totaled 489,454 billion U.S.P. units; sales l 361,408 billion U.S.P. units.
oduction of vitamin B_{12}, all grades, totaled 1,073 pounds; sales totaled 862 pounds.
oduction of vitamin D_2 totaled 16,100 billion U.S.P. units; sales totaled 8,392 billion U.S.P. units. Calcu- ıt the rate of 18.14 billion units per pound, production totaled 888 pounds and sales totaled 463 pounds.
oduction of vitamin D_3 totaled 39,584 billion U.S.P. units; sales totaled 13,534 billion U.S.P. units. Calcu- ıt the rate of 18.14 billion units per pound, production totaled 2,182 pounds and sales totaled 746 pounds.

Flavor and Perfume Materials

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

The flavor and perfume materials covered in this report are grouped as either cycl acyclic materials, according to their chemical structure. Cyclic materials are further fied as (1) benzenoid and naphthalenoid, and (2) terpenoid, heterocyclic, and alicyclic. on production and sales of flavor and perfume materials in 1960 are given in table 14A.[6]

Production of flavor and perfume materials as a group totaled 55 million pounds--9 cent more than the 1959 output of 50 million pounds. Sales in 1960 amounted to 47 millic pounds, valued at $60 million, compared with 45 million pounds, valued at $57 million,

TABLE 14A.--*Flavor and perfume materials: U.S. production and sales, 1960*

[Listed below are all synthetic organic flavor and perfume materials for which any reported data on produ sales may be published. (Leaders are used where the reported data are accepted in confidence and may no lished or where no data were reported.) Table 14B in pt. III lists alphabetically all flavor and perfum for which data on production or sales were reported and identifies the manufacturer of each]

Material	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Grand total	55,288	47,061	60,103
FLAVOR AND PERFUME MATERIALS, CYCLIC			
Total	33,027	25,781	37,393
Benzenoid and Naphthalenoid			
Total	15,643	14,230	18,078
4-Allylveratrole (Eugenyl methyl ether)	14	...	...
Anethole (p-Propenylanisole)	734	...	...
p-Anisaldehyde (p-Methoxybenzaldehyde)	662	513	784
Benzophenone[2]	320	280	284
Benzyl acetate	1,130	978	504
Benzyl alcohol[2 3]	1,115	983	457
Benzyl benzoate[3]	187	179	106
Benzyl cinnamate	3	3	10
Benzyl propionate	17	14	17
Benzyl salicylate	84	90	118
Cinnamaldehyde	564	503	251
Cinnamyl alcohol	114	122	177
2-Ethoxynaphthalene (Ethyl β-naphthyl ether)	7	6	14
Ethyl α,β-epoxy-β-methylhydrocinnamate	10	7	28
Eugenol	222	208	371
Isobutyl phenylacetate	22	23	21
Isobutyl salicylate	52	39	28
Isoeugenol	90	72	231
Isopentyl salicylate (Amyl salicylate)	343	334	199
p-Isopropyl-α-methylhydrocinnamaldehyde (Cyclamen aldehyde)	172	114	419
4′-Methoxyacetophenone	20	10	20
Methyl anthranilate	76	66	139
α-Methylbenzyl acetate	24	...	...
Methyl salicylate (Synthetic wintergreen oil)	3,408	3,184	1,768
α-Pentylcinnamaldehyde (α-Amylcinnamaldehyde)	424	350	488
Phenethyl acetate	69	58	64
Phenethyl isobutyrate	4	4	11
2-Phenoxyethyl isobutyrate	2	2	12
4-Propenylveratrole (Isoeugenyl methyl ether)	7	7	32
All other benzenoid and naphthalenoid materials	5,747	6,081	11,525

See footnotes at end of table.

[6] See also table 14B, pt. III, which lists these products alphabetically and identifies the manufacturers, and table 24 in ap which shows imports of coal-tar flavor and perfume materials during the years 1958-60.

TABLE 14A.--*Flavor and perfume materials: U.S. production and sales, 1960*--Continued

Material	Production	Sales		
		Quantity	Value	Unit value[1]
FLAVOR AND PERFUME MATERIALS, CYCLIC—Continued				
Terpenoid, Heterocyclic, and Alicyclic	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
otal	17,384	11,551	19,315	$1.67
acetate	58	70	124	1.76
(Geranial)	84	81	269	3.33
llol	508	337	574	1.70
llyl formate	23	20	58	2.94
n	672	697	1,927	2.76
xyhydrate	39	34	31	.90
l	457	235	326	1.39
acetate	49	34	60	1.76
formate	...	2	7	4.21
umarin (3,4-Dihydrocoumarin)	18	14	65	4.63
citronellal	286	219	888	4.06
citronellal, dimethyl acetal	5	4	17	4.79
, total	329	278	1,016	3.65
one	44	17	86	5.09
one	198	170	623	3.66
e (α and β)	87	91	307	3.37
yl acetate	709	668	282	.42
l	260	202	546	2.70
acetate	262	183	483	2.65
, synthetic, tech. and U.S.P	323	306	1,493	4.88
onones	345	314	1,477	4.70	
	19	11	75	6.77
al (Heliotropin)	276	225	550	2.45
l	14	11	525	46.21
ols	3,144	2,844	746	.26
l acetate	560	599	269	.45
yl acetate	16	10	267	27.54
er terpenoid, heterocyclic, and alicyclic materials[4]	8,928	4,153	7,240	1.75
FLAVOR AND PERFUME MATERIALS, ACYCLIC				
otal	22,261	21,280	22,710	1.07
exanoate (Allyl caproate)	7	6	15	2.40
utyrate	167	188	125	.66
c acid, monosodium salt (Monosodium glutamate)	21,640	20,660	21,567	1.04
xyundecanoic acid, γ-lactone (γ-Undecalactone)	9	5	23	4.51
yl butyrate (Amyl butyrate)	44	40	28	.70
isobutyrate	8	6	4	.65
er acyclic materials	386	375	948	2.53

culated from the unrounded figures.
ludes some technical grade.
ludes some medicinal grade.
ludes chemically modified essential oils.

roduction of cyclic flavor and perfume materials in 1960 amounted to 33 million pounds--
ercent more than the 30 million pounds reported for 1959. Sales of cyclic flavor and per-
materials in 1960 were 26 million pounds, valued at $37 million, compared with 24 million
s, valued at $34 million, in 1959. The individual chemical in the cyclic group that was
ced in the greatest volume in 1960 was methyl salicylate (3 million pounds).
he output of acyclic flavor and perfume materials in 1960 amounted to 22.3 million
s--7.9 percent more than the 20.6 million pounds reported for 1959. By far the most important
acyclic materials was monosodium glutamate, production of which totaled 21.6 million
s. Sales of acyclic flavor and perfume materials in 1960 amounted to 21.3 million pounds,
l at $22.7 million, compared with 21.1 million pounds, valued at $22.1 million, in 1959.

Plastics and Resin Materials

lastics and resin materials are condensation or polymerization products of organic chem-
contain necessary fillers, plasticizers, and extenders. At some stage in their manufac-
hey exist in such physical condition that they can be shaped or processed by the application
t and pressure. Some types of plastics may be molded, cast, or extruded into finished or
inished forms. Other types are used as adhesives, for the treatment of textiles and paper,
r protective coatings. Still other types of plastics materials may be processed into sheets,

rods, and tubes, which are further manufactured into finished articles. Except for vinyl the statistics given in the following tables are based on the total weight of the materials, ing liquids. Statistics on vinyl resins are given on the basis of resin content.

Statistics on production and sales of plastics and resins in 1960 are given in table 1 cording to chemical composition, and in table 16 according to broad end uses. In 1960 tl production of all synthetic plastics and resin materials (except cellulosics) amounted to million pounds, or 4.7 percent more than the 5,865 million pounds reported for 1959. S amounted to 5,347 million pounds, valued at $1,653 million, in 1960, compared with 5, lion pounds, valued at $1,640 million, in 1959.

TABLE 15A.--*Plastics and resin materials: U.S. production and sales, by chemical composition,*

[Quantities and values are given in terms of the total weight of the materials (dry basis). Listed below a plastics and resin materials for which any reported data on production or sales may be published. Table III lists all plastics and resin materials for which data on production or sales were reported and ident manufacturer of each]

Material	Production	Sales		Un
		Quantity	Value	
	1,000 pounds, dry basis[2]	*1,000 pounds, dry basis*[2]	*1,000 dollars*	
Grand total	6,142,649	5,346,794	1,652,788	
PLASTICS AND RESIN MATERIALS, BENZENOID				
Total	2,716,094	2,227,866	627,516	
Coumarone-indene and petroleum polymer resins	264,859	275,539	29,362	
Epoxy resins:				
Unmodified (condensation products of phenol and derivatives with epoxy compounds)	57,952	51,166	31,545	
Modified (with hardening agents and esterified with fatty acids)	8,259	2,160	1,407	
Phenolic and other tar-acid resins, total	650,808	531,244	146,567	
Unmodified, total	533,007	464,717	127,591	
Cresols-formaldehyde	7,314	3,173	1,314	
Cresylic acid-formaldehyde	7,723	2,192	623	
Phenol(and substituted phenols)-formaldehyde	496,558	443,047	118,264	
Resorcinol-formaldehyde	1,259	1,305	1,224	
All other	20,153	15,000	6,166	
Modified, total	117,801	66,527	18,976	
Phenol(and substituted phenols)-formaldehyde with modifiers (except rosin)	66,508	21,296	5,364	
Rosin and rosin esters modified with phenolic and other tar-acid resins (hard resins)	34,117	28,908	7,299	
All other	17,176	16,323	6,313	
Phthalic alkyd resins, total	464,724	200,407	67,386	
Unmodified	345,778	143,738	48,238	
Modified	118,946	56,669	19,148	
Polyester resins[3]	189,530	171,631	69,465	
Polyurethane and diisocyanate resins	5,281	3,837	3,453	
Styrene resins, total	1,061,737	979,632	271,686	
Polystyrene	686,390	652,389	154,812	
Styrene-acrylonitrile copolymer	36,486	31,428	10,762	
Styrene-alkyd polyesters (for protective coatings)	29,731	21,690	9,100	
Styrene-butadiene copolymer (containing 50% or more styrene), total	209,462	187,605	62,242	
Latexes	134,072	123,910	34,485	
Other	75,390	63,695	27,757	
Styrene-divinylbenzene copolymer	22,267	21,022	13,702	
All other styrene resins	77,401	65,498	21,068	
All other benzenoid plastics and resin materials[4]	12,944	12,250	6,645	

See footnotes at end of table.

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

15A.--*Plastics and resin materials: U.S. production and sales, by chemical composition, 1960*--Continued

Material	Production	Sales		
		Quantity	Value	Unit value[1]
PLASTICS AND RESIN MATERIALS, NONBENZENOID	*1,000 pounds, dry basis* [2]	*1,000 pounds, dry basis* [2]	*1,000 dollars*	*Per pound*
tal	3,426,555	3,118,928	1,025,272	$0.33
formaldehyde resins	374	367	145	.40
sins, except phthalic, total	91,676	67,685	22,566	.33
fied	37,056	29,619	12,589	.43
ed, total	54,620	38,066	9,977	.26
n and rosin esters, modified with maleic and fumaric ids only (hard resins)	49,171	36,421	9,415	.26
other	5,449	1,645	562	.34
amide resins	2,370	2,296	703	.31
e resins	36,538	29,319	29,601	1.01
lene resins, total	1,337,160	1,195,018	342,544	.29
ressure process	1,112,683	1,028,106	288,001	.28
essure process	224,477	166,912	54,543	.33
ylene resins	40,949	34,770	14,208	.41
ifications, total	66,354	64,068	13,546	.21
adduct resins	3,301	1,909	444	.23
and rosin esters, unmodified (ester gums), total	56,746	56,415	11,649	.21
rified with glycerol	24,702	24,148	5,238	.22
rified with other alcohols (methanol, glycols, ntaerythritol, etc.)	32,044	32,267	6,411	.20
her	6,307	5,744	1,453	.25
resins	5,125	4,625	13,067	2.83
melamine resins, total	398,989	363,250	105,456	.29
ne-formaldehyde type	130,804	116,875	52,254	.45
ormaldehyde type	268,185	246,375	53,202	.22
l vinyl copolymer resins (resin content), total	1,202,970	1,129,844	329,112	.29
nyl acetate	156,298	133,103	45,938	.35
nyl alcohol	34,725	22,967	14,203	.62
nyl chloride and copolymer resins (containing 50% ore polyvinyl chloride)	935,508	900,431	208,550	.23
her vinyl resins[5]	76,439	73,343	60,421	.82
r nonbenzenoid plastics and resin materials[6]	244,050	227,686	154,324	.68

lated from rounded figures.
the purposes of this report, "dry basis" is defined as the total weight of the material, *including* resin, zers, fillers, extenders, colors, and stabilizers, and *excluding* water, solvents, and other liquid diluents.
the purposes of this report, polyester resins include unsaturated alkyds copolymerized with monomers such as and polyallyl resins such as diallyl phthalate and allyl diglycol carbonate. Styrene-alkyd polyesters for ve coatings are included under "Styrene resins."
ides data for aniline-formaldehyde, toluenesulfonamide, and other benzenoid plastics and resin materials not ally classified.
ides data for polyvinyl alcohol, butyral, and formal, and for copolymers containing less than 50% polyvinyl .
ides data for acrylic and other nonbenzenoid plastics and resin materials.

tal production of benzenoid plastics and resins was 2,716 million pounds in 1960--slightly than the output of 2,646 million pounds reported for 1959. Sales in 1960 amounted to million pounds, valued at $628 million. Of the benzenoid group, styrene resins were pro- in the largest volume in 1960, as in previous years. The output of styrene resins in 1960 062 million pounds; sales totaled 980 million pounds, valued at $272 million. Second in of output in the benzenoid group in 1960 were the phenolic and other tar-acid resins. tion of these resins in 1960 was 651 million pounds; sales amounted to 531 million pounds, at $147 million. The phthalic alkyd resins, used principally in the manufacture of protec- atings, were third in volume of production in the benzenoid group; production in 1960 ed to 465 million pounds. The output of epoxy resins in 1960 was 66 million pounds; that ester resins was 190 million pounds.

Production of nonbenzenoid plastics and resins in 1960 amounted to 3,427 million p compared with the 3,219 million pounds reported for 1959. Sales of these resins in 196 amounted to 3,119 million pounds, valued at $1,025 million, compared with 2,970 milli pounds, valued at $1,034 million, in 1959. Of the nonbenzenoid group, polyethylene res produced in the largest volume in 1960. The output of polyethylene resins amounted to 1 million pounds in 1960, compared with 1,195 million pounds in 1959. Sales of polyethyl in 1960 totaled 1,195 million pounds, valued at $343 million, compared with 1,116 mill pounds, valued at $355 million, in 1959. In this report, statistics are given for product sales of polyethylene resins produced by both the high-pressure and the low-pressure p The output of vinyl resins in 1960, which ranked next to that of polyethylene resins, am 1,203 million pounds, compared with 1,166 million pounds in 1959. Sales of vinyl resin totaled 1,130 million pounds, valued at $329 million, compared with 1,102 million poun ued at $340 million, in 1959.

TABLE 16.--*Plastics and resin materials: U.S. production and sales, by classes and uses, 19*

[In thousands of pounds, dry basis[1]]

Material	Production
Cellulose plastics, total	142,573
Cellulose acetate and mixed esters:	
Sheets, continuous, under 0.003 gage	18,562
Sheets, continuous, 0.003 gage and over	22,346
All other sheets, rods, and tubes (including other cellulose plastics)	9,300
Molding and extrusion materials (including other cellulose plastics)	91,217
Nitrocellulose sheets, rods, and tubes	1,148
Phenolic and other tar-acid resins, total	650,808
Molding materials	207,195
Bonding and adhesive resins for--	
Laminating	71,703
Coated and bonded abrasives	14,653
Friction materials	22,069
Thermal insulation	84,145
Plywood	70,529
All other bonding and adhesive uses	70,755
Protective coatings:	
Unmodified	23,576
Modified, except by rosin	3,231
Rosin esters modified by phenolic and other tar-acid resins (hard resins)	32,533
Resins for all other uses	50,419
Urea and melamine resins, total	398,989
Textile-treating and textile-coating resins	44,827
Paper-treating and paper-coating resins	32,019
Bonding and adhesive resins for--	
Laminating	35,425
Plywood	92,334
All other bonding and adhesive uses	30,979
Protective coating resins, straight and modified	41,244
Resins for all other uses, including molding	122,161
Styrene resins, total	1,061,737
Molding materials:	
Straight polystyrene	351,987
All other	379,391
Protective-coating resins, straight and modified[2]	76,045
Textile and paper treating and coating resins	70,434
Resins for all other uses	183,880
Vinyl and vinyl copolymer resins (resin content), total	1,202,970
Polyvinyl chloride and copolymer resins (containing 50% or more polyvinyl chloride) for--	
Film (under 0.010 gage)	...
Sheeting (0.010 gage and over)	...
Molding and extrusion	...
Textile and paper treating and coating	...
Flooring	...
Protective coatings	...
All other uses	...
All other vinyl resins for--	...
Adhesives	
Protective coatings	...
All other uses	...
	...

See footnotes at end of table.

3LE 16.--*Plastics and resin materials*: *U.S. production and sales, by classes and uses, 1960*--Continued

[In thousands of pounds, dry basis[1]]

Material	Production	Sales
:sins, total	556,400	268,092
:otective coatings:		
ıalic anhydride types:		
ımodified	352,207	143,025
:dified	108,694	54,808
/basic acid types:		
ımodified	13,251	6,073
:dified (except by rosin)	9,275	5,493
:sin esters modified with maleic and fumaric acids only (hard resins)	37,852	26,515
ıl other uses	35,121	32,178
:ters:		
lfied (ester gums) for protective coatings	21,660	20,893
:her modifications for protective coatings and other uses	49,635	47,167
ıe-indene and petroleum polymer resins	264,859	275,539
:r resins, total	189,530	171,631
:inforced plastics	152,946	140,800
ll other uses	36,584	30,831
ylene resins, total	1,337,160	1,195,018
ilm and sheeting	...	386,837
ıg materials	...	165,807
:ion materials	...	155,991
ll other uses	...	486,383
pylene	40,949	34,770
esins, total	66,211	53,326
rotective coatings	17,672	22,655
ll other uses	48,539	30,671
e resins	5,125	4,625
aneous plastics and resin materials[3]	293,765	258,429

the purposes of this report, "dry basis" is defined as the total weight of the material, *including* that of plasticizers, fillers, extenders, colors, and stabilizers, and *excluding* that of water, solvents, and other diluents.
ludes data for styrene-alkyd polyester resins.
ludes data for acrylic, toluenesulfonamide, and other plastics and resin materials.

--The figures in the above table are based on the Tariff Commission's monthly reports on the production and f synthetic plastics and resin materials. While the group totals are in substantial agreement with those n table 15A, they are partially estimated, and may not be correlated exactly with those given in that table. a given in the above table are more nearly complete than those given in the Tariff Commission's release for 1961, which gave a summation of the data reported by months for 1960. Changes in classification and an in- in coverage on some products result in some differences between the detail figures given in the above table se given in the January 1961 release.

he output of urea and melamine resins in 1960 was 399 million pounds. Sales of these res- nounted to 363 million pounds, valued at $105 million. Other important resins in the non- noid group are the acrylic, polyamide, silicone, and nonphthalic alkyd resins.
he statistics shown in table 16 on the production and sales of plastics and resins, by uses, compiled principally from the Tariff Commission's monthly surveys on production and of synthetic plastics and resin materials. The largest single use reported for plastics ma- s in 1960, as in previous years, was for the molding and extrusion of finished and semi- ed articles. Other important uses for which statistics are shown are for adhesives, nent of textiles and paper, protective coatings, and bonding materials.
roduction of cellulose plastics as a group amounted to 143 million pounds in 1960. Sales in vere 140 million pounds, compared with 152 million pounds in 1959.

Rubber-Processing Chemicals

ubber-processing chemicals are organic compounds that are added to natural and synthetic rs to give them qualities necessary for their conversion into finished rubber goods. In this t, statistics are given for cyclic and acyclic compounds by use--such as accelerators,

antioxidants, and peptizers. Statistics on production and sales of rubber-processing ch in 1960 are given in table 17A.[8]

Production of rubber-processing chemicals as a group in 1960 amounted to 200 mi pounds, or 5.0 percent less than the 210 million pounds reported for 1959. The smalle output of rubber-processing chemicals in 1960 is attributable principally to decreased tion of cyclic and acyclic accelerators. Sales of rubber-processing chemicals in 1960 to 153 million pounds, valued at $101 million, compared with 159 million pounds, valu million, in 1959.

The output of cyclic rubber-processing chemicals in 1960 amounted to 171 million or 4.1 percent less than the 178 million pounds reported for 1959. Sales were 130 mill pounds, valued at $85 million, in 1960, compared with 134 million pounds, valued at $8 in 1959. Of the total output of cyclic rubber-processing chemicals in 1960, accelerator counted for 38.9 percent and antioxidants, for 44.7 percent. Production of antioxidants amounted to 76.2 million pounds in 1960, included 60.5 million pounds of amino compo 15.7 million pounds of hydroxy compounds. In 1959 the output of amino antioxidants am to 41.7 million pounds and that of hydroxy antioxidants, to 17.2 million pounds. Sales c antioxidants in 1960 were 51.5 million pounds, valued at $32.7 million; sales of hydrox oxidants were 10.0 million pounds, valued at $9.2 million.

Production of acyclic rubber-processing chemicals in 1960 amounted to 29.3 milli pounds, compared with the 32.5 million pounds reported for 1959. Sales in 1960 totaled million pounds, valued at $16.5 million, compared with 24.7 million pounds, valued at million, in 1959. Accelerators, principally dithiocarbamic acid derivatives and tetram thiuram sulfides, accounted for about 59.9 percent of the output of acyclic rubber-proc chemicals in 1960. Peptizers and modifiers--chiefly dodecyl mercaptans, together with cating and conditioning agents--accounted for approximately 37.8 percent of the output acyclic group.

TABLE 17A.--*Rubber-processing chemicals: U.S. production and sales, 1960*

[Listed below are all rubber-processing chemicals for which any reported data on production or sales may lished. Table 17B in pt. III lists separately all rubber-processing chemicals for which data on product sales were reported and identifies the manufacturer of each]

Chemical	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Grand total	199,759	152,536	101,038
RUBBER-PROCESSING CHEMICALS, CYCLIC			
Total	170,465	130,155	84,563
Accelerators, total	66,285	43,426	26,442
Aldehyde-amines	2,206	1,457	1,287
Dithiocarbamic acid derivatives	283	212	338
Thiazole derivatives, total	55,602	33,664	18,383
N-Cyclohexyl-2-benzothiazolesulfenamide	5,710	5,156	3,425
2,2'-Dithiobis(benzothiazole)	17,542	10,075	5,026
2-Mercaptobenzothiazole	7,236	4,397	1,826
2-Mercaptobenzothiazole, zinc salt	3,467	2,688	1,198
All other[2]	21,647	11,348	6,908
All other accelerators	8,194	8,093	6,434
Antioxidants (amino and hydroxy compounds), total[3]	76,173	61,511	41,820
Amino compounds, total	60,446	51,474	32,651
N,N'-Diphenyl-p-phenylenediamine	2,264	2,150	1,896
All other	58,182	49,324	30,755
Hydroxy compounds, total	15,727	10,037	9,169
Phenol, alkylated	7,236	3,028	1,775
All other	8,491	7,009	7,394
Blowing agents	3,650	3,416	3,347
Peptizers	4,769	4,215	3,461
All other cyclic rubber-processing chemicals[4]	19,588	17,587	9,493

See footnotes at end of table.

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

TABLE 17A.--*Rubber-processing chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
RUBBER-PROCESSING CHEMICALS, ACYCLIC	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
tal	29,294	22,381	16,475	$0.74
tors, total	17,538	11,772	10,961	.93
carbamic acid derivatives, total[5]	11,169	6,618	6,125	.93
tyldithiocarbamic acid, zinc salt	1,042	982	1,099	1.12
hyldithiocarbamic acid, zinc salt	1,437	896	790	.88
thyldithiocarbamic acid, potassium salt	367	71	37	.52
thyldithiocarbamic acid, sodium salt	4,010	2,363	1,795	.76
other	4,313	2,306	2,404	1.04
ms, total[6]	6,176	5,065	4,740	.94
dimethylthiocarbamoyl)disulfide	4,472	3,563	3,141	.88
other	1,704	1,502	1,599	1.06
her accelerators	193	89	96	1.08
agents	688	457	752	1.65
's, modifiers, and conditioning and lubricating its, total	11,068	10,152	4,762	.47
'l mercaptans	9,488	8,913	4,239	.48
;her	1,580	1,239	523	.42

ulated from rounded figures.
ludes small quantities produced and sold for uses other than rubber processing.
a on production and sales of aldehyde and acetone amine antioxidants are included below in "All other cyclic processing chemicals."
ludes aldehyde and acetone amines, inhibitors, modifiers, stabilizers, and tackifiers.
a on dithiocarbamates included in this table are for materials used chiefly in the processing of natural and tic rubbers. Data on dithiocarbamates which are used as fungicides are reported in the section "Pesticides and ganic Agricultural Chemicals."
ludes data for small amounts of tetramethylthiuram sulfides for uses other than in the processing of natural thetic rubbers.

Elastomers (Synthetic Rubbers)

he synthetic-rubber industry in the United States developed largely as the result of short- of natural rubber during World War II. During the war several types of elastomers were oped and produced on a large scale. The most important of these was the styrene-butadiene mer, or S-type elastomer, a general-purpose material used in the manufacture of automo- res and other rubber goods. Other types of elastomers, which are more specialized as to include the nitrile type, or N-type; neoprene; polyalkalene sulfide; and silicone elastomers.
he total domestic output of all types of elastomers in 1960 amounted to 2,952 million s, representing a slight increase over the 2,825 million pounds reported for 1959. Sales of mers covered by this report amounted to 2,551 million pounds, valued at $698 million, in compared with 2,601 million pounds, valued at $693 million, in 1959. Statistics on pro- n and sales of elastomers are given in table 18A.[9]
roduction of cyclic elastomers, which consisted chiefly of the polybutadiene-styrene type e), amounted to 2,283 million pounds in 1960, compared with 2,213 million pounds in 1959. of these elastomers amounted to 1,949 million pounds, valued at $469 million, in 1960, ared with 2,006 million pounds, valued at $463 million, in 1959. Data on production of poly- ane type elastomers also are shown separately; production of such elastomers in 1960 to- 6.8 million pounds.
he output of acyclic elastomers, including neoprene, butyl, N-type, silicone, and other , amounted to 669 million pounds in 1960, compared with 613 million pounds in 1959-- senting an increase of 9.2 percent. Sales of these elastomers amounted to 602 million s, valued at $229 million, in 1960, compared with 594 million pounds, valued at $230 mil- in 1959. Production of silicone elastomers in 1960 totaled 4.9 million pounds.

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

TABLE 18A.--*Elastomers (synthetic rubbers):*[1] *U.S. production and sales, 1960*

[Listed below are all elastomers (synthetic rubbers) for which reported data on production or sales may b lished. (Leaders are used where the reported data are accepted in confidence and may not be published c data were reported.) Table 18B in pt. III lists alphabetically all elastomers for which data on product sales were reported and identifies the manufacturer of each]

Product	Production	Sales	
		Quantity	Value
	1,000 pounds[3]	*1,000 pounds*[3]	*1,000 dollars*
Grand total	2,952,390	2,550,707	698,421
ELASTOMERS, CYCLIC			
Total	2,283,190	1,949,089	469,258
Polybutadiene-styrene type (S-type)	2,262,646	1,935,113	458,195
Polybutadiene-styrene-vinylpyridine type	13,746	7,284	4,740
Polyurethane type	6,798	6,692	6,323
ELASTOMERS, ACYCLIC			
Total	669,200	601,618	229,163
Polybutadiene-acrylonitrile type (N-type)	84,894	72,594	34,788
Polychloroprene type (Neoprene)	301,150	...	...
Polyisobutylene-isoprene type (Butyl)	219,408	...	...
Silicone type	4,940	4,630	18,550
All other[4]	58,808	524,394	175,825

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

[2] Calculated from rounded figures.

[3] Elastomer-content basis.

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

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

Plasticizers

Plasticizers are organic chemicals that are added to synthetic plastics and resin n to (1) improve workability during fabrication; (2) extend or modify the natural propertie resins; or (3) develop new, improved properties not present in the original resins. Pla reduce the viscosity of the resins and make it easier to shape and form them at high te tures and pressures. They also impart flexibility and other desirable properties to the product. Statistics on production and sales of plasticizers are given in table 19A.[10]

Total U.S. production of all plasticizers in 1960 amounted to 602 million pounds--a high--compared with the 539 million pounds reported for 1959. Part of the increased ou 1960 is accounted for by more complete coverage of producing firms. Sales in 1960 of t ticizers covered by this report amounted to 500 million pounds, valued at $149 million, pared with 476 million pounds, valued at $142 million, in 1959.

Production of cyclic plasticizers in 1960, which consisted chiefly of phthalic anhyd phosphoric acid esters and complex polymeric type materials, amounted to 445 million compared with 403 million pounds in 1959. Sales of cyclic plasticizers in 1960 amounte million pounds, valued at $104 million, compared with 362 million pounds, valued at $9 lion, in 1959. The principal types of plasticizers included in the cyclic group are the e phthalic anhydride and phosphoric acid, and certain complex polymeric type materials.

Production of acyclic plasticizers in 1960 amounted to 157 million pounds, compare the 136 million pounds reported for 1959. Sales of acyclic plasticizers in 1960 amounte million pounds, valued at $45 million, compared with 115 million pounds, valued at $44 in 1959. The principal products included in the acyclic class are esters of adipic, azela phosphoric, sebacic, and stearic acids, and complex polymeric type plasticizers.

[10] See also table 19B, pt. III, which lists these products alphabetically and identifies the manufacturers.

TABLE 19A.--*Plasticizers: U.S. production and sales, 1960*

below are all plasticizers for which reported data may be published. (Leaders are used where the reported ıre accepted in confidence and may not be published or where no data were reported.) Table 19B in pt. III all plasticizers for which data on production or sales were reported and identifies the manufacturer of

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
ɔand total	602,135	500,282	148,604	$0.30
PLASTICIZERS, CYCLIC				
ɔtal	444,744	384,094	103,308	.27
ɔic acid esters:				
. diphenyl phosphate[2]	12,874	11,683	3,286	.28
ɔsyl phosphate[2]	32,485	21,796	6,496	.30
ɔnyl phosphate	9,466	...	...	...
ɔ anhydride esters, total	344,741	307,423	79,334	.26
decyl phthalate	4,752	4,705	1,134	.24
octyl phthalate	13,190	12,397	3,059	.25
ɣl phthalate	18,946	15,651	4,172	.27
Lohexyl phthalate	5,777	...	...	...
ɔnoyl phthalate (Dicapryl phthalate)	4,364	4,524	1,179	.26
ɣl phthalate	16,767	11,573	2,738	.24
ɔecyl phthalate	35,538	31,482	8,143	.26
methoxyethyl) phthalate	3,855	3,282	1,185	.36
ɔyl phthalate	3,386	3,276	812	.25
ɣl phthalates, total	170,220	153,316	38,155	.25
2-ethylhexyl) phthalate	123,396	109,240	27,286	.25
ɔo-octyl phthalates and mixtures	46,824	44,076	10,869	.25
ɔecyl phthalate	582	496	162	.33
decyl phthalates, total	16,343	15,401	4,066	.26
-octyl isodecyl phthalate	6,276	5,099	1,212	.24
ɔtyl n-decyl phthalate	10,067	10,302	2,854	.28
ther phthalic anhydride esters	51,021	51,320	14,529	.28
ɔr cyclic plasticizers[3]	45,178	43,192	14,192	.33
PLASTICIZERS, ACYCLIC				
ɔtal	157,391	116,188	45,296	.39
acid esters, total	22,136	16,194	6,541	.40
ɔthylhexyl) adipate	3,040	1,634	641	.39
butyl adipate	...	34	14	.41
ɔecyl adipate	3,167	2,423	959	.40
-octyl adipate	4,233	2,748	1,074	.39
decyl adipate	4,983	4,890	1,908	.39
ɔx adipic acid polyesters	4,794	2,984	1,299	.44
ther	1,919	1,481	646	.44
acid esters, total	7,295	5,631	2,570	.46
ɔthylhexyl) azelate	6,304	5,631	2,570	.46
ther	991	...	...	...
maleate	5,519	...	...	...
l monoricinoleate	298	291	104	.36
ɔid esters, total	6,219	4,112	1,149	.28
oleate	1,822	666	145	.22
l oleate	664	...	...	...
ther	3,733	3,446	1,004	.29
ɔic acid esters	9,481	8,027	3,289	.41
acid esters, total	13,781	10,856	6,460	.60
ɣl sebacate	3,596	1,525	964	.63
ɔthylhexyl) sebacate	9,178	8,685	5,113	.59
ther	1,007	646	383	.59

ɔotnotes at end of table.

TABLE 19A.--*Plasticizers: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales	
		Quantity	Value
PLASTICIZERS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Stearic acid esters, total	12,288	10,606	2,991
n-Butyl stearate	3,501	3,079	740
All other	8,787	7,527	2,251
Triethylene glycol di(caprylate-caprate)	2,009	1,850	696
All other acyclic plasticizers[4]	78,365	58,621	21,496

[1] Calculated from rounded figures.
[2] Includes material produced for use as motor-fuel additive.
[3] Includes data for toluenesulfonamides, tetrahydrofurfuryl oleate, and other cyclic plasticizers.
[4] Includes data for citric and acetylcitric, tartaric, and ricinoleic acid esters, and for butyl myris
erol and glycol esters of certain fatty acids, glycerol tripropionate, complex polymeric materials, and
clic plasticizers.

Surface-Active Agents

The surface-active agents covered in this report include synthetic organic deterge
wetting, emulsifying, and dispersing agents that function in either aqueous or nonaque
tems. Soap, waxes, and plasticizers are not included. The data are reported in terms
percent active material, and thus exclude all inorganic salts, water, and diluents. Act
material is defined as the organic ingredient that provides the primary surface-active
For example, sodium alkyl aryl sulfonate activity is based on the content of the sodium
potassium alkyl aryl sulfonate activity, on the content of the potassium salt.

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

Statistics on production and sales of surface-active agents in 1960 are given in tab
Production of surface-active agents as a group totaled 1,532 million pounds in 1960, o
cent more than the 1,504 million pounds reported for 1959. Sales were 1,399 million p
valued at $278 million, in 1960, compared with 1,372 million pounds, valued at $271 million

In 1960 the production of anionic surface-active agents (sulfated and sulfonated cyc
acyclic compounds, phosphorus-containing acyclic compounds, acyclic salts of fatty ac
certain acyclic nonsulfonated nitrogen-containing compounds) amounted to 1,074 millio
(70.1 percent of the total output of surface-active agents in 1960), 6.7 million pounds
the output reported for 1959. Sales in 1960 totaled 1,046 million pounds, valued at $16
compared with 1,024 million pounds, valued at $167 million, in 1959. In volume of pro
in 1960, the principal items in the anionic group were the alkyl benzenoid type of surfa
agent (542 million pounds) and the sulfated and sulfonated acids, alcohols, and esters (
lion pounds).

Production of amphoteric and cationic surface-active agents (all cyclic and certain
nonsulfonated nitrogen-containing compounds) in 1960 was 32 million pounds; sales tota
million pounds, valued at $20 million.

In 1960 the output of all esters and ethers and those acyclic nonsulfonated nitrogen-
containing compounds generally considered to be nonionic materials totaled 426 million
Sales in 1960 totaled 322 million pounds, valued at $89 million.

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

TABLE 20A.--*Surface-active agents: U.S. production and sales, 1960*[1]

below are all surface-active agents for which reported data on production or sales may be published. rs are used where the reported data are accepted in confidence and may not be published or where no data eported.) Table 20B in pt. III lists all surface-active agents for which data on production or sales were ed and identifies the manufacturer of each]

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
	1,000 pounds	*1,000 pounds*	*1,000 dollars*	*Per pound*
ınd total	1,532,227	1,399,420	278,146	$0.20
:c and cationic	31,768	30,851	19,565	.63
	1,074,213	1,046,333	169,243	.16
	426,246	322,236	89,338	.28
SURFACE-ACTIVE AGENTS, CYCLIC				
:al	977,197	927,300	146,960	.16
ıd ethers, nonsulfonated (nonionic), total[3]	166,436	133,821	33,233	.25
lphenoxy polyethoxyethanol	19,626	13,950	3,385	.24
ıenoxy polyethoxyethanol	79,506	59,574	13,341	.22
ŗ polyethoxyethanol	280	128	50	.39
ıer	67,024	60,169	16,457	.27
-containing surface-active agents, nonsulfonated ıoteric and cationic), total[4]	8,986	8,675	6,392	.74
limethyloctadecylammonium chloride	98	70	71	1.01
lodecyldimethylammonium chloride	1,361	1,280	1,223	.96
ıer	7,527	7,325	5,098	.70
and sulfonated cyclic surface-active agents ɔnic), total	801,775	784,804	107,335	.14
ɔenzenoid compounds, sulfated and sulfonated, total	542,381	532,273	86,333	.16
lbenzenesulfonic acid	1,894	1,818	501	.28
ɔylbenzenesulfonic acid	59,781	47,800	11,271	.24
ɔylbenzenesulfonic acid, ammonium salt	4,603	4,829	674	.14
ɔylbenzenesulfonic acid, calcium salt	2,488	...	...	...
ɔylbenzenesulfonic acid, isopropylammonium salt	3,621	4,266	1,347	.32
ɔylbenzenesulfonic acid, sodium salt[5]	458,553	460,203	68,914	.15
ɔylbenzenesulfonic acid, triethanolamine salt	2,173	1,962	679	.35
ɔther	9,268	11,395	2,947	.26
derivatives, sulfonated, total	193,544	188,789	8,648	.05
ɔsulfonic acid, calcium salt	159,512	154,607	6,369	.04
ɔther	34,032	34,182	2,279	.07
alene derivatives, sulfonated, total	3,871	3,247	1,469	.45
lnaphthalenesulfonic acid, mono and di	1,413	988	623	.63
ropylnaphthalenesulfonic acid	349	252	131	.52
other	2,109	2,007	715	.36
her sulfated and sulfonated surface-active agents, tal[6]	61,979	60,495	10,885	.18
ene sulfonic acid, sodium salt	12,966	12,934	1,255	.10
ne sulfonic acid, sodium salt	13,905	13,964	1,383	.10
ɔther	35,108	33,597	8,247	.25
SURFACE-ACTIVE AGENTS, ACYCLIC				
tal	555,030	472,120	131,186	.28
nd ethers, nonsulfonated (nonionic), total	177,430	108,694	32,382	.30
lene glycol monolaurate	648	563	179	.32
lene glycol mono-oleate	172	128	38	.30
lene glycol monostearate	1,205	935	322	.34
ne glycol monostearate	439	453	169	.37
ol monococate	48	42	18	.43
ol monolaurate	77	73	30	.41
ol mono-oleate	642	537	184	.34
ol monostearate	29,136	25,940	6,694	.26
y polyethoxyethyl coconut oil ester	72	70	37	.53
hoxyethyl castor oil ether	1,393	...	...	...

otnotes at end of table.

TABLE 20A.--*Surface-active agents: U.S. production and sales, 1960*[1]--Continued

Chemical	Production	Sales	
		Quantity	Value
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued			
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Esters and ethers, nonsulfonated (nonionic)--Continued			
Polyethoxyethyl coconut oil ester	206	...	...
Polyethoxyethyl dilaurate	494	451	170
Polyethoxyethyl dioleate	1,559	589	206
Polyethoxyethyl monolaurate	2,172	1,614	698
Polyethoxyethyl mono-oleate	2,840	1,641	645
Polyethoxyethyl monostearate	2,779	2,146	865
Polyethoxyethyl oleyl ether	2,422	2,274	1,181
Polyethoxyethyl tall oil ester	26,907	17,633	3,797
Polyethoxyethyl tridecyl ether	8,051	7,527	2,238
1,2-Propanediol monostearate	1,680	1,598	539
All other	94,488	44,480	14,372
Nitrogen-containing surface-active agents, nonsulfonated (amphoteric, anionic, cationic, and nonionic), total	109,540	105,812	43,217
N-(Aminoethyl)-N-(hydroxyethyl)octadecanamide	2,405	2,347	1,676
N-(Aminoethyl)-N-(hydroxyethyl)oleamide	2,694	...	...
N,N-Bis(2-hydroxyethyl)dodecanamide	4,849	4,624	2,072
N,N-Bis(2-hydroxyethyl)octadecanamide	478	344	167
N,N-Bis(2-hydroxyethyl)oleamide	760	726	252
Coconut oil amide of bis(diethanolamine)	4,413	3,026	1,040
Coconut oil amide of mono(diethanolamine)	17,058	16,723	5,797
Coconut oil amide of diethanolamine, neither bis nor mono	4,142	3,935	1,309
N-Lauroyl sarcosine, sodium salt	2,273	2,017	5,409
Stearamide of diethylenetriamine	477	403	234
Triethanolamine oleate	189	128	44
All other[7]	69,802	71,539	25,217
Phosphorus-containing surface-active agents, nonsulfonated (anionic), total	2,027	1,506	819
Salts of fatty acids, nonsulfonated (anionic), total	11,275	11,083	2,531
Coconut oil, potassium salt	45	45	18
Potassium oleate	528	278	40
Potassium stearate	161	161	94
Potassium tallate	3,791	3,830	689
Sodium oleate	1,446	1,445	276
Sodium stearate	1,664	1,702	877
Tallow, sodium salt	1,226	1,221	147
All other	2,414	2,401	390
Sulfated and sulfonated acyclic surface-active agents (anionic), total	254,758	245,025	52,237
Acids, alcohols, esters, and ethers, sulfated and sulfonated, total	214,003	212,096	43,006
Oleic acid, sulfonated	2,632	1,484	535
Dodecyl sulfate, ammonium salt	420	428	314
Dodecyl sulfate, sodium salt	11,665	11,029	6,658
Dodecyl sulfate, triethanolamine salt	3,881	3,831	1,343
Isopropyl sulfo-oleate	606	559	175
n-Propyl sulfo-oleate	1,298	932	224
All other	193,501	193,833	33,757
Nitrogen-containing surface-active agents, sulfated and sulfonated, total	9,769	11,818	4,547
Coconut oil amide of monoethanolamine, sulfated, potassium salt	95	90	63
All other	9,674	11,728	4,484
Oils, fats, and waxes, sulfated and sulfonated, total	30,986	21,111	4,684
Animal fats and oils, sulfated and sulfonated:			
Neat's-foot oil, sulfonated	1,091	618	114
Tallow, sulfonated	7,245	5,907	746
Fish and marine-animal oils, sulfated and sulfonated:			
Cod oil, sulfonated	2,319	1,660	228
Sperm oil, sulfonated	5,313	2,694	489

See footnotes at end of table.

TABLE 20A.--*Surface-active agents*: *U.S. production and sales, 1960*[1]--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[2]
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued				
i and sulfonated acyclic surface-active agents lonic)--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
fats, and waxes, sulfated and sulfonated--Con.				
l oil, sulfonated	393	362	107	$0.30
etable oils, sulfated and sulfonated:				
astor oil, sulfonated	7,166	3,808	1,079	.28
oconut oil, sulfonated	842	474	124	.26
eanut oil, sulfonated	1,552	1,463	347	.24
ice-bran oil, sulfonated	495	...	...	...
oybean oil, sulfonated	313	277	81	.29
other oils, fats, and waxes, sulfated and ulfonated[8]	4,257	3,848	1,369	.36

a are given in terms of bulk surface-active agents--that is, in terms of 100-percent content of surface-
agents, exclusive of all inorganic salts, water, or other ingredients.
culated from rounded figures.
ludes polyhydric alcohol ethers and esters and ethoxylated alkyl phenols.
ludes quaternary ammonium compounds.
ludes tridecylbenzenesulfonic acid, sodium salt.
ludes ethoxylated alkyl phenol sulfates.
ludes amine salts of fatty acids, esters of hydroxyamines, fatty acid amines, quaternary ammonium compounds,
f nitrilo acids, and fatty acid derivatives of guanidine, glycine, polypeptides, and others.
ludes sodium salt of mixed alkane sulfonic acid and sulfonated animal, fish, and vegetable oils.

Pesticides and Other Organic Agricultural Chemicals

esticides (fungicides, herbicides, insecticides, and rodenticides) and other organic agri-
al chemicals, such as plant hormones, seed disinfectants, soil conditioners, and soil
ants, are covered in this section of the report. The data are given in terms of 100-percent
material; they thus exclude such materials as diluents, emulsifiers, synergists, and wet-
gents. Statistics on production and sales of pesticides and other organic agricultural chem-
in 1960 are given in table 21A.[12]

roduction of pesticides and other organic agricultural chemicals in 1960 amounted to 648
n pounds--10.6 percent more than the 585 million pounds reported for 1959. Sales in 1960
d 570 million pounds, valued at $262 million, compared with 503 million pounds, valued at
million, in 1959.

he output of cyclic pesticides and other chemicals included in the cyclic group amounted to
illion pounds in 1960, or 12.1 percent more than the 469 million pounds produced in 1959.
in 1960 were 455 million pounds, valued at $203 million, compared with 410 million pounds,
l at $172 million, in 1959. The chemical in this group which was produced in the greatest
ty in 1960--as in each year since it was first separately reported in 1944--was the insec-
DDT. The output of this product in 1960 amounted to 164 million pounds, a record high.

roduction of acyclic pesticides and other acyclic organic agricultural chemicals in 1960
ted to 122 million pounds, or 4.9 percent more than the 117 million pounds reported for
Sales in 1960 were 115 million pounds, valued at $59 million, compared with 93 million
s, valued at $53 million, in 1959.

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

TABLE 21A.--*Pesticides and other organic agricultural chemicals: U.S. production and sales, 1*

[Listed below are all pesticides and other organic agricultural chemicals for which any reported data on or sales may be published. (Leaders are used where the reported data are accepted in confidence and ma published or where no data were reported.) Table 21B in pt. III lists all pesticides and other organic tural chemicals for which data on production or sales were reported and identifies the manufacturer of

Product	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Grand total	647,795	570,397	261,789
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC			
Total	525,485	455,377	202,870
Fungicides, total	91,796	77,096	30,240
Mercury fungicides	885	826	2,027
Naphthenic acid, copper salt	1,932	1,885	610
Pentachlorophenol	39,336	31,613	5,596
8-Quinolinol (8-Hydroxyquinoline), copper salt	43	40	160
2,4,5-Trichlorophenol and salts	10,021	2,702	1,919
All other	39,579	40,030	19,928
Herbicides and other plant hormones, total	101,995	63,664	49,174
Phenoxyacetic acid derivatives:			
(2,4-Dichlorophenoxy)acetic acid (2,4-D)	36,185	...	...
(2,4-Dichlorophenoxy)acetic acid esters and salts, total	34,031	30,118	12,122
(2,4-Dichlorophenoxy)acetic acid, n-butyl ester	8,265	8,245	3,065
(2,4-Dichlorophenoxy)acetic acid, dimethylamine salt	5,000	5,035	2,419
(2,4-Dichlorophenoxy)acetic acid, iso-octyl ester	2,746	2,549	1,199
(2,4-Dichlorophenoxy)acetic acid, isopropyl ester	4,354	3,540	1,244
All other	13,666	10,749	4,195
(2,4,5-Trichlorophenoxy)acetic acid (2,4,5-T)	6,337	...	...
(2,4,5-Trichlorophenoxy)acetic acid esters, total	7,924	4,170	4,007
(2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester	364	224	200
(2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester	1,660	1,066	991
All other	5,900	2,880	2,816
Phenylmercury acetate (PMA)	502	383	2,331
All other	17,016	28,993	30,714
Insecticides and rodenticides, total	331,694	314,617	123,456
Chlorinated insecticides, total	306,106	291,648	96,753
Hexachlorocyclohexane (Benzene hexachloride) and lindane[2]	37,444	30,664	5,555
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)	164,180	159,534	31,542
All other	104,482	101,450	59,656
0,0-Dimethyl 0-(p-nitrophenyl) phosphorothioate (Methyl parathion)	11,794	10,262	7,898
Parathion (0,0-Diethyl 0-(p-nitrophenyl) phosphorothioate)	7,434	7,518	5,334
All other[3]	6,360	5,189	13,471
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC			
Total	122,310	115,020	58,919
Fungicides and soil fumigants, total	87,303	82,131	32,215
Bromomethane (Methyl bromide)	12,659	12,154	5,369
1,2-Dibromo-3-chloropropane	3,077	2,375	1,345
Dimethyldithiocarbamic acid, ferric salt (Ferbam)	2,529	2,679	1,065
Dimethyldithiocarbamic acid, zinc salt (Ziram)	884	818	668
Ethylene bis(dithiocarbamic acid), disodium salt (Nabam)	2,978	3,230	1,651
All other	65,176	60,875	22,117
Herbicides: Methanearsonic acid, disodium salt	477	465	452
Insecticides	19,324	16,447	16,608
All other	15,206	15,977	9,644

[1] Calculated from rounded figures.

[2] Production of the gamma isomer content in benzene hexachloride and lindane totaled 6.9 million pounds amounted to 5.7 million pounds.

[3] Includes some insect attractants and nematocides.

Miscellaneous Synthetic Organic Chemicals

s used in this report, the term "miscellaneous synthetic organic chemicals" refers to products that are not included in the use groups covered in the preceding sections of the . These miscellaneous chemicals, which account for about three-fifths of the output of all tic organic chemicals, include products that are employed in a great variety of uses; the r of chemicals used exclusively for only one purpose is not large. Among the products :d are those used for gasoline and lubricating oil additives, paint driers, photographic :als, tanning materials, flotation reagents, refrigerants, textile polymers, sequestering , organic fertilizers, antifreeze chemicals, solvents, and acyclic intermediates.

roduction of miscellaneous chemicals in 1960 amounted to 31.9 billion pounds, or 6.5 per- ıore than the output of 30.0 billion pounds reported for 1959. Sales of miscellaneous chem- n 1960 amounted to 14.0 billion pounds, valued at $2.0 billion, compared with 13.4 billion ;, valued at $2.0 billion, in 1959. Statistics on production and sales of miscellaneous :als in 1960 are given in table 22A.[13]

he total output of miscellaneous cyclic chemicals in 1960 was 793 million pounds, or 5.3 ıt more than the output of 753 million pounds reported for 1959. Sales in 1960 totaled 435 n pounds, valued at $165 million, compared with 453 million pounds, valued at $136 mil- n 1959. The most important subgroup of cyclic compounds was the lubricating oil additives, tput of which was 396 million pounds in 1960.

otal production of miscellaneous acyclic chemicals in 1960 was 31.1 billion pounds--6.5 ıt more than the output of 29.2 billion pounds reported for 1959. Sales in 1960 totaled 13.5 pounds, valued at $1.9 billion, compared with 13.0 billion pounds, valued at $1.8 billion, 9.

roduction of alcohols and halogenated hydrocarbons in 1960 each exceeded that of any of the oups of synthetic organic chemicals except cyclic intermediates and plastics and resin ials. Production of monohydric, unsubstituted alcohols totaled 6.1 billion pounds in 1960, percent more than the 5.6 billion pounds reported for 1959. Alcohols are used as sol- intermediates, and antifreeze materials and for other purposes. Production of halogenated :arbons totaled 5.4 billion pounds in 1960, an increase of 6.5 percent over the 5.1 billion s reported for 1959. Halogenated hydrocarbons are used as solvents, intermediates, and erants and for other purposes.

ıdividual chemicals, the output of which exceeded 1 billion pounds in 1960 were synthetic nol (2.0 billion pounds, compared with 1.8 billion pounds in 1959); formaldehyde (1.9 bil- ounds, compared with 1.8 billion pounds in 1959); ethyl alcohol (1.7 billion pounds, com- with 1.6 billion pounds); ethylene oxide (1.5 billion pounds, compared with 1.4 billion s); urea (1.5 billion pounds, compared with 1.3 billion pounds); ethylene glycol (1.3 billion s, compared with 1.2 billion pounds); dichloroethane (1.3 billion pounds, compared with llion pounds); isopropyl alcohol (1.2 billion pounds, compared with 1.1 billion pounds); and anhydride (1.1 billion pounds in each year).

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

TABLE 22A. --*Miscellaneous chemicals: U.S. production and sales, 1960*

[Listed below are all miscellaneous chemicals for which any reported data on production or sales may be pu
(Leaders are used where the reported data are accepted in confidence and may not be published or where n
were reported.) Table 22B in pt. III lists alphabetically all miscellaneous chemicals for which data on
or sales were reported and identifies the manufacturer of each]

Chemical	Production	Sales	
		Quantity	Value
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Grand total	31,907,848	13,960,398	2,025,490
MISCELLANEOUS CHEMICALS, CYCLIC			
Total	792,906	435,289	164,657
Benzoic acid salts: Sodium benzoate, tech. and U.S.P	5,691	5,468	1,865
Benzoyl peroxide	2,812	2,292	2,205
Cyclopropane	199	164	2,580
2,6-Di-tert-butyl-p-cresol, total	14,893	13,195	7,511
Food grade	3,803	3,402	2,226
Tech	11,090	9,793	5,285
p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	36	...	...
Flotation reagents	5,120	3,469	1,146
Gasoline additives, total[2]	6,918	6,907	7,555
N,N-Di-sec-butyl-p-phenylenediamine	...	4,390	4,528
N,N'-Disalicylidene-1,2-propanediamine	1,167	896	1,678
All other	5,751	1,621	1,349
Hexamethylenetetramine, tech	26,122	13,078	2,718
Lubricating oil additives, total	395,662	210,874	44,243
Oil-soluble petroleum sulfonate, barium salt	50,533	...	...
Oil-soluble petroleum sulfonate, calcium salt	104,640	...	...
Oil-soluble petroleum sulfonate, sodium salt	84,563	49,432	7,505
All other	155,926	161,442	36,738
Naphthenic acid salts, total[3] [4]	15,063	13,166	5,531
Calcium naphthenate	1,381	1,261	597
Cobalt naphthenate	2,720	2,365	1,727
Iron naphthenate	147	129	48
Lead naphthenate	8,245	7,280	2,209
Manganese naphthenate	1,480	1,180	489
Zinc naphthenate	832	709	325
All other	258	242	136
Photographic chemicals, total	6,448	...	...
Benzotriazole	26	22	130
p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline) - zinc chloride	110	110	277
All other	6,312	...	...
Propyl gallate	...	38	115
Rosin acid salts[3]	762	306	106
Tall oil salts, total[3]	5,392	5,352	1,872
Cobalt tallate	1,932	1,869	874
Copper tallate	72	72	17
Lead tallate	2,424	2,515	697
Manganese tallate	610	567	174
All other	354	329	110
Tanning materials, synthetic, total	34,014	33,663	6,332
2-Naphthalenesulfonic acid, formaldehyde condensate and salts	30,421	29,973	4,925
All other	3,593	3,690	1,407
All other miscellaneous cyclic chemicals	273,774	127,185	80,471

See footnotes at end of table.

TABLE 22A.--*Miscellaneous chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
Total	31,114,942	13,525,109	1,860,833	$0.14
lehyde	...	65,169	5,466	.08
acid, synthetic 100%	741,023	141,896	12,394	.09
acid salts, total	19,042	17,921	3,636	.20
ıium acetate	803	...	...	...
ssium acetate	420	512	152	.30
acetate	650	682	218	.32
other	17,169	16,727	3,266	.20
anhydride, 100%, from all sources	1,095,896	...	...	...
e, total	761,301	453,901	31,399	.07
isopropyl alcohol	612,721	333,598	23,531	.07
other	148,580	120,303	7,868	.07
c acid	...	1,020	508	.50
nitrile	229,247	183,585	41,167	.22
acid	...	40,320	12,180	.30
ls, monohydric, unsubstituted, total	6,111,006	3,008,639	215,252	.07
hols C_9 or lower, total	5,844,210	2,922,195	196,860	.07
tyl alcohols, total	622,508	254,927	32,342	.13
Normal alcohol (n-Propylcarbinol)	289,117	183,762	25,341	.14
All other	333,391	71,165	7,001	.10
hyl alcohol, synthetic[5]	1,694,843	908,211	55,347	.06
o-octyl alcohols	52,659	51,762	9,410	.18
opropyl alcohol	1,179,915	414,727	25,457	.06
thanol, synthetic	1,965,939	1,101,592	39,687	.04
and 2-Octanol	8,688	...	...	...
l other	319,658	190,976	34,617	.18
hols C_{10} and higher, total	266,796	86,444	18,392	.21
Hexadecanol (Cetyl alcohol)	1,026	563	198	.35
l other	265,770	85,881	18,194	.21
, total	368,421	102,341	38,344	.37
lamine	1,032	714	356	.50
nut oil amine	980	705	398	.56
hylamine	5,859	...	...	...
thylamine	36,671	22,103	5,803	.26
ylamine, mono	6,407	5,911	1,191	.20
lamine	381	...	...	...
ow amine, hydrogenated and dihydrogenated	3,540	2,196	899	.41
ethylamine	8,222	1,675	365	.22
other	305,329	69,037	29,332	.42
cetates, 90%	7,784	6,026	1,008	.17
chloroethyl) ether (Dichlorodiethyl ether), all es	26,619	15,396	352	.02
acetates, 90%, total	107,192	92,827	11,960	.13
al	74,369	64,723	8,920	.14
other	32,823	28,104	3,040	.11
c acid	...	310	99	.32
disulfide	522,537	441,983	21,188	.05
ose esters and ethers, total	747,674	214,355	88,987	.42
ulose acetate	522,426	...	...	...
um carboxymethylcellulose, 100%	42,660	38,310	17,711	.46
other	182,588	176,045	71,276	.40
l (Trichloroacetaldehyde)	63,504	...	...	...
acetic acid, mono	53,297	...	...	...
acetic acid, ethyl ester	1,180	...	...	...

footnotes at end of table.

TABLE 22A.--*Miscellaneous chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales	
		Quantity	Value
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride	77	84	99
3-Chloro-1,2-propanediol (Glycerol α-chlorohydrin)	44	...	...
Diethylene glycol	101,701	79,484	9,273
2-Dimethylaminoethanol	781	699	468
Dodecenylsuccinic anhydride	...	285	172
Epichlorohydrin	...	29,287	7,267
Ethanolamines, total	126,117	106,600	22,757
2-Aminoethanol (Monoethanolamine)	44,801	39,896	8,248
2,2′-Iminodiethanol (Diethanolamine)	53,458	38,281	8,556
2,2′,2″-Nitrilotriethanol (Triethanolamine)	27,858	28,423	5,953
Ethyl acetate, 85%	107,172	83,576	9,810
Ethyl acrylate	...	16,363	5,479
Ethylene glycol	1,297,301	690,805	70,799
Ethylene oxide	1,475,309	122,650	16,574
Ethyl ether, all grades	93,688	88,110	6,007
Ethyl formate	143	170	61
2-Ethylhexanoic acid (α-Ethylcaproic acid) salts, total	2,538	1,541	1,184
Calcium 2-ethylhexanoate	...	128	78
Cobalt 2-ethylhexanoate	351	321	344
Lead 2-ethylhexanoate	225	213	83
Manganese 2-ethylhexanoate	46	19	9
Zinc 2-ethylhexanoate	110	102	44
All other	1,806	758	626
2-Ethyl-1-hexyl acetate	1,016	...	...
Fatty acid esters, not included with plasticizers or surface-active agents, total	3,195	2,551	924
Isopropyl myristate	984	986	426
Isopropyl oleate	232	...	...
All other	1,979	1,565	498
Formaldehyde (37% by weight)	1,872,448	678,262	22,649
Formic acid, 90%	15,698	15,172	2,183
Formic acid salts	25,433	...	...
Fumaric acid	23,423	16,739	4,509
Halogenated hydrocarbons, total	5,392,736	2,565,456	312,378
1-Bromobutane (n-Butyl bromide)	23	...	...
Carbon tetrachloride	372,140	333,492	27,144
Chlorinated paraffins, total	34,583	34,471	4,551
35%-64% Chlorine	25,989	26,009	3,203
All other	8,594	8,462	1,348
Chlorodifluoromethane	40,275	23,769	16,603
Chloroethane (Ethyl chloride)	545,401	190,812	14,606
Chloroform, total	76,426	56,000	5,839
Tech	75,447	...	...
U.S.P	979	...	...
Chloromethane (Methyl chloride)	84,175	43,404	5,054
Dichlorodifluoromethane	166,365	163,371	48,411
Dichloroethane (Ethylene dichloride)	1,267,110	437,586	20,794
Dichloromethane (Methylene chloride)	113,145	96,232	10,413
Dichlorotetrafluoroethane	9,459	8,288	5,056
Tetrachloroethylene (Perchloroethylene)	209,408	187,210	19,396
Trichloroethylene	352,811	298,763	34,457
Trichlorofluoromethane	72,389	70,758	15,442
Trichlorotrifluoroethane	6,047	...	...
Vinyl chloride, monomer (Chloroethylene)	1,036,989	352,314	35,804
All other	1,005,990	268,986	48,808

See footnotes at end of table.

TABLE 22A.--*Miscellaneous chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value[1]
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Per pound*
ɔbic acid	233	...	...	...
ɔbic acid, sodium salt	1,318	1,102	2,853	$2.59
ɣl acetate	34,879	28,261	3,135	.11
ɣl ether	4,843	3,458	205	.06
ɜcid, 100%, total	5,475	5,214	2,245	.43
ɜ	4,462	3,988	1,842	.46
inal and tech	1,013	1,226	404	.33
ɜcid salts	602	...	...	...
chloride	9,984	...	...	...
ɔ acid salts, total[3]	466	546	174	.32
ɯm linoleate	149	157	30	.19
ɬ linoleate	101	...	...	...
ther	216	389	144	.37
ting oil additives, total	229,858	86,012	18,715	.22
ɔorodithioates (Dithiophosphates)	67,947	...	...	...
rized lard oil	1,333	...	...	...
rized sperm oil	16,819	2,546	466	.18
ther	143,759	83,466	18,249	.22
anhydride	90,128	51,710	12,223	.24
ɔacetic (Thioglycolic) acid derivatives, total	1,880	1,505	1,624	1.08
ium mercaptoacetate (Ammonium thioglycolate)	1,355	...	...	...
ther	525	1,505	1,624	1.08
acetate	12,033	12,043	542	.05
borate	225	...	...	...
ɔ acid (Caprylic acid) salts	70	...	...	...
cid salts[6]	198	177	54	.31
acid	21,293	16,292	3,299	.20
acid salts	5,751	4,879	1,196	.25
ɔ acid salts: Zinc palmitate	264	...	...	...
ythritol	64,270	54,962	16,237	.30
ythritol tetranitrate	4,442	2,465	1,902	.77
e (Carbonyl chloride)	36,603	10,434	1,173	.11
rus acid esters, not elsewhere specified	10,309	8,283	4,318	.52
ylic acid salts	1,818	1,766	1,949	1.10
ylene glycol	33,165	26,178	6,591	.25
ic acid	29,629	7,301	1,386	.19
ic acid, calcium salt	8,090	7,553	2,079	.28
ne glycol (1,2-Propanediol)	151,963	124,731	15,070	.12
ne oxide	308,747	25,343	3,480	.14
ering agents, total	20,247	15,690	6,301	.40
ihydroxyethylglycine, sodium salt	124	...	...	...
lenedinitrilo)tetraacetic acid (Ethylenediamine-raacetic acid)	2,686	1,482	800	.54
lenedinitrilo)tetraacetic acid, dihydrogen disodium t	414	461	295	.64
lenedinitrilo)tetraacetic acid, monosodium iron salt	368	304	214	.70
lenedinitrilo)tetraacetic acid, tetrasodium salt	10,287	7,332	2,757	.38
droxyethylethylenedinitrilo)triacetic acid, sodium salt	4,077	3,796	1,177	.31
ther	2,291	2,315	1,058	.46
methoxide (Sodium methylate)	4,088	...	...	...
acid salts, total[7]	25,246	24,619	9,502	.39
num stearates, total	5,108	5,411	2,072	.38
mimum distearate	3,951	4,186	1,598	.38
mimum stearate, other	1,157	1,225	474	.39

ɔotnotes at end of table.

TABLE 22A.--*Miscellaneous chemicals: U.S. production and sales, 1960*--Continued

Chemical	Production	Sales	
		Quantity	Value
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued			
	1,000 pounds	*1,000 pounds*	*1,000 dollars*
Stearic acid salts--Continued			
Calcium stearate	7,432	7,294	2,490
Lead stearate	302	310	113
Lithium stearate	161	151	74
Magnesium stearate	1,008	922	389
Zinc stearate	7,296	7,130	2,786
All other	3,939	3,401	1,578
Tetraethylene glycol	...	1,252	234
Triethylene glycol	36,880	30,592	5,023
Urea in compounds or mixtures (100% basis), total[8]	1,469,033	1,413,054	[9] 63,617
In feed compounds	189,979	189,221	8,624
In liquid fertilizer	493,030	489,239	22,488
In solid fertilizer	603,753	605,925	26,965
All other	182,271	128,669	5,540
Vinyl acetate, monomer	250,999	171,378	26,288
Zinc formaldehydesulfoxylate	1,187	1,177	453
All other miscellaneous acyclic chemicals	6,844,183	2,103,609	672,431

[1] Calculated from rounded figures.
[2] Statistics exclude production and sales of tricresyl phosphate. Statistics on tricresyl phosphate are the section "Plasticizers."
[3] Quantities are given on the basis of solid naphthenate, resinate, tallate, or linoleate content.
[4] Statistics exclude production and sales of copper naphthenate. Statistics on copper naphthenate are gi section "Pesticides and Other Organic Agricultural Chemicals."
[5] Statistics on production of ethyl alcohol from natural sources by fermentation are issued by the Alcol Unit, U.S. Internal Revenue Service.
[6] Statistics exclude production and sales of potassium and sodium oleate. Statistics on these oleates ai in the section "Surface-Active Agents."
[7] Statistics exclude production and sales of potassium and sodium stearates. Statistics on these stearat included in the section "Surface-Active Agents."
[8] Production of urea in primary solution totaled 1,493,597 thousand pounds, compared with a revised proc 1,321,500 thousand pounds in 1959. Revised statistics for 1959 on urea in liquid fertilizer are as follows tion, 393.1 million pounds; sales, 346.2 million pounds, valued at $17.7 million. Revised statistics for l urea in solid fertilizer are as follows: Production, 551.6 million pounds; sales, 537.7 million pounds, va $24.2 million.
[9] Includes estimated values for sales of urea in nitrogen compounds.

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

ıis section of the report consists of (1) a series of tables that supplement the statistical ation given in parts I and II, and (2) a Directory of Manufacturers. The tables with num- ıat include the letter "B" supplement the tables in part I or part II with numbers that in- he letter "A"; for example, table 8B in part III supplements table 8A in part II. ıch table in part III lists alphabetically the individual items in each group for which data duction or sales were reported for 1960. The tables include data on only those chemicals ich the volume of production or sales in 1960 exceeded 1,000 pounds or for which the value s exceeded $1,000. Where separate statistics for an item are given in the tables in part I t II, an asterisk (*) precedes the name of the item in the tables in part III. The manufac- of each product are indicated by identification codes which are listed in the Directory of ıcturers (table 23). A few companies, however, have specifically requested that they not ıtified as having produced or sold certain items. These manufacturers are indicated by a letter "x" in the tables.

Tar Crudes

TABLE 4B.--*Tar crudes for which U.S. production or sales were reported, identified by manufacturer, 1960*

des for which separate statistics are given in table 4A are marked below with an asterisk (*); products o marked do not appear in table 4A because the reported data are accepted in confidence and may not be shed. Manufacturers' identification codes shown below are taken from table 23. Table 23 identifies all producers of tar crudes (except producers that report to the Division of Bituminous Coal, U.S. Bureau of)]

Product	Manufacturers' identification codes (according to list in table 23)[1]
ight oil	CBT, RUR.
il distillates:	
ne, specification and industrial grades	ACP, ACY, KPP, OIL.
ne, specification and other grades	ACP, ACY, KPP.
e, all grades	ACP, ACY, KPP.
nt naphtha	ACY, KPT, NEV, PAI.
ther light-oil distillates	ACP, NEV, PAI.
e: Crude bases and semirefined	ACP, KPT.
lene, crude, solidifying at--	
than 74° C	COP, CRT.
. to less than 76° C	KPT, NEV, PAI, REP.
. to less than 79° C	ACP, ACY, KPT, PRD, RIL, RUR, TAR.
ar-acid oils having a tar-acid content of--	
less than 24%	ACP, ACY, COP, RIL.
o 54%	ACP, KPT, NEV, RIL, TAR.
c acid, crude	ACP, KPT, PRD.
e oil (Dead oil):	
llate as such	ACP, ACY, CBT, COP, CRT, KPT, LEW, REP, RIL, RUR, TAR.
ote in coal-tar solution	ACP, HUS, JEN, KPT, RIL, RUR, TAR.
er distillate products	ACP, KPT, LEW, PAI.
ad	ACP, JEN, KPT, LEW, OLC, REP, RIL, TAR.
other uses:	
	LEW, OLC, RIL, TAR.
ed	ACP, KPT, LEW, RIL, RUR.
f tar:	
and medium (water softening points less than)° F., and 110° F. to 160° F.).	ACP, CBT, COP, JEN, KPT, LEW, REP, RIL, RUR, TAR.
(water softening point above 160° F.)	ACP, COP, KPT, REP, RIL, TAR.
f-tar coke and pitch emulsion	JEN, KPT, RIL, TAR.

not include manufacturers' identification codes for producers that report to the Division of Bituminous .S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Information Circular *ınts in the United States on December 31, 1960.*

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Crude Products From Petroleum and Natural Gas for Chemical Conversion

TABLE 5B. -- *Crude products from petroleum and natural gas for chemical conversion for whi U.S. production or sales were reported, identified by manufacturer, 1960*

[Crude products from petroleum and natural gas for chemical conversion for which separate statistics are g table 5A are marked below with an asterisk (*); products not so marked do not appear in table 5A becaus ported data are accepted in confidence and may not be published. Manufacturers' identification codes sh are taken from table 23. An x signifies that the manufacturer did not consent to his identification wit designated product]

Product	Manufacturers' identification code (according to list in table 23)
AROMATICS AND NAPHTHENES	
*Alkyl aromatics, distillates, and solvents	ACC, AMO, CSD, DOW, DUP, ENJ, GOC, JCC, MON, PAS, PLC, SM, SNT, VPT, WYN.
*Benzene (except motor grade):	
*Benzene, 1°	APR, ASH, CSD, DLH, GOC, GRS, PLP, RIC, SNT, SUN, VPT, TX.
*Benzene, 2°	AMO, CO, DOW, SHO, SOC, SOI, UCC.
*Cresylic acid, crude	ATR, PRD, PRO, RIC, SHO, SOI, UOC.
Cyclopentadiene	SHC.
*Naphthenic acids:	
Acid number less than 150	SUN, TX.
*Acid number 150-199	RIC, SM, SOC, SUN.
Acid number 200-224	RIC, SM, SOC.
*Acid number 225-249	NOP, RIC, SHO, SM, SOC.
Sodium carbolate and phenate, crude	ATR, GOC.
*Toluene:	
*Nitration grade, 1°	ASH, CSD, DLH, FG, GOC, GRS, LEN, RIC, SHO, SNT, SOG, SUN, VPT.
*Pure commercial grade, 2°	DOW, MTC, SHC, SHO.
Solvent grade	ASH, CO, SOI, TX, UCC.
All other	DLH, ENJ, SOC, SUN, VEL.
*Xylenes, mixed:	
Aviation grade	CSD, SOC, SOG.
*3° and 5°	ASH, DLH, SIN, SNT, SUN.
All other	AMO, DLH, ENJ, GRS, SHO, SOC, SOG, SOI, SUN,
All other aromatics and naphthenes	CCP, ENJ, LEN, PLC, SHC, SM.
ALIPHATIC HYDROCARBONS	
C_1 hydrocarbon: Methane	CCP, PAN, SOI.
*C_2 hydrocarbons:	
Acetylene	ACY, DOW, GAF, MTC, PPG, UCC, x.
*Ethane	CCP, PAN, PLC, SOI, TX, UCC, USI.
*Ethylene	CCP, DOW, DUP, EKX, ENJ, GOC, JCC, KPP, MTC, PET, PLC, RIC, SHC, TX, UCC, USI.
C_2 and C_3 hydrocarbons, mixed	SM, SOI.
*C_3 hydrocarbons:	
*Propane	AMO, ASH, CCP, CSD, DLH, DOW, ENJ, OMC, PAN, PLP, PRO, RIC, SHO, SIN, SM, SNT, SOG, SOI UCC, USI.
Propane-propylene mixture	GOC, PLC, TX.
*Propylene	ACP, CCP, DOW, EKX, ENJ, JCC, MTC, PET, PLC, SHO, SIN, SOI, SUN, TXB, UCC, UOC.
*C_4 hydrocarbons:	
*1,3-Butadiene, grade for rubbers (elastomers)	CPY, DOW, DUP, ENJ, FRS, GGC, ODB, PET, PLC, SHC, SOC, TUS, TXB, UCC.
*Butadiene and butylene fractions	ACP, DOW, MTC, PLC, SHO, SIN, SOC.
*n-Butane	CSD, OMC, PAN, PLC, PLP, PRO, SHO, SM, SNT, SOG, SOI, USI.

TABLE 5B. -- ***Crude products from petroleum and natural gas for chemical conversion for which U.S. production or sales were reported, identified by manufacturer, 1960***--Continued

Product	Manufacturers' identification codes (according to list in table 23)
ALIPHATIC HYDROCARBONS--Continued	
ɔcarbons--Continued	
ɛne	PLC, PTT.
ene	PLC, PTT.
ene and 2-butene mixture	AMO, CCP, ENJ, GOC, PLC, PRO, PTT, SHO, SOC, TX, TXB.
tane (2-Methylpropane)	CCP, OMC, PAN, PLC, SHO, SOI, USI.
tylene (2-Methylpropene)	AMO, CCP, ENJ, PTT, SIN.
ther	ENJ, JCC, OMC, PLC, SOI, UCC, USI.
ocarbons:	
ntane (2-Methylbutane)	CCP, CSD, PLC, SOI.
ene (2-Methyl-1,3-butadiene)	ENJ, PLC, SHC.
tane	PLC.
ther	ACP, ENJ, PAS, PLC, SHC, SOI, USI.
ocarbons:	
propyl (2,3-Dimethylbutane)	PLC.
ɛ	ENJ, PLC, SOG.
xane (2,2-Dimethylbutane)	PLC.
ther	ENJ, PLC.
ocarbons:	
rtane	EKX, ENJ, PLC.
nes	DLH, ENJ, GOC, SOG.
ther	PLC.
ocarbons:	
butylene (Diisobutene)	ATR, PTT, SHC, TX.
ane	ENJ, PLC.
-Trimethylpentane (Iso-octane)	ENJ, PLC.
ther	PLC.
rbons, C_9 and above:	
decene (Tetrapropylene)	ACC, AMO, CO, ENJ, GOC, SNT, SOC, SUN, TX.
ane	ATR.
ɛ (Tripropylene)	AMO, ATR, ENJ, GOC.
utene	CSD, SOC, SOI, TX.
sobutylene	ATR, PTT.
ther	ACC, CO, EKX, ENJ, GOC, KEN, PLC, SNT, SOC, SUN.
rbon derivatives:	
-Butyl mercaptan (2-Methyl-2-propanethiol)	PAS, PLC.
rt-butyl disulfide	PLC.
ropyl mercaptan	SOC.
yl mercaptan (Methanethiol)	ACC.
-Octyl mercaptan	PLC.
ther	CSD, EKX, PAS, PLC, SOC, UOC.
her aliphatic hydrocarbons	CO, ENJ.

Cyclic Intermediates

TABLE 7B. --***Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960***

[Cyclic intermediates for which separate statistics are given in table 7A are marked below with an asteri
cyclic intermediates not so marked do not appear in table 7A because the reported data are accepted in
and may not be published. Manufacturers' identification codes shown below are taken from table 23. An x
that the manufacturer did not consent to his identification with the designated product. Appendix C lis
betically all the important common names of cyclic intermediates usually encountered in the trade and g
corresponding standard (*Chemical Abstracts*) name under which the manufacturers' identification codes are
this table]

Chemical	Manufacturers' identification cod (according to list in table 23)
Aceanthra[2,1-a]aceanthrylene-5,13-dione	AHC.
5-Acetamido-2-aminobenzenesulfamic acid	GAF.
4-Acetamido-1-amino-2-naphthalenesulfonic acid	DUP.
6(and 7)-(2-Acetamido-p-aminophenylazo)-1-naphthalene-sulfonic acid.	TRC.
2-Acetamido-3-chloroanthraquinone	AHC, GAF.
*Acetanilide, tech	DOW, EKT, MRK, SW.
Acetoacetanilide	FMP, UCC.
Acetoacet-o-anisidide	UCC.
o-Acetoacetotoluidide	FMP, UCC.
Acetone phenylhydrazone	DUP.
Acetophenone, tech	ACP, UCC.
p-Acetotoluidide	ACY, SDH.
3-(2-Acetylamino-4-aminophenylazo)-1,5-naphthalenedisul-fonic acid.	TRC.
N-Acetylanthranilic acid	DUP.
N-Acetylsulfanilyl chloride	ACY, MRK.
Alkyl benzene	ATR.
Amino-aceanthra[2,1-a]aceanthrylene-5,13-dione	AHC.
3′-Aminoacetanilide	TRC.
*4′-Aminoacetanilide (Acetyl-p-phenylenediamine)	DUP, EKT, GAF, NAC, TRC.
3′-Aminoacetophenone	SDH.
4′-Aminoacetophenone	NES.
*5-Amino-2-(p-aminoanilino)benzenesulfonic acid	CMG, DUP, GAF, KPC, TRC.
5(and 8)-Amino-8(and 5)-p-aminophenylazo-2-naphthalene-sulfonic acid.	TRC.
1-Amino-4-(3-amino-4-sulfoanilino)-2-anthraquinonesulfonic acid.	TRC.
1-Amino-4-(4-amino-3-sulfoanilino)-2-anthraquinonesulfonic acid.	TRC.
5-Amino-2-anilinobenzenesulfonic acid	KPC, TRC.
2-(p-Aminoanilino)-5-nitrobenzenesulfonic acid	CMG, TRC, VPC.
3-Amino-p-anisanilide	PCW.
*1-Aminoanthraquinone and salt	ACY, AHC, CMG, DUP, GAF, KPC, MAY, NAC, TRC
*2-Aminoanthraquinone and salt	ACY, DUP, GAF, NAC, TRC.
1-Amino-2-anthraquinonecarboxylic acid	DUP.
1-Amino-2-anthraquinonesulfonic acid	GAF.
5(and 8)-Amino-1-anthraquinonesulfonic acid	TRC.
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′-azodi(benzenesulfonic acid)	CMG, GAF, KPC, NAC, TRC.
8-Aminobenz[a]acridin-7(12H)-one	NAC.
5-Amino-2(3H)-benzimidazolinone	DUP.
*1-Amino-4-benzamidoanthraquinone	ACY, DUP, GAF, MAY, TRC.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960* --Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
›-5-benzamidoanthraquinone	AHC, GAF, NAC, TRC.
›-Aminobenzamido)benzamido]-1-naphthol-3-sulfonic	DUP.
minobenzamido)-1-naphthol-3-sulfonic acid	NAC.
minobenzamido)-1-naphthol-3-sulfonic acid	DUP, KPC, VPC.
›-p-benzenedisulfonic acid [SO_3H=1]	DUP, NAC.
›benzenethiol	ACY.
›benzoic acid, tech	DUP, GAF, NAC.
›benzoic acid, diethylaminoethyl ester	SDW.
›-6-benzothiazolecarboxylic acid	DUP.
minobenzoyl)-o-acetanisidide	GAF.
3)-Amino-8(and 5)-bromo-1,6(and 1,7)-anthraquinonedi-onic acid.	TRC.
›-4-bromo-2-anthraquinonesulfonic acid and sodium	AHC, CMG, DUP, GAF, KPC, NAC, TRC.
›-2-bromo-4-benzamidoanthraquinone	KPC.
›-1-bromo-3-chloroanthraquinone	AHC.
›-2-bromo-4-hydroxyanthraquinone	DUP, GAF, KPC.
›-4-bromo-2-methylanthraquinone	AHC, DUP.
›-2-bromo-4-(p-toluidino)anthraquinone	AHC.
›-5-chloroanthraquinone	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
›-5(and 8)-chloroanthraquinone	ACY, DUP, GAF.
›-8-chloroanthraquinone	DUP, NAC.
›-1-chloroanthraquinone	DUP, GAF.
›-3-chloroanthraquinone	AHC, GAF, KPC, TRC.
›-N-(3-chloro-2-anthraquinonyl)-2-anthraquinone-oxamide.	TRC.
›-6-chloro-m-benzenedisulfonamide	ABB, TRC.
›-6-chloro-m-benzenedisulfonamide hydrochloride	ABB.
›-6-chlorobenzothiazole hydrochloride	DUP.
mino-4-chlorobenzoyl)benzoic acid	AHC, GAF, KPC.
›-5-chloro-4-ethylbenzenesulfonic acid	ACY.
›-5-chloro-4-hydroxyanthraquinone	GAF.
›-4-chlorophenol	DUP, GAF, MEE.
›-4-chloro-1-phenol-2-sulfonic acid	CMG, GAF, NAC, TRC.
›-5-chloro-p-toluenesulfonic acid [SO_3H=1]	ACY, GAF, HCC, SUC, SW.
›-4-chloro-m-toluenesulfonic acid [SO_3H=1]	DUP, HCC, SW.
›-p-cresol	TRC.
›-2,4-dibromoanthraquinone	AHC, DUP, KPC, NAC.
no-2′,5′-diethoxybenzanilide	ALL, GAF, SDH.
›-2-(2,3-dihydro-2-oxobenzimidazol-5-ylamino)-enesulfonic acid.	DUP.
no-2′,5′-dimethoxybenzanilide	GAF.
›-N,N-dimethyl-1-phenol-4-sulfonamide	GAF.
›-N,N-dimethyl-p-toluenesulfonamide	GAF.
›-N-ethylbenzenesulfonanilide	TRC.
›-N-ethyl-5-nitrobenzenesulfonanilide	GAF.
minoethyl)-2-thiohydantoin	x.
›-8-(p-hydroxyanilino)-2-naphthalenesulfonic acid	DUP.
8)-Amino-8(and 5)-(p-hydroxyanilino)-2-naphthalene-onic acid.	DUP.
›-4-hydroxyanthraquinone	GAF, NAC.
›-2-hydroxyanthraquinone	GAF, NAC.
›-4-hydroxybenzenearsonic acid	SDW.
8-Amino-1-hydroxy-3,6-disulfo-2-naphthylazo)-5-›oxy-o-tolylazo]-1-naphthol-3,6-disulfonic acid, ›enesulfonate.	TRC.
›-6-hydroxy-2-methylphenazine (Tolazine base)	NAC.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Chemical	Manufacturers' identification code (according to list in table 23)
5-Aminoisophthalic acid	GAF.
5-Aminoisophthalic acid, dimethyl ester	GAF.
N-(1-Amino-2-methoxy-4-anthraquinonyl)-p-toluenesulfonamide	GAF.
N-(4-Amino-3-methoxy-1-anthraquinonyl)-p-toluenesulfonamide	DUP.
4-(4-Amino-3-methoxy-6-methylphenylazo)acetanilide	TRC.
5-Amino-6-methoxy-2-naphthalenesulfonic acid	NAC, TRC.
m-(4-Amino-3-methoxyphenylazo)benzenesulfonic acid	DUP, TRC.
8-(4-Amino-5-methoxy-o-tolylazo)-1-naphthol-3,6-disulfonic acid, benzenesulfonate.	TRC.
*4'-Amino-N-methylacetanilide	CMC, GAF, NAC.
1-Amino-2-methylanthraquinone	AHC, DUP.
4'-Amino-6'-methyl-m-benzanisidide	GAF.
2-Amino-5-(6-methyl-2-benzothiazolyl)benzenesulfonic acid	GAF.
4-Amino-4'-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2'-stilbenedisulfonic acid.	TRC.
3-Amino-5-(3-methyl-5-oxo-2-pyrazolin-1-yl)-p-toluenesulfonic acid.	GAF.
8-Amino-7-methyl-2-phenazinol	DUP.
2-Amino-4-methylpyrimidine (2-Amino-4-methyldiazine)	ACY.
2-Amino-5-methyl-1,3,4-thiadiazole	ACY.
1-Amino-2-methyl-4-(p-toluidino)anthraquinone	AHC.
1-Aminonaphth[2,3-c]acridan-5,8,14-trione	DUP.
4-Aminonaphth[2,3-c]acridan-5,8,14-trione	DUP.
6-Aminonaphth[2,3-c]acridan-5,8,14(13H)-trione	GAF.
*2-Amino-1,5-naphthalenedisulfonic acid	ACY, SDH, SW, TRC.
3-Amino-1,5-naphthalenedisulfonic acid (Cassella acid)	GAF, NAC, TRC.
3-Amino-2,7-naphthalenedisulfonic acid	ATL, TRC.
4-Amino-1,5-naphthalenedisulfonic acid	NAC, TRC.
4-Amino-1,6-naphthalenedisulfonic acid	DUP, NAC.
4-Amino-1,7-naphthalenedisulfonic acid	TRC.
*6-Amino-1,3-naphthalenedisulfonic acid (Amino I acid)	ACY, BL, DUP, GAF, NAC, TRC.
7-Amino-1,3-naphthalenedisulfonic acid (Amino G acid)	DUP, GAF, NAC, TRC.
2-Amino-1-naphthalenemethanesulfonic acid	ACY.
1-Amino-2-naphthalenesulfonic acid (o-Naphthionic acid)	DUP.
*2-Amino-1-naphthalenesulfonic acid (Tobias acid)	ACY, SUC, SW, TRC, x.
4(and 5)-Amino-1-naphthalenesulfonic acid	ACY, TRC.
*5-Amino-1-naphthalenesulfonic acid (Laurent's acid)	DUP, GAF, NAC, TRC.
*5-Amino-2-naphthalenesulfonic acid (1,6-Cleve's acid)	DUP, GAF, NAC, TRC.
*5(and 8)-Amino-2-naphthalenesulfonic acid (Cleve's acid, mixed).	ALL, DUP, GAF, NAC, TRC.
*6-Amino-2-naphthalenesulfonic acid (Broenner's acid)	KLS, NAC, SNA, TRC.
*8-Amino-1-naphthalenesulfonic acid (Peri acid)	DUP, GAF, NAC, SDC, TRC.
*8-Amino-2-naphthalenesulfonic acid (1,7-Cleve's acid)	ALL, DUP, GAF, NAC, TRC.
7-Amino-1,3,6-naphthalenetrisulfonic acid	DUP.
8-Amino-1,3,6-naphthalenetrisulfonic acid (Koch's acid)	DUP, MEE, NAC.
4-Amino-1,3,5-naphthalenetrisulfonic acid, 4,5-sultam, trisodium salt.	DUP.
8-Amino-1-naphthoic acid	GAF.
5-Amino-1-naphthol	NAC.
5-Amino-2-naphthol	GAF, SDH.
5(and 8)-Amino-2-naphthol	GAF.
*8-Amino-2-naphthol	ALL, DUP, GAF, PCO, TRC.
8-Amino-1-naphthol-3,6-disulfonic acid, benzenesulfonate	TRC.
7-Amino-1-naphthol-3,6-disulfonic acid (2R acid), monosodium salt.	DUP, VPC.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
o-1-naphthol-3,6-disulfonic acid (H acid), sodium salt.	DUP, MON, NAC.
o-1-naphthol-5,7-disulfonic acid (Chicago acid) acid), monosodium salt.	DUP, NAC, TRC.
o-2-naphthol-4-sulfonic acid (1,2,4-acid)----------	ACY, DUP, GAF, NAC, TRC, VPC.
o-1-naphthol-3-sulfonic acid (J acid), sodium salt---	ACY, BL, CMG, DUP, GAF, NAC, TRC.
o-1-naphthol-3-sulfonic acid (Gamma acid), sodium .	DUP, GAF, NAC, TRC.
o-1-naphthol-5-sulfonic acid (S acid), sodium salt---	NAC, TRC.
o-5-nitrobenzenesulfonic acid [SO_3H=1]----------	ACY, DUP, GAF, NAC, TRC.
o-4-nitrophenol----------	CMG, DUP, GAF, NAC, TRC, VPC.
o-5-nitrophenol----------	NAC.
o-4-nitro-1-phenol-2-sulfonic acid----------	CMG, TRC.
no-1-(p-nitrophenyl)-1,3-propanediol----------	PD.
o-4'-nitro-2,2'-stilbenedisulfonic acid----------	TRC.
o-5-nitrothiazole----------	EKT.
nooxanilic acid----------	CMG, TRC.
nooxanilic acid----------	DUP, GAF.
ophenethyl alcohol----------	EKT.
inophenethylthio)acetic acid----------	DUP.
o-2-o-phenetidinobenzenesulfonic acid----------	NAC.
ophenol----------	VPC.
ophenol----------	ABB, DUP, SDC, VPC.
o-1-phenol-2,4-disulfonic acid----------	TRC.
o-1-phenol-4-methylsulfone----------	TRC.
o-1-phenol-4-sulfanthranilide----------	TRC.
o-1-phenol-4-sulfonamide----------	CMG, DUP, GAF, TRC.
o-1-phenol-4-sulfonic acid----------	CWN, DUP, KPC, NAC.
minophenylazo)benzenesulfonic acid----------	TRC, KPC.
minophenylazo)benzenesulfonic acid----------	ACY, CMG, DUP, GAF, NAC, TRC, VPC.
minophenylazo)salicylic acid----------	TRC.
minophenyl)-6-methylbenzothiazole----------	DUP, NAC.
minophenyl)-6-methyl-7-benzothiazolesulfonic acid salt.	DUP, PCO, TRC.
minophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid-----	TRC, VPC.
opyridine----------	NEP, RIL.
opyrimidine----------	ACY.
osalicylic acid----------	KPC, TRC.
Amino-3-sulfo-anthraquinonyl)anthranilic acid---------	GAF.
Amino-7-sulfo-5-hydroxy-6-naphthylazo)-6-nitro-2-hthol-4-sulfonic acid.	TRC.
no-5-(p-sulfophenylazo)benzenesulfonic acid----------	DUP.
(4-Amino-2-sulfostyryl)-3-sulfophenyl]-2H-naphtho-2]triazole-5-sulfonic acid.	TRC.
nothiazole----------	ACY.
no-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic d.	DUP, GAF.
no-o-toluenesulfonanilide----------	GAF.
no-m-toluenesulfonic acid [SO_3H=1]----------	ACY, DUP, GAF, MEE, SNA.
no-m-toluenesulfonic acid----------	DUP, SDH, SW.
no-o-toluenesulfonic acid----------	DUP.
no-2-(p-toluidino)benzenesulfonic acid----------	DUP, NAC, TRC.
Amino-o-tolylazo)-1,5-naphthalenedisulfonic acid------	TRC.
Amino-m-tolyl)-p-benzoquinoneimine----------	DUP.
no-α,α,α-trifluorotoluene----------	NES.
inoviolanthrone----------	GAF.
no-3,5-xylenesulfonic acid [SO_3H=1]----------	DUP, GAM, NAC, SDH, STG, WRN.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification cod (according to list in table 23)
*Aniline (Aniline oil)	ACY, DOW, DUP, EKT, MON, NAC.
Aniline hydrochloride	ACY.
1-Anilino-2-anthraquinonecarboxylic acid	DUP.
p-Anilinobenzenediazonium sulfate	TRC.
2-Anilinoethanol (Phenylethanolamine)	UGC.
8-Anilino-5-(p-hydroxyanilino)-1-naphthalenesulfonic acid	DUP.
*Anilinomethanesulfonic acid and salt	ACY, CMG, DUP, KPC, NAC, PCO, TRC, VPC.
*8-Anilino-1-naphthalenesulfonic acid (Phenyl peri acid)	CMG, DUP, GAF, NAC, SDC, TRC.
*6-Anilino-1-naphthol-3-sulfonic acid (Phenyl J acid)	ATL, CMG, DUP, GAF, NAC, TRC.
*7-Anilino-1-naphthol-3-sulfonic acid (Phenyl gamma acid)	CMG, DUP, KPC, TRC.
p-Anilinophenol	DUP.
o-Anisaldehyde	ASL.
Anisic acid	HN.
p-Anisic aldehyde bisulfite	KPC.
*o-Anisidine	ALL, DUP, KPC, MON.
p-Anisidine	DUP, MON, SDH.
*o-Anisidinomethanesulfonic acid	DUP, GAF, KPC, NAC, TRC, VPC.
Anisole, tech	DUP, LIL.
Anisoyl chloride	TBK.
Anthracene, refined	ACP.
Anthraflavic acid (2,6-Dihydroxyanthraquinone)	DUP, GAF.
*Anthranilic acid (o-Aminobenzoic acid)	DOW, DUP, MEE, NAC.
*Anthra[1,9]pyrazol-6(2H)-one (Pyrazoleanthrone)	DUP, MAY, NAC, TRC.
*Anthraquinone, 100%	ACY, DUP, TRC.
2-Anthraquinonecarboxylic acid	ACY.
N,N'-(1,5-Anthraquinone)dioxamic acid	GAF, MEE.
*1,5-Anthraquinonedisulfonic acid	ACY, AHC, DUP, GAF, TRC.
1,5-Anthraquinonedisulfonic acid, disodium salt	DUP.
1,5(and 1,8)-Anthraquinonedisulfonic acid and salt	DUP, TRC.
1,8-Anthraquinonedisulfonic acid	DUP.
*1,8-Anthraquinonedisulfonic acid, potassium salt	AHC, GAF, TRC.
*2,6-Anthraquinonedisulfonic acid and salt	ACY, AHC, DUP, GAF, KPC, TRC, VPC.
*1-Anthraquinonesulfonic acid and salt	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC.
2-Anthraquinonesulfonic acid and salt (Silver salt)	DUP, KPC, NAC.
9-(1-Anthraquinonylamino)-3-[5(and 8)-(1-anthraquinonylamino)-1-anthraquinonylamino]-7H-benz[de]-anthracen-7-one.	DUP.
1,1'-[1,5(and 1,8)-Anthraquinonylenediamino]bisnaphth-[2,3-c]acridan-5,8,14-trione.	DUP.
*N,N'-(1,5-Anthraquinonylene)dianthranilic acid	AHC, DUP, TRC.
1-(1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt.	DUP.
*Anthrarufin (1,5-Dihydroxyanthraquinone)	ACY, CMG, DUP, GAF, NAC, TRC.
Anthrone	AHC.
Arsanilic acid and salt, tech	ABB.
4',4'''-Azobis[4-biphenylcarboxylic acid]	DUP.
4,4-Azobis[p-phenylbenzoic acid]	GAF.
3,3'-Azoxydianiline	VPC.
*Benzaldehyde, tech	BPC, HN, TNP.
Benzamide	MAY.
4-(4-Benzamido-1-anthraquinonylamino)naphth[2,3-c]acridan-5,8,14-trione.	DUP.
1-Benzamido-4-chloroanthraquinone	DUP, GAF, TRC.
*1-Benzamido-5-chloroanthraquinone	ACY, AHC, DUP, MAY, NAC, TRC.
1-Benzamido-5-chloro-4-methoxyanthraquinone	GAF.
2-(3-(4-Benzamido-2,5-dimethoxyphenyl)-1-methyl diazoamid)-[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]-acetic acid.	GAF.
3-Benzamido-1-naphthol-3-sulfonic acid	TRC.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
mido-5-p-toluenesulfonamidoanthraquinone	AHC.
lide	DUP.
[de]anthracen-7-one (Benzanthrone)	ACY, AHC, DUP, GAF, KPC, MAY, NAC, PCO, TRC.
arsonic acid	EK.
nedisulfonic acid	KPC.
sulfonamide	NES.
sulfonic acid	EK, UPF.
sulfonic acid, n-propyl ester	NES.
sulfonyl chloride	DA, NES, TRC.
thiol	EVN.
rol (Diphenylmethanol)	OPC, TBK.
ne base	NAC.
nzidine-2,5-diethoxyphenyl)-3-(methyl-3-lfethyl)triazone).	GAF.
ne hydrochloride and sulfate	CWN, DUP, FIN, NAC.
(Bibenzoyl)	LEM.
c acid	BPC, LEM.
furanacetonitrile	EK.
acid, tech	HK, MON, TNP.
anhydride	EK.
	BPC, LEM.
trile	TNP.
]thiophen-3(2H)-one	GAF.
enzotriazin-4(1H)-one (Benzazimide)	MEE.
otriazole	MEE, MRT.
yl-o-acetanisidide	EK.
acetic acid, ethyl ester	FMP.
ylamino-2,5-diethoxyaniline	VPC.
ylbenzoic acid	ACY, DUP, GAF, NAC.
chloride	HK, TNP.
yl-4-sulfobenzoic acid	DUP.
yl-4'-(p-toluenesulfonamido)acetanilide	EK.
mine	FBS, MLS.
disulfide	CCW.
ether (Dibenzyl ether)	BPC, TBK.
nzyl-N-ethylamino)-o-toluenesulfonic acid	NAC.
l-N-ethyl-m-toluidine	DUP, NAC.
nzylidinebis[N,N-diethylaniline]	DSC.
nzylidinebis[N,N-dimethylaniline]	DSC.
enzylidenedi-p-(m-tolylene)]bis[N-ethyl-lamine].	TRC.
lidineiminoantipyrine	SDW.
polysulfide	HK.
lpyridine	RIL.
-Bi-o-acetoacetotoluidide	SDH.
anthra[1,9]pyrazole-6,6'(2H,2'H)-dione zoleanthrone yellow).	DUP, GAF, NAC, TRC.
i-7H-benz[de]anthracen]-7,7'-dione	DUP, NAC.
i-7H-benz[de]anthracen]-7,7'-dione	ACY, AHC, DUP, GAF, MAY, TRC.
s-Bicyclo[2,2,1]hept-5-ene-2,3-dicarboxylic ride.	NAC.
inaphthalene]-8,8'-dicarboxylic acid	DUP, GAF.
l	DOW, MON.
nylcarboxylic acid	DUP.
quinoline	EK.
s[8-acetamido-3,6-dinitro-1-hydroxy naphthylazo]-dimethoxybiphenyl.	TRC.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960* --Continued

Chemical	Manufacturers' identification co (according to list in table 23
*1,4-Bis[1-anthraquinonylamino]anthraquinone	ACY, AHC, GAF, MAY, NAC, 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.
N,N'-Bis[1-chloro-2-anthraquinonyl]-4',4'''-azobis-[4-biphenylcarboxamide].	GAF.
4,4'-Bis[diethylamino]benzhydrol	GAF.
4,4'-Bis[diethylamino]benzhydrol, 2,6-naphthalenedi-sulfonate.	GAF.
*4,4'-Bis[diethylamino]benzophenone (Ethyl ketone base)	DSC, DUP, SDH.
4,4'-Bis[dimethylamino]benzhydrol (Michler's hydrol)	DSC, DUP, SDH.
*4,4'-Bis[dimethylamino]benzophenone (Michler's ketone)	DSC, DUP, GAF, NAC, SDH.
Bis[p-dimethylaminophenyl]methanesulfonic acid and salt	NAC.
α,α-Bis[4-(N-ethyl-3-sulfobenzylamino)-2-tolyl]-α-hydroxy-p-toluenesulfonic acid.	TRC.
α,α-Bis[4-(N-ethyl-3'-sulfobenzylamino)-2-tolyl]-p-toluenesulfonic acid.	TRC.
4,4'-Bis[p-hydroxyphenylazo]-2,2'-stilbenedisulfonic acid	TRC.
4,4'-Bis[p-hydroxyphenyl]valeric acid	JNS.
Bis[p-nitrophenyl] ether	DUP.
α^2,α^6-Bis[5-tert-butyl-6-hydroxy-m-tolyl]mesitol	ACY.
2-Bromoacetophenone	EK.
p-Bromoaniline	EK.
4-Bromoanisole	EK.
*3-Bromo-7H-benz[de]anthracen-7-one (Bromobenzanthrone)	EK, FBS, OPC.
Bromobenzene, mono	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
p-Bromobenzenesulfonyl chloride	DOW.
o-Bromobenzoic acid	EK.
4-Bromobenzophenone	EK.
p-Bromo-N,N-bis[2-hydroxyethyl]benzenesulfonamide	FBS.
2-Bromodibenzofuran	GAF.
(2-Bromoethyl)benzene	GAF.
2-Bromo-3'-hydroxyacetophenone benzoate	EK.
1-Bromo-4-methylaminoanthraquinone	SDH.
1-Bromo-2-methylanthraquinone	DUP, GAF.
2-Bromo-3-methylanthraquinone	DUP.
3'-Bromo-4'-methyl-2-biphenylcarboxylic acid	DUP.
1-Bromonaphthalene	x.
2-Bromo-4'-nitroacetophenone	EK.
α-Bromo-p-nitrotoluene	NES.
1-(9-Bromo-7-oxo-7H-benz[de]anthracen-3-ylamino)-anthraquinone.	EK. DUP.
m-Bromophenol	EK.
p-Bromophenol	EK.
p-Bromophenyl phenyl ether	EK.
3-Bromophthalic anhydride	KPC.
2-Bromopyridine	FMT.
2-Bromoquinizarin	KPC.
α-Bromotoluene	EK.
o-Bromotoluene	EK.
p-Bromotoluene	EK.
1-Bromo-2,4,6-triethylbenzene	DUP.
p-n-Butylaminobenzoic acid, ethyl ester	FBS.
p-Butylaniline	DUP.
2-tert-Butylanthraquinone	DUP.
n-Butylbenzene	EK, PLC.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
tylbenzene----------	PLC.
ıtylbenzene----------	PLC.
-Butylbenzoic acid----------	SHC.
ert-Butylbenzoyl)benzoic acid----------	DUP.
l-m-cresol [OH=1]----------	KPT.
-Butyl-p-cresol----------	ACY.
-Butyl-4′,6′-dimethylacetophenone----------	GIV.
-Butyl-4-ethylphenol----------	ACY.
yl-4-methoxymetanilamide----------	ALL, GAF, PCW.
-Butyl-5-methylanisole----------	GIV.
Butylphenol----------	DOW.
Butylphenol----------	DOW.
-Butylphenol----------	TNA.
-Butylphenol----------	DOW, KPT, UCP.
ıenols, mixed----------	UCP.
-Butyltoluene----------	SHC.
-Butyl-1,2,3-trimethylbenzene----------	GIV.
-Butyl-m-xylene----------	GIV.
ole, refined----------	SDC.
arbazolylamino)phenol----------	DUP.
arbonylbis[4-methoxymetanilic acid]----------	GAF.
arbonylbis[4-methoxy-6-nitrometanilic acid]----------	GAF.
arbonyldibenzoic acid----------	ACY.
2)-Carboxybenzene-2(and 4)-diazo-1-oxide----------	DUP.
Carboxybenzoyl)-2-chlorooxanilic acid----------	GAF.
oxy-2(and 4)-hydroxybenzenediazonium sulfate----------	GAF, NAC.
oxymethyl-1-(5-chloro-o-tolyl)-3-methyltriazene------	GAF.
oxymethyl-3-methyl)-1-p-tolyltriazene----------	GAF.
oxymethylthio)benzoic acid----------	GAF.
arboxyphenylsulfamoyl)anthranilic acid----------	TRC.
arboxy-4-sulfophenyl)-1-(2,5-dichlorophenyl)- nyltriazene.	GAF.
arboxy-4-sulfophenyl)-1-(5-dimethylsulfamoyl- lyl)-3-methyltriazene.	GAF.
amic acid----------	SDW.
ndic acid----------	HK.
oroacetoacetanilide----------	FMP, UCC.
oroacetophenone----------	EK.
loroacetyl)acetanilide----------	DUP.
roaniline and hydrochloride----------	DUP, GAF, MON.
roaniline----------	DUP, MON, VPC.
roaniline----------	DUP, MON.
oroanilino)ethanol----------	EKT.
nloroanilino)propionitrile----------	DUP.
ro-o-anisidine [NH_2=1] (4-Chloro-o-anisidine 3=1]).	SDH, VPC.
ro-o-anisidine hydrochloride----------	BUC, GAF.
roanthranilic acid----------	DUP.
roanthraquinone----------	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC.
roanthraquinone----------	ACY, GAF, NAC, TRC.
robenzaldehyde----------	HN, NAC, SDH.
robenzaldehyde----------	HN.
-7H-benz[de]anthracen-7-one (Chlorobenzanthrone)-----	ACY, TRC.
benzene, mono- ----------	ACS, DOW, DUP, GGY, HK, HKD, MON, MTO, OMC, PPG.
robenzene-4-methylsulfone----------	TRC.
robenzenesulfinic acid----------	TRC.
robenzenesulfonamide----------	ACY.
robenzenesulfonic acid----------	GAF.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Chemical	Manufacturers' identification code (according to list in table 23)
4-Chlorobenzenesulfonyl chloride	TRC.
o-Chlorobenzoic acid	HN, SDH.
p-Chlorobenzoic acid	HN.
5-Chloro-2-benzoxazolinone	x.
*o-(p-Chlorobenzoyl)benzoic acid	AHC, DUP, GAF, NAC, TRC.
p-Chlorobenzoyl chloride	HN.
α-(p-Chlorobenzyl)-4-diethylaminoethoxy-4′-methylbenzhydrol.	x.
4,4′-(o-Chlorobenzylidene)di-2,5-xylidine	GAF.
2-Chloro-5-(o-carboxyphenylsulfamoyl)benzoic acid	TRC.
Chloro-(p-chlorophenyl, phenyl)methane	OPC.
2-Chloro-10-(3-chloropropyl)thiaxanthene	KF.
2-Chloro-5-(chlorosulfonyl)benzoic acid	TRC.
2-Chloro-1,4-dibutoxy-5-nitrobenzene	GAF, MEE.
2-Chloro-1,4-diethoxy-5-nitrobenzene	GAF, MEE.
2-Chloro-N,N-diethyl-4-nitroaniline	DUP.
N-(3-Chloro-9,10-dihydroxy-2-anthryl)acetamide bis[acid sulfate].	GAF.
*5-Chloro-2,4-dimethoxyaniline	ALL, KLS, PCW.
1-Chloro-2,4-dimethoxy-5-nitrobenzene	GAF.
4-Chloro-N,N-dimethyl-3-nitrobenzenesulfonamide	GAF.
5-Chloro-4,7-dimethyl-3(2H)-thianaphthenone	NAC.
*1-Chloro-2,4-dinitrobenzene (Dinitrochlorobenzene)	DUP, GAF, KPC, NAC, SDC.
4-Chloro-3,5-dinitrobenzoic acid	GAF.
3-Chlorodiphenylamine	SK.
Chlorodiphenylmethane	OPC, TBK.
α-Chloro-o(and/or p)-dodecyltoluene [CH_3=1]	ORO.
4-Chloro-3-ethylaniline	ACY.
4-[(2-Chloroethyl)ethylamino]-o-tolualdehyde	GAF.
N-(2-Chloroethyl)-N-ethylaniline	DUP.
2-Chloro-N-ethyl-5-nitrobenzenesulfonanilide	GAF.
p-[(2-Chloroethyl)methylamino]benzaldehyde	GAF.
α-Chloro(ethyl)toluene	BPC.
3-Chloroformanilide	DUP.
5-Chloro-2-formylbenzenesulfonic acid, manganous salt	GAF.
4-Chloro-3-hydrazinobenzenesulfonic acid	GAF.
1-Chloro-4-hydroxyanthraquinone	AHC.
4′-Chloro-2-hydroxy-4-methoxybenzophenone	ACY.
5′-Chloro-3-hydroxy-2-naphthol-o-anisidine	SDH.
5-Chloro-4-isopropylmetanilic acid	SW.
4-Chlorometanilic acid	DUP, GAF.
5-Chlorometanilic acid	DUP, NAC.
6-Chlorometanilic acid	DUP, NAC.
5-Chloro-2-methoxybenzenediazonium chloride	GAF.
N-(5-Chloro-2-methoxyphenylazo)sarcosine	ATL, SDH.
*1-Chloro-2-methylanthraquinone	ACY, AHC, CMG, GAF, KPC, NAC, TRC.
6-Chloro-4-methylbenzo-1,3-thiaza-2-thionium chloride	DUP.
6-Chloro-2-methyl-7-chlorosulfonyl-2H-1,2,4-benzothiadiazin-3(4H)-one, 1,1-dioxide.	ABB.
4-(Chloromethyl)-1,2-dimethylbenzene	BPC.
6-Chloro-2-methyl-7-(N-methylsulfamoyl)-2H-1,2,4-benzothiadiazin-3(4H)-one, 1,1-dioxide.	ABB.
1-Chloromethylnaphthalene	BPC.
4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.	DUP, GAF.
Chloronaphthalenes	KPT.
2-(8-Chloro-1-naphthylthio)acetic acid	GAF.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
)-3'-nitroacetophenone	MEE.
)-4-nitroaniline (o-Chloro-p-nitroaniline)	ACY, DOW, DUP, SUC.
)-2-nitroaniline (p-Chloro-o-nitroaniline)	DOW, DUP, SDH, VPC.
)-2-nitroanisole	VPC.
)-5-nitroanthraquinone	ACY, DUP, GAF, MAY, NAC, TRC.
)-8-nitroanthraquinone	DUP, NAC.
)-2-nitrobenzene (Chloro-o-nitrobenzene)	DUP, KPC, MON.
)-2(and 4)-nitrobenzene (Chloronitrobenzenes, p-).	DUP, GAF, KPC, SDC.
)-3-nitrobenzene (Chloro-m-nitrobenzene)	DUP, MON.
)-4-nitrobenzene (Chloro-p-nitrobenzene)	DUP, KPC, MON.
)-5-nitrobenzenesulfonamide	KPC.
)-3-nitrobenzenesulfonamide	DUP, EKT, GAF, ICC, KPC, TRC.
)-3-nitrobenzenesulfonanilide	TRC.
)-5-nitrobenzenesulfonic acid	ACY, CMG, KPC, NAC, TRC.
)-5-nitrobenzenesulfonic acid, sodium salt	DUP, GAF.
)-3-nitrobenzenesulfonic acid	CMC, GAF, KPC, NAC, TRC.
)-3-nitrobenzenesulfonyl chloride	DUP, EKT, KPC, TRC.
)-3-nitrobenzoic acid	PCW.
loro-3-nitrobenzoyl)benzoic acid	AHC, GAF, KPC, NAC.
)-2-nitrophenol	DUP, KPC.
)-6-nitro-1-phenol-2-sulfonic acid	GAF.
)-3-nitrophenyl methyl sulfone	TRC.
)-p-nitrotoluene	EK.
)-4-nitrotoluene	DUP.
)-6-nitrotoluene	DUP.
)-2-nitrotoluene	DUP, GAF.
)-3-nitrotoluene	DUP, KPC.
)phenol	EK.
)phenol	DOW, MON.
)phenol	DOW, MON.
)phenylacetonitrile	TBK.
)-α-phenyl-o-cresol	MON.
)-o-phenylenediamine	FMT.
lorophenyl)-4-methyl-α-phenyl-1-piperazine-nol.	ABB.
lorophenyl)-3-methyl-2-pyrazolin-5-one	TRC, VPC.
henylsilanes	SPD.
)phthalic acid	DUP, SW.
hthalic anhydride	HK, MON.
hloro-3-pyridazinyl)sulfanilamide	ACY.
opyridine	FMT, NEP.
oquinaldine	DUP.
oquinizarin	HSH, NAC, TRC.
o-4-quinolinol	SDW.
oquinophthalone	DUP.
oresorcinol	GAF, KPC.
o-5-sulfamoylbenzoic acid	TRC.
otheophylline	MAL.
othiophene	GAM.
othioxanthene	KF.
othioxanthen-9-one	KF.
o-10-thioxanthenone	MEE.
otoluene	HK.
otoluene	HN.
otoluene	HN.
otoluene (Benzyl chloride)	BPC, HK, HN, MON, TNP.

TABLE 7B. -- ***Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960*** --Continued

Chemical	Manufacturers' identification code (according to list in table 23)
1-Chloro-5-p-toluenesulfonamidoanthraquinone	AHC.
3-Chloro-o-toluidine [NH_2=1]	DUP, NAC.
3-Chloro-p-toluidine [NH_2=1]	DUP, GAF.
*4-Chloro-o-toluidine [NH_2=1] (5-Chloro-o-toluidine [CH_3=1])	ACY, KPC, NAC, PCW.
*5-Chloro-o-toluidine [NH_2=1] (4-Chloro-o-toluidine [CH_3=1])	DUP, GAF, KPC, SDH.
*4-Chloro-o-toluidine hydrochloride [NH_2=1]	DUP.
*5-Chloro-o-toluidine hydrochloride [NH_2=1]	ALL, ATL, AUG, BUC, DUP, GAF, KLS, SDH.
5-Chloro-o-toluidine sulfate [NH_2=1]	NAC.
N-(5-Chloro-o-tolylazo)sarcosine	ATL.
2-[1-(6-Chloro-o-tolyl)-5-hydroxy-3-methyl-4-pyrazolylazo]-sulfanilic acid.	TRC.
1-(5-Chloro-o-tolyl)-3-methyl-2-pyrazolin-5-one	TRC.
(4-Chloro-o-tolylthio)acetic acid	ACY, DUP, NAC.
2-Chloro-5-trifluoromethylaniline	SDH.
3-Chloro-α,α,α-trifluoro-6-nitrotoluene	MEE.
p-Chloro-α,α,α-trifluorotoluene	HK.
Chlorotriphenylmethane	EK.
α-Chloro-p-xylene	BPC.
2-Chloro-p-xylene	DUP.
4-Chloro-2,5-xylenesulfonyl chloride	GAF, NAC.
4-Chloro-3,5-xylenol	OTA.
4-Chloro-2,5-xylylthioacetic acid	GAF, NAC.
Chrysanthemummonocarboxylic acid, ethyl ester	BPC.
Chrysazin (1,8-Dihydroxyanthraquinone)	DUP, GAF.
Cinnamoyl chloride	BPC, TBK.
s-Collidine (2,4,6-Trimethylpyridine)	KPT, RIL.
*Cresols:[1]	
m-Cresol	KPT.
*o-Cresols:	
From coal tar	KPT, PRD, RIL.
From petroleum	MER, PRD.
*p-Cresol	HPC, SW.
Cresols, mixed:[1]	
*(m,p)-Cresol:	
*From coal tar	ACP, KPT, PRD, REP, RIL.
*From petroleum	MER, PIT, PRD.
*(o,m,p)-Cresol:	
From coal tar	ACP, KPT, REP, RIL.
From petroleum	MER, PIT, PRD.
Other	RIL, SW.
2,3-Cresotic acid	DOW.
*Cresylic acid, refined:[1]	
*From coal tar	ACP, ACY, KPT, PRD, RIL.
*From petroleum	MER, PIT, PRD, SHO, SM, SOC.
*Cumene	ACP, DOW, HPC, PLC, SOC, TX.
p-Cyanobenzaldehyde	KF.
4-[(2-Cyanoethyl)ethylamino]-o-tolualdehyde	DUP.
p-[(2-Cyanoethyl)methylamino] benzaldehyde	DUP.
8-Cyano-1-naphthalenesulfonic acid	DUP, GAF.
Cyanuric acid (s-Triazine-2,4,6-triol)	ACY.
Cyanuric chloride	ACY, NIL.
*Cyclohexane	CO, DUP, ENJ, GOC, PLC, PLP.
1,4-Cyclohexanedicarboxylic acid, dimethyl ester	DUP.
1,2-Cyclohexanedicarboxylic anhydride	NAC.
*Cyclohexanol	CS, DOW, DUP, MON, NAC.
Cyclohexanone	CS, DUP, NAC.
Cyclohexanone oxime	NAC.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
xene	KF, PLC.
hexene-1,2-dicarboximide	CHO.
hexene-1,2-dicarboxylic anhydride	NAC.
xylacetone	GIV.
xylamine	ABB, EKT, MON.
looctadiene	PLC.
ntene	PLC.
openten-1-yl)acetone, tech	LIL.
e	GLD, HNW, HPC.
nzene	NAC.
1,8)-Diacetamidoanthraquinone	KPC.
llylcamphoramic acid	WYT.
iallylmelamine	ACY.
minoanthraquinone	DUP, GAF, KPC, NAC, TRC.
minoanthraquinone	DUP, GAF, NAC, TRC.
1,8)-Diaminoanthraquinone	AHC, TRC.
minoanthraquinone	ACY, AHC, DUP, GAF, KPC, TRC, VPC.
mino-2,3-anthraquinonedicarbonitrile	DUP.
mino-2,3-anthraquinonedicarboximide	DUP.
minoanthrarufin	DUP.
aminobenzanilide	TRC.
minobenzanilide	DUP.
minobenzenesulfonic acid [SO_3H=1]	AHC, DUP, GAF, NAC, TRC.
minobenzenesulfonic acid [SO_3H=1]	TRC.
amino-2,2′-biphenyldisulfonic acid	TRC.
minodibenzothiophenedisulfonic acid, 5,5-dioxide, ium salt.	ACY.
mino-2,3-dichloroanthraquinone	DUP.
1,8)-Diamino-4,8(and 4,5)-dihydroxyanthraquinone	DUP.
mino-2,7-dimethylacridine	DUP, NAC.
mino-2,7-dimethylacridine sulfate	DUP.
amino-3,3′-dimethyltriphenylmethane	ACY.
mino-1-naphthalenesulfonic acid	GAF.
mino-5-nitroanthraquinone	GAF.
mino-6-phenyltriazine	TNP.
mino-6-phenyl-s-triazine	RH.
minopyridine	NEP, RIL.
amino-2,2′-stilbenedisulfonic acid	ACY, DUP, GAF, NAC, SDH, TRC, VPC.
mino-m-toluenesulfonic acid [SO_3H=1]	DUP, KPC, NAC.
mino-p-toluenesulfonic acid [SO_3H=1]	NAC.
nilino-2,6-anthraquinonedicarboxylic acid	GAF, NAC.
nilino-1-hydroxyanthraquinone	GAF, TRC.
sidine	ALL, BUC.
nthronyl-1,2-ethanediol	AHC.
uanidine	DUP.
enzamidoanthraquinone	GAF, TRC.
enzamido-3′,4′,6′,7′-diphthaloylcarbazole	AHC.
benzamido-1,1′-iminodianthraquinone	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
benzamido-1,1′-iminodianthraquinone	ACY.
Dibenzamido-1,1′,4,1″-trianthrimide	AHC.
zofuranol	GAF.
′,7′-Dibenzopyrene-7,14-quinone	AHC.
thiophene	EVN.
enzoylnaphthalene	ACY, AHC, DUP, GAF, HST, TRC.
benzylethylenediamine	WYT.
benzylethylenediamine diacetate	WYT.
bromoacetophenone	EK.

TABLE 7B. -- ***Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960***--**Continued**

Chemical	Manufacturers' identification cc (according to list in table 2
*3,9-Dibromo-7H-benz[de]anthracen-7-one	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
m-Dibromobenzene	EK.
p-Dibromobenzene	DOW.
Dibromo-diamino-di-p-toluidinoanthraquinone	AHC.
5,5'-Dibromoindigotin	GAF.
2,6-Dibromo-1,5-naphthalenediol	EK.
2,6-Dibromo-4-nitrophenol	MEE.
Dibromo-8,16-pyranthrenedione	DUP.
X,Y-Dibromothianthrene	TRC.
Dibromoviolanthrone	GAF.
α,α'-Dibromo-o-xylene	EK.
p-Dibutoxybenzene	MEE.
1,4-Dibutoxy-2'-morpholino-5-nitrobenzene	x.
*2,5-Dichloroaniline and hydrochloride [NH_2=1]	ALL, DUP, NAC, SDH, VPC.
3,4-Dichloroaniline	DUP, MON.
*1,5-Dichloroanthraquinone	AHC, DUP, GAF, NAC, TRC.
1,5(and 1,8)-Dichloroanthraquinone	DUP, GAF, NAC, TRC.
*1,8-Dichloroanthraquinone	AHC, DUP, GAF, TRC.
2,3-Dichloroanthraquinone	NAC, TRC.
4,8(and 4,5)-Dichloro-1,5(and 1,8)-anthraquinone-disulfonic acid.	GAF.
2,6-Dichlorobenzaldehyde	NAC.
3-(3,4-Dichlorobenzamido)-1-phenyl-2-pyrazolin-5-one	EK.
m-Dichlorobenzene	EK, UWS.
*o-Dichlorobenzene	ACS, CPD, DOW, DUP, DVC, HK, MON, OMC, P WOI.
*o(and p)-Dichlorobenzene	ACS, GGY, HKD.
*p-Dichlorobenzene	CPD, DOW, DUP, DVC, HK, MON, MTO, PPG, S WOI.
3,4-Dichlorobenzenesulfonyl chloride	EK.
*3,3'-Dichlorobenzidine base and salts	ALL, CWN, NAC, x.
2,4-Dichlorobenzoic acid	HN.
2,4-Dichlorobenzoyl chloride	HN.
2,3-Dichloro-5,6-dicyano-p-benzoquinone	LIL.
Dichlorodiphenylsilane	DCC, UCS.
2',7'-Dichlorofluorescein	EK.
2,5-Dichloro-4-hydrazinobenzenesulfonic acid	GAF.
7,16-Dichloroindanthrone	AHC.
Dichloroisoviolanthrone	AHC.
*2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.	ACY, CMG, DUP, GAF, TRC, VPC.
Dichloromethylphenylsilane	DCC.
*2,6-Dichloro-4-nitroaniline	DUP, EKT, KPC.
4,5-Dichloro-1-nitroanthraquinone	GAF.
1,2-Dichloro-4-nitrobenzene	DUP, MON.
*1,4-Dichloro-2-nitrobenzene (Nitro-p-dichlorobenzene)	DOW, DUP, KPC, NAC, VPC.
2,4-Dichlorophenol	DOW, MON.
3,6-Dichloropyridazine	ACY.
4,7-Dichloroquinoline	PD, SDH, SDW.
2,5-Dichlorosulfanilic acid [SO_3H=1]	DUP, GAF, VPC.
2,5-Dichloro-4-sulfobenzenediazonium hydroxide	TRC.
1,5-Dichloro-4-sulfobenzenediazonium sulfate	TRC.
p,α-Dichlorotoluene	HN.
2,6-Dichlorotoluene	DUP, NAC.
2,4-Dichloro-5-(p-toluenesulfonamido)-1-naphthol	EK.
Dicyclohexylamine	ABB, MON.
Dicyclohexyl hydrogen phosphite	x.
Dicyclopentadiene	ENJ, UCC.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960* --Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
entadiene dioxide	UCC.
1,1-dimethylpropyl)phenol (Di-tert-amylphenol)	PAS.
thoxyaniline	GAF.
ethoxybenzanilide	GAF.
oxybenzene	GAF, MEE.
thoxy-2-morpholino-5-nitrobenzene	x.
iethoxy-4'-nitrobenzanilide	GAF.
thoxy-2-nitrobenzene	GAF.
ylaminobenzaldehyde	DUP, GAF, NAC.
ylaminoethoxy-4'-methylbenzophenone	x.
ethylaminoethyl)-α-phenylcyclohexane methanol, chloride.	ACY.
ylamino-4'-hydroxy-m-acetotoluidide	PD.
ylaminophenol (N,N-Diethyl-3-aminophenol)	ACY, DUP, GAF.
ylaminopropiophenone	ACY.
ylamino-o-tolualdehyde	DUP.
thylaniline	ACY, DSC, DUP, NAC, SDH.
thyl-m-anisidine	DUP.
benzene	DOW, KPP.
cyclohexane	UCC.
thylcyclohexylamine	DUP.
thylmetanilic acid	DUP, GAF.
iethyl-4-methoxymetanilamide	PCW.
thyl-p-nitrosoaniline	GAF.
thyl-4-nitroso-m-anisidine hydrochloride	DUP.
thyl-m-toluidine	DUP, NAC.
hydroanthraquinonazine	TRC.
ydro-4H-pyran	QKO.
1,8)-Dihydroxyanthraquinone	DUP, JTC, TRC.
ydroxybenzoic acid	AMB.
xydinitroanthraquinone	DUP.
ydroxy-4,8-dinitroanthraquinone	AHC, KPC.
ydroxy-4,5-dinitro-2,6-anthraquinonedisulfonic acid	DUP.
hydroxy-4-methoxybenzophenone	ACY.
ydroxy-2,7-naphthalenedisulfonic acid (Chromotropic	HSH, NAC, TRC.
ydroxy-2-naphthalenesulfonic acid	FMT, GAF, IDC, NAC.
ydroxy-2-naphthoic acid	GAF, PCW.
hydroxy-4-(octadecyloxy)benzophenone	ACY.
Dihydroxyviolanthrone (Dihydroxydibenzanthrone)	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
Dimethoxyacetophenone	DUP.
methoxyaniline	DUP, EKT, KLS.
methoxybenzaldehyde	CWN.
thoxybenzene	ACY, DUP, EKT, GAF, KPC.
thoxybenzene	DUP, TBK.
imethoxybenzidine	ALL, CWN, DUP, NAC, SDH.
methoxybenzoic acid	ACY, DUP.
,3'-Dimethoxy-4,4'-biphenylene)bis[3-methyl-3-(2-ethyl) triazene].	GAF.
imethoxy-4,4'-bis[3-methyl-3-sulfoethyltriazen-]biphenyl.	DUP, SDH.
methoxy-2-nitrobenzene	DUP, EKT, GAF.
methoxyphenethylamine (Homoveratrylamine)	LIL.
imethoxyphenyl)acetic acid	LIL.
imethoxyphenyl)acetonitrile	LIL.
Dimethoxyviolanthrone	AHC, KPC, MAY, TRC.
thylaminobenzaldehyde	FIN.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identif manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
o-Dimethylaminoethylphenol	RH.
2-[(2-Dimethylaminoethyl)thenylamino]pyridine (non-medicinal grade).	ABB.
Dimethylaminoisobutyrophenone hydrochloride	LIL.
o-(Dimethylaminomethyl)-p-butylphenol	RH.
6-Dimethylamino-1-methylquinaldinium methylsulfate	x.
m-Dimethylaminophenol	ACY.
N-(p-Dimethylaminophenyl)-1,4-naphthoquinoneimine	NAC.
6-Dimethylaminoquinaldine	EK.
*N,N-Dimethylaniline	ACY, DSC, DUP, NAC, SDH.
7,12-Dimethylbenz[a]anthracene	EK.
2,5-Dimethyl-p-benzoquinone	EK.
*N,N-Dimethylbenzylamine	FBS, MLS, SFA, x.
*2,2'-Dimethyl-1,1'-bianthraquinone	ACY, AHC, CMG, DUP, GAF, KPC, NAC, TRC.
2,4-Di(1-methylbutyl)phenol	PAS.
5,5-Dimethyl-1,3-cyclohexanedione	EKT.
N,N-Dimethylcyclohexylamine	MON.
2',7'-Dimethylfluoran	WIM.
Dimethylhydantoin	GLY.
2,8-Dimethyl-13β-hydroxy-9(13β)-ceroxenone	WIM.
1,3-Dimethyl-2-imidazolidinone	MRA.
2,3-Dimethylindole	DUP.
*N,N-Dimethyl-p-nitrosoaniline	ACY, DUP, NAC.
N,N-Dimethyl-3-nitro-p-toluenesulfonamide	GAF.
α,α-Dimethylphenethylamine	BPC.
N,N-Dimethyl-p-phenylazoaniline	EK.
N,N-Dimethyl-p-phenylenediamine	NAC.
N,N-Dimethyl-p-phenylenediamine monohydrochloride	EK.
2,5-Dimethyl-1-phenylpyrrole	x.
2,5-Dimethyl-1-phenyl-3-pyrrolecarboxyaldehyde	x.
1,4-Dimethylpiperazine	JCC.
p-(1,1-Dimethylpropyl)phenol	PAS.
N,N-Dimethylsulfanilic acid	GAF.
N,N'-Di(2-naphthyl)-p-phenylenediamine	DUP.
2,4-Dinitroaniline	ACY, KPC.
p-(2,4-Dinitroanilino)phenol	DUP, GAF, NAC.
2,4-Dinitroanisole	ALL.
1,5(and 1,8)-Dinitroanthraquinone	AHC, CMG, KPC, TRC.
2,4-Dinitro-N,N'-(1,5-anthraquinone)dioxamic acid	TRC.
3,3'-Dinitrobenzanilide	TRC.
3',4-Dinitrobenzanilide	TRC.
m-Dinitrobenzene	DUP, GAF, NAC.
2,4-Dinitrobenzenesulfonic acid	GAF, PCW.
3,5-Dinitrobenzoic acid	DUP, GAM.
3,5-Dinitrobenzoyl chloride	EK.
Dinitro(3,3'-bi-7H-benz[de]anthracen)-7,7'-dione	DUP, MAY.
4,5-Dinitrochrysazin	AHC, DUP, EKT, GAF.
2,4-Dinitrocumene	DUP.
*2,4-Dinitrophenol, tech	DUP, KPC, NAC, SDC.
2,4-Dinitrophenylhydrazine	EK.
p-Dinitrosobenzene	FIN.
*4,4'-Dinitro-2,2'-stilbenedisulfonic acid	DUP, GAF, NAC, PCO, SDH, TRC.
2,4-Dinitrotoluene	ACY, DUP, NAC.
2,4(and 2,6)-Dinitrotoluene	DUP, NAC.
3,5-Dinitro-p-toluenesulfonic acid	GAF.
Dipentene	GLD, HNW.
(2,4-Di(tert-pentyl)phenoxy)acetyl chloride	GAF.

ABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
enoxyanthraquinone	AHC, DUP, KPC.
1,8)-Diphenoxyanthraquinone	DUP.
enoxyanthraquinone	AHC, EKT.
acetic acid	BPC.
acetonitrile, tech	LIL.
amine	ACY, DOW, DUP.
enylamino-1-naphthalenesulfonic acid	NAC, TRC.
enylanthraquinone-1'(S)2',5'(S)6'-dithiazole	AHC.
carbamoyl chloride	EK.
Diphenyl-4-dimethylamino-2-hydroxy-3-methylbutane, r sulfonate.	LIL.
Diphenyl-4-dimethylamino-2-hydroxy-3-methylbutane hloride.	LIL.
-Diphenyl-4-dimethylamino-2-hydroxy-3-methylbutane hloride.	LIL.
henylethylenediamine	DUP, RPC.
enyloxazole	EK.
henyl-3,4,9,10-perylenetetracarboxylic diimide	GAF.
enyl-1,3-propanedione	EK.
enyltriazene	NAC.
iobiurea	ACY.
benzoic acid	KF, MEE.
-toluidino)anthraquinone	AHC, GAF, NAC, TRC.
-toluidino)anthraquinone	AHC.
-toluidino)anthraquinone	AHC.
enzene	DOW, KPP.
,6-xylylguanidine	ACY.
niline	MON.
enzene (includes keryl-type benzenes)	ATR, CO, MON, NAC, SOC.
ethylbenzene	x.
ethylbenzyl chloride	x.
itrobenzene	MON.
henol	GAF, RH, UCP, x.
ylidenetetraphenol (Tetraphenolethane)	SHC.
benzoic acid	ACY.
cybenzoyl)acetonitrile	ACY.
-2-mercaptobenzothiazole	DUP.
naphthalene	DUP, NAC.
-1-nitronaphthalene	DUP.
phenol (2-Hydroxyphenetole)	MON.
amino-p-cresol	DUP.
amino-p-toluenesulfonic acid [SO_3H=1]	DUP.
aniline, crude	ACY.
aniline, refined	ACY, DUP, NAC, SDH, UCC.
hylanilino)ethanol	DUP, EKT.
thylanilino)ethyl]trimethylammonium chloride	DUP.
lanilino)propionitrile	EKT.
hylanilino)-m-toluenesulfonic acid	DUP.
hylanilino)-p-toluenesulfonic acid	GAF, ICC, NAC, SDH, TRC, VPC, WRN.
-p-anisidine	EKT.
anthranilic acid	SDH.
anthraquinone	NAC.
nzene	ACP, CSD, DOW, KPP, MTC, SHC, UCC.
carbazole	GAF.
cyclohexen-1-ylamine	MLS.
-1-naphthylamine	DSC, DUP, NAC.
-2-nitrobenzenesulfonanilide	TRC.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification cod (according to list in table 23)
9-Ethyl-3-nitrocarbazole	GAF.
p-Ethylphenol	ACY.
*N-Ethyl-N-phenylbenzylamine	DUP, NAC, SDH.
2-Ethyl-2-phenylmalonic 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.
2-Ethylpyridine	RIL.
N-Ethyl-5-sulfoanthranilic acid	SDH.
6-Ethyl-1,1,4,4-tetramethyl-1,2,3,4-tetrahydronaphthalene.	GIV.
N-Ethyl-m-toluidine	DUP, NAC.
N-Ethyl-o-toluidine	DUP.
2-(N-Ethyl-m-toluidino)ethanol	GAF.
3-(N-Ethyl-m-toluidino)-1,2-propanediol	EKT.
3-(N-Ethyl-m-toluidino)propionitrile	DUP, EKT.
α-(N-Ethyl-m-toluidino)-m-toluenesulfonic acid	DUP.
1-Ethynylcyclohexanol	AIR.
1-Fluoro-2,4-dinitrobenzene	EK.
o-Fluorotoluene	EK.
Formanilide	DUP.
o-Formotoluidide	DUP.
4-Formyl-m-benzenedisulfonic acid	GAF.
m-Formylbenzenesulfonic acid	GAF.
*o-Formylbenzenesulfonic acid (o-Sulfobenzaldehyde)	GAF, ICC, NAC, SDH, VPC.
Furan	DUP.
Furfuryl alcohol	QKO.
*Hexachlorobenzene	DA, KPT, SCC.
Hexachlorocyclopentadiene	HK.
Hexachlorophenyl ether	DOW.
Hexamethylbenzene	EK.
2,2′,4,4′,6,6′-Hexanitrodiphenylamine	EK.
Homophthalic acid	DUP.
*p-Hydrazinobenzenesulfonic acid	ACY, DUP, GAF, SDH, STG.
3-Hydrazino-5-nitro-p-toluenesulfonic acid [SO_3H=1]	WRN.
4-Hydrazino-m-toluenesulfonic acid	GAF.
Hydroabietyl alcohol	HPC.
Hydroquinone, tech	CRS, EKT.
2′-Hydroxyacetophenone	KF.
3′-Hydroxyacetophenone	SDH.
3′-Hydroxyacetophenone benzoate	SDH.
1-Hydroxyanthraquinone	KPC, TRC.
N-(3-Hydroxy-2-anthraquinonyl)-1-nitro-2-anthraquinone carboxamide.	GAF.
2-Hydroxy-11H-benzo[a]carbazole-3-carboxylic acid	GAF, PCW.
p-Hydroxybenzoic acid	HN.
p-Hydroxybenzoic acid, benzyl ester	HN.
p-Hydroxybenzoic acid, butyl ester	HN.
p-Hydroxybenzoic acid, ethyl ester	HN.
p-Hydroxybenzoic acid, methyl ester	HN.
p-Hydroxybenzoic acid, propyl ester	HN.
4-Hydroxycoumarin	ABB.
2-Hydroxy-2,5-dimethoxy-3-dibenzofurancarboxanilide	SDH.
3-(N-2-Hydroxyethylanilino)propionitrile	DUP, ICC.
3-(N-2-Hydroxyethylanilino)propionitrile acetate	EKT.
N-β-Hydroxyethyl-o-toluidine	EKT.
2-Hydroxy-α^1, α^3-mesitylenediol	ACY.
2-Hydroxy-4-methoxybenzophenone	ACY.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
cy-4'-methylbenzophenone	x.
cy-2-methylcinchoninic acid	DUP.
cymethyl-4-isooctylphenoxy-3,6,9,12-tetraoxo-1-iecanol.	USR.
cymethylphthalamide	ACY.
cy-1-naphthalenecarbamic acid, methyl ester	TRC.
cy-2-naphthanilide	ATL, PCW.
cy-2-naphthoic acid	GAF, NAC.
cy-1-naphthoic acid	BL.
cy-2-naphthoic acid (B.O.N.)	AUG, DUP, HN, NAC, PCW, SW.
cy-2-naphthoic acid, phenyl ester	EK.
cy-3-naphtho-o-toluidide	KPC.
droxy-1-naphthyl)acetamide	CMG, GAF, TRC.
cy-4-nitroanthraquinone	TRC.
cy-4-N-octoxybenzophenone	ACY.
p-Hydroxyphenylazo)-1,1'-biphenyl-4-azo]-2-naphthol-isulfonic acid.	TRC.
p-Hydroxyphenylazo)-3,3'-dimethyl-1,1-biphenyl-]-2-naphthol-6,8-disulfonic acid.	TRC.
cy-4-sulfo-1-naphthalenediazonium hydroxide, inner	ACY.
cy-4-(p-toluidino)anthraquinone	AHC.
droxy-m-tolyl)benzamide	TRC.
zolidinone	MRA, x.
dinobis[4-aminoanthraquinone]	ACY, AHC, CMG, DUP, GAF, MAY, NAC, TRC.
dinobis[4-benzamidoanthraquinone]	ACY, MAY, NAC.
dinobis[5-benzamidoanthraquinone]	AHC, DUP, GAF, MAY, TRC.
dinobis[1-naphthol-3-sulfonic acid]	CMG, DUP, GAF, TRC.
dinobis[4-nitroanthraquinone]	AHC, DUP, MAY, TRC.
dinodianthraquinone (Dianthrimide)	ACY, AHC, CMG, DUP, GAF, MAY, NAC, TRC.
one	EK.
aphthalene	EK.
	NAC.
anhydride	MEE.
dic acid, 3,3'-dimethoxy-4,4'-biphenylene ester	CWN, NAC.
dic acid, 3,3'-dimethyl-4,4'-biphenylene ester	CWN.
dic acid, 4-(p-isocyanatophenoxy)-m-phenylene ester	DUP.
dic acid, methylenebis[m-methyl-p-phenylene ester]	NAC.
dic acid, methylenedi-p-phenylene ester	MOB, NAC.
dic acid, 4-methyl-m-phenylene ester	DUP, MOB, NAC.
dic acid, p-nitrophenyl ester	EK.
dic acid, 1,4-phenylene ester	CWN.
dic acid, polymethylene-polyphenylene ester	CWN.
otinic acid, methyl ester	RIL.
osopropiophenone	FBS.
one	UCC.
alic acid (1,3-Benzenedicarboxylic acid)	ACC, SOC.
aloyl chloride	HK.
sopropylidenediphenol (Bisphenol A)	DOW, MON, SHC.
ropyl-m-phenylenediamine	DUP.
oquinolinediol	DUP.
ocyanic acid, phenyl ester	EK.
lanthrone (Isodibenzanthrone)	AHC, DUP, GAF, MAY, TRC.
1,4-diaminoanthraquinone	ACY, AHC, DUP, GAF, ICC, MAY, TRC.
quinizarin (1,4,9,10-Anthratetrol)	ACY, DUP, EKT, HSH, ICC, KPC, NAC, TRC.
tetrahydroxyanthraquinone	GAF, ICC, TRC.
tidine	ACP, KPT.
tidine	RIL.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identifiec manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 2
Melamine	ACY.
o-Mercaptobenzoic acid	MED.
Metanilamide	TRC.
Metanilanilide	TRC.
*Metanilic acid (m-Aminobenzenesulfonic acid)	ATL, ACY, CMG, DUP, GAF, NAC, TRC.
1-Methoxyanthraquinone	GAF.
*4-Methoxymetanilic acid	CMG, GAF, PCO.
4-Methoxy-3-nitrobenzanilide	PCW.
6-Methoxy-8-nitroquinoline	GAM.
Methoxyphenol	TBK.
m-Methoxyphenol	EK.
p-Methoxyphenylacetic acid	TBK.
4'-Methoxypropiophenone	LIL.
N^1-(6-Methoxy-3-pyridazinyl)sulfanilamide	ACY.
*1-Methylaminoanthraquinone	ACY, AHC, DUP, GAF, NAC.
1-Methylamino-4-(p-toluidino)anthraquinone	AHC, GAF.
N-Methylaniline	ACY, DUP.
2-(N-Methylanilino)ethanol	GAF.
3-(N-Methylanilino)propionitrile	DUP.
5-Methyl-o-anisidine [NH_2=1]	DUP, TRC.
2-Methylanthraquinone	ACY, DUP, NAC.
1-(3-Methyl-2-anthraquinonylamino)-5-(7-oxo-7H-benz[de]-anthracen-3-ylamino)anthraquinone.	DUP.
*3-Methylbenzo[f]quinoline	ACY, DUP, GAF.
2-Methylbenzothiazole	GAF.
N-Methylbenzylamine	MLS.
Methyl benzyl ether	UCC.
Methylcyclohexane	DOW, PLC.
N-Methylcyclohexylamine	DUP.
N-Methyleneaniline	DUP.
4,4'-Methylenebis[2-chloroaniline]	DUP.
*4,4'-Methylenebis[N,N-diethylaniline] (Methane base)	DSC, DUP, GAF, SDH.
*4,4'-Methylenebis[N,N-dimethylaniline]	ACY, DUP, GAF, NAC, SDH.
4,4'-Methylenebis[N,N-dimethyl-2-nitroaniline]	GAF.
5,5'-Methylenebis[toluene-2,4-diamine]	DUP, NAC.
Methylenedisalicylic acid	HN.
1-Methyl-2-heptadecylbenzimidazole	TRC.
Methylnaphthalene, crude	KPT, VEL.
2-Methylnaphthalene	RIL.
N-Methyl-4'-nitroacetanilide	GAF, NAC.
N-Methyl-p-nitroaniline	GAF.
4-Methyl-2-nitroanisole	DUP.
*2-Methyl-1-nitroanthraquinone	AHC, DUP, GAF, KPC, NAC, TRC.
2-Methyl-5-norbornene-2,3-dicarboxylic anhydride	NAC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide	TRC.
m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	TRC.
*p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid	ACY, CMG, DUP, GAF, TRC, VPC.
4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid [SO_3H=1].	TRC.
*3-Methyl-1-phenyl-2-pyrazolin-5-one (Developer Z)	ACY, DOW, DUP, NAC, SDW, TRC, VPC.
Methylpropylcarbinylbarbituric acid	LIL.
3-Methyl-2-pyrazolin-5-one	DUP.
1-Methylpyrrole	ASL, x.
*α-Methylstyrene	ACP, DOW, HPC, SOC.
2-Methylsulfonyl-4-nitroaniline	EKT.
4-(Methylsulfonyl)-2-nitrophenol	TRC.
5-Methyl-p-toluenesulfon-o-anisidide	GAF.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
-6-(p-toluidino)-7H-dibenz[f,ij]isoquinoline-	AHC, GAF.
)-dione.	
-1-p-tolyl-2-pyrazolin-5-one	ICC, VPC.
1-4'-p-tolylsulfonamido-m-benzanisidide	GAF.
ene, solidifying at 79° C. or above (refined flake):	
omestic crude naphthalene	ACY, DUP, KPT, RIL, SW.
mported crude naphthalene	ACP, ACY, KPT, STN, SW.
thalenediol (1,5-Dihydroxynaphthalene)	NAC, TRC.
thalenedisulfonic acid	GAF, NAC, TRC.
thalenedisulfonic acid	DUP, NAC.
alenesulfonic acid, sodium salt	TRC.
alenesulfonic acid	ACY, NAC.
alenesulfonic acid, sodium salt	ACY.
alenesulfonyl chloride	DUP, GAF.
Naphthalenetetracarboxylic acid	KPC, TRC.
Naphthalenetetracarboxylic dianhydride	GAF.
phthalenetrisulfonic acid	GAF.
ic anhydride	NAC.
imide	NAC.
nic acid (4-Amino-1-naphthalenesulfonic acid)	ACY, DUP.
nic acid, sodium salt	DUP, NAC.
oic acid	EK.
ol (α-Naphthol)	DUP, NAC.
ol, tech. (β-Naphthol)	ACY, NAC, SW.
olbenzein	EK.
ol-6,8-disulfonic acid, sulfone	TRC.
ol-3,6-disulfonic acid (R acid)	ATL, NAC, TRC.
ol-3,6-disulfonic acid, disodium salt	ACY, DUP, GAF, TRC, WRN.
ol-6,8-disulfonic acid (G acid)	ATL, DUP, NAC, TRC.
ol-6,8-disulfonic acid, dipotassium salt	GAF.
ol-6,8-disulfonic acid, disodium salt	ACY, TRC.
ol-3-sulfonamide	GAF.
ol-4-sulfonic acid (Nevile & Winther's acid)	ATL, DUP, NAC.
ol-5-sulfonic acid	GAF, NAC, TRC.
ol-8-sulfonic acid	GAF, VPC.
ol-6-sulfonic acid (Schaeffer's acid)	ACY, NAC, TRC.
ol-6-sulfonic acid, sodium salt	TMS, WRN.
ol-6-sulfonic acid, sodium salt, p-toluene	DUP.
ate.	
ol-7-sulfonic acid	DUP, SW.
ol-8-sulfonic acid sultone (1,8-Naphthosultone)	CMG, TRC.
thoquinone	NAC.
styril	DUP.
2,1-b]thiophen-1(2H)-one	NAC.
1,2]oxadiazole-5-sulfonic acid	CMG, DUP, GAF, NAC, TRC.
ylamine (α-Naphthylamine)	DUP, GAF, NAC.
ylamine (β-Naphthylamine)	KLS.
phthylamino)-2-anthraquinonecarboxylic acid	TRC.
thylaminophenol (N-(p-Hydroxyphenyl)-2-naphthyl-	GAF.
).	
thylthio)acetic acid	ACY, DUP, GAF, KPC, VPC.
ic acid, n-butyl ester	ABB.
nitrile (3-Cyanopyridine)	NEP.
eanthra[2,1-a]aceanthrylene-5,13-dione	AHC.
acetanilide	TRC.
acetanilide	EKT, GAF, TRC.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 23
4′-Nitro-o-acetanisidide	DUP.
4′(and 5′)-Nitro-o-acetanisidide	GAF.
2-Nitro-p-acetanisidide	DUP, SDH.
3′-Nitroacetophenone	ACY, MEE, SDH.
4′-Nitroacetophenone	NES.
*m-Nitroaniline	ACY, DUP, TRC.
o-Nitroaniline	KPC, MON, SDH.
p-Nitroaniline	KPC, MON.
3-Nitro-p-anisic acid	GAF.
2-Nitro-p-anisidine [NH_2=1]	DUP, SDH.
*4-Nitro-o-anisidine [NH_2=1]	DUP, GAF, KPC, SDH.
*5-Nitro-o-anisidine [NH_2=1]	ACY, ALL, ATL, AUG, DUP, GAF, KLS, KPC, S
o-Nitroanisole	DUP, MON.
p-Nitroanisole	DUP.
1-Nitroanthraquinone	DUP, KPC.
1′-Nitroanthraquinone-2′-carboxyaminoaceanthra[2,1-a]-aceanthrylene-5,13-dione.	AHC.
*1-Nitro-2-anthraquinonecarboxylic acid	AHC, DUP, GAF, KPC, TRC.
*5-Nitro-1-anthraquinonesulfonic acid	DUP, GAF, MAY, NAC, TRC.
5(and 8)-Nitro-1-anthraquinonesulfonic acid	DUP, NAC.
8-Nitro-1-anthraquinonesulfonic acid	TRC.
8-Nitro-1-anthraquinonesulfonic acid, sodium salt	DUP.
2-(1-Nitro-2-anthraquinonyl)anthra[2,3]oxazole-5,10-dione	GAF.
m-Nitrobenzaldehyde	SDH, NAC.
6-(p-Nitrobenzamido)-1-naphthol-3-sulfonic acid	DUP.
*Nitrobenzene	ACY, DUP, EKT, GAF, MON, NAC.
m-Nitrobenzenesulfonamide	TRC.
3′-Nitrobenzenesulfonanilide	TRC.
*m-Nitrobenzenesulfonic acid	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
*m-Nitrobenzenesulfonic acid, sodium salt	MON.
5′-Nitro-o-benzenesulfonotoluidide	DUP.
p-Nitrobenzenesulfonyl chloride	EK.
5-Nitro-2(3H)-benzimidazolone	DUP.
m-Nitrobenzoic acid	AHC, HK, SDH.
p-Nitrobenzoic acid	CWL, DUP.
p-Nitrobenzoic acid, isobutyl ester	FBS.
m-Nitrobenzoyl chloride	HK.
p-Nitrobenzoyl chloride	DUP, HK.
4′-Nitro-4-biphenylcarboxylic acid	DUP, GAF.
3-Nitro-4-chloro-N,N-dimethylbenzenesulfonamide	EKT.
4-Nitro-o-cresol	ABB.
2-Nitro-p-cresol	DUP, TRC.
Nitrodiphenylamine	ACY.
4-Nitro-6-[3-methyl-5-acetamido-6-hydroxyphenylazo]phenol	TRC.
1-Nitronaphthalene	DUP, NAC.
3-Nitro-1,5-naphthalenedisulfonic acid	GAF, TRC.
4-Nitro-1,5-naphthalenedisulfonic acid	TRC.
8-Nitro-1-naphthalenesulfonic acid	GAF.
8(and 5)-Nitro-1(and 2)-naphthalenesulfonic acid	GAF.
7(and 8)-Nitronaphth[1,2]oxadiazole-5-sulfonic acid	CMG, DUP, GAF, NAC, TRC.
4′-Nitrooxanilic acid	DUP.
p-Nitrophenethyl acetate	EKT.
Nitrophenethyl alcohol	EKT.
p-Nitrophenetole	DUP.
o-Nitrophenol	DUP, VPC.
p-Nitrophenol	DUP, MON.
p-Nitrophenol, sodium salt	MON.
p-Nitrophenylacetic acid	BPC, EK.

TABLE 7B. --*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ltrophenyl)acetophenone	DUP.
-o-phenylenediamine	DUP.
phenylhydrazine	EK.
trophenyl)-2H-naphtho[1,2]triazole-6,8-disulfonic	TRC.
trophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid	DUP.
phthalimide	DUP.
salicylaldehyde	EK.
)-Nitrosalicylic acid	GAF.
so-2-naphthol	EK.
so-1-naphthol	EK.
sophenol	ACY, DUP, NAC, USR.
sopiperidine	EK.
styrene	CWN.
-Nitro-2-sulfostyryl)-3-sulfophenyl]-2H-naphtho-triazole-5-sulfonic acid.	TRC.
toluene	DUP.
toluene	DUP, NAC.
oluene	DUP, NAC.
luene mixtures	ACY, DUP, NAC.
-o-toluenesulfonanilide	GAF.
-p-toluenesulfonic acid [SO_3H=1]	CMG, GAF, TRC.
-o-toluenesulfonic acid [SO_3H=1]	ACY, DUP, GAF, KPC, NAC, SDH, TRC.
)-p-toluenesulfono-o-toluidide	GAF.
-o-toluenesulfonyl chloride	GAF.
-o-toluidine [NH_2=1]	ABB, DUP, GAF, SDH.
-o-toluidine [NH_2=1]	DUP, KLS, KPC, SDH.
-p-toluidine [NH_2=1]	ACY, DUP, NAC, SDH, SW.
)violanthrone	ACY, GAF, MAY.
-m-xylene	DUP.
-p-xylene	DUP.
lenes, mixed	ACY, DUP, NAC.
Nonyl-p-cresol	USR.
lnonylphenol, mixture	JCC.
and dodecylbenzenes, mixed	ATR.
enol	GAF, JCC, RH, UCC, UCP, UPM, USR.
ylphenoxy)ethanol	GAF.
enol	RH.
tic acid, diethyl ester, p-sulfophenylhydrazone	TRC.
)-7H-benz[de]anthracen-3-ylamino)anthraquinone	ACY, AHC, DUP, GAF, TRC.
-Oxo-7H-benz[de]anthracen-3,9-ylenediimino)-raquinone.	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
-phenyl-2-pyrazoline-3-carboxylic acid	SDW, VPC.
-phenyl-2-pyrazoline-3-carboxylic acid, ethyl ester	GAF.
-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid zolone T).	GAF, KPC.
iianiline	DUP.
lorophenylthio)acetic acid	DUP.
yltoluene	CO.
,5-Pentamethylindan	GIV.
aphthalenes (Amylnaphthalenes)	PAS.
lphenol (o-Amylphenol)	PAS.
)-Perylenetetracarboxylic acid	GAF.
)-Perylenetetracarboxylic diimide	GAF.
ylamine	MLS.
ylamine sulfate	MLS.
thylresorcinol	KPC.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Chemical	Manufacturers' identification code (according to list in table 23)
o-Phenetidine	MON.
p-Phenetidine	DUP, MON.
*Phenol:	
*Natural:	
*From coal tar:[1]	
U.S.P	REP.
39° C., m.p	KPT, PRD, RIL.
*82%-84%	ACP, KPT, PRD, RIL.
All other	ACP, ACY, KPT, PRD, RIL.
*From petroleum	MER, PIT, PRD.
*Synthetic:	
By caustic fusion:	
U.S.P	MAL, MON, RCI.
All other	HKD.
From chlorobenzene by liquid-phase hydrolysis: U.S.P	DOW.
From chlorobenzene by vapor-phase hydrolysis: U.S.P	UCP.
*From cumene	ACP, HPC, SHC, SOC.
Phenolsulfonephthalein	EK.
*1-Phenol-4-sulfonic acid	DOW, MON, UPF.
1-(Phenothiazin-2-yl)-1-propanone	WYT.
Phenoxyacetic acid	DA, DOW.
α-Phenoxypropionyl chloride	FBS, OPC.
Phenylacetic acid (α-Toluic acid)	BPC, GIV, TBK.
Phenylacetic acid, ethyl ester, tech	BPC, MAL.
*Phenylacetic acid, potassium salt	BPC, MON, OPC, TBK.
Phenylacetic acid, sodium salt	BPC.
*Phenylacetonitrile (α-Tolunitrile)	BPC, KF, OPC, SDW, TBK.
4'-Phenylacetophenone	DUP, GAF.
2-Phenylanthr[2,3]oxazole-5,10-dione	GAF.
*p-Phenylazoaniline (p-Aminoazobenzene) and hydrochloride	ACY, DUP, GAF, KPC, NAC, TRC.
p-Phenylazobenzoyl chloride	EK.
4-Phenylazodiphenylamine	EK.
4-Phenylazo-1-naphthylamine	DUP.
1-Phenyl-1,3-butanedione	EK.
4-Phenyl-3-buten-2-one	ABB.
2-Phenylbutyric acid	BPC.
2-Phenylcyclopropanecarboxylic acid, ethyl ester	BPC.
N-Phenyldibenzylamine	DUP.
N,N'-p-Phenylenebis[acetamide]	ACY.
m-Phenylenediacetate	EK.
*m-Phenylenediamine	ACY, DUP, GAF, NAC, PDC.
*o-Phenylenediamine	FMT, KPC, MEE, MRT, TRC.
*p-Phenylenediamine	ACY, BFG, NAC, SW.
Phenyl ether (Diphenyl oxide)	DOW.
Phenylglycine, sodium salt	DUP, NAC.
5-Phenylhydantoin	ABB.
Phenylhydrazine	DOW.
Phenylhydrazine hydrochloride	DUP, EK, FIN, GAF.
2,2'-(Phenylimino)diethanol (Phenyldiethanolamine)	EKT, GAF, KPC, UCC.
Phenylmalonic acid, diethyl ester	BPC.
o-Phenylphenol	DOW, RCI.
o-Phenylphenol, chlorinated	DOW.
o-Phenylphenol, sodium salt	DOW.
p-Phenylphenol	DOW.
N-Phenyl-p-phenylenediamine	DUP, USR.

See footnote at end of table.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
phosphonous acid	VIC.
phosphonous acid, sodium salt	VIC.
-2-propanone	ORT, SK.
-2-pyridyl ketone	RIL.
sulfone	DUP.
tetramer	SPD.
glucinol	MRT.
azinone	KPC.
lic acid	KF, MEE.
lic acid, mono-m-butyl ester	x.
lic anhydride	ACC, ACP, ACY, KPP, KPT, MON, NAC, PCC, RCI, SOC, SW, WTC.
lic anhydride residue	SOC, SW.
lde	NAC.
lmide	DOW, DUP, MEE, NAC, SFA.
lmide, potassium salt	EK.
ocyanine, iron derivative	DUP.
ocyaninedisulfonic acid, copper derivative	TRC.
onitrile	ACP.
oyl chloride (Phthalyl chloride)	MON.
nes:[1]	
oline (α-Picoline)	ACP, KPT, RIL, UCC.
oline (β-Picoline)	RIL.
oline (γ-Picoline)	RIL, UCC.
ine (3,4-mixture)	ACP, KPT.
lc acid and salt	DUP.
acid (Trinitrophenol)	DUP, NAC, SDC.
chloride	EK.
oline (α-Pipecoline)	LIL.
zine mixture, crude	JCC.
line	ABB, DUP, HK, MRK, RIL.
lorobiphenyl	MON.
decylbenzene	CO.
ntadecyltoluene	CO.
lum phenoxide	DUP.
ine base	DUP, NAC.
nesulfonic acid	PCO.
henone	LIL, OPC, TBK.
poxy-1-naphthol	x.
rlbenzene	EK.
rone	AHC.
	GAF.
ne, refined:[1]	
ridine	ACP, KPT, RIL.
grades	GGY, KPT.
idinedicarboxylic acid, di-n-propyl ester	ASL.
ne hydrochloride	EK.
linol	NEP.
linol	NEP.
yridone	FMT.
llitic acid	DUP.
llitic dianhydride	DUP.
idine	ASL.
olidinone	GAF.
line	ACY, DUP, NAC.

otnote at end of table.

TABLE 7B.--*Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification cc (according to list in table 2
Quinalizarin	EK
2,4(1H,3H)-Quinazolinedione	MEE.
*Quinizarin	ACY, AHC, CMG, CWN, DUP, EKT, GAF, HSH, MAY, NAC, TRC.
2-Quinizarinsulfonic acid	NAC, PAT.
Quinoline:	
1° and 2° Quinoline	ACP, KPT.
Other grades	EK.
2,4-Quinolinediol	DUP.
Quinoline yellow, base	GAF, NAC.
Quinophthalone	DUP.
Resorcinol, tech	KPC, LEM.
Resorcinol, monoacetate	KPC.
β-Resorcylaldehyde	GAF.
β-Resorcylic acid	ACY, KPC.
Rhodanine	EK.
Salicylaldehyde	HN.
*Salicylanilide	DUP, FIN, MEE, MON, PCW.
*Salicylic acid, tech	DOW, HN, MON, SDH.
Salicylic acid, ammonium chromium complex	TRC.
Salicylic acid, sodium salt (crude)	DOW.
Salicylideneaminoguanidine oleate	DUP.
Sodium phenoxide	DUP, FIN.
Styphnic acid, lead salt	REM.
*Styrene, all grades	CSD, DOW, FG, KPP, MTC, ODS, SHC, UCC.
4'-Sulfamoylacetanilide	ACY.
5-Sulfamoylanthranilic acid	TRC.
Sulfanilic acid (p-Aminobenzenesulfonic acid) and salt	ACY, DUP, NAC.
4-Sulfoanthranilic acid	CMG, GAF.
o-Sulfobenzoic anhydride	EK.
5-Sulfoisophthalic acid, dimethyl ester	DUP.
4,4'-Sulfonyldiphenol (4,4'-Dihydroxydiphenylsulfone)	GAF, MON, TRC, UPF.
4-Sulfophthalic acid	CWN.
4-Sulfophthalic anhydride, potassium salt	DUP.
Terephthalic acid	ACC, DUP, SOC.
Terephthalic acid dihydrazide	DUP.
*Terephthalic acid, dimethyl ester	ACC, DUP, HPC.
2-Terephthaloylbenzoic acid	PCW.
Terephthaloyl-bisacetic ester	PCW.
Terphenyl (Phenylbiphenyl)	ARA, MON.
Tetraaminophthalocyanine, copper derivative	DUP.
3',3'',5',5''-Tetrabromophenolphthalein	EK.
Tetrabromo-8,16-pyranthrenedione	GAF, TRC.
1,3,6,8-Tetrabromopyrene	GAF.
*1,4,5,8-Tetrachloroanthraquinone	AHC, DUP, GAF, NAC.
1,2,4,5-Tetrachlorobenzene	DOW, HK.
Tetrachlorodiphenol	MON.
Tetrachloronitrobenzene	SDH.
1,3,6,8-Tetrachloropyrene	TRC.
α,α,2,6-Tetrachlorotoluene	DUP.
3,12,16,17-Tetrachloroviolanthrone	AHC.
Tetrahydrofuran	DUP.
Tetrahydroisoquinoline	TBK.
Tetrahydro-2-methylfuran	QKO.
1,4,5,8-Tetrahydroxyanthraquinone	ACY.
*1,4,5,8-Tetrakis[1',1'',1''',1''''-anthraquinonylamino]-anthraquinone (Pentanthramide).	AHC, DUP, NAC.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identified by manufacturer, 1960* --Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
),3-Tetramethylbutyl)phenol	GAF.
,'-Tetramethyl-p-phenylenediamine	EK.
rophthalocyanine, copper derivative	DUP.
)-Tetraoxaspiro-5,5-undecane	EK.
nylamino)pyridine	ABB.
ene	TRC.
ene-X,Y-dicarboxylic acid	TRC.
ene-X,Y-dinitrile	TRC.
obis[7H-benz[de]anthracen-7-one]	ACY, AHC, DUP, GAF, TRC.
odianiline	ACY, DUP.
odimetanilic acid	NAC.
dipropionic acid	ACY.
enecarboxaldehyde	ABB.
ne	CWN, DUP, NAC.
ne dihydrochloride	CWN.
ne hydrochloride	DUP.
-2,4-diamine (4-m-Tolylenediamine)	ACY, BL, DUP, GAF, NAC, SDC, TRC.
-2,4-disulfonic acid	GAF.
esulfonamide	MON.
-Toluenesulfonamide	ACY, NES.
esulfonamide	MON.
-Toluenesulfonic acid	GAF, MON, NES, SW, UPF.
esulfonic acid, anhydrous	TN.
esulfonic acid, 2-chloroethyl ester	GAF.
esulfonic acid, ethyl ester	ACY, ATL, VPC.
esulfonic acid, methyl ester	AHC, MON, VPC.
esulfonic acid monohydrate	UPF.
esulfono-o-toluidide	DUP, GAF.
esulfonyl chloride	MON.
esulfonyl chloride	MON.
ethiol	EK.
droquinone (Methylhydroquinone)	EKT.
acid	CWL.
acid	CWL.
acid	CWL.
line	DUP, NAC.
line	DUP, KPC, NAC.
line hydrochloride	ACY.
line	DUP, NAC.
line hydrochloride	EK.
es, mixed	ACY.
linomethanesulfonic acid	TRC, VPC.
linomethanesulfonic acid	DUP.
uidino)-1-naphthalenesulfonic acid	NAC.
uidino)-5-nitrobenzenesulfonic acid	TRC.
trile	EK.
uoyl)benzoic acid	ACY, DUP, TRC.
ylazo)-o-anisidine hydrochloride	GAF.
ylazo)-o-toluidine (o-Aminoazotoluene)	ACY, DUP, GAF, KPC, NAC, SDH.
-Tolylimino)diethanol	EKT, GAF, KPC.
ibromophenol	DOW.
ribromosalicylanilide	MEE.
d 1,2,4)-Trichlorobenzene	SVT.
ichlorobenzene	DOW, HK.
ichloro-p-benzoquinone imine	EK.
-Trichlorophenyl)-3-(4-nitroanilino)-2-lin-5-one.	EK.
ophenylsilane	UCS.

TABLE 7B. -- *Cyclic intermediates for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 2
α,α,α -Trichlorotoluene (Benzotrichloride)	HK, HN, TNP.
α,2,4-Trichlorotoluene	HN.
α,2,4(and α,2,6)-Trichlorotoluene	BPC.
α,3,4-Trichlorotoluene	HN.
1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)-trione	MON.
1,3,5-Triethylbenzene	DUP.
α,α,α -Trifluoro-4-nitro-m-cresol	MEE.
α,α,α -Trifluoro-m-nitrotoluene	MEE.
α,α,α -Trifluorotoluene	HK.
α,α,α -Trifluoro-m-toluidine	MEE.
α,α,α -Trifluoro-o-toluidine	MEE.
3,4,5-Trimethoxybenzoic acid	EK, KF.
2,4,5-Trimethylaniline (Pseudocumidine)	NAC.
1,2,4-Trimethylbenzene	ENJ, PLC.
1,3,3-Trimethyl-$\Delta^{2,\alpha}$-indolineacetaldehyde	DUP.
1,3,3-Trimethyl-2-methyleneindoline	DUP.
Trimethylphenylammonium iodide	EK.
1,3,5-Trinitrobenzene	EK.
2,4,6-Trinitrobenzoic acid	MRT.
2,4,7-Trinitrofluoren-9-one	EK.
Triphenylmethanol	EK.
2,4,6-Tris[dimethylaminomethyl]phenol	RH.
3,3'-Ureylenebis[4-methoxybenzenesulfonic acid]	DUP.
*6,6'-Ureylenebis[1-naphthol-3-sulfonic acid] (J acid urea)-	ACY, BL, CMG, DUP, GAF, NAC, PCO, TRC, V
Veratraldehyde (3,4-Dimethoxybenzaldehyde)	SLV.
p-Vinylbenzenesulfonic acid, sodium salt	DUP.
4-Vinylcyclohexene	PLC.
2,2'-Vinylenebis[benzimidazole]	TRC.
5-Vinyl-2-picoline (MVP)	PLC.
2-Vinylpyridine	RIL.
4-Vinylpyridine	RIL.
*Violanthrone (Dibenzanthrone)	ACY, AHC, DUP, GAF, KPC, MAY, PCO, TRC.
9-Xanthenecarboxylic acid	MAL.
m-Xylene	ENJ, PLC, SOC.
*o-Xylene	ASH, CSD, DLH, ENJ, PLC, SIN, SNT, SOC.
*p-Xylene	CSD, ENJ, SIN, SOC.
Xylenesulfonic acid	NES.
2,4-Xylenol	EK.
Xylenol crystals	ACP, KPT.
Xylenols:	
Low b.p	PIT, PRD.
Medium b.p	PCC, PIT, PRD.
Not classified as to b.p	PRD, RIL.
Xylidines:	
2,4-Xylidine (m-4-Xylidine)	DUP.
2,5-Xylidine (p-Xylidine)	DUP, GAF, NAC.
2,6-Xylidine	EK.
Original mixture	DUP, NAC.
4-(2,4-Xylylazo)-o-toluidine	NAC.
4-(Xylylazo)xylidine	GAF.
4-(2,4-Xylylazo)-2,5-xylidine	NAC.
All other intermediates	ICC, NAC, NEP.

[1] Does not include manufacturers' identification codes for producers that report to the Division of Bi Coal, U.S. Bureau of Mines. These producers are listed in the U.S. Bureau of Mines Information Circular *in the United States on December 31, 1960.*

Dyes

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*

or which separate statistics are given in table 8A are marked below with an asterisk (*); dyes not so marked t appear in table 8A because the reported data are accepted in confidence and may not be published. Manufacs' identification codes shown below are taken from table 23. An x signifies that the manufacturer did not nt to his identification with the designated product]

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES	
ellow dyes:	
yellow 1	ACY, NAC.
yellow 2	DUP.
yellow 3	ACY, DUP, GAF, NAC.
yellow 4	SDH.
yellow 7	NAC.
yellow 11	CMG, DUP, GAF, VPC.
yellow 14	TRC.
yellow 17	ACY, BKS, CMG, DUP, GAF, NAC, PCO, SDH, TRC, VPC.
yellow 23	ACY, GAF, KPC, NAC, SDH, TRC, VPC.
yellow 25	GAF, VPC.
yellow 29	GAF, TRC.
yellow 34	NAC.
yellow 36	DUP, GAF, NAC, TRC.
yellow 38	NAC.
yellow 40	DUP, GAF, NAC, VPC.
yellow 42	ACY, GAF, KPC, TRC, VPC.
yellow 44	GAF, KPC, NAC, TRC, VPC.
yellow 54	ACY, BKS, CMG, GAF, NAC, TRC, VPC.
yellow 60	NAC.
yellow 63	KPC, NAC.
yellow 65	TRC.
yellow 73	NAC, NYC, SDH, SNA.
yellow 76	TRC.
yellow 90	NAC.
yellow 95	CMG.
yellow 99	CMG, GAF, NAC, TRC, VPC.
yellow 113	TRC.
yellow 114	TRC.
yellow 127	TRC.
yellow 128	TRC.
r acid yellow dyes	ACY, ALT, DUP, GAF, TRC, VPC.
range dyes:	
orange 1	ALT, BKS, GAF, NAC.
l orange 2	NAC, TRC.
l orange 6	NAC.
l orange 7	ACY, ATL, GAF, KPC, NAC, TRC, YAW.
l orange 8	ACY, DUP, GAF, NAC, TRC.
l orange 10	ACY, ATL, DUP, GAF, NAC, TRC, YAW.
l orange 11	SDH.
l orange 12	NAC.
l orange 19	GAF.
l orange 20	NAC.
l orange 24	ACY, DUP, GAF, KPC, NAC, TRC, YAW.
l orange 28	NAC.
l orange 31	KPC.
l orange 32	VPC.
l orange 34	ACY.
l orange 45	NAC, TRC.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Dye	Manufacturers' identification co (according to list in table 23)
ACID DYES--Continued	
*Acid orange dyes--Continued	
Acid orange 49	TRC.
Acid orange 50	KPC.
Acid orange 51	CMG, NAC, TRC.
Acid orange 56	GAF.
*Acid orange 60	CMG, DUP, GAF.
Acid orange 62	TRC.
Acid orange 63	GAF, TRC.
Acid orange 64	DUP, NAC.
Acid orange 69	ACY.
Acid orange 72	GAF.
*Acid orange 74	CMG, GAF, NAC, TRC, VPC.
Acid orange 76	TRC.
Acid orange 86	TRC.
Other acid orange dyes	ALT, VPC.
*Acid red dyes:	
*Acid red 1	ACY, BKS, DUP, GAF, KPC, NAC, TRC, VPC, Y
*Acid red 4	ATL, CMG, DUP, GAF, TRC, VPC, YAW.
Acid red 12	GAF, NAC.
*Acid red 14	ATL, DUP, GAF, NAC, TRC.
Acid red 17	NAC, TRC.
*Acid red 18	ACY, ATL, DUP, GAF, NAC, TRC.
Acid red 25	TRC.
*Acid red 26	ACY, ATL, GAF, NAC.
Acid red 27	NAC, TRC.
Acid red 32	GAF, NAC.
Acid red 33	NAC, YAW.
Acid red 34	DUP, NAC.
Acid red 35	GAF, KPC.
*Acid red 37	DUP, GAF, NAC, TRC.
Acid red 39	NAC.
Acid red 51	NYC.
Acid red 52	GAF.
Acid red 57	TRC.
Acid red 60	TRC.
Acid red 66	KPC, NAC.
*Acid red 73	ACY, DUP, GAF, NAC, TRC.
Acid red 76	NAC.
Acid red 80	GAF.
*Acid red 85	ACY, BL, CMG, DUP, GAF, NAC, TRC, VPC.
*Acid red 87	AMS, NAC, NYC, SDH.
*Acid red 88	ACY, ATL, DUP, GAF, KPC, NAC, PCO, SDH, T
*Acid red 89	GAF, KPC, TRC.
*Acid red 92	NAC, NYC, SDH, VPC.
Acid red 94	NYC, TRC.
Acid red 97	GAF, TRC.
*Acid red 99	CMG, NAC, TRC, VPC.
Acid red 104	KPC.
Acid red 106	YAW.
Acid red 109	VPC.
Acid red 113	DUP.
Acid red 114	ATL, DUP.
*Acid red 115	GAF, NAC, TRC.
Acid red 119	NAC.
Acid red 133	GAF.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES--Continued	
dyes--Continued	
ed 134	TRC, VPC.
ed 137	ACY, DUP, GAF, NAC, TRC.
ed 151	ACY, KPC, TRC, YAW.
ed 167	BKS, GAF, NAC, TRC.
ed 175	DUP.
ed 178	DUP.
ed 179	CMG, TRC.
ed 182	ACY, CMG, DUP, GAF, NAC.
ed 183	CMG, TRC, VPC.
ed 186	ACY, BKS, CMG, DUP, GAF, TRC, VPC.
ed 189	ACY.
ed 190	ACY.
ed 191	TRC.
ed 192	TRC.
ed 194	TRC.
ed 197	DUP, TRC.
ed 207	NAC.
ed 212	TRC.
ed 213	TRC.
acid red dyes	ACY, ALT, GAF, VPC.
let dyes:	
iolet 1	CMG, GAF, NAC, TRC.
iolet 3	ACY, DUP, NAC, TRC.
iolet 6	NAC, TRC.
iolet 7	CMG, DUP, GAF, KPC, NAC, TRC, VPC.
iolet 9	GUY.
iolet 11	GAF.
iolet 12	DUP, GAF, TRC.
iolet 13	DUP.
iolet 14	TRC.
iolet 17	DUP, GAF, SDH.
iolet 21	DUP.
iolet 29	HSH.
iolet 34	AHC, NAC.
iolet 43	AHC, DUP, HSH.
iolet 49	ACY, NAC, SDH, TRC.
iolet 56	GAF.
iolet 58	GAF.
iolet 76	NAC.
iolet 79	NAC.
acid violet dyes	ALT, DUP.
e dyes:	
lue 1	GAF, NAC.
lue 7	ACY, GAF, NAC, SDH.
lue 9	ACY, GAF, NAC, SDH, VPC.
lue 10	KPC, NAC.
lue 13	DUP.
lue 15	DUP, GAF.
lue 18	GAF, NAC.
lue 20	ACY, NAC.
lue 22	ACY, GAF, NYC.
lue 23	NAC, TRC.
lue 25	CMG, DUP, GAF, NAC, TRC.
lue 26	NAC.
lue 27	GAF.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified i manufacturer, 1960*--Continued

Dye	Manufacturers' identification c (according to list in table 2.
ACID DYES--Continued	
*Acid blue dyes--Continued	
Acid blue 29	PDC, YAW.
Acid blue 34	NAC.
Acid blue 35	NAC.
*Acid blue 40	AHC, GAF, NAC, TRC.
*Acid blue 41	CMG, GAF, NAC.
*Acid blue 43	ACY, GAF, NAC, TRC.
*Acid blue 45	ACY, CMG, DUP, GAF, NAC, TRC.
Acid blue 47	AHC, DUP.
Acid blue 48	SUC.
*Acid blue 59	GAF, NAC, TRC.
Acid blue 62	GAF, VPC.
Acid blue 63	NAC.
Acid blue 67	CMG, NAC.
Acid blue 69	DUP, GAF.
Acid blue 74	DUP, NAC.
*Acid blue 78	AHC, DUP, GAF, ICC.
Acid blue 79	DUP.
Acid blue 80	TRC.
Acid blue 81	AHC.
Acid blue 83	GAF.
Acid blue 89	NAC.
*Acid blue 90	GAF, NAC, TRC.
Acid blue 92	NAC.
Acid blue 93	SUC.
Acid blue 99	NAC.
Acid blue 102	GAF, NAC, TRC.
Acid blue 104	DUP, GAF, NAC.
Acid blue 109	NAC.
Acid blue 110	NYC.
Acid blue 113	CMG, DUP, GAF.
Acid blue 118	GAF, NAC.
Acid blue 120	GAF, KPC, NAC.
Acid blue 122	DUP.
Acid blue 137	NAC.
Acid blue 145	DUP.
Acid blue 154	TRC.
*Acid blue 158 and 158A	ACY, BKS, CMG, DUP, GAF, NAC, TRC, VPC.
Acid blue 159	GAF.
Acid blue 165	DUP.
Other acid blue dyes	ALT, GAF, KPC, VPC.
*Acid green dyes:	
Acid green 1	ACY, NAC.
*Acid green 3	ACY, DUP, GAF, NAC, TRC.
Acid green 5	GAF.
*Acid green 9	ACY, DUP, GAF, NAC, VPC.
*Acid green 12	GAF, NAC, TRC.
*Acid green 16	DUP, GAF, NAC, SDH, TRC.
*Acid green 20	ATL, CMG, DUP, NAC, TRC.
Acid green 22	GAF, NAC.
*Acid green 25	AHC, CMG, GAF, HSH, KPC, NAC, TRC, VPC.
Acid green 35	TRC.
Acid green 41	AHC.
*Acid green 50	ACY, GAF, VPC.
Other acid green dyes	ALT, DUP, VPC.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
ACID DYES--Continued	
wn dyes:	
rown 1	GAF.
rown 2	KPC.
rown 6	GAF.
rown 14	ACY, DUP, GAF, KPC, NAC, TRC, YAW.
rown 19	TRC.
rown 22	DUP.
rown 28	TRC.
rown 29	DUP.
rown 31	GAF.
rown 42	NAC.
rown 45	TRC.
rown 93	ACY.
rown 94	ACY.
rown 96	ACY.
rown 97	ACY.
rown 98	ACY, TRC.
rown 129	TRC.
rown 158	GAF.
acid brown dyes	ACY, ALT, DUP, GAF, VPC.
ack dyes:	
lack 1	ACY, ATL, BKS, CMG, DUP, GAF, KPC, NAC, SDH, TRC, YAW.
lack 2	ACY, NAC.
lack 12	NAC.
lack 15	NAC.
lack 16	NAC.
lack 18	NAC.
lack 24	CMG, DUP, GAF, NAC.
lack 26, 26A, and 26B	DUP, NAC, TRC.
lack 41	NAC, YAW.
lack 48	ACY, AHC, CMG, DUP, GAF, NAC, TRC.
black 52	BKS, GAF, NAC, TRC, VPC.
black 58	TRC.
black 60	TRC.
black 92	ACY.
acid black dyes	ALT, CMG, DUP, GAF, KPC, NAC, TRC.
AZOIC DYES AND COMPONENTS	
Azoic Compositions	
ellow dyes:	
yellow 1	ATL, BUC, GAF, HST, VPC.
yellow 2	ACY, BUC, GAF, HST, x.
yellow 3	ATL, GAF.
yellow 10	DUP.
range dyes:	
orange 3	ATL, BUC, GAF, HST, SNA, VPC, x.
orange 4	GAF.
ed dyes:	
red 1	ACY, ATL, AUG, BUC, DUP, GAF, HST, NAC, SNA, VPC, x.
red 2	ATL, AUG, BUC, DUP, GAF.
red 6	ACY, ATL, AUG, BUC, DUP, GAF, HST, SNA, VPC, x.
red 13	GAF.
red 14	GAF.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Dye	Manufacturers' identification c (according to list in table 2
AZOIC DYES AND COMPONENTS--Continued	
Azoic Compositions--Continued	
*Azoic red dyes--Continued	
Azoic red 15	ATL, GAF.
Azoic red 16	ATL, AUG, GAF.
Other azoic red dyes	ACY, ATL, BUC, GAF, VPC, x.
Azoic violet dyes:	
*Azoic violet 1	ATL, GAF, HST, VPC, x.
Other azoic violet dyes	GAF.
*Azoic blue dyes:	
Azoic blue 2	ATL, GAF, VPC.
*Azoic blue 3	ACY, ATL, BUC, DUP, GAF, NAC, x.
Azoic blue 4	GAF.
Azoic blue 5	GAF, HST.
Azoic blue 6	ATL, GAF.
Azoic blue 7	GAF.
Other azoic blue dyes	VPC.
Azoic green dyes:	
Azoic green 1	ATL, GAF.
Other azoic green dyes	VPC.
Azoic brown dyes:	
Azoic brown 7	ATL.
*Azoic brown 9	ATL, BUC, GAF, HST, VPC, x.
Azoic brown 10	GAF.
Other azoic brown dyes	ATL, GAF, VPC.
*Azoic black dyes:	
Azoic black 1	GAF, HST.
Azoic black 2	ATL, DUP.
Azoic black 3	ATL.
*Azoic black 4	ATL, BUC, GAF.
Other azoic black dyes	ALL, ATL, GAF, VPC.
Azoic Diazo Components, Bases (Fast Color Bases)	
Azoic diazo component 1, base	NAC, SDH.
Azoic diazo component 2, base	ATL, KPC.
Azoic diazo component 3, base	SDH, SNA.
*Azoic diazo component 4, base	ALL, AUG, GAF, SDH.
*Azoic diazo component 5, base	DUP, GAF, SDH.
*Azoic diazo component 8, base	AUG, DUP, KPC, SDH.
*Azoic diazo component 9, base	DUP, KPC, VPC.
*Azoic diazo component 10, base	BUC, GAF, SNA.
*Azoic diazo component 12, base	AUG, DUP, KPC, SDH, VPC.
*Azoic diazo component 13, base	ALL, ATL, AUG, DUP, GAF, KPC, NAC, SDH.
*Azoic diazo component 20, base	ALL, GAF, SDH.
Azoic diazo component 27, base	GAF.
*Azoic diazo component 28, base	ALL, AUG, GAF, KPC, SDH.
*Azoic diazo component 32, base	ATL, AUG, BUC, DUP, GAF, KPC, MAY, NAC,
Azoic diazo component 34, base	GAF, SDH.
Azoic diazo component 38, base	VPC.
Azoic diazo component 41, base	GAF.
Azoic diazo component 44, base	SDH.
*Azoic diazo component 48, base	ALL, BUC, CWN, DUP, SNA.
Other azoic diazo components, bases	DUP.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Dye	Manufacturers' identification codes (according to list in table 23)
AZOIC DYES AND COMPONENTS--Continued	
Azoic Diazo Components, Salts (Fast Color Salts)	
zo component 1, salt	AUG, GAF, KPC, SDH.
zo component 2, salt	ALL, GAF.
zo component 3, salt	ALL, ATL, AUG, GAF, KPC, NAC, SDH, VPC.
zo component 4, salt	ALL, DUP, KPC.
zo component 5, salt	AUG, GAF, KPC, NAC, SDH, VPC.
zo component 6, salt	GAF, KPC, SDH.
zo component 8, salt	ALL, AUG, GAF, KPC, NAC, SDH, VPC.
zo component 9, salt	ALL, AUG, GAF, KPC, NAC, SDH, VPC.
zo component 10, salt	GAF, SDH.
zo component 11, salt	ALL, ATL, GAF, KPC, VPC.
zo component 12, salt	AUG, GAF, KPC, SDH, VPC.
zo component 13, salt	ALL, ATL, AUG, GAF, KPC, NAC, SDH, VPC.
zo component 20, salt	ALL, GAF, SDH.
zo component 28, salt	ALL, AUG, GAF, KPC, SDH, VPC.
zo component 32, salt	ALL, AUG, SDH.
zo component 34, salt	GAF.
zo component 35, salt	GAF.
zo component 36, salt	ALL, GAF, KPC, NAC.
zo component 37, salt	GAF.
zo component 40, salt	GAF.
zo component 41, salt	ALL, GAF, VPC.
zo component 42, salt	ALL, GAF, VPC.
zo component 44, salt	GAF.
zo component 48, salt	GAF, KPC, NAC, SDH.
zo component 49, salt	GAF, KPC, SDH.
ic diazo components, salts	GAF.
Azoic Coupling Components (Naphthol AS and Derivatives)	
pling component 1	AUG.
pling component 2	ATL, AUG, BUC, DUP, GAF, NAC, PCW.
pling component 3	AUG, BUC, GAF, KPC, NAC, PCW.
pling component 4	ATL, AUG, GAF, KPC, NAC, PCW.
pling component 5	GAF, KPC, PCW, SDH.
pling component 7	AUG, GAF, KPC, PCW, SDH.
pling component 8	GAF, KPC, NAC, PCW.
pling component 10	NAC, PCW.
pling component 11	GAF, KPC, NAC, PCW.
pling component 12	AUG, BUC, GAF, KPC, PCW.
pling component 13	GAF, KPC, PCW, SDH.
pling component 14	ATL, AUG, BUC, GAF, KPC, PCW, SDH.
pling component 15	GAF, SDH.
pling component 16	GAF, SDH.
pling component 17	ALL, ATL, AUG, BUC, DUP, GAF, KPC, PCW, SDH.
pling component 18	ACY, ATL, AUG, BUC, DUP, GAF, KPC, NAC, PCW, SDH.
pling component 19	SDH.
pling component 20	ATL, AUG, BUC, DUP, GAF, KPC, NAC, PCW, SDH.
pling component 21	ATL, AUG, BUC, KPC, PCW.
pling component 23	GAF.
pling component 24	GAF, PCW.
pling component 29	ATL, AUG, GAF, KPC, PCW.
pling component 33	GAF.
pling component 34	ATL, BUC, GAF, PCW, SDH.
pling component 35	ALL, GAF, PCW.
pling component 36	GAF.
pling component 43	GAF.
ic coupling components	ATL, GAF, PCO.
BASIC DYES	
low dyes:	
ellow 1	DUP.
ellow 2	ACY, DUP, NAC.
ellow 5	NAC.
ellow 10	GAF.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified t manufacturer, 1960***--Continued

Dye	Manufacturers' identification co (according to list in table 23
BASIC DYES--Continued	
Basic yellow dyes--Continued	
Basic yellow 11	DUP.
Basic yellow 13	DUP, GAF.
Other basic yellow dyes	DUP, GAF.
*Basic orange dyes:	
*Basic orange 1	ACY, GAF, NAC.
*Basic orange 2	ACY, DUP, GAF, NAC.
Basic orange 10	VPC.
Basic orange 14	GAF, VPC.
Basic orange 15	NAC.
Basic orange 17	NAC.
Basic orange 21	DUP, GAF.
Other basic orange dyes	DUP.
*Basic red dyes:	
Basic red 1	DUP, GAF.
*Basic red 2	DUP, GAF, NAC.
*Basic red 9	ACY, NYC, SUC, SW.
Basic red 13	GAF.
Basic red 14	DUP, GAF.
Other basic red dyes	DUP, GAF.
Basic violet dyes:	
*Basic violet 1	ACY, DSC, GAF, NAC, SUC.
Basic violet 2	ACY.
*Basic violet 3	DSC, DUP, GAF, NAC, SDH.
*Basic violet 4	DSC, DUP, GAF, NAC.
Basic violet 5	NAC.
Basic violet 7	GAF.
*Basic violet 10	ACY, DUP, GAF, NAC.
Basic violet 13	DSC.
*Basic violet 14	ACY, NAC, NYC.
*Basic blue dyes:	
*Basic blue 1	DSC, GAF, NAC, SDH.
Basic blue 4	DUP.
Basic blue 5	DSC, SDH.
Basic blue 6	ACY, NAC.
*Basic blue 7	DSC, DUP, GAF, NAC, SDH.
*Basic blue 9	ACY, GAF, NAC.
Basic blue 11	DSC, DUP.
Basic blue 21	DUP.
Basic blue 22	DUP.
*Basic blue 26	DSC, DUP, GAF, NAC, SDH.
Other basic blue dyes	DUP.
Basic green dyes:	
*Basic green 1	ACY, DSC, DUP, NAC, SDH.
Basic green 3	DUP.
*Basic green 4	ACY, DSC, NAC, SDH.
Basic green 5	ACY.
*Basic brown dyes:	
*Basic brown 1	ACY, DUP, GAF, NAC, TRC.
Basic brown 2	GAF, NAC.
*Basic brown 4	ACY, DUP, GAF, NAC, TRC.
Other basic brown dyes	DUP.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES	
llow dyes:	
yellow 4	ACY, DUP, GAF, NAC, TRC.
yellow 5	ACY, NAC.
yellow 6	ACY, DUP, GAF, NAC, TRC.
yellow 7	PCO.
yellow 8	GAF, NAC, TRC.
yellow 9	DUP.
yellow 11	ACY, DUP, GAF, NAC, PCO, TRC.
yellow 12	BKS, DUP, GAF, NAC, TRC.
yellow 19	TRC.
yellow 20	TRC.
yellow 23	DUP.
yellow 26	ALT, DUP, GAF, NAC.
yellow 27	GAF, NAC.
yellow 28	DUP, GAF, NAC, PCO, TRC.
yellow 29	DUP, GAF, PCO.
yellow 39	TRC.
yellow 41	ALT, TRC.
yellow 44	ALT, BKS, CMG, DUP, GAF, NAC, PCO, TRC, VPC.
yellow 50	ATL, BKS, BL, DUP, GAF, NAC, TRC, VPC.
yellow 59	DUP, NAC, PCO.
yellow 62	NAC.
yellow 63	DUP.
yellow 64	TRC.
yellow 81	BKS, TRC.
irect yellow dyes	ACY, ALT, BKS, BL, DUP, GAF, PCO, VPC.
ange dyes:	
orange 1	BKS, CMG, KPC, NAC, TRC, VPC.
orange 6	KPC, NAC.
orange 8	DUP, GAF, NAC, TRC.
orange 10	KPC, NAC.
orange 11	GAF.
orange 15	ACY, DUP, GAF, NAC, TRC.
orange 18	DUP.
orange 26	ACY, DUP, GAF, TRC.
orange 29	ATL, BKS, GAF, NAC, PCO, TRC.
orange 34	ACY, ATL, CMG, DUP, GAF, NAC.
orange 37	ACY, CMG, DUP, GAF, TRC.
orange 38	NAC.
orange 39	BKS, CMG, DUP, GAF, TRC.
orange 40	DUP.
orange 42	TRC.
orange 48	DUP.
orange 55	DUP, NAC.
orange 59	DUP.
orange 61	TRC.
orange 64	VPC.
orange 67	NAC, VPC.
orange 70	TRC.
orange 72	ACY, BKS, BL, NAC, PCO, TRC, VPC.
orange 73	DUP, GAF, TRC, VPC.
orange 74	DUP, GAF.
orange 76	DUP.
orange 78	DUP, VPC.
orange 79	DUP.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified b manufacturer, 1960*--Continued

Dye	Manufacturers' identification co (according to list in table 23
DIRECT DYES--Continued	
*Direct orange dyes--Continued	
Direct orange 80	DUP, VPC.
*Direct orange 81	ATL, DUP, GAF, NAC, VPC.
Direct orange 83	GAF, NAC.
Direct orange 88	DUP, TRC.
Direct orange 102	ACY, DUP.
Other direct orange dyes	ALT, ATL, BKS, BL, DUP, GAF, PCO, TRC, VI
*Direct red dyes:	
*Direct red 1	ATL, DUP, GAF, KPC, NAC, TRC, YAW.
*Direct red 2	DUP, NAC, PCO, TRC.
*Direct red 4	ALT, GAF, NAC, TRC, VPC.
Direct red 5	NAC.
Direct red 7	DUP, YAW.
*Direct red 10	ACY, KPC, NAC, TRC.
*Direct red 13	ATL, DUP, GAF, KPC, NAC, TRC, YAW.
*Direct red 16	ATL, GAF, KPC, NAC, TRC.
Direct red 17	TRC.
Direct red 20	GAF, NAC.
*Direct red 23	ACY, ATL, BKS, CMG, DUP, GAF, KPC, TRC, \
*Direct red 24	ACY, ATL, BKS, BL, GAF, KPC, NAC, PCO, TI
*Direct red 26	DUP, GAF, NAC, PCO, TRC, VPC.
*Direct red 28	BKS, DUP, NAC, PCO, TRC.
Direct red 30	VPC.
*Direct red 31	ATL, DUP, GAF, NAC, TRC.
Direct red 32	NAC.
*Direct red 37	ACY, ALT, ATL, GAF, KPC, NAC, TRC, YAW.
*Direct red 39	ACY, ATL, GAF, NAC, TRC, YAW.
Direct red 46	TRC.
Direct red 53	NAC.
Direct red 62	TRC.
Direct red 72	TRC.
Direct red 73	DUP.
*Direct red 75	ACY, CMG, DUP, GAF, NAC, VPC.
Direct red 76	NAC.
*Direct red 79	BKS, CMG, GAF, KPC, NAC, PCO, TRC, VPC.
*Direct red 80	BKS, BL, CMG, DUP, GAF, KPC, NAC, PCO, TR
*Direct red 81	ACY, ALT, BL, CMG, DUP, GAF, KPC, NAC, PC VPC, YAW.
*Direct red 83	ALT, ATL, BKS, CMG, DUP, GAF, KPC, NAC, T
*Direct red 84	GAF, NAC, TRC.
Direct red 94	DUP, NAC.
Direct red 100	NAC, TRC.
Direct red 111	GAF.
Direct red 117	DUP.
Direct red 120	GAF.
*Direct red 122	CMG, DUP, GAF, NAC, TRC, VPC.
Direct red 123	GAF, KPC.
*Direct red 127 and 127A	CMG, DUP, GAF, KPC, NAC, TRC.
Direct red 128	NAC.
Direct red 139	NAC, VPC.
Direct red 148	GAF.
*Direct red 149	CMG, DUP, GAF, KPC, NAC, TRC.
Direct red 152	DUP, NAC.
*Direct red 153	CMG, NAC, VPC.
Direct red 155	GAF.
Other direct red dyes	ALT, BL, DUP, GAF, TRC.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
violet dyes:	
:t violet 1	DUP, KPC, NAC, TRC.
:t violet 7	GAF, NAC.
:t violet 9	ATL, DUP, GAF, KPC, NAC, TRC.
:t violet 14	NAC, TRC.
:t violet 22	DUP, NAC, TRC.
:t violet 29	KPC.
:t violet 30	KPC.
:t violet 47	DUP, GAF.
:t violet 48	DUP, NAC, TRC.
:t violet 49	NAC.
:t violet 51	DUP, NAC.
:t violet 60	NAC.
:t violet 67	DUP, NAC.
:t violet 68	DUP.
r direct violet dyes	ALT.
blue dyes:	
:t blue 1	ACY, ATL, BKS, BL, DUP, GAF, KPC, NAC, TRC.
:t blue 2	ACY, ATL, BL, DUP, GAF, KPC, NAC, TRC, VPC, YAW.
:t blue 3	NAC, TRC.
:t blue 6	ACY, ATL, BL, DUP, GAF, KPC, NAC, TRC, YAW.
:t blue 8	ACY, DUP, GAF, KPC, NAC, TRC, YAW.
:t blue 10	DUP.
:t blue 14	ATL, DUP, NAC, TRC.
:t blue 15	ATL, DUP, GAF, KPC, NAC, TRC.
:t blue 18	GAF.
:t blue 21	TRC.
:t blue 22	ATL, DUP, KPC, NAC, TRC.
:t blue 24	BKS, GAF, NAC, TRC, YAW.
:t blue 25	DUP, GAF, NAC, TRC, YAW.
:t blue 26	DUP.
:t blue 27	DUP.
:t blue 47	ACY.
:t blue 55	NAC.
:t blue 61	YAW.
:t blue 66	DUP.
:t blue 67	ATL, DUP, NAC, TRC, VPC.
:t blue 71	DUP, GAF, NAC, TRC, VPC.
:t blue 74	DUP.
:t blue 75	TRC.
:t blue 76	ACY, ATL, BKS, BL, DUP, GAF, NAC, TRC, VPC.
:t blue 78	ATL, CMG, DUP, GAF, KPC, NAC, TRC, VPC.
:t blue 79	TRC.
:t blue 80	ACY, ALT, ATL, BKS, DUP, GAF, NAC, TRC.
:t blue 84	DUP.
:t blue 86	ACY, ATL, BL, CMG, DUP, GAF, ICC, KPC, NAC, TMS, TRC, VPC.
:t blue 98	ACY, ALT, ATL, BKS, BL, GAF, ICC, KPC, NAC, STD, TRC.
:t blue 99	GAF.
:t blue 100	ALT, BKS, NAC, TRC.
:t blue 102	CMG.
:t blue 104	DUP.
:t blue 120 and 120A	ATL, BKS, DUP, GAF, PCO, TRC.
:t blue 126	DUP, GAF, NAC, TRC, VPC.
:t blue 127	GAF.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified manufacturer, 1960--*** **Continued**

Dye	Manufacturers' identification c (according to list in table 2
DIRECT DYES--Continued	
Direct blue dyes--Continued	
Direct blue 133	GAF.
Direct blue 136	GAF.
Direct blue 138	GAF.
Direct blue 143	DUP.
*Direct blue 151	ATL, DUP, GAF, NAC, TRC.
Direct blue 169	NAC.
Direct blue 180	BKS, TRC.
Other direct blue dyes	ACY, ALT, ATL, BL, DUP, GAF, TRC, VPC.
*Direct green dyes:	
*Direct green 1	ACY, ATL, BKS, DUP, GAF, KPC, NAC, TRC,
*Direct green 6	ACY, ATL, BKS, DUP, GAF, KPC, NAC, TRC,
*Direct green 8	ATL, NAC, TRC, YAW.
Direct green 11	NAC.
Direct green 12	DUP, NAC, TRC.
Direct green 14	NAC.
Direct green 15	DUP.
Direct green 26	GAF, NAC, TRC.
Direct green 27	ATL, NAC, TRC.
Direct green 28	TRC.
*Direct green 38	DUP, GAF, TRC.
Direct green 39	GAF.
Direct green 41	DUP.
Direct green 45	VPC.
Direct green 47	DUP, GAF.
Other direct green dyes	ACY, ALT, ATL, BL, x.
*Direct brown dyes:	
*Direct brown 1	ACY, ATL, BKS, DUP, GAF, NAC.
Direct brown 1A	TRC.
*Direct brown 2	ACY, ATL, BKS, DUP, GAF, KPC, NAC, TRC,
*Direct brown 6	ATL, DUP, GAF, NAC, TRC.
Direct brown 21	DUP.
Direct brown 25	DUP, NAC.
Direct brown 27	GAF.
Direct brown 29	NAC.
Direct brown 30	GAF.
*Direct brown 31	DUP, GAF, KPC, NAC, PCO, YAW.
Direct brown 32	GAF.
Direct brown 33	DUP, NAC.
Direct brown 35	NAC.
Direct brown 40	DUP, KPC.
Direct brown 44	GAF, YAW.
Direct brown 48	KPC.
Direct brown 59	ACY.
*Direct brown 74	DUP, NAC, KPC.
*Direct brown 95	ALT, DUP, GAF, KPC, NAC, PCO, TRC, YAW.
Direct brown 101	GAF.
Direct brown 105	DUP.
Direct brown 106	GAF, NAC.
*Direct brown 111	DUP, GAF, TRC, VPC.
Direct brown 112	NAC.
Direct brown 125	GAF.
Direct brown 132	NAC.
*Direct brown 154	DUP, TRC, YAW.
Other direct brown dyes	ALT, ATL, BL, DUP, GAF, NAC, TRC, VPC, Y

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Dye	Manufacturers' identification codes (according to list in table 23)
DIRECT DYES--Continued	
)lack dyes:	
; black 3	DUP.
t black 4	ATL, BKS, DUP, GAF, NAC, TRC, YAW.
t black 8	TRC.
; black 9	ATL, BKS, DUP, GAF, NAC, TRC.
t black 17	GAF, NAC, TRC.
t black 19	BKS, GAF, NAC, TRC.
t black 22	ATL, BKS, CMG, DUP, GAF, KPC, NAC, TRC, VPC, YAW.
t black 36	KPC.
t black 37	DUP, KPC, NAC.
t black 38	ACY, ATL, BKS, BL, DUP, GAF, KPC, NAC, TRC, YAW.
t black 41	GAF.
t black 44	TRC.
t black 51	ATL, DUP, GAF, KPC, NAC, TRC.
t black 55	DUP.
t black 56	NAC, TRC.
t black 61	TRC.
t black 67	DUP, NAC.
t black 71	NAC.
t black 74	NAC.
t black 75	GAF.
t black 78	BKS, DUP, NAC, TRC.
t black 80	BKS, BL, GAF, KPC, NAC, PCO, TRC, VPC, YAW.
direct black dyes	ACY, ALT, BL, DUP, GAF, NAC, TRC, YAW.
DISPERSE DYES	
e yellow dyes:	
rse yellow 1	GAF, NAC.
rse yellow 2	DUP, KPC.
rse yellow 3	DUP, EKT, GAF, HSH, ICC, KPC, NAC, STD, TRC.
rse yellow 5	EKT, GAF, KPC.
rse yellow 8	TRC.
rse yellow 17	KPC.
rse yellow 23	DUP, GAF.
rse yellow 28	KPC.
rse yellow 31	GAF.
rse yellow 32	DUP.
rse yellow 33	EKT, ICC, KPC.
rse yellow 34	EKT.
rse yellow 37	KPC, TRC.
disperse yellow dyes	DUP, EKT, GAF, ICC, KPC.
e orange dyes:	
rse orange 2	KPC.
rse orange 3	DUP, GAF, ICC, KPC, STD, TRC.
rse orange 5	EKT, GAF, KPC.
rse orange 6	KPC.
rse orange 15	KPC.
rse orange 16	KPC.
rse orange 17	EKT, HSH, ICC, STD.
rse orange 21	TRC.
disperse orange dyes	DUP, EKT, ICC, KPC.
e red dyes:	
rse red 1	DUP, EKT, GAF, ICC, KPC, NAC, STD, TRC, YAW.
rse red 4	GAF.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified b manufacturer, 1960*--Continued

Dye	Manufacturers' identification co (according to list in table 23
DISPERSE DYES--Continued	
*Disperse red dyes--Continued	
*Disperse red 5	EKT, GAF, HSH, ICC, KPC, STD, TRC.
Disperse red 7	KPC.
*Disperse red 9	ACY, DUP, NAC.
Disperse red 11	DUP, GAF, KPC.
*Disperse red 13	DUP, ICC, KPC.
Disperse red 14	KPC.
*Disperse red 15	GAF, HSH, ICC, KPC, NAC, TRC.
*Disperse red 17	GAF, HSH, ICC, KPC, STD, TRC.
Disperse red 20	EKT, NAC.
Disperse red 21	EKT, GAF.
Disperse red 22	KPC.
Disperse red 27	KPC.
Disperse red 30	EKT, TRC.
Disperse red 31	ICC.
Disperse red 32	GAF.
Disperse red 35	EKT.
Other disperse red dyes	DUP, EKT, ICC, KPC.
*Disperse violet dyes:	
*Disperse violet 1	DUP, GAF, ICC, KPC, STD, TRC.
*Disperse violet 4	DUP, GAF, ICC, KPC.
Disperse violet 6	KPC.
Disperse violet 8	GAF.
Disperse violet 11	EKT, NAC.
Other disperse violet dyes	DUP, EKT, GAF, ICC.
*Disperse blue dyes:	
*Disperse blue 1	GAF, KPC, TRC.
*Disperse blue 3	EKT, GAF, HSH, ICC, KPC, NAC, STD, TRC.
*Disperse blue 7	GAF, ICC, KPC, TRC.
Disperse blue 8	DUP.
Disperse blue 9	GAF, ICC.
Disperse blue 19	KPC.
Disperse blue 27	EKT.
Other disperse blue dyes	DUP, EKT, GAF, ICC, KPC, NAC, VPC.
Disperse brown dyes	DUP, EKT, ICC.
Disperse black dyes:	
Disperse black 1	DUP, TRC.
*Disperse black 2	DUP, KPC, TRC.
Disperse black 6	DUP, KPC.
Disperse black 7	GAF, KPC, YAW.
*Disperse black 9	DUP, EKT, GAF, KPC, NAC.
Other disperse black dyes	ICC, YAW.
FIBER-REACTIVE DYES	
Reactive yellow dyes:	
Reactive yellow 2	TRC.
Reactive yellow 3	TRC.
Other reactive yellow dyes	AHC, HST.
Reactive orange dyes:	
Reactive orange 2	TRC.
Other reactive orange dyes	AHC, HST.
Reactive red dyes:	
Reactive red 4	TRC.
Other reactive red dyes	AHC, HST.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
FIBER-REACTIVE DYES--Continued	
e violet dyes:	
ve violet 2	TRC.
reactive violet dyes	HST.
e blue dyes:	
ve blue 2	TRC.
ve blue 5	TRC.
ve blue 7	TRC.
reactive blue dyes	AHC, HST.
e brown dyes: Reactive brown 1	TRC.
e black dyes:	
ve black 1	TRC.
reactive black dyes	HST.
FLUORESCENT BRIGHTENING AGENTS	
ent brightening agent 1	GGY.
ent brightening agent 2	FBC.
ent brightening agent 4	ACY.
ent brightening agent 6	ACY.
ent brightening agent 7	ACY.
ent brightening agent 8	ACY.
ent brightening agent 9	ACY, TRC.
ent brightening agent 22	GGY.
ent brightening agent 24	GGY.
ent brightening agent 25	GAF.
ent brightening agent 28	ACY, DUP.
ent brightening agent 30	DUP, GAF.
ent brightening agent 33	GAF.
ent brightening agent 34	DUP.
ent brightening agent 45	TRC.
ent brightening agent 46	GGY.
ent brightening agent 49	SAN.
cent brightening agent 52	SAN.
cent brightening agent 54	GGY.
cent brightening agent 56	TRC.
cent brightening agent 65	TRC.
cent brightening agent 66	SDH.
ent brightening agent 67	FBC, GAF.
cent brightening agent 68	ACY, CCW, SDH.
cent brightening agent 71	GAF.
luorescent brightening agents	ACY, CCW, DUP, GAF, GGY, SAN, TRC, VPC.
FOOD, DRUG, AND COSMETIC DYES	
Food, Drug, and Cosmetic Colors	
. 1	BAT, KON, NAC, SDH, WRN.
. 2	BAT, KON, NAC.
o. 1	KON, NAC, WRN.
o. 2	NAC, WRN.
o. 3	WRN.
No. 1	NAC.
1	BAT, KON, NAC, SDH.
2	BAT, KON, SDH, STG, WRN.
3	BAT, KON, SDH, STG.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified b manufacturer, 1960*--Continued

Dye	Manufacturers' identification cod (according to list in table 23)
FOOD, DRUG, AND COSMETIC DYES--Continued	
Food, Drug, and Cosmetic Colors--Continued	
Red No. 4	BAT, KON, NAC, SDH, STG, WRN.
Red No. 6	NAC.
Red No. 9	NAC.
Red No. 14	NAC.
Violet No. 1	KON, NAC.
Violet No. 2	NAC.
Yellow No. 3	NAC.
Yellow No. 4	NAC.
*Yellow No. 5	BAT, KON, NAC, SDH, STG, WRN.
*Yellow No. 6	BAT, KON, NAC, SDH, STG, WRN.
Drug and Cosmetic Colors	
Black No. 1	KON, NAC, YAW.
Blue No. 1	KON, NAC.
Blue No. 6	KON.
Blue No. 7	KON.
Green No. 1	KON.
Green No. 5	HSH, KON.
Green No. 8	KON, SDH.
Orange No. 3	KON.
Orange No. 4	KON, SNA.
Orange No. 5	KON, TMS.
Orange No. 10	TMS.
Orange No. 14	TMS.
Orange No. 15	SNA.
Orange No. 17	SNA.
Red No. 1	KON.
Red No. 2	KON, SNA.
Red No. 3	KON.
Red No. 5	KON.
Red No. 6	SNA.
*Red No. 7	KON, SNA, TMS.
Red No. 8	KON, SNA.
*Red No. 9	KON, SNA, TMS.
Red No. 10	KON, SNA.
Red No. 11	KON, SNA.
Red No. 12	SNA.
Red No. 13	KON, SNA, TMS.
*Red No. 19	KON, SNA, TMS.
*Red No. 21	KON, SNA, TMS.
Red No. 22	KON.
Red No. 27	SDH, SNA, TMS.
Red No. 28	KON.
Red No. 30	KON.
Red No. 31	KON, SNA.
Red No. 34	KON, SNA, TMS.
Red No. 35	SNA.
*Red No. 36	KON, SNA, TMS.
Violet No. 2	KON.
Yellow No. 5	KON, TMS.
Yellow No. 6	KON.
Yellow No. 7	KON, TMS.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
FOOD, DRUG, AND COSMETIC DYES--Continued	
Drug and Cosmetic Colors—Continued	
o. 10	KON.
o. 11	KON.
Drug and Cosmetic Colors, External	
o. 3	KON.
2	TMS.
8	KON.
13	KON.
o. 2	KON.
o. 1	KON.
o. 5	KON.
INGRAIN DYES	
blue 2	VPC.
MORDANT DYES	
yellow dyes:	
ıt yellow 1	ACY, GAF, PDC, TRC.
ıt yellow 3	NAC.
ıt yellow 5	DUP, GAF, NAC, TRC.
ıt yellow 8	DUP, GAF, NAC.
ıt yellow 10	DUP, NAC, TRC.
ıt yellow 14	NAC, TRC.
ıt yellow 16	ACY, NAC.
ıt yellow 18	PDC.
ıt yellow 20	NAC, TRC.
ıt yellow 26	NAC, VPC.
ıt yellow 29	GAF.
ıt yellow 30	TRC.
ıt yellow 36	GAF, PDC.
mordant yellow dyes	GAF.
orange dyes:	
ıt orange 1	ACY, GAF, KPC, PDC, TRC.
ıt orange 4	GAF, VPC.
ıt orange 6	ACY, GAF, TRC.
ıt orange 8	NAC, TRC.
ıt orange 30	NAC.
red dyes:	
ıt red 3	ACY, GAF, KPC, NAC.
ıt red 5	GAF, TRC.
ıt red 6	GAF.
ıt red 7	ACY, CMG, DUP, GAF, NAC, PDC, TRC, VPC.
ıt red 9	GAF, NAC, TRC.
ıt red 11	ACY, KPC, NAC.
ıt red 36	TRC.
ıt red 59	TRC.
ıt red 64	PDC.
violet dyes:	
ıt violet 5	NAC.
ıt violet 11	GAF.
ıt violet 20	GAF.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified b: manufacturer, 1960*--Continued

Dye	Manufacturers' identification code (according to list in table 23)
MORDANT DYES--Continued	
Mordant blue dyes:	
*Mordant blue 1	DUP, GAF, KPC, NAC, TRC.
Mordant blue 3	GAF, TRC.
Mordant blue 7	NAC, TRC.
*Mordant blue 9	GAF, NAC, TRC.
Mordant blue 13	HSH, NAC.
Mordant blue 32	CMG.
Mordant green dyes:	
Mordant green 9	NAC.
Mordant green 36	DUP, PDC, TRC.
Other mordant green dyes	ACY.
*Mordant brown dyes:	
*Mordant brown 1	ACY, CMG, DUP, KPC, NAC, TRC, YAW.
Mordant brown 12	PDC.
Mordant brown 13	NAC.
Mordant brown 18	DUP, NAC.
Mordant brown 19	GAF, TRC.
Mordant brown 21	GAF.
*Mordant brown 33	DUP, NAC, TRC.
*Mordant brown 40	CMG, DUP, GAF, NAC, PDC, TRC, VPC, YAW.
Mordant brown 42	HSH.
Mordant brown 50	TRC.
Mordant brown 60	TRC.
Mordant brown 63	TRC.
Mordant brown 70	DUP.
Mordant brown 78	CMG.
*Mordant black dyes:	
*Mordant black 1	GAF, NAC, TRC.
*Mordant black 3	GAF, NAC, TRC.
*Mordant black 5	GAF, NAC, TRC.
Mordant black 7	GAF.
Mordant black 8	VPC.
*Mordant black 9	GAF, NAC, VPC.
*Mordant black 11	ATL, CMG, GAF, NAC, TRC, VPC.
*Mordant black 13	AHC, GAF, HSH, KPC, NAC, TRC.
Mordant black 16	GAF, NAC.
*Mordant black 17	ACY, CMG, DUP, GAF, NAC, TRC.
Mordant black 19	PDC.
Mordant black 26	TRC.
Mordant black 33	HSH.
*Mordant black 38	CMG, DUP, GAF, NAC, TRC, VPC.
OXIDATION BASES	
Oxidation base 2	ACY.
Oxidation base 3	AHC.
Oxidation base 8 and 8A	ACY.
Oxidation base 22	ACY.
Oxidation base 25	ACY.
Other oxidation bases	ACY, CMG.
SOLVENT DYES	
*Solvent yellow dyes:	
Solvent yellow 1	ACY, NAC.
*Solvent yellow 2	ACY, DUP, FH, GAF, KPC, PAT.

TABLE 8B.--*Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Dye	Manufacturers' identification codes (according to list in table 23)
SOLVENT DYES--Continued	
yellow dyes--Continued	
ıt yellow 3	DUP, FH, GAF, KPC, NAC, SDH.
ıt yellow 5	DYK.
ıt yellow 6	DYK.
ıt yellow 13	ACY, GAF, TRC.
ıt yellow 14	ACY, DUP, FH, GAF, KPC, NAC, PAT, SDH, TRC.
ıt yellow 16	PAT.
ıt yellow 19	GAF.
ıt yellow 29	GAF, NAC.
ıt yellow 33	ACY, NAC.
ıt yellow 34	DUP.
ıt yellow 40	NAC.
ıt yellow 42	NAC.
ıt yellow 43	GAF.
ıt yellow 44	GAF, NAC.
ıt yellow 45	DUP, NAC.
ıt yellow 47	DUP, GAF.
solvent yellow dyes	ACY, DSC, DUP, FH.
orange dyes:	
ıt orange 2	NAC.
ıt orange 3	ACY, GAF, NAC.
ıt orange 5	TRC.
ıt orange 7	ACY, FH, GAF, NAC.
ıt orange 18	NAC.
ıt orange 20	ACY, GAF, NAC.
ıt orange 23	NAC.
ıt orange 24	DUP.
ıt orange 25	DUP.
ıt orange 31	NAC.
solvent orange dyes	ACY, DSC, DUP, FH, PAT.
red dyes:	
nt red 1	FH.
nt red 8	GAF.
nt red 22	GAF.
nt red 23	NAC.
nt red 24	ACY, DUP, GAF, NAC, PAT, SDH.
nt red 26	ACY, KPC, NAC.
nt red 27	NAC.
nt red 33	DUP.
nt red 34	DUP.
nt red 35	GAF.
nt red 40	GAF.
nt red 49	ACY, DUP, GAF, NAC.
nt red 52	AHC, GAF, KPC.
nt red 60	NAC.
nt red 65	NAC.
nt red 68	NAC.
nt red 69	DUP, NAC.
nt red 80	ACY.
solvent red dyes	ACY, DSC, DUP, FH, GAF, PAT, VPC.
violet dyes:	
nt violet 8	ACY, NAC.
nt violet 13	AHC, HSH, KPC, NAC.
nt violet 14	AHC.
solvent violet dyes	DSC, PAT.
blue dyes:	
nt blue 4	DSC, DUP, GAF, NYC, SDH.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960--*** **Continued**

Dye	Manufacturers' identification code (according to list in table 23)
SOLVENT DYES--Continued	
*Solvent blue dyes--Continued	
Solvent blue 5	DSC.
Solvent blue 7	ACY, NAC.
Solvent blue 9	GAF.
Solvent blue 11	AHC, GAF.
Solvent blue 12	DUP, NAC.
Solvent blue 16	NAC.
Solvent blue 24	DSC.
Solvent blue 30	NAC.
Solvent blue 31	NAC.
Solvent blue 32	KPC.
Solvent blue 34	DUP.
Solvent blue 36	DUP, NAC.
Solvent blue 37	DUP.
*Solvent blue 38	ACY, CMG, DUP, NAC.
Solvent blue 43	NAC.
Solvent blue 78	NAC.
Other solvent blue dyes	ACY, DSC, GAF, KPC, PAT.
*Solvent green dyes:	
*Solvent green 1	ACY, DSC, SDH.
Solvent green 2	GAF.
*Solvent green 3	ACY, AHC, GAF, HSH, KPC, NAC.
Solvent green 10	DUP.
Solvent green 11	DUP.
Other solvent green dyes	DSC.
Solvent brown dyes:	
Solvent brown 11	GAF.
Solvent brown 12	GAF.
Solvent brown 17	DUP.
Solvent brown 19	DUP.
Solvent brown 20	DUP.
Solvent brown 21	NAC.
Other solvent brown dyes	ACY, DSC, FH, GAF, PAT.
Solvent black dyes:	
Solvent black 3	NAC.
Solvent black 5	ACY, NAC.
Solvent black 7	ACY, NAC.
Solvent black 12	NAC.
Solvent black 13	NAC.
Solvent black 17	DUP.
Solvent black 19	GAF.
Other solvent black dyes	ACY, DSC, FH.
All other solvent dyes	PAT.
SULFUR DYES	
Sulfur yellow dyes:	
Sulfur yellow 2	ACY, DUP, NAC.
Solubilized sulfur yellow 2	ACY, NAC.
Sulfur yellow 4	DUP, SDC.
Sulfur red dyes:	
*Sulfur red 1	ACY, DUP, NAC.
Sulfur red 5	NAC.
*Sulfur red 6	ACY, DUP, NAC.
Sulfur red 8	DUP.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960--*** **Continued**

Dye	Manufacturers' identification codes (according to list in table 23)
SULFUR DYES--Continued	
blue dyes:	
ur blue 5	ACY.
ur blue 7	ACY, DUP, NAC, SDC.
bilized sulfur blue 7	ACY, NAC, SDC.
ur blue 9	NAC.
ur blue 11	DUP, NAC.
ur blue 13	ACY, NAC.
ur blue 15	ACY, DUP, NAC.
r sulfur blue dyes	NAC.
green dyes:	
ur green 1	NAC.
ur green 2	DUP, NAC, SDC.
bilized sulfur green 2	SDC.
ur green 3	ACY, NAC.
ur green 11	DUP.
ur green 14	DUP.
r sulfur green dyes	ACY.
brown dyes:	
ur brown 3	SDC.
bilized sulfur brown 3	SDC.
ur brown 10	DUP, NAC, SDC.
bilized sulfur brown 10	SDC.
ur brown 14	ACY.
ur brown 20	DUP.
ur brown 30	ACY.
ur brown 33	ACY.
ur brown 37	SDC.
bilized sulfur brown 37	SDC.
ur brown 39	DUP.
ur brown 40	DUP.
ur brown 43	NAC.
bilized sulfur brown 43	NAC.
ur brown 44	NAC.
bilized sulfur brown 44	NAC.
ur brown 45	NAC.
ur brown 50	NAC.
r sulfur brown dyes	ACY.
black dyes:	
ur black 1	ACY, DUP, NAC, SDC.
bilized sulfur black 1	ACY, NAC, SDC.
ur black 2	ACY, DUP, NAC.
bilized sulfur black 2	ACY, NAC.
ur black 6	GAF.
bilized sulfur black 6	NAC.
ur black 10	ACY, DUP.
bilized sulfur black 10	ACY, NAC.
ur black 11	GAF, SDC.
bilized sulfur black 11	SDC.
VAT DYES	
llow dyes:	
yellow 1, 12-1/2%	NAC.
yellow 2, 8-1/2%	ACY, AHC, ATL, DUP, GAF, HST, KPC, NAC, TRC, VPC.
bilized vat yellow 2, 25%	AHC, GAF, NAC.
yellow 3, 12-1/2%	DUP, GAF, KPC.

TABLE 8B. --*Coal-tar dyes for which U.S. production or sales were reported, identified b manufacturer, 1960*--Continued

Dye	Manufacturers' identification cod (according to list in table 23)
VAT DYES--Continued	
*Vat yellow dyes--Continued	
*Vat yellow 4, 12-1/2%----------	ACY, AHC, CMG, DUP, GAF, HST, KPC, NAC, T
*Solubilized vat yellow 4, 37-1/2%----------	AHC, GAF, HST.
Vat yellow 10, 10%----------	GAF.
Vat yellow 13, 6-1/2%----------	AHC.
Vat yellow 14, 12-1/2%----------	TRC.
Vat yellow 15, 11-1/2%----------	ACY.
Vat yellow 16, 16-2/3%----------	DUP.
Vat yellow 21, 9-1/2%----------	DUP, PCO.
Vat yellow 22, 10%----------	DUP.
Other vat yellow dyes----------	ACY, DUP, GAF, MAY, NAC, TRC, VPC.
Vat orange dyes:	
*Vat orange 1, 20%----------	AHC, CMG, GAF, HST, NAC, TRC, VPC.
*Solubilized vat orange 1, 26%----------	AHC, GAF, HST.
*Vat orange 2, 12%----------	ACY, AHC, CMG, DUP, GAF, KPC, NAC, TRC.
Vat orange 3, 13-1/2%----------	ACY, AHC, DUP, GAF, KPC, MAY, TRC.
*Vat orange 4, 6%----------	ACY, CMG, DUP, GAF, NAC.
*Vat orange 5, 10%----------	ACY, DUP, HST, KPC.
*Solubilized vat orange 5, 30%----------	AHC, GAF, HST.
Vat orange 7, 11%----------	HST, TRC.
*Vat orange 9, 12%----------	ACY, AHC, CMG, DUP, GAF, KPC, NAC, TRC.
Vat orange 11, 6%----------	DUP.
*Vat orange 15, 10%----------	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC, VI
Other vat orange dyes----------	DUP, GAF.
*Vat red dyes:	
*Vat red 1, 13%----------	ACY, DUP, HST, KPC.
Solubilized vat red 1, 37%----------	AHC, GAF, HST.
*Vat red 10, 18%----------	GAF, NAC, TRC.
Solubilized vat red 10, 31%----------	GAF.
Vat red 12, 8-1/2%----------	DUP.
*Vat red 13, 11%----------	DUP, GAF, MAY, NAC, TRC.
Vat red 14, 10%----------	HST.
Vat red 15, 10%----------	HST, TRC.
Vat red 16, 11%----------	DUP.
Vat red 17, 10%----------	GAF.
Vat red 27, 7-1/2%----------	DUP.
Vat red 29, 18%----------	GAF, NAC.
Vat red 32, 20%----------	GAF, NAC.
Vat red 35, 12-1/2%----------	GAF, NAC, TRC.
Vat red 40----------	DUP.
Vat red 41, 20%----------	HST.
Vat red 44, 17%----------	TRC.
Other vat red dyes----------	DUP, GAF.
*Vat violet dyes:	
*Vat violet 1, 11%----------	ACY, AHC, DUP, GAF, MAY, NAC, TRC.
Solubilized vat violet 1, 26%----------	AHC, GAF.
*Vat violet 2, 20%----------	ACY, DUP, GAF, HST, NAC, VPC.
*Vat violet 3, 15%----------	DUP, GAF, HST, NAC.
Solubilized vat violet 3, 43%----------	GAF.
*Vat violet 9, 12%----------	AHC, DUP, GAF, MAY, TRC.
Vat violet 12, 10%----------	DUP.
*Vat violet 13, 6-1/4%----------	ACY, AHC, DUP, GAF, NAC, TRC.
Vat violet 14, 12-1/2%----------	DUP, NAC.
*Vat violet 17, 12-1/2%----------	DUP, GAF, NAC.
Other vat violet dyes----------	NAC.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Dye	Manufacturers' identification codes (according to list in table 23)
VAT DYES--Continued	
dyes:	
ue 1, 20%	DOW, DUP, NAC.
lized vat blue 1, 25%	GAF.
ue 3, 16%	HST.
ue 4, 10%	ACY, DUP, GAF.
ue 5, 16%	ATL, DUP, HST, NAC, VPC.
lized vat blue 5, 38%	AHC, GAF, HST.
ue 6, 8-1/3%	ACY, AHC, DUP, GAF, KPC, NAC, TRC, VPC.
lized vat blue 6, 17-1/2%	AHC, GAF, HST.
ue 7, 12-1/2%	NAC.
lized vat blue 9, 35%	GAF.
ue 14, 8-1/3%	DUP, GAF, NAC, TRC.
ue 16, 16%	ACY, DUP, NAC.
ue 18, 13%	ACY, AHC, DUP, GAF, KPC, MAY, TRC.
ue 20, 14%	ACY, AHC, DUP, GAF, KPC, MAY, NAC, PCO, TRC.
ue 35, 20%	DUP.
ue 39, 12%	GAF.
ue 43, 40%	DUP, SDC.
vat blue dyes	DUP, GAF, NAC.
n dyes:	
een 1, 6%	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC.
lized vat green 1, 12-1/2%	AHC, GAF, HST.
een 3, 10%	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC.
lized vat green 3, 26%	AHC, GAF, HST.
een 8, 8-1/2%	AHC, DUP, GAF, NAC.
een 9, 12-1/2%	ACY, DUP, GAF, KPC, MAY, NAC, PCO, SDC, TRC.
een 18, 8%	DUP.
een 19, 13%	DUP.
een 20, 6%	DUP.
n dyes:	
own 1, 11%	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC, VPC.
lized vat brown 1, 17%	AHC, GAF.
own 3, 11%	ACY, AHC, DUP, GAF, KPC, MAY, NAC, TRC, VPC.
lized vat brown 3, 17%	AHC.
own 5, 13%	ACY, DUP, GAF, HST, KPC, NAC, VPC.
lized vat brown 5, 17%	GAF.
own 11, 12%	MAY.
own 12, 12-1/2%	DUP, NAC.
own 13, 17%	MAY.
own 14, 12%	HST.
own 20, 10-1/2%	CMG, DUP, GAF, KPC, NAC.
own 25, 11-1/2%	GAF.
own 29, 13%	ACY.
own 31, 28%	KPC.
own 38, 20%	AHC.
own 40, 14%	DUP.
vat brown dyes	DUP, KPC, MAY, NAC, SDC, TRC, VPC.
k dyes:	
lized vat black 1, 27-1/2%	AHC, GAF, HST.
ack 9, 16%	GAF, NAC, TRC.
ack 11, 17-1/2%	ACY.
ack 13, 14%	DUP, NAC.
ack 14, 11-1/2%	DUP.
ack 17, 16%	ACY.
ack 18, 15-1/2%	GAF, NAC.

TABLE 8B. ***--Coal-tar dyes for which U.S. production or sales were reported, identified l manufacturer, 1960--*** **Continued**

Dye	Manufacturers' identification co (according to list in table 23
VAT DYES--Continued	
*Vat black dyes--Continued	
Vat black 21, 18-1/2%----------	ACY.
Vat black 22, 19%----------	ACY.
*Vat black 25, 12-1/2%----------	ACY, AHC, CMG, DUP, GAF, KPC, MAY, NAC,
Vat black 26, 24%----------	NAC.
*Vat black 27, 12-1/2%----------	ACY, AHC, CMG, DUP, GAF, KPC, MAY, NAC,
Vat black 29, 12-1/2%----------	TRC.
Other vat black dyes----------	ACY, AHC, GAF, NAC, SDC, TRC, VPC.
All other dyes----------	DUP, WLM.

Toners and Lakes

TABLE 11B. *--Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1960*

ınd lakes for which separate statistics are given in table 11A are marked below with an asterisk (*); prod-ıot so marked do not appear in table 11A because the reported data are accepted in confidence and may not be hed. Manufacturers' identification codes shown below are taken from table 23. An x signifies that the manu-'er did not consent to his identification with the designated product]

Product	Manufacturers' identification codes (according to list in table 23)
TONERS OR FULL-STRENGTH COLORS	
›ners:	
ıt Black 1, C.I. 50 440	SNA.
;her	UHL.
ıers:	
ıt Blue 1, C.I. 42 595, PMA	ADC, BLN, CC, DUP, EAK, HCC, IMP, LVY, MGR, MRX, NYC, SDH, SNA, UHL.
ıt Blue 1, C.I. 42 595, PTA	AMS, BLN, CC, HAR, IMP, KON, MGR, SNA, SW, UHL.
ıt Blue 2, C.I. 44 045, PMA	CIK, SW.
ıt Blue 3, C.I. 42 140, PTA	CC, MRX.
ıt Blue 6	HAR.
ıt Blue 9, C.I. 42 025, PMA	BLN, MGR, MRX.
ıt Blue 9, C.I. 42 025, PTA	IMP, MGR, MRX.
ıt Blue 10, C.I. 44 040, PMA	SDH.
ıt Blue 15, C.I. 74 160, alpha modification	ACY, AHC, DUP, GAF, HAR, ICC, IMP, PCC, SDH, SNA, SUC, SW, TMS, TRC.
ıt Blue 15, C.I. 74 160, beta modification	ACY, ADC, DUP, GAF, KON, LVY, SDH, SNA, SW, TMS.
nt Blue 15, C.I. 74 160, crude	ICC, PCC, SNA.
nt Blue 19, C.I. 42 750A	ACY, ERD, NYC, SUC, SW.
nt Blue 21, C.I. 69 835	HAR.
nt Blue 22, C.I. 69 810	DUP, TRC.
nt Blue 25, C.I. 21 180	DUP, GAF, HAR, ICC, SW.
Blue 21), C.I. 67 920	HAR.
ther	LVR, SDH, x.
›oners:	
nt Brown 1, C.I. 12 480	AHC.
nt Brown 2, C.I. 12 071	SDH.
nt Brown 3, C.I. 21 010, PMA	BLN, KCW.
nt Brown 5, C.I. 15 800	HAR, SNA.
ther	HSH, SDH, SW.
oners:	
nt Green 1, C.I. 42 040, PMA	BLN, CC, IMP, MGR, UHL.
nt Green 1, C.I. 42 040, PTA	IMP, MRX, SAN, SDH, UHL.
nt Green 2, C.I. 42 040 and C.I. 49 005, PMA	ADC, BLN, CC, CIK, IMP, LVY, MGR, SAN, SDH, SNA, UHL.
nt Green 2, C.I. 42 040 and C.I. 49 005, PTA	ACY, ADC, AMS, BLN, IMP, KON, MGR, SAN, SDH, SNA.
nt Green 4, C.I. 42 000, PMA	ADC, BLN, CC, MGR.
nt Green 4, C.I. 42 000, PTA	ACY, ADC, AMS, IMP, MGR, SNA.
nt Green 7, C.I. 74 260	ACY, DUP, GAF, HAR, PCC, SDH, SNA, SW, TMS.
nt Green 8, C.I. 10 006	DUP, EAK, GAF, HSH, IMP, KCW, SNA, SW.
nt Green 10, C.I. 12 775	DUP.
ther	CC, MGR, SW.
toners:	
nt Orange 1, C.I. 11 725	HAR, SNA.
nt Orange 2, C.I. 12 060	CC, FCL, IMP, SDH, SUC, SW.
nt Orange 5, C.I. 12 075	ACY, EAK, HSH, IMP, SNA, SUC, SW.
›nt Orange 9	DUP.
nt Orange 13, C.I. 21 110	ACY, AMS, CC, GAF, HAR, ICC, IMP, KON, SNA, SW.
›nt Orange 15, C.I. 21 130	HAR.
›nt Orange 16, C.I. 21 160	CC, DUP, GAF, HAR, ICC, IMP, SAN, SDH, SW.
Orange 3), C.I. 59 300	HAR.
›ther	ICC, KON, SDH, SW, TRC, x.

›te at end of table for definition of abbreviations.

TABLE 11B.--*Toners and lakes for which U.S. production or sales were reported, identified l manufacturer, 1960*--Continued

Product	Manufacturers' identification cod (according to list in table 23)
TONERS OR FULL-STRENGTH COLORS--Continued	
*Red toners:	
*Naphthol reds:	
*Pigment Red 2, C.I. 12 310	EAK, HAR, HCC, IMP, KCW, KON, SAN, SDH,
*Pigment Red 5, C.I. 12 490	AHC, GAF, HAR, HST, ICC, IMP, ROM, SAN,
Pigment Red 7, C.I. 12 420	AHC, ICC.
Pigment Red 9, C.I. 12 460	IMP.
Pigment Red 13, C.I. 12 395	HAR, IMP.
Pigment Red 14, C.I. 12 380	DUP, HAR.
Pigment Red 15, C.I. 12 465	DUP.
*Pigment Red 17, C.I. 12 390	ACY, BLN, FCL, ICC, IMP, KON, SAN, SNA,
*Pigment Red 18, C.I. 12 350	HAR, IMP, SW.
Pigment Red 19, C.I. 12 400	HAR.
*Pigment Red 22, C.I. 12 315	ACY, DUP, FCL, HAR, IMP, SNA, SW.
*Pigment Red 23, C.I. 12 355	ACY, DUP, FCL, HAR, ICC, IMP, SAN, SNA,
Pigment Red 31, C.I. 12 360	SNA.
Pigment Red 36	GAF.
All other naphthol reds	DUP, ICC, KCW, SDH, SW.
*Pigment Red 1, C.I. 12 070, dark	ACY, AMS, APC, EAK, FCL, HAR, HCC, HSH, LVY, PPG, SDH, SNA, SUC, SW, WDC.
*Pigment Red 1, C.I. 12 070, light	ACY, CIK, EAK, FCL, HCC, HSH, IMP, KON, SNA, SUC, SW, WDC.
*Pigment Red 3, C.I. 12 120	ACY, APC, CIK, DUP, EAK, FCL, HAR, HCC, KCW, KON, MRX, PPG, SAN, SDH, SNA, SUC
*Pigment Red 4, C.I. 12 085	ACY, AMS, FCL, HCC, HSH, IMP, KON, SAN, SW, WDC.
*Pigment Red 6, C.I. 12 090	DUP, GAF, HCC, SDH, SW.
*Pigment Red 38, C.I. 21 120	GAF, HAR, HSH, ICC, SNA, SW.
Pigment Red 40, C.I. 12 170	IMP.
Pigment Red 41, C.I. 21 200	DUP, GAF, HAR.
*Pigment Red 48, C.I. 15 865	ACY, AMS, BLN, DUP, FCL, GAF, HAR, HCC, LVY, SAN, SDH, SNA, SW.
*Pigment Red 49, C.I. 15 630:	
*Barium toner	ACY, AMS, CIK, FCL, HCC, IMP, KON, LVY, SNA, SUC, SW.
*Calcium toner	ACY, AMS, CC, CIK, EAK, FCL, HCC, IMP, I SDH, SNA, SUC, SW.
Sodium salt	ACY, AMS, CC, FCL, HCC, KON, SDH, SUC, S
All other Pigment Red 49 toners	KON.
Pigment Red 51, C.I. 15 580	SUC.
*Pigment Red 52, C.I. 15 860	AMS, HAR, HCC, HSH, IMP, SUC, SW.
Pigment Red 53, C.I. 15 585:	
*Barium toner	ACY, ADC, AMS, BLN, CIK, FCL, HCC, IMP, MRX, SAN, SDH, SNA, SUC, SW.
Sodium salt	ADC, KON.
Pigment Red 54, C.I. 14 830:	
Calcium toner	IMP, MRX.
Sodium salt	GAF.
Pigment Red 55, C.I. 15 820	DUP, HAR.
*Pigment Red 57, C.I. 15 850, calcium toner	ADC, AMS, BLN, CIK, DUP, FCL, HAR, HCC, LVY, SAN, SDH, SNA, SUC, SW.
Pigment Red 58, C.I. 15 825	DUP, IMP, MGR.
*Pigment Red 63, C.I. 15 880	FCL, HAR, HSH, IMP, KON, MGR, SNA, SW.
Pigment Red 64, C.I. 15 800	HAR, MGR.
*Pigment Red 81, C.I. 45 160, PMA	BLN, CC, IMP, KON, MGR, MRX, SAN, SNA.

See note at end of table for definition of abbreviations.

TABLE 11B.--*Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Product	Manufacturers' identification codes (according to list in table 23)
TONERS OR FULL-STRENGTH COLORS--Continued	
rs--Continued	
t Red 81, C.I. 45 160, PTA	ACY, AMS, BLN, CC, DUP, EAK, FCL, HCC, IMP, KON, MGR, MRX, SAN, SDH, SNA.
t Red 87 C.I. 73 310	HAR.
t Red 88	HAR.
t Red 90, C.I. 45 380	ACY, AMS, FCL, ICC, LVY, NYC, SAN, SDH, SNA.
t Red 123	HAR.
ed 29), C.I. 71 140	HAR.
her	HCC, LVR, SW, x.
oners:	
t Violet 1, C.I. 45 170, fugitive	MGR.
t Violet 1, C.I. 45 170, PMA	BLN, CC, IMP, LVY, MGR, MRX.
t Violet 1, C.I. 45 170, PTA	ACY, AMS, BLN, CC, CIK, DUP, EAK, FCL, HCC, IMP, KON, MGR, MRX, SAN, SNA.
t Violet 3, C.I. 42 535, fugitive	ACY, ADC, AMS, BLN, HCC, IMP, LVY, MGR, NYC, SDH, SUC, UHL.
t Violet 3, C.I. 42 535, PMA	ADC, AMS, BLN, CC, CIK, EAK, HCC, IMP, KON, LVY, MGR, MRX, NYC, PPG, SDH, SNA, SUC, SW, UHL.
t Violet 3, C.I. 42 535, PTA	ACY, AMS, BLN, HCC, IMP, KON, MRX, SNA, SW.
5, C.I. 58 055	HAR.
iolet 2), C.I. 73 385	HAR.
iolet 3), C.I. 73 395	HAR.
her	GAF, ICC.
oners:	
ine yellows:	
ent Yellow 12, C.I. 21 090	ACY, AMS, CIK, DUP, FCL, GAF, HAR, HCC, ICC, IMP, KON, LVY, MRX, SAN, SDH, SNA, SUC, SW, WDC.
ent Yellow 13, C.I. 21 100	GAF, HAR, ICC, IMP, ROM, SNA, SW.
ent Yellow 14, C.I. 21 095	ACY, AMS, DUP, GAF, HAR, HCC, HSH, HST, ICC, IMP, KON, MRX, ROM, SAN, SDH, SNA, SW, x.
oacetanisidide Yellow (dcb ---> aaoa)	ACY, AMS, HSH, ICC, IMP, SNA, SW.
r benzidine yellows	ICC, SW, x.
yellows:	
ent Yellow 1, C.I. 11 680	ACY, AHC, AMS, DUP, EAK, FCL, GAF, HAR, HCC, HSH, IMP, KON, PPG, SAN, SDH, SNA, SUC, SW, WDC.
ent Yellow 3, C.I. 11 710	HAR, HCC, HSH, IMP, KON, PPG, SAN, SNA, SW.
ent Yellow 4, C.I. 11 665	HAR, SNA, SUC.
ent Yellow 5, C.I. 11 660	IMP.
ent Yellow 6, C.I. 11 670	CIK, IMP.
ent Yellow 9, C.I. 11 720	SNA.
other Hansa yellows	AHC, HCC, x.
it Yellow 16, C.I. 20 040	HST.
ellow 1), C.I. 70 600	TRC.
ellow 20), C.I. 68 420	HAR.
her	HSH, HST, ICC, SW, TRC.
REDUCED OR EXTENDED TONERS	
oners, reduced	BLN, CC, HAM, MRX.
ers, reduced:	
it Blue 1, C.I. 42 595, PMA	BLN, CC, DUP, HCC, IMP, MGR, NYC.
it Blue 1, C.I. 42 595, PTA	CC, HAM, MGR.
it Blue 2, C.I. 44 045, fugitive	BLN, MGR, MRX.
it Blue 2, C.I. 44 045, PMA	CC.
it Blue 2, C.I. 44 045, PTA	CC, HAM, SNA.
it Blue 9, C.I. 42 025, PMA	IMP, MRX, NYC.

ote at end of table for definition of abbreviations.

TABLE 11B.--*Toners and lakes for which U.S. production or sales were reported, identified b manufacturer, 1960*--Continued

Product	Manufacturers' identification codes (according to list in table 23)
REDUCED OR EXTENDED TONERS--Continued	
*Blue toners, reduced--Continued	
Pigment Blue 9, C.I. 42 025, PTA	BLN, IMP.
Pigment Blue 10, C.I. 44 040, PMA	IMP.
Pigment Blue 10, C.I. 44 040, PTA	IMP.
*Pigment Blue 14, C.I. 42 600, PMA	CC, DUP, IMP, NYC.
Pigment Blue 14, C.I. 42 600, PTA	DUP, NYC.
*Pigment Blue 15, C.I. 74 160, alpha modification	ACY, BLN, DUP, GAF, HAR, IMP, KCW, SNA, SU
*Pigment Blue 15, C.I. 74 160, beta modification	ACY, DUP, KCW, KON, SW, TMS.
Pigment Blue 19, C.I. 42 750A	SUC.
Pigment Blue 22, C.I. 69 810	DUP, HAR, IMP.
Pigment Blue 25, C.I. 21 180	HAR.
(Solvent Blue 7), C.I. 50 400	SNA.
(Vat Blue 6), C.I. 69 825	DUP.
All other	DUP, MRX, x.
*Brown toners, reduced:	
Pigment Brown 3, C.I. 21 010, fugitive	SNA.
Pigment Brown 3, C.I. 21 010, PMA	HAR.
(Vat Brown 3), C.I. 69 015	CC.
All other	HAM, ICC.
*Green toners, reduced:	
*Pigment Green 1, C.I. 42 040, PMA	BLN, CC, IMP, MRX, NYC.
Pigment Green 1, C.I. 42 040, PTA	BLN.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PMA	CC, MRX, SNA, UHL.
*Pigment Green 2, C.I. 42 040 and C.I. 49 005, PTA	BLN, DUP, MRX.
Pigment Green 4, C.I. 42 000, PMA	BLN, HCC.
*Pigment Green 7, C.I. 74 260	BLN, CC, DUP, GAF, HAR, KCW, SUC, SW, TMS.
Pigment Green 8, C.I. 10 006	CC, DUP, KCW.
Pigment Green 10, C.I. 12 775	DUP.
All other	BLN, CC, SW.
*Orange toners, reduced:	
Pigment Orange 1, C.I. 11 725	KCW.
Pigment Orange 2, C.I. 12 060	BLN, IMP.
Pigment Orange 5, C.I. 12 075	CC.
Pigment Orange 16, C.I. 21 160	DUP, HAR.
(Vat Orange 3), C.I. 59 300	HAR.
(Vat Orange 4), C.I. 59 310	HAR.
(Vat Orange 7), C.I. 71 105	HAR.
All other	HAM.
*Red toners, reduced:	
*Naphthol reds:	
Pigment Red 2, C.I. 12 310	KCW.
Pigment Red 9, C.I. 12 460	DUP.
Pigment Red 10, C.I. 12 440	KCW.
Pigment Red 13, C.I. 12 395	KCW.
Pigment Red 17, C.I. 12 390	ACY.
Pigment Red 21, C.I. 12 300	CC.
Pigment Red 22, C.I. 12 315	ACY, DUP.
*Pigment Red 23, C.I. 12 355	ACY, DUP, SNA, SUC, SW.
All other reduced naphthol reds	KCW.
*Pigment Red 1, C.I. 12 070, dark	IMP, UHL, WDC.
Pigment Red 1, C.I. 12 070, light	IMP, WDC.
*Pigment Red 3, C.I. 12 120	BLN, DUP, HAM, IMP, SW, UHL
Pigment Red 4, C.I. 12 085	SAN.
Pigment Red 6, C.I. 12 090	DUP.
Pigment Red 38, C.I. 21 120	HAR, SW.
Pigment Red 41, C.I. 21 200	HAR.

See note at end of table for definition of abbreviations.

TABLE 11B.--*Toners and lakes for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Product	Manufacturers' identification codes (according to list in table 23)
REDUCED OR EXTENDED TONERS--Continued	
ɪrs, reduced--Continued	
ɪt Red 48, C.I. 15 865	BLN, DUP, HAR, HCC, IMP, KON, SAN, SNA, UHL, WDC.
ɪt Red 49, C.I. 15 630:	
ɪum toner	CC, FCL, KON, SNA, UHL.
ɪium toner	CC.
ɪt Red 50, C.I. 15 500	HSH.
ɪt Red 52, C.I. 15 860	HCC, SW.
ɪt Red 53, C.I. 15 585, sodium salt	HAR.
ɪt Red 55, C.I. 15 820	HAR.
ɪt Red 57, C.I. 15 850	CC, IMP, KON, SAN, SNA, SW.
ɪt Red 58, C.I. 15 825	SNA.
ɪt Red 78	DUP.
ɪt Red 81, C.I. 45 160, fugitive	BLN, KCW.
ɪt Red 81, C.I. 45 160, PMA	BLN, CC, DUP, NYC.
ɪt Red 81, C.I. 45 160, PTA	BLN, DUP, HCC, KCW, SNA.
ɪt Red 87, C.I. 73 310	HAR.
ɪt Red 88	HAR.
ɪt Red 90, C.I. 45 380	IMP.
ɪed 1), C.I. 73 360	KON.
ɪed 10), C.I. 67 000	HAR.
ɪed 29), C.I. 71 140	HAR.
ɪher	CC, HAM, KCW.
ɔoners, reduced:	
ɪt Violet 1, C.I. 45 170, fugitive	BLN, CC, UHL.
ɪt Violet 1, C.I. 45 170, PMA	BLN, CC, MRX, NYC.
ɪt Violet 1, C.I. 45 170, PTA	SNA.
ɪt Violet 3, C.I. 42 535, fugitive	BLN, CC, HAM, KON, UHL.
ɪt Violet 3, C.I. 42 535, PMA	BLN, CC, DUP, HCC, MGR, NYC.
ɪt Violet 3, C.I. 42 535, PTA	CC, KON.
ɪ Violet 3), C.I. 42 555, fugitive	HAM.
ʼiolet 1), C.I. 60 010	DUP, HAR.
ʼiolet 3), C.I. 73 395	HAR.
ɔoners, reduced:	
ɪine yellows:	
ɪent Yellow 12, C.I. 21 090	DUP, HAR, HSH, IMP.
ɪent Yellow 14, C.I. 21 095	ACY, CC, DUP, HAR, IMP, SAN, SW.
ɪr benzidine yellows	HAR.
yellows:	
ɪent Yellow 1, C.I. 11 680	DUP, IMP, MRX, WDC.
ɪent Yellow 3, C.I. 11 710	KCW, SAN.
ɪr Hansa yellows	KCW, SUC.
ɪt Yellow 18, C.I. 49 005	IMP.
ɪ Yellow 2), C.I. 41 000, fugitive	MRX, SAN.
ʼellow 1), C.I. 70 600	HAR.
LAKES OR LAKED COLORS	
ɪkes: (Natural Black 3), C.I. 75 291	CPC, KON, NYC.
ɪes:	
ɪt Blue 17, C.I. 74 180	BLN, CPC.
ɪt Blue 24, C.I. 42 090	ACY, ADC, AMS, BLN, CIK, ICC, IMP, KON, LVY, MGR, SDH, SNA.
Blue 93), C.I. 42 780	ICC.
Blue 104), C.I. 42 735	CPC, KCW.
ɪkes	KON.

ɪte at end of table for definition of abbreviations.

TABLE 11B.--*Toners and lakes for which U.S. production or sales were reported, identified manufacturer, 1960*--Continued

Product	Manufacturers' identification cod (according to list in table 23)
LAKES OR LAKED COLORS--Continued	
*Green lakes:	
(Acid Green 3), C.I. 42 085	BLN, CPC.
All other	APC, MGR, x.
*Orange lakes:	
Pigment Orange 17, C.I. 15 510	CPC, IMP, KCW, KON, LVY, MGR.
(Acid Orange 8), C.I. 15 575	IMP.
All other	APC.
*Red lakes:	
*Pigment Red 60, C.I. 16 105	BLN, CC, DUP, HAR, HCC, HSH, KON, MRX, S
Pigment Red 65, C.I. 18 020	SAN.
*Pigment Red 83, C.I. 58 000	HSH, IMP, KCW, KON, MRX, SNA, SW, UHL.
(Acid Red 17), C.I. 16 180	IMP, PPG, WDC.
(Acid Red 25), C.I. 16 050	KON.
*(Acid Red 26), C.I. 16 150	BLN, EAK, GAF, HAM, IMP, KCW, SNA, UHL,
(Acid Red 27), C.I. 16 185	KON, SW.
(Natural Red 4), C.I. 75 470	KON, SW.
(Natural Red 24), C.I. 75 280	IMP.
All other	APC, x.
*Violet lakes:	
*Pigment Violet 5, C.I. 58 055	BLN, DUP, GAF, HAR, HSH, IMP, SNA, SW, T
(Acid Violet 17), C.I. 42 650	BLN, HCC.
All other	SW.
*Yellow lakes:	
(Acid Yellow 1), C.I. 10 316	IMP, MGR, SW.
(Acid Yellow 3), C.I. 47 005	IMP, LVR, MGR.
(Acid Yellow 11), C.I. 18 820	MGR.
*(Acid Yellow 23), C.I. 19 140	ACY, HAR, IMP, KON, MGR, MRX.
(Natural Yellow 10), C.I. 75 720	IMP.
All other	SW, x.

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

When the name of a color is enclosed in parentheses, it indicates that this name is that of the dye f 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 phosphotungsto acids, respectively. The abbreviation dcb stands for 3,3'-dichlorobenzidine, and the abbreviation aaoa, o-acetoacetanisidide.

Medicinal Chemicals

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*

.l chemicals for which separate statistics are given in table 13A in pt. II are marked below with an aster-
; medicinal chemicals not so marked do not appear in table 13A because the reported data are accepted in
nce and may not be published. Manufacturers' identification codes shown below are taken from table 23. An x
es that the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC	
Benzenoid	
ıido-2,4,6-triiodobenzoic acid and sodium salt-----	MAL.
ɔne (N-Acetyl-4-hydroxy-m-arsanilic acid) ıɾsol).	SDW.
.ycol salicylate----------	FBS.
ıenylurea----------	ABB.
ılicylic acid (Aspirin)----------	CFC, DOW, MLS, MON, NOR, SDG.
ılicylic acid, aluminum basic salt----------	ABB, SFA.
.ne (2-Diethylaminoethyl diphenylacetate)----------	CBP.
.ne (Epinephrine)----------	SDW.
ɔids:	
.iodotyrosine----------	EK, FMT.
ɔnylalanine----------	DOW, SDW.
ɔsine----------	STA.
ɔenzoic acid and derivatives:	
ıobenzoic acid----------	LEM, PYL.
ɔaine (Ethyl p-aminobenzoate)----------	ABB, FBS, LEM, MTL.
ɔaine, ethoxylated----------	BPC.
ıatate (ω-Methoxypoly(ethyleneoxy)ethyl ıtylaminobenzoate) (Tessalon).	CBP.
ıine sulfate----------	ABB.
:n (n-Butyl p-aminobenzoate)----------	ABB, FBS.
;hylaminoethyl 4-amino-2-propoxybenzoate ɾocaine) hydrochloride.	SDW.
;yl p-aminobenzoate (Cycloform)----------	FBS.
ɪne base and salts:	
ɔaine acetate----------	RIK.
ɔaine hydrochloride----------	ABB, LEM, MTL.
ɔaine isobutyrate----------	LEM.
ɬ p-aminobenzoate----------	FBS.
ɔaine (2-Dimethylaminoethyl p-butylaminobenzoate) ɜ.	FBS.
ɔaine hydrochloride----------	FBS, SDW.
ɔenzoic acid salts:	
ɜium p-aminobenzoate----------	LEM.
ɜium p-aminobenzoate----------	GAN, LEM.
ɲ p-aminobenzoate----------	GAN, LEM.
ɪnophenyl)-2-ethylglutarimide----------	CBP.
ıophenyl-2-pyridone----------	x.
ɜalicylic acid----------	MLS, PD.
ɜalicylic acid salts:	
ım 4-aminosalicylate----------	MLS.
ɜium 4-aminosalicylate----------	HEX, MLS.
ɲ 4-aminosalicylate----------	MLS, PD.
ɪno-2,4,6-triiodophenyl)-2-ethylpropionic acid-----	SDW.
iine dihydrochloride (Ethyl-1-(4-aminophenethyl)- ıylisonipecotate dihydrochloride).	MRK.
ɪn (4,4′-Dimethoxybenzoin)----------	SPC.
ɬlic acid, cadmium salt----------	MAL.

TABLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 23
MEDICINAL CHEMICALS, CYCLIC--Continued	
Benzenoid--Continued	
*Antihistamines:	
2-(Benzhydryloxy)-N,N-dimethylethylamine hydrochloride---	PD.
Bromodiphenhydramine hydrochloride----------	PD.
1-(p-Chloro-α-phenylbenzyl)-4-m-methylbenzylpiperazine (Meclizine)dihydrochloride.	PFZ.
N,N-Dimethyl-2-(o-methyl-α-phenylbenzyloxy)ethylamine citrate.	RIK.
N,N-Dimethyl-2-(o-methyl-α-phenylbenzyloxy)ethylamine hydrochloride.	RIK.
N,N-Dimethyl-2-(α-phenyl-o-toloxy)ethylamine dihydrogen citrate.	BRS.
Benzaldehyde----------	HN, TNP.
Benzestrol (4,4′-(1,2-Diethyl-3-methyltrimethylene)-diphenol).	OTA.
Benzoic acid----------	MON, TNP.
Benzoic acid salts:	
Ammonium benzoate----------	PEN.
Lithium benzoate----------	MYW.
d-N-Benzyl-N,α-dimethylphenethylamine hydrochloride--------	x.
Benzyl p-methoxycinnamate----------	GIV.
3,4-Bis(p-hydroxyphenyl)-2,3-hexadienediacetate----------	MLS.
4,4-Bis(p-methoxyphenyl)-3-hexanone----------	LIL.
*Bismuth subgallate----------	BKC, MAL, PEN.
Bismuth subsalicylate----------	MAL, NOR, PEN.
N,N′-Bis(3-nitrobenzenesulfonyl)ethylenediamine----------	SAL.
Bis(4-nitrophenyl) disulfide----------	ACY.
4-n-Butyl-2-(p-hydroxyphenyl)-1-phenyl-3,5-pyrazolidine-dione.	GGY.
N-(n-Butyl)-3-phenylsalicylamide----------	KF.
1-Butyl-3-p-tolylsulfonylurea----------	HST, x.
*Carbasone (p-Carbamidobenzenearsonic acid)----------	LIL, PYL, RSA.
Chloramine T (N-Chloro-p-toluenesulfonamide, sodium derivative).	MON.
6-Chloro-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide.	MRK.
6-Chloro-3-chloromethyl-3,4-dihydro-2-methyl-2H-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	ABB.
6-Chloro-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	ABB, CBP, MRK.
2-(2-Chlorophenyl)-2-(4-chlorophenyl)-1,1-dichloroethane---	EDC.
2-(4-Chlorophenyl)tetrahydro-3-methyl-4H-1,3-thiazin-4-one, 1,1-dioxide.	SDW.
Chlorothymol----------	OPC.
1-Cyclohexyl-3-diethylamino-1-phenyl-1-propanol ethiodide--	ACY.
Desoxyanisoin----------	SPC.
3,5-Diacetamido-2,4,6-triiodobenzoic acid, sodium salt-----	SDW.
2,5-Diaminotoluene sulfate----------	EK.
4,5-Dichloro-m-benzenedisulfonamide (Dichlorphenamide)-----	MRK.
α-Diethylamino-2,6-acetoxylidide----------	AST.
1-[p-(β-Diethylaminoethoxy)phenyl]-1-p-tolyl-2-(p-chloro-phenyl)ethanol.	BKC.
2-Diethylaminopropiophenone----------	BKC.
p,p′-(1,2-Diethylethylene)diphenol (Hexestrol)----------	SPC, x.

'ABLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Benzenoid--Continued	
hyl-4,4'-stilbenediol (Diethylstilbestrol) --------	LIL, SPC.
iroxynorephedrine (3,4-Dihydroxyphenylpropanol-hydrochloride.	SDW.
iroxyphenylacetic acid----------	LIL.
ylamino-2,2-diphenylbutyramide ethobromide---------	FBS.
methylamino-1,2-diphenyl-3-methyl-2-propoxy-hydrochloride.	LIL.
ethylaminoethoxy)-N-(3,4,5-trimethoxybenzoyl)-amine hydrochloride.	HOF.
ylamino-3-methyl-2,2-diphenylbutyramide en sulfate.	FBS.
ethyl (Y-carbamyl-Y,Y-diphenylpropyl)ammonium e.	x.
methylphenethylamine base----------	ABB.
hylphenethylamine (Desoxyephedrine) base----------	HEX.
hylphenethylamine (Desoxyephedrine) hydrochloride-	GAN, HEX.
methylphenethylamine hydrochloride----------	ABB, GAN, HEX.
hyl-2-phenylsuccinimide----------	PD.
-p-toluidine----------	EK, PYL.
robenzamide----------	SAL.
acetonitrile----------	LIL.
pionamido-2,4,6-triiodobenzoic acid and sodium	MAL.
ne glycol salicylate----------	CP.
ropylsulfamyl)benzoic acid (Benemid)----------	MRK.
licinal:	
avine (3,6-Diamino-10-methylacridine chloride)-----	NAC.
mino-4'-ethoxyazobenzene hydrochloride (Serenium)-	KON.
a violet----------	NAC, SDH.
ain (Dibromohydroxymercurifluorescein, sodium salt)	HYN.
ne blue----------	NAC.
violet----------	NAC.
red (Phenol red)----------	NAC.
----------	NAC, x.
,3'-diphenyldipropylamine----------	SPC.
,3'-diphenyldipropylamine citrate----------	SPC.
,3'-diphenyldipropylamine hydrochloride----------	SPC.
odophenyl)hendecanoate (Pantopaque)----------	x.
urithiosalicylic acid----------	LIL.
urithiosalicylic acid, sodium salt----------	LAS, LIL, PYL.
-phenylglutarimide (Doriden)----------	CBP.
icylate carbonate----------	FBS, PD.
id----------	MAL.
nosalicylate----------	FBS, MON.
liquid and crystalline----------	HN, MON.
ylpyridinium chloride----------	HEX.
rcinol----------	HEX, MRK.
acetanilide----------	MLS, NEP.
benzaldehyde----------	NAC.
benzoic acid esters:	
p-hydroxybenzoate----------	HN.
. p-hydroxybenzoate (Butoben)----------	FBS, HN.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identifiec manufacturer, 1960*--Continued

Chemical	Manufacturers' identification cc (according to list in table 2:
MEDICINAL CHEMICALS, CYCLIC--Continued	
Benzenoid--Continued	
p-Hydroxybenzoic acid esters--Continued	
Ethyl p-hydroxybenzoate	FBS, HN.
Methyl p-hydroxybenzoate	FBS, HN.
Propyl p-hydroxybenzoate	FBS, HN.
3-Hydroxy-3-(4-chloro-3-sulfamylphenyl)phthalimidine	GGY.
2,2'-(2-Hydroxyethylimino)bis[N-(α,α-dimethylphenethyl)-N-methylacetamide].	WYT.
Hydroxymercuri-4-nitro-o-cresol anhydride (Metaphen)	ABB.
4-Hydroxy-3-nitrobenzenearsonic acid	SAL.
2-Hydroxy-2-phenethyl carbamate	ARP.
α-(Isopropylaminomethyl)protocatechuyl alcohol (Aleudrine)	ABB, SPC.
Mandelic acid (Phenylglycolic acid)	MAL, NEP.
Mandelic acid, calcium salt	MAL.
o-Methoxy-N,α-dimethylphenethylamine (1-(o-Methoxyphenyl)-2-methylaminopropane) hydrochloride.	MLS, ORT.
2-Methoxyethyl p-methoxycinnamate	GIV.
5-(o-Methoxyphenoxymethyl)-2-oxazolidinone	ACY.
*3-(o-Methoxyphenoxy)-1,2-propanediol (Glyceryl guaiacyl ether).	FBS, GAN, HEX.
Methylaminoethanolcatechol (racemic)	DOD.
α-(1-Methylaminoethyl)benzyl alcohol (Pseudoephedrine) hydrochloride.	BUR, GAN.
α-(1-Methylaminoethyl)benzyl alcohol sulfate	GAN.
1-Methyl-4-carbethoxy-4-phenylhexamethylenimine (Ethoheptazine) citrate.	WYT.
N-[2-(3,4-Methylenedioxyphenyl)isopropyl]-α-aminomethyl-protocatechuyl alcohol hydrochloride (Caytine).	LKL.
α-Methylphenethylamine (Amphetamine) base and salts:	
*α-Methylphenethylamine (Amphetamine) base	HEX, ORT, SK.
d-α-Methylphenethylamine base	HEX.
α-Methylphenethylamine hydrochloride	HEX.
d-α-Methylphenethylamine phosphate	HEX.
α-Methylphenethylamine sulfate	HEX.
d-α-Methylphenethylamine sulfate	HEX, SK.
5-Methyl-2-pyrrolidinone	LIL.
2-Naphthol (β-Naphthol)	FIN.
Neostigmine bromide	HEX.
Neostigmine methyl sulfate	HEX, MED.
p-Nitrobenzenearsonic acid	SAL.
*Norephedrine hydrochloride	FBS, GAM, HEX, NEP, ORT.
Phenacaine [(Di-p-ethoxyphenyl)acetamidine hydrochloride]	SDW.
Phenacetin (Acetophenetidin)	DOW, MON.
Phenolphthalein	MON.
Phenolsulfonic acid salts:	
Aluminum phenolsulfonate	MAL.
Ammonium phenolsulfonate	SAL.
Calcium phenolsulfonate	MAL.
Sodium phenolsulfonate	MAL, SAL.
Zinc phenolsulfonate	MAL.
2-Phenyl-tert-butylamine resin complex	x.
trans-2-Phenylcyclopropylamine sulfate	x.
l-Phenylephrine base	GAN.
*Phenylephrine hydrochloride	GAN, HEX, SDW, SPC.

'ABLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Benzenoid--Continued	
ethylhydrazine dihydrogen sulfate	NEP.
-1,3-indandione (Danilone)	GAN, SPC.
isopropylhydrazine hydrochloride	LKL.
ercuric derivatives:	
romercuriphenol (o-Hydroxyphenylmercuric chloride)-	MTL.
mercuric acetate	WRC.
mercuric benzoate	MTL, WRC.
mercuric borate	MTL, WRC.
mercuric chloride	MTL, WRC.
mercuric nitrate	MTL, WRC.
one	NAC, SDH.
ic acid	MAL.
ol, bismuth salt	NEP.
ol monoacetate	FIN.
ol monobenzoate	EKT.
mide	CFC, PEN.
c acid	CFC, DOW, HN, MON, SDH.
c acid salts:	
m salicylate	DOW.
ium salicylate	MAL.
ic salicylate	MAL.
ium salicylate	PEN.
salicylate	DOW, HN, MON.
ium salicylate	DOW, MAL, PYL.
henyl salicylate)	DOW, MAL, PEN.
ntimony(III)-bis(catechol-2,4-disulfonate) in).	SDW.
enzyl succinate	LEM.
-iodohippurate dihydrate (Hippuran)	MAL.
antoninate	MAL.
ugs:	
amido-4-hydroxy-3-(4'-sulfamoylphenylazo)-2,7-thalenedisulfonic acid, disodium salt (Neo-tosil) (Prontosil soluble).	SDW.
tyl-3,4-dimethyl-5-sulfanilamidoisoxazole	HOF.
tylsulfamethoxypyridazine	ACY.
etylsulfamoyl)phthalanilic acid	LEM.
lsulfanilamide	ACY.
lsulfanilamide, sodium salt	ACY.
ylaminobenzenesulfonamide	SDW.
Chloro-2-pyrazinyl)sulfanilamide	ACY.
6-Dimethoxy-4-pyrimidinyl)sulfanilamide	HOF.
4-Dimethyl-5-isoxazolyl)sulfanilamide	HOF.
Ethyl-1,3,4-thiadiazol-2-yl)sulfanilamide	ACY.
Methyl-1,3,4-thiadiazol-2-yl)sulfanilamide	ACY.
Nitrophenylsulfamoyl)acetanilide (N^4-Acetyl-N^1-itrophenyl)sulfanilamide).	ACY, SAL.
romomethazine, sodium salt	MRK.
iazine	ACY.
iazine, sodium salt	ACY.
uanidine	ACY.
erazine	ACY.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identifie manufacturer, 1960*--Continued

Chemical	Manufacturers' identification cc (according to list in table 23
MEDICINAL CHEMICALS, CYCLIC--Continued	
Benzenoid--Continued	
*Sulfa drugs--Continued	
Sulfamerazine, sodium salt	ACY.
Sulfamethazine	ACY.
Sulfamethoxypyridazine	ACY.
Sulfanilamide (p-Aminobenzenesulfonamide)	MRK.
Sulfanilanilide	SAL.
N-Sulfanilylacetamide (Sulfaacetamide)	LEM, SCH, PYL.
N-Sulfanilylacetamide, sodium salt	LEM, SCH, PYL.
Sulfapyridine	ACY, MRK, PYL.
Sulfapyridine, sodium salt	ACY, MRK, PYL.
Sulfaquinoxaline	MRK.
Sulfasuxidine (Succinylsulfathiazole)	MRK.
Sulfathalidine	MRK.
Sulfathiazole	ACY, MRK.
Sulfathiazole, sodium salt	ACY, MRK.
4'-(2-Thiazolylsulfamoyl)phthalanilic acid	LEM.
[Sulfonylbis(p-phenylenimino)]dimethanesulfinic acid, disodium salt (Diasone).	ABB.
Tannin albuminate (Tannalbin)	PYL.
α-(3-Thiomorpholinyl)benzhydrol hydrochloride	FBS.
Thiosalicylic acid	LIL, MEE.
Thymol	GIV, HNW.
Thymol iodide	MAL.
*3-o-Toloxy-1,2-propanediol (o-Cresyl α-glyceryl ether).	BKL, FBS, HEX.
Vitamins:	
K (2-Methyl-1,4-naphthalenediol diphosphate, tetrasodium salt).	HOF.
*K (Menadione) (2-Methyl-1,4-naphthoquinone)	ABB, HET, HFT.
K (Menadione), sodium bisulfite	ABB, HET.
K^1 (2-Methyl-3-phytyl-1,4-naphthoquinone)	MRK.
K^5 (4-Amino-2-methyl-1-naphthol, hydrochloride)	PD.
Alicyclic and Heterocyclic	
2-Acetamido-5-nitrothiazole (Acetyl enheptin)	ACY.
5-Acetamido-1,3,4-thiadiazole-2-sulfonamide	ACY.
Adenine hydrochloride	SBR.
Adenine sulfate	KF.
Adenosine	SBR.
Adenosine-5-phosphoric acid	SBR.
Adenosinetriphosphoric acid	SBR.
Adenosinetriphosphoric acid, salt	PBS, SBR.
*Alkaloids and related products:	
Berberine hydrochloride	ABB, PEN.
Colchicine	ABB, PEN.
Digitalis glucosides:	
Digitonin	PEN.
All other	BUR.
Eserine salicylate	PEN.
Ethylmorphine hydrochloride	MAL, MRK.
Eucatropine hydrochloride	NEP.
Homatropine	HEX, SPC.
Homatropine hydrobromide	SPC.

BLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
and related products--Continued	
ɔine methyl bromide	EN, HEX, SPC.
ine	PEN.
ine hydrochloride	PEN.
hoxy-N-methylmorphinan hydrobromide	HOF.
ne sulfate	HEX.
ia serpentina (Alseroxylon) fraction	RIK.
ne	CBP, PEN.
ne sulfate	PEN.
arine	OMS.
m viride (Alkavervir)	PEN, RIK.
(5-Ureidohydantoin)	FIN, FMF, HFT.
ds:	
yltryptophane	SDW.
tophane	SDW.
ophane	SDW.
obutyl)indole acetate	x.
-nitrothiazole (Enheptin)	ACY.
-oxazolidinone	NOR.
no-2-propyl-5-pyrimidinyl)methyl]-2-methyl- ium chloride hydrochloride.	MRK.
rine-6-thiol	BUR.
cs for human or veterinary use:	
ne	UPJ.
cin	COM, PBS, PEN, PFZ.
phenicol (Chloromycetin)	PD.
tracycline (Aureomycin) hydrochloride	ACY.
rine	COM.
streptomycin	ACY, LIL, MRK, OMS, PFZ.
mycin	ABB, COM, LIL.
lin	ABB.
din	BAX, PEN.
n, base	ACY, MRK, OMS, PEN, PFZ, UPJ.
cin	MRK, x.
n	OMS.
mycin	PFZ.
mycin, triacetate	PFZ.
acycline (Terramycin) hydrochloride	PFZ.
ycin	x.
lin salts:	
thine penicillin G	PFZ, WYT.
thine penicillin V	WYT.
oprocaine penicillin O	UPJ.
bamine penicillin V	ABB.
illin V	LIL.
-Phenoxyethylpenicillin	PFZ.
sium penicillin G	ABB, LIL, MRK, OMS, PFZ, WYT.
sium penicillin V	ABB, LIL.
sium α-phenoxyethyl penicillin	BRS, OMS.
ine penicillin G	ABB, LIL, MRK, OMS, PFZ, WYT.
m 2,6-dimethoxyphenylpenicillin	BRS.
m penicillin G	MRK, OMS, PFZ.
m penicillin O	UPJ.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
*Antibiotics for human or veterinary use--Continued	
Polymixin B sulfate	PFZ.
Spontin	ABB.
*Streptomycin	ACY, LIL, MRK, OMS, PFZ.
*Tetracycline	ACY, BRS, PFZ.
Thiostrepton	OMS.
Tyrothricin	BAX, PEN.
Viomycin	PFZ.
Other	ACY, BRS, LIL, OMS.
*Antibiotics for animal feed supplements, food preservation, and crop spraying:	
Aterrimin	BIF.
Bacitracin	COM, GPR, PBS, PEN.
Chlortetracycline (Aureomycin) hydrochloride	ACY.
Dihydrostreptomycin	PFZ.
Hygromycin B	LIL.
Oxytetracycline (Terramycin)	PFZ.
*Penicillin salts:	
Benzathine pencillin G	PFZ.
Potassium penicillin G	PFZ.
Procaine pencillin G	ABB, LIL, MRK, OMS, PFZ.
Streptomycin	MRK, PFZ.
*Antihistamines:	
2-(Benzhydryloxy)-N,N-dimethylethylamine 8-chloro-theophyllinate.	SRL.
2-[Benzyl(2-dimethylaminoethyl)amino]pyridine hydrochloride.	CBP.
2-[1-(p-Bromophenyl)-3-dimethylaminopropyl]pyridine (Parabromolylamine) maleate.	SCH.
1-(4-Chlorobenzhydryl)-4-methylpiperazine hydrochloride	ABB, BUR.
2-[p-Chloro-α-(2-dimethylaminoethoxy)benzyl]pyridine maleate.	SCH.
2-[p-Chloro-α-(2-dimethylaminoethoxy)benzyl]pyridine tartrate.	x.
2-[p-Chloro-α-(2-dimethylaminoethyl)benzyl]pyridine (Chlorpheniramine base).	HEX.
1-(p-Chloro-α-phenylbenzyl)-4-(p-tert-butylbenzyl)-piperazine dihydrochloride.	PFZ.
*2-[1-(p-Chlorophenyl)-3-dimethylaminopropyl]pyridine maleate (Chlorophenylpyridamine maleate).	HEX, SCH, x.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-2-butanol	LIL.
1-(p-Chlorophenyl)-2-phenyl-4-pyrrolidyl-1-butene diphosphate and hydrochloride.	LIL.
2-[α-(2-Dimethylaminoethoxy)-α-methylbenzyl]pyridine succinate (2-(Methyl-2'-dimethylaminoethoxybenzyl) pyridine succinate) (Decapryn succinate).	BKC.
2-[(2-Dimethylaminoethyl-p-methoxybenzyl)amino]pyridine maleate.	MRK.
2-[(2-Dimethylaminoethyl-p-methoxybenzyl)amino]pyrimidine (N,N-Dimethyl-N'-p-methoxybenzyl-N,2-pyrimidylethylenediamine).	NEP.
2-[(2-Dimethylaminoethyl)thenylamino]pyridine fumarate (N,N-Dimethyl-N',2-pyridyl-N',2-thenylethylenediamine fumarate).	ABB, MON.

ABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
ıines--Continued	
methylaminoethyl)thenylamino]pyridine hydrochlo-	ABB, SDW.
N,N-Dimethyl-N′,2-pyridyl-N′,2-thenylethylene-	
ıe hydrochloride).	
methylaminoethyl)thenylamino]pyridine o-(p-	LIL.
ybenzoyl)benzoate.	
methylamino-2′-methyl)ethylphenothiazine hydro-	MON, WYT.
de.	
methylamino)-1-phenylpropyl]pyridine maleate-----	HEX, SCH, x.
thyl-N′-(2-pyridyl)-N′-(5-chloro-2-thenyl)-	MON.
nediamine citrate.	
mine----------	HOF.
acid----------	ABB, KF.
acid, sodium salt----------	ABB.
acid derivatives:	
5-sec-butylbarbituric acid----------	SDW.
5-(2-cyclopenten-1-yl)barbituric acid and salt	GAN.
pal).	
5-isobutylbarbituric acid and salt----------	GAN.
5-(1-methylbutyl)barbituric acid (Secobar-	BPC, GAN, LIL.
and salt.	
5-(1-methylbutyl)-2-thiobarbituric acid, sodium	PD.
Thiamylal).	
tyl-5-ethylbarbituric acid----------	ABB, BPC, GAN.
tyl-5-ethylbarbituric acid, sodium salt----------	ABB, BPC, GAN.
lohexen-1-yl)-1,5-dimethylbarbituric acid	SDW.
ıl).	
lohexen-1-yl)-1,5-dimethylbarbituric acid, sodium	SDW.
lohexen-1-yl)-5-ethylbarbituric acid and salt----	SDW.
llylbarbituric acid (Dial)----------	GAN.
hylbarbituric acid (Barbital)----------	GAN.
hylbarbituric acid, sodium salt----------	GAN.
5-isoamylbarbituric acid and salt (Amytal)-------	BPC, GAN, LIL.
5-isopropylbarbituric acid and salt----------	ABB.
5-(1-methyl-1-butenyl)barbituric acid (Delvinal)-	x.
5-(1-methyl-n-butyl)barbituric acid (Pento-	ABB, BPC, GAN.
al).	
5-(1-methyl-n-butyl)barbituric acid, sodium salt-	ABB, BPC, GAN.
5-(1-methyl-n-butyl)-2-thiobarbituric acid and	ABB, BPC.
(Pentothal).	
1-methyl-5-phenylbarbituric acid (Mephobarbital)-	SDW.
5-n-pentylbarbituric acid, sodium salt----------	BPC.
5-phenylbarbituric acid (Phenobarbital) (Luminal)	ABB, BPC, GAN, MAL, SDW.
5-phenylbarbituric acid, sodium salt----------	BPC, GAN, MAL, SDW.
zylcarbamoyl)ethyl]-2-isonicotinoylhydrazine------	PFZ.
3,4-dihydro-6-(trifluoromethyl)-2H-1,2,4-benzo-	OMS.
zine-7-sulfonamide, 1,1-dioxide (Benzhydroflu-	
ide).	
2-imidazoline (Tolazoline) hydrochloride----------	SPC.
2-(5-methyl-3-isoxazolalcarbonyl) hydrazine-------	HOF.
iiomethyl-6-chloro-2H-1,2,4-benzothiadiazine-7-	PFZ.
nide, 1,1-dioxide.	

TABLE 13B. ***--Medicinal chemicals for which U.S. production or sales were reported, identi manufacturer, 1960*** **-- Continued**

Chemical	Manufacturers' identification c (according to list in table 2
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
*Bile acids and salts:	
Bilirubin	PFN.
Bilron	LIL.
Cholic acid	DRG, SRL, WIL.
*Dehydrocholic acid	DRG, MRK, WIL, WTM.
Dehydrocholic acid, sodium salt	WIL.
Desoxycholic acid	DRG, MRK, WIL, WTM.
*Ketocholanic acids	MRK, SRL, WIL.
Mixed oxidized bile acids	ARP.
Bromocamphor, mono-	MAL, PEN.
4-[3-(p-Butoxyphenoxy)propyl]morpholine hydrochloride (Pyramoxine).	ABB.
α-Butyloxycinchoninic acid diethylethylenediamide and hydrochloride (Nupercaine).	CBP.
*Caffeine, natural	GNF, MYW, RB.
*Caffeine, synthetic	MON, PFZ.
Caffeine derivatives, natural and synthetic:	
Caffeine citrate	MAL, MRK.
Caffeine sodium benzoate	MAL.
Camphor, synthetic, U.S.P	HNW.
Camphoric acid	FIN, PYL.
Camphoric anhydride	FIN, PYL.
Camphosulfonic acid	PYL.
Camphosulfonic acid, calcium salt	FIN.
N-[3-(Carboxymethylmercaptomercuri)-2-methoxypropyl] α-camphoramate, disodium salt.	WYT.
Cellulose, oxidized	EKT.
6-Chloro-3-dichloromethyl-3,4-dihydro-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	SCH.
7-Chloro-4-(4-diethylamino-1-methylbutylamino)quinoline (Aralen).	SDW.
7-Chloro-4-(4-[ethyl(2-hydroxyethyl)amino]-1-methylbutylamino)quinoline sulfate.	SDW.
*5-Chloro-7-iodo-8-quinolinol (Iodochlorohydroxyquinoline)	CBP, LEM, MTL.
3-(p-Chlorophenylsulfonyl)-1-propylurea	PFZ.
6-Chloropurine	BUR.
4-(7-Chloro-4-quinolylamino)-α-diethylamino-o-cresol	PD.
Coenzyme A	PBS.
Cozymase	PBS.
α-Cyclohexyl-α-phenyl-1-piperidinepropanol	ACY, SDW.
Cyclopentanol	LIL.
Cyclopentyl bromide	LIL.
1-Cyclopentyl-2-methylpropylamine (Cyclopentamine) hydrochloride.	LIL.
α-Cyclopentyl-2-thiophenylglycolic acid, 2-diethylaminoethyl ester methobromide.	SDW.
Cytosine	KF.
Dextran	PHR.
2,4-Diamino-5-(p-chlorophenyl)-6-ethylpyrimidine	BUR.
*4,7-Dichloroquinoline	PD, SDH, SFA.
Diethylaminocarbethoxybicyclohexyl (Dicyclomine) hydrochloride (Bentyl hydrochloride).	BKC.

LE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
laminoethoxy)-2-dimethylaminobenzothiazole ride.	HOF.
rbamyl-4-methylpiperazine dihydrogen citrate).	ACY.
-5-methyl-2,4-piperidinedione	HOF.
inone bitartrate	EN, MAL, MRK, PEN.
oxycodeinone hydrochloride	EN.
4-pyridone-N-acetic acid, diethanolamine	SDW.
8-quinolinol	LEM, MTL, PYL, RSA, SRL.
xy-1-(4-ethoxy-3-methoxybenzyl)-3-methylquino- phate (Dioxyline phosphate).	LIL.
lbenzyl camphorate, diethanolamine salt	x.
lcyclohexane-ethylamine (1-Cyclohexyl-2-methyl- ane).	SK.
l-4-piperidylidene-1,1-diphenylmethane, lfate (Diphenmethanil methyl sulfate).	SCH.
o-3-piperidyl) phthalimide	BKC.
lhydantoin	PD.
lhydantoin, sodium salt	PD, PYL.
-dimethyl-2,4-oxazolidinedione	ABB.
hyl-4-phenylisonipecotate (Demarol)	SDW, WYT.
ethylsuccinimide	PD.
henylhydantoin	ABB.
iperidyl benzilate methobromide	LKL.
iperidyl diphenylacetate hydrochloride	LKL.
lohexyl carbamate (Valmid)	LIL.
evulose)	DLI.
6-diphosphate, dicalcium salt	SBR.
	PFN.
hosphate, barium salt and sodium salt	SBR.
lium	RIK.
methyl chalcone	SKG.
pyridinium chloride	GAN.
enetetramine	HN.
enetetramine anhydromethylene citrate (Helmitol)-	SDW.
enetetramine mandelate	NEP, PYL.
	PBS.
sphoric acid salts:	
id sodium salts	SBR.
iexosediphosphate	SBR.
steroid):	
rticotropic hormone (ACTH)	ARP, ORG, WIL.
asone	MRK, SCH.
asone acetate	SCH.
asone phosphate	MRK.
iloro-17,21-dihydroxypregna-1,4-diene-3,20-dione tate.	SCH.
l	UPJ.
ic substance	ORG.
rtisone	MRK.
rohydrocortisone acetate	UPJ.
sterone	UPJ.
tisone alcohol and acetate	MRK, PFZ, UPJ.
tisone diethylaminoacetate hydrochloride	PFZ.

TABLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identif manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
Hormones (steroid)--Continued	
17-Hydroxy-11-dehydrocorticosterone (Cortisone) and acetate.	MRK, UPJ.
21-Hydroxypregnane-3,20-dione, sodium hemisuccinate	PFZ.
11-α-Hydroxyprogesterone	UPJ.
17-α-Methyl-17-β-hydroxyandrostane-1,4-diene-3-one	CBP.
Methylprednisolone	x.
Methyltestosterone	CBP.
Piperazine estrone sulfate	ABB.
Prednisolone	MRK, UPJ.
Prednisone	MRK, SCH.
Progesterone	x.
Sitosterol B	UPJ.
Testosterone propionate	CBP.
Triamcinolone	ACY, OMS.
Trienediol	UPJ.
1-Hydrazinonaphthalazine hydrochloride	CBP.
3-Hydroxy-1-methylpyridinium bromide dimethylcarbamate	HOF.
8-Hydroxyquinoline-5-sulfonic acid	LEM.
4,5-Imidazoledicarboxamide (Glycarbylamide)	MRK.
Iodoantipyrine	MAL.
2-Iodoethyl-1,3-dioxolane-4-methanol	x.
Isonicotinic acid hydrazide	NEP.
Maltose	PFN.
Menthyl salicylate	FBS.
homo-Menthyl salicylate	FBS.
6-Mercaptopurine	BUR.
6-Methoxy-8-aminoquinoline	GAM.
β-Methoxy-γ-hydroxymercuric propylamide of camphoric acid, sodium salt with theophylline (Mercupurin).	FIN.
Methoxyoximercuripropylsuccinyl urea	LKL.
2-(p-Methoxyphenyl)-1,3-indandione	SCH.
2-Methylbenzothiazole	FMT.
Methylcholanthrene	EK.
α-Methylcyclopentaneethylamine	LIL.
Methyl dihydromorphinone	MAL.
3,3′-Methylenebis[4-hydroxycoumarin] (Dicumarol)	ABB, FIN.
Methyl nicotinate	NEP, RIL.
3-Methyl-2-phenylmorpholine hydrochloride (Preludin)	GGY.
N-Methyl-2-phenylsuccinimide (Milontin)	PD.
N-Methyl-3-piperidylbenzilate methobromide	LKL.
10-[(1-Methyl-3-piperidyl)methyl]phenothiazine hydrochloride (Mepazine) (Pacatal).	NEP.
3-(2-Methyl-1-piperidyl)propyl benzoate (Metycaine)	LIL.
3-(2-Methyl-1-piperidyl)propyl p-cyclohexyloxybenzoate	LIL.
2-Methyl-3-o-tolyl-4(3H)-quinazolinone	x.
1-Methyl-2-undecyl-3-benzylimidazolium bromide	LIL.
5-(4-Morpholinomethyl)-3-(5-nitrofurfurylideneamino)-2-oxazolidinone.	NOR.
Nikethamide (Coramine)	CBP, PYL.
5-Nitro-2-furaldehyde diacetate	NOR.
5-Nitro-2-furaldehyde semicarbazone (Furacin)	NOR.
5-Nitro-2-furfurylidene-1-aminohydantoin (Furadantin)	NOR.

ABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
)-2-furfurylidene)-3-amino-2-oxazolidene----------	NOR.
1-Phenyl-2,3-dimethyl-4-methylamino-5-pyrazolone ehyde bisulfite).	SDW.
id----------	SBR.
id salts----------	SBR.
iro-1-azocinyl)ethylguanidine sulfate----------	CBP.
hydrochloride, synthetic----------	LIL.
ine----------	CLV.
clohexaneglycolic acid, 1-methyl-1,4,5,6-tetra--pyrimidinemethanol ester.	PFZ.
clopentylcarboxylic acid, 2-(2-diethylamino-thyl ester.	PFZ.
id----------	STA.
id, calcium salt----------	PYL, STA.
um myristyl chloride----------	x.
----------	DOW, JCC, RDA, UCC.
derivatives:	
dryl-N^1-methylpiperazine base and hydrochloride--	BUR.
lohexyl-β-hydroxy-β-phenyl)ethyl-N'-methyl-zine methosulfate.	ABB.
aminoethyl-4-methylpiperazine----------	UCC.
)iphenyl-β-hydroxy)ethyl-N'-methylpiperazine ochloride.	ABB.
-methyl-N-piperazine acetate----------	ABB.
piperazine----------	PYL, UCC.
ne adipate----------	JCC, PYL, RDA.
ne calcium ethylenediamine tetraacetate (Perin)--	EN.
ne carbon disulfide----------	PYL.
ne citrate----------	JCC, PYL, RDA, RSA.
ne dihydrochloride----------	PYL, RDA.
ne hydrochloride----------	JCC, RDA.
ne phosphate----------	BUR, JCC, PYL, RDA.
ne tartrate----------	PYL.
hexahydrate----------	JCC.
-thiouracil----------	ACY.
de----------	MRK.
methanol tartrate----------	HOF.
2,6-Diamino-3-phenylazopyridine)----------	HOF, NEP.
(Atebrin) (2-Methoxy-6-chloro-9-diethylamino-inoacridine).	SDW.
ol (8-Hydroxyquinoline) salts and esters:	
inol base----------	GAM, LEM, MTL.
inol benzoate----------	GAM.
inol citrate----------	GAM.
inol, magnesium salt----------	FMT.
inol sulfate (Quinosol)----------	GAM, LEM, MTL.
ne----------	PFZ.
----------	LEM, PEN.
ydrate----------	LEM, PEN.
e derivatives:	
ine calcium gluconate----------	WTM.
ine sodium acetate----------	MAL.
ine sodium salicylate----------	MAL.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identifi manufacturer, 1960*--**Continued**

Chemical	Manufacturers' identification co (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
*Theophylline base and derivatives:	
Theophylline aminoisobutanol	GAN.
Theophylline, anhydrous	GAN.
Theophylline base	MAL.
Theophylline cholinate	NEP.
*Theophylline ethylenediamine (Aminophylline)	GAN, LEM, SRL.
Theophylline ethylenediamine, sodium biphosphate	GAN.
Theophylline magnesium	MAL.
Theophylline methoxyoximercuripropyl succinylurea	LKL.
Theophylline sodium acetate	MAL.
All other	MCH.
2-Thiouracil	ACY.
Thymidine	SBR.
*Tranquilizers (including benzenoid):	
1-(p-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl] diethylenediamine dihydrochloride.	PFZ.
1-(p-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl] diethylenediamine pamoate.	PFZ.
2-Chloro-10-(3-dimethylaminopropyl)phenothiazine (Chlorpromazine) hydrochloride.	SK.
7-Chloro-2-methylamino-5-phenyl-3H-1,4-benzodiazepine-4-oxide hydrochloride.	HOF.
2-Chloro-10-[3-(1-methyl-4-piperazinyl)propyl]phenothiazine dimaleate.	SK.
4-[3-(2-Chloro-10-phenothiazinyl)propyl]-1-piperazineethanol.	SCH.
2-(p-Chlorophenyl)-3-methyl-2,3-butanediol	LIL.
10-(3-Dimethylaminopropyl)phenothiazine (Promazine) hydrochloride.	WYT.
2-Ethyl-3-propylglycidamide (Quiactin)	BKC.
α-(4-Piperidyl)benzhydrol (Azocyclonol) hydrochloride	BKC.
N,2,3,3-Tetramethyl-2-norbornanamine (Mecamylamine)	MRK.
6-(Trifluoromethyl)-1,2,4-benzothiadiazine-7-sulfonamide, 1,1-dioxide.	OMS.
2-Trifluoromethyl-10-(3-dimethylaminopropyl)phenothiazine (Triflupromazine) hydrochloride.	OMS.
4-[3-[2-(Trifluoromethyl)-10-phenothiazinyl]propyl]-1-piperazineethanol dihydrochloride.	OMS, SCH.
Triethanolamine salicylate	FBS.
3,5,5-Trimethyl-2,4-oxazolidinedione (Tridione)	ABB.
Triphosphopyridine nucleotide	PBS.
3-Tropanol (Tropine)	SPC.
Tropine benzhydryl ether methanesulfonate	x.
Uracil	ACY, SBR.
Uric acid	FMF.
Uridine	SBR.
Uridine triphosphate	PBS.
1-Vinyl-2-pyrrolidinone iodine complex monomer	GAF.
*Vitamins:	
*A, from all sources:	
A acetate	HOF, MRK, PFZ, x.
A acetate (feed grade)	HOF.
A alcohol	CW.
A esters (natural)	x.
A palmitate	HOF, MRK, PFZ, x.
A palmitate (feed supplement)	EK, HOF, PFZ.

TABLE 13B.--*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemicals	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, CYCLIC--Continued	
Alicyclic and Heterocyclic--Continued	
;--Continued	
)tene	HOF.
ıiamine derivatives):	
.amine hydrochloride)	HOF, MRK.
.amine nitrate)	HOF, MRK.
)oflavin-5′-phosphate, monosodium salt) (100%)	HOF.
)oflavin for human consumption) (100%)	GPR, HOF, MRK.
)oflavin for animal and poultry consumption) (100%)	COM, GPR, HOF, MRK, PBS.
ridoxine)	HOF, MRK.
.00%:	
. grade	BIF, COM, GPR, MRK, PBS.
maceutical quality	BIF, MRK.
P. Crystalline	MRK.
radiated ergosterol)	DGS, DLI, GNM, SCR, VTM.
radiated animal sterol)	DGS, DLI, NOP, VTM.
'ocopherol)	HOF.
'ocopherol acetate)	HOF.
	HOF.
acid	ABB, ACY, UPJ.
ol	CRN, STA.
. (Nicotinic acid)	ABB, ACP, KPT, MRK, NOP, SCR.
amide	ABB, MRK, NEP, SCR.
amide hydrochloride	NEP.
nic acid (animal feed)	CKL, KPT, NEP.
nic acid, sodium salt	MRK, NEP.
	PFN.
MEDICINAL CHEMICALS, ACYCLIC	
rbromal (1-Acetyl-3-(2-bromo-2-ethylbutyryl)urea)	BKL, MLS.
oline bromide	EK.
oline chloride	PYL.
thionine	DOW, PYL, USI.
-methylcholine chloride	PYL, RSA.
ids:	
nine (dl-α-Alanine)	DOW.
ine	ABB, BFG, NOP.
artic acid	HEX, NAC.
eine hydrochloride	PUL.
ic acid and salts:	
-Glutamic acid	HPC, IMC.
-Glutamic acid, calcium salt	LEM.
-Glutamic acid hydrochloride	IMC, LEM.
-Glutamic acid, monoammonium salt	GNM.
-Glutamic acid, monopotassium salt	IMC.
lutamine	LIL.
e (Aminoacetic acid)	BPC, DOW.
e hydrochloride	EK.
)xy-4-(methylthio)butyric acid, calcium salt	DUP.
eucine	DOW.
)ine	DOW.
ine	STA.

TABLE 13B. --***Medicinal chemicals for which U.S. production or sales were reported, identifie manufacturer, 1960***--**Continued**

Chemical	Manufacturers' identification cc (according to list in table 2
MEDICINAL CHEMICALS, ACYCLIC--Continued	
*Amino acids--Continued	
l(+)-Lysine hydrochloride	DUP, MRK, PFZ.
dl-Methionine	DOW, LEM.
Methionine (animal feed grade)	DOW, DUP.
dl-Threonine	SDW.
dl-Valine	DOW.
l-Valine	SBR.
Amino acid mixtures	CUT, STA.
Amyl nitrite (Isoamyl nitrite)	MAL.
Betaine base	HFT.
*Betaine hydrochloride	HFT, IMC, LEM.
Bromoform (Tribromomethane)	DOW.
Cacodylic acid derivatives:	
Iron cacodylate	PYL.
Sodium cacodylate	PYL.
Calcium bromolactobionate	PYL.
Calcium lactophosphate	MAL.
Calcium succinate	LEM, PEN.
Carbromal (3-(2-Bromo-2-ethylbutyryl)urea)	MLS.
Chloretone (tert-Trichlorobutyl alcohol)	BPC, FBS.
3-Chloromercuri-2-methoxypropylurea	LKL.
β-Chlorovinylethylethynyl carbinol	ABB.
*Choline and salts:	
Choline	x.
Choline bicarbonate	COM.
Choline bitartrate	ACY, CFC, HFT.
*Choline chloride, for animal and poultry feed, and for use as an intermediate.	COM, HFT, RH.
Choline chloride, medicinal grade only	CFC, HFT.
Choline dihydrogen citrate	ACY, CFC, HFT.
Choline tricitrate	ACY, CFC.
Diallylacetic acid	x.
Diallylacetic acid, bismuth salt	x.
Di(2-ethylhexyl)sulfosuccinate	ACY.
2,3-Dimercapto-1-propanol (Dimercaprol)	RSA.
Divinyl ether	MRK.
Ethyl carbamate (Urethane)	FMP.
2-Ethyl-cis-crotonylurea	MLS.
Ethylenediamine diiodide	PYL.
Ethyl iodide	EK, FMT.
Ethyl nitrite	MAL.
Gluconic acid salts:	
Ammonium gluconate	PFZ.
Calcium glucoheptonate	PFN.
Calcium gluconate	DLI, MAL, PFZ.
Copper gluconate	PFZ.
Iron (ferrous) gluconate	PFZ.
Magnesium gluconate	PFZ.
Manganese gluconate	PFZ.
Potassium gluconate	PFZ.
Sodium gluconate	DLI, PFZ.
Glucono-δ-lactone	PFZ.
Glucosamine hydrochloride	PFZ.

ABLE 13B. --*Medicinal chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MEDICINAL CHEMICALS, ACYCLIC--Continued	
ɔne (oxidized)	SBR.
ɔne (reduced)	SBR.
ɔne, monosodium salt	SBR.
ıosphoric acid	HN.
ɾldiaminoisopropanol diiodide	SDW.
ɾlenebis[trimethylammonium chloride] (Hexamethonium le).	HEX.
ɾ-4-methylisobutyric acid, calcium salt	MON.
	MAL, PEN.
ınesulfonic acid, sodium salt	SDW.
ɾrous) oxalate	BKL.
ɨid salts (medicinal grades only):	
ım lactate	PYL.
ɨerrous) lactate	MAL.
	UPJ.
n citrate	MAL.
trile	GAM, KF.
-2-sec-butyl-1,3-propanediol dicarbamate	x.
ɨecitric acid and salts	SDW.
ɨ iodide	SDW.
ɔdide	EK, RSA.
-3-pentanol carbamate	MRK.
-2-propyl-1,3-propanediol	ABB.
ıctone (d-2,4-Dihydroxy-3,3-dimethylbutyric acid, ɔne).	PD.
tone (2,4-Dihydroxy-3,3-dimethylbutyric ′-lactone) (racemic).	ABB, PD.
ɯaleric acid, bismuth salt	x.
-phosphate, barium and sodium salt	SBR.
ismuth triglycolamate	x.
ıccinate	PEN.
artrate	MAL.
choline dichloride	BUR, SDW.
hylammonium chloride	EK, RSA.
hylammonium hydroxide	RSA..
carbazide	FMC, PYL.
izers: 2-Methyl-2-n-propyl-1,3-propanediol amate.	ABB, BKL, FBS, PEN, x.
ibromoethanol	SDW.
thionic acid	SCH.
:	
ic acid and derivatives:	
rbic acid	HOF, MRK, PFZ.
rbic acid, calcium salt	PFZ.
rbic acid, sodium salt	HOF, MRK, PFZ.
rbyl palmitate	PFZ.
henic acid and derivatives:	
othenic acid	DLI.
othenic acid, d-calcium salt	ACY, MRK, PD, x.
othenic acid, dl-calcium salt	ABB, CKL, HFT, LIL, MRK, NOP.
othenic acid, sodium salt	PD.
ntothenyl alcohol (α,γ-Dihydroxy-N-(3-hydroxy-opyl)-β,β-dimethylbutyramide).	HOF.
antothenyl alcohol	HOF.

Flavor and Perfume Materials

TABLE 14B. --*Flavor and perfume materials for which U.S. production or sales were reported, id manufacturer, 1960*

[Flavor and perfume materials for which separate statistics are given in table 14A are marked below wi (*); those not so marked do not appear in table 14A because the reported data are accepted in confi not be published. Manufacturers' identification codes shown below are taken from table 23]

Material	Manufacturers' identification co (according to list in table 23
FLAVOR AND PERFUME MATERIALS, CYCLIC	
Benzenoid and Naphthalenoid	
2′-Acetonaphthone (Methyl β-naphthyl ketone)	GIV, TBK.
Acetophenone	GIV, TBK.
7-Acetyl-6-ethyl-1,1,4,4-tetramethyl-1,2,3,4-tetrahydro-naphthalene.	GIV, TBK.
*4-Allylveratrole (Eugenyl methyl ether)	FBS, GIV, TBK.
*Anethole (p-Propenylanisole)	GIV, GLD, HNW, HPC, UNG.
*p-Anisaldehyde (p-Methoxybenzaldehyde)	FBS, GIV, OPC, TBK.
Anisole (Methyl phenyl ether)	GIV.
Anisyl acetate	GIV, TBK.
Anisyl alcohol	GIV, TBK.
*Benzophenone	FBS, GIV, OPC, TBK.
*Benzyl acetate	GIV, OPC, SHL, TBK.
*Benzyl alcohol	BPC, GIV, OPC, SHL, TBK, TNP.
*Benzyl benzoate	GIV, MON, OPC, TBK, TNP.
Benzyl butyrate	TBK.
*Benzyl cinnamate	FBS, GIV, TBK.
Benzyl ether	GIV, OPC.
Benzyl isoeugenyl ether	GIV, TBK.
Benzyl isopentyl ether	GIV.
Benzyl phenylacetate (Benzyl α-toluate)	TBK.
*Benzyl propionate	FBS, GIV, OPC, TBK.
*Benzyl salicylate	GIV, OPC, TBK.
α-Bromostyrene	TBK.
4′-tert-Butyl-2′,6′-dimethyl-3′,5′-dinitroacetophenone (Musk ketone).	GIV.
6-tert-Butyl-3-methyl-2,4-dinitroanisole (Musk ambrette)	GIV.
p-tert-Butyl-α-methylhydrocinnamaldehyde (α-Methyl-β-(p-tert-butylphenyl)propionaldehyde).	GIV.
5-tert-Butyl-1,2,3-trimethyl-4,6-dinitrobenzene (5-tert-Butyl-4,6-dinitrohemimellitene).	GIV.
5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylol)	GIV.
Carvacrol (2-p-Cymenol)	GIV.
*Cinnamaldehyde	FB, FBS, GIV, OPC, TBK.
Cinnamic acid	BPC.
Cinnamyl acetate	GIV, TBK.
*Cinnamyl alcohol	FB, GIV, NEO, RDA, TBK.
Cinnamyl anthranilate	FEL, GIV.
Cinnamyl cinnamate	TBK.
Cinnamyl formate	FEL, TBK.
Cinnamyl isovalerate	TBK.
trans-Decahydro-2-naphthol	IFF.
p,α-Dimethylbenzyl alcohol (p-Methylphenylmethylcarbinol)	GIV.
α,α-Dimethylphenethyl acetate	GIV, IFF, TBK.
α,α-Dimethylphenethyl alcohol	IFF.
α,α-Dimethyl-3-phenyl-1-propanol	IFF, TBK.
α,α-Dimethyl-3-phenyl-1-propyl acetate	TBK.
4,6-Dinitro-1,1,3,3,5-pentamethylindan	GIV.
Diphenylmethane	TBK.
*2-Ethoxynaphthalene (Ethyl β-naphthyl ether)	FBS, GIV, TBK.

14B. ***--Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Material	Manufacturers' identification codes (according to list in table 23)
OR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
sate	FBS.
hranilate	FMT.
zoate	TBK.
namate	GIV, TBK.
-epoxy-β-methylhydrocinnamate	FEL, GIV, TBK, VPC.
xyl salicylate	FEL.
ethoxycinnamate	GIV.
henylglycidate	TBK.
icylate	TBK.
llin	MON.
	FB, FBS, GIV, LUE, NEO, PEN, RT, TBK, UNG, VLY.
amaldehyde	GIV, IFF, TBK.
aldehyde (α-Phenylpropionaldehyde)	GIV, TBK.
aldehyde, dimethyl acetal	GIV.
phenylacetate (Isobutyl α-toluate)	FB, GIV, MYW, TBK.
salicylate	FB, GIV, OPC, TBK.
l	FB, GIV, SHL, TBK, VLY.
l acetate	TBK.
salicylate (Amyl salicylate)	FB, FBS, GIV, TBK.
rlbenzaldehyde (Cumaldehyde)	GIV, VPC.
rl-α-methylhydrocinnamaldehyde (Cyclamen alde-	GIV, OPC, RDA, TBK, VPC.
acetophenone	FBS, GIV, TBK.
aphthalene (Methyl β-naphthyl ether)	GIV, TBK.
etophenone (Methyl p-tolyl ketone)	TBK.
isole (p-Cresyl methyl ether)	GIV, TBK.
hranilate	FB, DOW, GIV, MEE, OPC, UNG.
zoate	HN, TBK.
nzyl acetate	GIV, TBK, VLY.
nzyl acetate	FBS.
nnamaldehyde	GIV, VPC.
namate	FBS, TBK.
ethylanthranilate (Dimethyl anthranilate)	GIV.
nylacetate (Methyl α-toluate)	GIV, TBK.
icylate (Synthetic wintergreen oil)	DOW, HN, MON, PEN.
nnamaldehyde (α-Amylcinnamaldehyde)	GIV, IFF, NEO, RDA, TBK, VLY.
acetate	GIV, IFF, NEO.
alcohol	GIV, IFF, OPC.
formate	IFF.
isobutyrate	GIV, IFF, TBK.
isovalerate	FB, GIV.
methacrylate	GIV.
phenylacetate (Phenethyl α-toluate)	IFF, TBK.
propionate	IFF.
salicylate	IFF.
thyl isobutyrate	GIV, IFF, TBK.
aldehyde (α-Tolualdehyde)	GIV, TBK.
aldehyde, dimethyl acetal	GIV, TBK.
isole (2-Methoxybiphenyl)	GIV, IFF.
-buten-2-one (Benzylidene acetone)	TBK.
-propanol (Hydrocinnamic alcohol)	GIV, TBK.
-propyl acetate	GIV, TBK.
veratrole (Isoeugenyl methyl ether)	FBS, GIV, TBK.
ehyde	DOW.

TABLE 14B.--*Flavor and perfume materials for which U.S. production or sales were reported, id manufacturer, 1960*--Continued

Material	Manufacturers' identification co (according to list in table 23
FLAVOR AND PERFUME MATERIALS, CYCLIC--Continued	
Benzenoid and Naphthalenoid--Continued	
1,2,3,6-Tetrahydro-2,3,5-trimethylbenzaldehyde	IFF.
p-Tolualdehyde (p-Methylbenzaldehyde)	GIV, HN.
p-Tolyl acetate (p-Cresyl acetate)	GIV, IFF, TBK.
p-Tolyl isobutyrate (p-Cresyl isobutyrate)	IFF.
p-Tolyl phenylacetate (p-Cresyl α-toluate)	GIV, TBK.
α-(Trichloromethyl)benzyl acetate (Rosetone)	FBS, OPC, TBK.
p-α,α-Trimethylphenethyl alcohol	IFF.
Vanillin	MON, SLV.
Terpenoid, Heterocyclic, and Alicyclic	
Allyl ionone	GIV.
Bornyl acetate	FEL, GIV.
4-tert-Butylcyclohexyl acetate	DOW, IFF.
Carvone (Carvol)	FB, FRM, OPC.
Caryophyllene	GIV, GLD.
Cedrol	GIV, IFF, TBK, VLY.
*Cedryl acetate	GIV, IFF, TBK, UNG.
*Citral (Geranial)	FB, GIV, LUE, NEO, RT, TBK, UNG.
Citronellal	FB, GIV, TBK.
*Citronellol	FB, FBS, GIV, GLD, IFF, OPC, TBK, VLY.
Citronellyl acetate	GIV, IFF, TBK, VLY.
Citronellyl butyrate	GIV.
*Citronellyl formate	FB, GIV, IFF, TBK.
Citronellyl isobutyrate	GIV, TBK.
*Coumarin	DOW, MON, NEO, RDA, TBK.
Cyclohexadecanolide	IFF.
Cyclopentanone	ARA.
Dihydroterpinyl acetate	GIV.
*Ethyl oxyhydrate	FEL, FLO, LUE, RT, VND, VPC.
*Geraniol	FB, GIV, GLD, IFF, OPC, SHL, TBK, UNG,
*Geranyl acetate	FEL, GIV, IFF, NEO, TBK, UNG, VLY.
Geranyl butyrate	GIV.
*Geranyl formate	GIV, IFF, TBK, VLY.
Geranyl phenylacetate (Geranyl α-toluate)	GIV, TBK.
2-Hexyl-2-cyclopenten-1-one	IFF.
*Hydrocoumarin (3,4-Dihydrocoumarin)	FBS, GIV, TBK.
*Hydroxycitronellal	GIV, GLD, NEO, TBK, VLY.
*Hydroxycitronellal, dimethyl acetal	FB, GIV, TBK.
Indole	GIV.
*Ionones:	
*α-Ionone	GIV, IFF, MYW, TBK.
*β-Ionone	MYW, NEO, TBK.
*Ionone (α- and β-)	GIV, IFF, MYW, NEO, TBK, UNG, VLY.
Isoborneol (Isobornyl alcohol)	RDA, TBK.
*Isobornyl acetate	GIV, OPC, RDA, TBK, UNG.
Isobutylquinoline	FMT, IFF.
Isopropylquinoline	FMT.
Isopulegol	GIV, VLY.
Isosafrole	GIV, OPC.
d-Limonene	FLA, RT, SKG.
*Linalool	FB, FEL, GIV, GLD, HOF, IFF, NEO, TBK,
*Linalyl acetate	FB, GIV, GLD, HOF, LUE, NEO, TBK, UNG.
Linalyl benzoate	FMT.

14B.--*Flavor and perfume materials for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Material	Manufacturers' identification codes (according to list in table 23)
OR AND PERFUME MATERIALS, CYCLIC--Continued	
erpenoid, Heterocyclic, and Alicyclic--Continued	
innamate	TBK.
sobutyrate	GIV, TBK.
ropionate	GIV.
synthetic:	
	FBS, GIV.
	GIV, GLD, HNW, NEO.
	GIV, HNW, NEO.
cetate	GIV.
oumarin	GIV.
ones:	
α-ionone	GIV, IFF, MYW.
onone (α- and β-)	GIV, IFF, MYW, NEO, TBK, UNG, VLY.
δ-ionone	TBK.
γ-ionone	TBK.
	GLD, IFF, TBK.
tate	DOW.
ene	FBS.
(Heliotropin)	GIV, OPC, PEN, SHL, TBK.
	FB, FEL, GIV, IFF, LUE, NEO, RDA, SHL, TBK, VLY.
acetate	FB, GIV, IFF.
formate	GIV.
	FB, GIV, PEN.
	GIV, IFF.
s, synthetic:	
xanesulfamic acid	ABB.
xanesulfamic acid, calcium salt	ABB.
xanesulfamic acid, sodium salt	ABB.
in	MEE, MON.
in, calcium salt	MEE.
in, sodium salt	MEE, MON.
s:	
neol	GLD, HNW, HPC.
neol	HNW.
ol (α- and β-)	GIV, NEO.
hydrate (Terpin hydrate), tech	HPC.
acetate	GIV, HNW, OPC, RDA, TBK, UNG.
propionate	GIV, TBK.
methylcyclohexanol	FBS, OPC.
	GIV, TBK.
acetate	FB, GIV, IFF, NEO, TBK.
FLAVOR AND PERFUME MATERIALS, ACYCLIC	
tanoate (Allyl enanthate)	TBK.
anoate (Allyl caproate)	FB, GIV, RT, TBK.
ne	TBK.
thiocyanate (Synthetic mustard oil)	FBS, MRT, OPC.
fide (Diallyl sulfide)	RT.
yrate	TBK.
butyrate	TBK.
valerate	TBK.
(Di-n-propyl ketone)	TBK.
Capraldehyde) (C_{10})	GIV, TBK.
ebacate (Ethyl sebacate)	FEL, TBK.
ridecanedioate (Ethylene brassylate)	RDA, TBK.
hyl-3-octanol	AIR.

TABLE 14B. --*Flavor and perfume materials for which U.S. production or sales were reported, id manufacturer, 1960*--Continued

Material	Manufacturers' identification co (according to list in table 23
FLAVOR AND PERFUME MATERIALS, ACYCLIC--Continued	
3,7-Dimethyl-1-octanol	GIV, TBK.
Dimethyl succinate	FBS.
*Ethyl butyrate	FB, NW, RT, TBK.
Ethyl heptanoate (Ethyl enanthate)	FEL, TBK.
Ethyl hexanoate (Ethyl caproate)	NW.
Ethyl isovalerate	FB.
Ethyl laurate	FB.
Ethyl nonanoate (Ethyl pelargonate)	TBK.
Glutamic acid, monopotassium salt	GRW.
*Glutamic acid, monosodium salt (Monosodium glutamate)	GRW, HPC, IMC, MRK, STA.
Heptanal (Enanthaldehyde) (C_7)	BAC, WTM.
Heptyl ether (Enanthic ether)	TBK.
Hexyl acetate	TBK.
3-Hydroxy-2-butanone (Acetoin)	FMT.
4-Hydroxynonanoic acid, γ-lactone (γ-Nonalactone)	GIV, TBK.
4-Hydroxyoctanoic acid, γ-lactone (γ-Octalactone)	GIV, TBK.
*4-Hydroxyundecanoic acid, γ-lactone (γ-Undecalactone)	FB, GIV, TBK.
*Isopentyl butyrate (Amyl butyrate)	FB, GIV, NW, RT, TBK.
Isopentyl formate (Amyl formate)	RT, TBK.
Isopentyl heptanoate (Amyl caproate)	FEL.
Isopentyl isovalerate (Amyl isovalerate)	FB.
Lauraldehyde (Dodecyl aldehyde) (C_{12})	GIV, TBK.
6-Methyl-5-hepten-2-one	GIV, TBK.
2-Methylundecanal (2-Methylnonylacetaldehyde)	GIV, TBK.
Nonanal (Pelargonaldehyde) (C_9)	GIV, TBK.
Nonanol	TBK.
Nonyl acetate	TBK.
Octanal (Caprylaldehyde) (C_8)	GIV, TBK.
n-Octyl acetate	FB, TBK.
*n-Octyl isobutyrate	FB, FBS, TBK.
Trimethylundecenal	VPC.
Undecanal (Hendecanaldehyde) (C_{11})	GIV, TBK.
Undecenal (Hendecenaldehyde)	GIV, TBK.
9-Undecen-1-ol (Hendecenol)	GIV, TBK.
Valerolactone	GIV.
CHEMICALLY MODIFIED ESSENTIAL OILS	
Citronella oil, acetone condensation product	CP.
Citronella oil, acetylated	FB.
Formylated eucalyptus oil, distillated	CP.
Formylated palmarosa oils, distillated	CP.
Geranium oil isopropyl alcoholysis product	CP.
Guaiac wood acetate	TBK.
Lavandin, acetylated	FEL.
Rosemary oil, acetylated	FB, UNG.
Sassafras oil, hydrogenated	GIV.
Spike lavender oil, acetylated	FB.

Plastics and Resin Materials

E 15B.--*Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1960*

nd resin materials for which separate statistics are given in table 15A are marked below with an asterisk
icals not so marked do not appear in table 15A because the reported data are accepted in confidence and
e published. Manufacturers' identification codes shown below are taken from table 23. An x signifies that
acturer did not consent to his identification with the designated product]

Material	Manufacturers' identification codes (according to list in table 23)
PLASTICS AND RESIN MATERIALS, BENZENOID	
-indene resins	ACP, DSO, NEV, NSP, PAI.
ins:	
ied	DOW, JOD, RCI, SHC, TRC, UCP.
i	ACP, AMF, APV, ARO, BEN, CPL, CPV, DSO, EW, FRE, GE, GEI, GLD, GRV, HAP, ICF, IOC, JOB, MCC, MID, MNP, MRB, MRW, OSB, PPG, RAB, RCI, REL, SED, SRR, SVC, SW, UCP, WAS, WTT.
polymer and condensation resins	ACC, ACP, CFX, DSO, ENJ, KPI, NEV, NSP, PAI, VEL, VSV.
and other tar-acid resins:	
ied:	
ls-formaldehyde	BME, BOR, CD, EW, GLD, ICF, NVF, RAB, RCI, SCN, UCP, VAR.
lic acid-formaldehyde	CAT, CD, EW, FCD, FOM, ICF, MID, RAB, RCD, SCN, SPL, TAY, UCP, VAR.
l(and substituted phenols)-formaldehyde	ABS, ACP, ADM, AMR, BGC, BME, BOR, CAT, CD, DEP, DSO, EVM, EW, FOM, GE, GEI, GLD, GPC, GRG, HER, HKD, HVG, ICF, INL, IRC, IRI, KND, KRM, MID, MMM, MRB, MTC, NPP, NVF, PLS, PYR, PYZ, RAB, RCI, RGC, RH, SCN, SIM, SPL, SW, SYR, SYV, UCP, VAR, WCA, WEV, WRD, WTT.
inol-formaldehyde	AMR, BOR, CAT, KPC, PGU, RCI, SCN, UCP.
ther unmodified phenolic and other tar-acid resins	ACP, BOR, CAT, CD, GE, ICF, MTC, NVF, RAB, RCD, RCI, RGC, SPL, UCP, WAS.
i:	
l(and substituted phenols)-formaldehyde with ifiers (except rosin).	ABS, ACP, ACR, AKL, CAT, CIK, CPR, EW, GE, NPP, NTC, NVF, OCF, OSB, PPG, RAB, RCI, REZ, RH, SCN, SNC, UCP.
and rosin esters modified with phenolic and other -acid resins (hard resins).	ACP, ADM, AKL, BOR, CD, CPV, DAV, DSO, FCD, GIL, GLD, HPC, KRM, RCI, RH, SCN, SW.
ther modified phenolic and other tar-acid resins--	ADM, CBC, GE, KPC, REZ, RCI, SCN, UCP, VSV, WTT.
alkyd resins:	
ied	ABR, ACP, ACY, ADM, AKL, AMF, AMK, APV, ARO, BEN, BOY, CEN, CIK, CM, CPL, CPV, CRO, DAV, DSO, DUP, EW, FAR, FCD, FLW, FRE, GE, GEI, GIL, GLD, GRV, HAN, HPC, HRS, ICF, JAM, JOB, JOD, JWL, KEL, KPV, KYN, LON, MCC, MCW, MID, MJM, MNP, MR, MRW, NON, NTL, OB, ONX, ORO, OSB, PPG, PRT, RCI, RED, REL, RH, RMC, RPC, SCF, SCN, SED, SIP, SPP, SRR, STT, SVC, SW, TV, UCP, VTV, WAS, WEV, WPC, WTT, x.
i	ACP, ACY, ADM, AKL, AMF, APV, ARO, BAL, BEN, BOY, BRU, CEN, CIK, CM, CPV, CRO, DAV, DSO, DUN, DUP, EW, FLW, FRE, FSH, GEI, GIL, GLD, GRG, GRV, HPC, HRS, ICF, JAM, JOD, JSC, JWL, KRM, KYN, LON, MCC, MCW, MID, MJM, MMM, MNP, MR, MRW, NON, OB, ORO, OSB, PER, PFP, PPG, PRT, RCI, RED, REL, RH, RMC, SCF, SCN, SED, SIP, SPP, SRR, STT, SVC, SW, TV, UCP, VTV, WEV, x.
resins	ACP, ACR, ACY, ADM, AKL, AMR, APD, ARO, BRR, CEL, CIK, COR, CPR, CPV, DAV, DSO, DUP, EPC, EW, FMP, FRE, GE, GEI, GLD, GNT, GRG, GRV, GYR, HKD, ICF, MCW, MFG, MOB, MPC, NOP, ORO, OSB, PLU, PPG, RCI, REL, RH, SCN, SW, USR, WTC.
ine and diisocyanate resins	ACP, ADM, AMF, BFG, CWN, DSO, DUP, FPI, FRE, GLD, GNT, HAP, MOB, MRB, NOP, PEL, WTC, WTT.

TABLE 15B.--*Plastics and resin materials for which U.S. production or sales were reported, ia manufacturer, 1960*--Continued

Material	Manufacturers' identification c (according to list in table
PLASTICS AND RESIN MATERIALS, BENZENOID--Continued	
*Styrene and styrene derivative polymer and copolymer resins:	
Polymethyl styrene	ACC, ACY.
*Polystyrene	ACP, ATL, CSD, DOW, FG, GOR, KPP, MTC, SOL, TIC, UBS, UCP, UNC.
*Styrene-acrylonitrile copolymer	ACY, BFG, CSD, DOW, MTC, UCP, USR.
*Styrene-alkyd polyesters (for protective coatings)	ACP, ACY, ADM, APV, BOR, CPV, DSO, DUP, GLD, GRV, ICF, JOD, KEL, MTC, PPG, RC SCN, SPP, SW.
*Styrene-butadiene copolymer:	
*Latexes	ACP, DOW, FIR, GNT, GRD, GYR, KPP, USR,
All other	ATL, BFG, DSO, ENJ, FIR, GYR, MCB, USR.
*Styrene-divinylbenzene copolymer	ACP, CPR, DOW, IOC, POL, RH.
All other styrene and styrene derivative polymer and copolymer resins.	ACY, ARO, CAT, DOW, DUP, ENJ, FIR, FRE, JSC, MCW, MTC, ONX, PAI, PPG, RH, SW, WAS, x.
Toluenesulfonamide resins	ACY, MON.
All other benzenoid plastics and resin materials	AKL, APC, DUP, IOC, NEV, NVF, RH.
PLASTICS AND RESIN MATERIALS, NONBENZENOID	
*Acetone-formaldehyde resins	ACY, IOC, RCI, UCP.
Acrylic resins:	
Polymethylmethacrylate resins	ACO, CAT, DOW, DSO, DUP, ICF, RCI, RH,
All other acrylic resins	ACY, ALC, APV, ARO, CAT, DOW, DSO, DUP, JSC, NTL, RCI, RH, RMC, TRC, UBS, UCF
*Alkyd resins (except phthalic):	
*Unmodified	ACP, ACY, ADM, AKL, AMF, APV, BAL, BEN, CPV, DSO, DUN, DUP, EW, FLW, FRE, GEI HPC, ICF, JAM, MCC, MCW, MR, ORO, OSE SPP, SRR, SW, WTC.
*Modified:	
*Rosin and rosin esters, modified with maleic and fumaric acids only (hard resins).	ACP, ADM, AKL, APV, BAL, CBY, CEN, CM, DSO, DUN, FAR, FCD, FLW, FSH, GIL, GL JAM, JOD, KRM, MCC, MCW, MID, MR, OSB RED, REL, RH, SCF, SCN, SCS, SRR, SW,
All other modified alkyd resins	ADM, AMF, AMR, BRD, CPV, DSO, FCD, FLW, ICF, KYN, LON, MJM, MMM, OSB, PPG, RC STT, SW, TV, UCP, VTV, WEV.
*Dicyandiamide resins	ACY, APX, CRC, DEP, GGY, JSC, MRA, NOP, WIC.
*Polyamide resins	BCI, DUP, FIR, GNM, NAC, POL, SPN.
Polychloroethylene and polyfluoroethylene resins	DUP, FIR, MMM.
*Polyethylene resins:	
*High-pressure process	ACP, DOW, DUP, EKX, KPP, MTC, SPN, UCC,
*Low-pressure process	ACP, CEL, DOW, DUP, GRP, HPC, KPP, PLC,
*Polypropylene resins	ACP, AVS, EKX, ENJ, HPC.
Polyterpene resins	ACP, GLD, PAI, SCN.
*Rosin modifications:	
*Rosin adduct resins	ACP, ADM, AKL, APV, BEN, CIK, GLD, OSB,
*Rosin and rosin esters, unmodified:	
*Esterified with glycerol	ADM, AKL, CBY, CIK, CPV, DAV, FCD, GIL, MCC, OB, RCI.
*Esterified with other alcohols	ACP, ADM, AKL, BRD, CBY, CPV, DSO, FAR, MRW, OSB, RCI, SCN, SRR, SW, WAS.
All other rosin modifications	ACP, CPV, DUN, FCD, GRV, ICF, MMM, ONX, VSV, WAS.

[15B.-- ***Plastics and resin materials for which U.S. production or sales were reported, identified by manufacturer, 1960*** **--Continued**

Material	Manufacturers' identification codes (according to list in table 23)
ICS AND RESIN MATERIALS, NONBENZENOID--Continued	
resins	ACP, DCC, SPD, UCS.
melamine resins:	
e-formaldehyde type	ACP, ACY, CAT, CDF, CPV, DUP, FOM, GLD, MTC, PPG, RCI, RH, RPC, SW, TRC, WRD, x.
rmaldehyde type	ACP, ACY, AMR, APX, AV, BGC, BOR, BRR, BRY, CAP, CAT, CDF, COL, CPR, CPV, CRC, DEP, DUP, FOM, GDN, GGY, GLD, GRV, HNC, HPC, HRT, ICF, IPR, JOD, JSC, MDP, MID, MMM, MRA, MTC, NTC, ONX, PC, PGU, PPG, QCP, RCI, REL, RH, RPC, SAN, SCS, SFA, SIM, SOR, SW, SYV, TRC, USO, USR, VAL, VAR, WIC, WON, WRD, x, x, x.
vinyl copolymer resins:	
yl acetate	ACP, AML, BCN, BOR, BOY, CEL, COL, DAV, DSO, DUP, FLH, GRD, HAN, HRT, JOD, JSC, MCC, MRN, NSC, ONX, PLY, QCP, RCI, REL, RH, SED, SH, SNM, SRC, SW, SYR, UCC, VAL, WIC.
yl alcohol	BOR, COL, DUP, SRC, UCC.
yl butyral	DUP, SRC.
yl chloride and copolymers:	
inyl chloride	BFG, CRY, DA, DOW, ESC, FCP, FIR, GNT, GRA, GYR, KCR, MTC, PNT, RUB, SCS, THC, UCC, USR, YAC.
inyl chloride-acetate copolymer	BFG, BOR, CRY, DA, FCP, FIR, KYS, MTC, PNT, RUB, UCC.
ther polyvinyl chloride and copolymer resins	AKL, BCO, BFG, FIR, GYR.
yl chloride-vinylidene chloride copolymer	ACP, DOW.
yl formal	SRC.
er vinyl and vinyl copolymer resins	CIK, DUP, GAF, GLD, MMM, PLY, PPG, RH.
nonbenzenoid plastics and resin materials	ACP, BOR, CPR, DSO, DUP, ENJ, FPI, GE, GLY, GRD, HKD, HPC, HVG, JOD, KRM, MTC, PPG, UCP, VAR.

Rubber-Processing Chemicals

TABLE 17B.--*Rubber-processing chemicals for which U.S. production or sales were reported, ide manufacturer, 1960*

[Rubber-processing chemicals for which separate statistics are given in table 17A are marked below with (*); chemicals not so marked do not appear in table 17A because the reported data are accepted in con may not be published. Manufacturers' identification codes shown below are taken from table 23. An x s the manufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification c (according to list in table
RUBBER-PROCESSING CHEMICALS, CYCLIC	
*Accelerators:	
*Aldehyde-amines:	
Acetaldehyde-aniline	USR.
n-Butyraldehyde-aniline	DUP, MON, USR.
Butyraldehyde-butylidene-aniline	MON.
N,N′-Dibutyldithioadipamide	DUP.
4,4′-Dithiodimorpholene	MON.
α-Ethyl-β-propylacrylanilide	CCO.
Formaldehyde-p-toluidine (Methylene-p-toluidine)	DUP.
Heptaldehyde-aniline	USR.
Triethyltrimethylenetriamine	USR.
p-Benzoquinone dioxime	DUP, NAC, USR.
Carbon disulfide-1,1′-methylenedipiperidine	MON.
Dibenzoyl-p-quinonedioxime	USR.
Dibenzylamine	USR.
Di-N-pentamethylenethiuram tetrasulfide	DUP.
*Dithiocarbamic acid derivatives:	
Dibenzyldithiocarbamic acid, sodium salt	USR.
Dibenzyldithiocarbamic acid, zinc salt	USR.
Dibutyldithiocarbamic acid, N,N-dimethylcyclohexylamine salt.	MON.
Dibutyldithiocarbamic acid, diphenylguanidine salt	CCO.
Dimethylethylene diphenyldithiocarbamic acid, lead salt	CCO.
2,4-Dinitrophenyl dimethyldithiocarbamate	USR.
Piperidinecarbodithioic acid, piperidinium-potassium salts.	DUP.
Guanidines:	
Dicatechol borate, di-o-tolylguanidine salt	DUP.
Diphenylguanidine	ACY.
Diphenylguanidine phthalate	MON.
Di-o-tolylguanidine	ACY, DUP.
1,2,3-Triphenylguanidine	NAC.
2-Imidazoline-2-thiol	DUP.
Poly-p-dinitrosobenzene	CWN, DUP.
*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)-Y-2-benzothiazolesulfenamide	MON.
*2,2′-Dithiobis(benzothiazole)	ACY, GYR, MON, USR.
*2-Mercaptobenzothiazole	ACY, GYR, MON, USR.
2-Mercaptobenzothiazole, sodium salt	ACY, GYR, MON.
*2-Mercaptobenzothiazole, zinc salt	ACY, GYR, USR.
4-Morpholinyl-2-benzothiazyl disulfide	x.
N-Oxydiethylene-2-benzothiazolesulfenamide	ACY, GYR.
Thiazoline-2-thiol	ACY.
All other cyclic accelerators	DUP.
Antioxidants:	
Aldehyde- and acetone-amines:	
Acetaldehyde-aniline hydrochloride	USR.
Aldol-α-naphthylamine condensation	BFG.

E 17B.--*Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ER-PROCESSING CHEMICALS, CYCLIC--Continued	
ts--Continued	
- and acetone-amines--Continued	
ylamine-acetone	BFG, USR.
-2-naphthylamine-acetone	USR.
i hydroxy compounds:	
compounds:	
ilinophenol	BFG.
clohexyl-N'-phenyl-p-phenylenediamine	MON, USR.
ylarylene diamines, mixed	GYR.
-Di(1-ethyl-3-methylpentyl)-p-phenylenediamine	EKT, UPM.
Dihydro-2,2,4-trimethylquinoline	BFG, MON.
-Dimethoxydiphenylamine	DUP.
-Di(1-methylheptyl)-p-phenylenediamine	EKT, UPM.
-Di-2-naphthyl-p-phenylenediamine	BFG.
-Dioctyldiphenylamine	BFG.
-Di-2-octyl-p-phenylenediamine	BFG.
-Diphenylethylenediamine	CCO, NOP.
-Diphenyl-p-phenylenediamine	BFG, DUP, USR.
-Diphenyl-1,3-propanediamine	CCO.
-Di-o-tolylethylenediamine	CCO.
decyl-1,2-dihydro-2,2,4-trimethylquinoline	MON.
hoxy-1,2-dihydro-2,2,4-trimethylquinoline	MON.
opropoxydiphenylamine	BFG.
opropyl-N'-phenyl-p-phenylenediamine	USR.
-Methylenedianiline	NAC, USR.
ldiphenylamine	USR.
ldiphenylamine, alkylated	PAS.
ldiphenylamine mixture (mono-, and di-)	BFG.
enyl-1-naphthylamine	DUP.
enyl-2-naphthylamine	BFG, DUP.
amethyldiphenylethylenediamine	NOP.
-Toluenesulfonamido)diphenylamine	USR.
y compounds:	
nzyloxyphenol	BFG.
-Butylidenebis(6-tert-butyl-m-cresol)	MON.
Di(1,1-dimethylpropyl)hydroquinone	MON.
uroyl-p-aminophenol	MLS.
-Methylenebis(6-tert-butyl-p-cresol)	ACY.
-Methylenebis(6-tert-butyl-4-ethylphenol)	ACY.
ol, alkylated	BFG, CCO, GYR, MEE, PAS, USR.
ol, hindered	DUP.
ol, styrenated	BFG, GYR.
earoyl-p-aminophenol	MLS.
-Thiobis(4,6-di-sec-amylphenol)	MON.
-Thiobis(6-tert-butyl-m-cresol)	MON.
ents:	
ethyl-N,N'-dinitrosoterephthalamide	DUP.
opentamethylenetetramine	AHC, DUP, NPI.
bis(benzenesulfonhydrazide)	USR.
, modifiers, and stabilizers:	
. disulfide	USR.
troso-N-methylaniline	MON.
odiphenylamine	BFG, GYR, USR.
enyl phosphites, mixed	USR.

TABLE 17B.--*Rubber-processing chemicals for which U.S. production or sales were reported, ide manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
RUBBER-PROCESSING CHEMICALS, CYCLIC--Continued	
*Peptizers:	
Aryl mercaptans	PIT.
2-Benzamidothiophene, zinc salt	ACY.
2′,2‴-Dithiobis(benzanilide)	ACY.
Dixylyl disulfides, mixed	DUP, PIT.
2-Naphthalenethiol	DUP.
Pentachlorobenzenethiol	DUP.
Pentachlorobenzenethiol, zinc salt	DUP.
Thiocresol	PIT.
Thiophenol	PIT.
Xylenethiol	DUP.
Tackifiers: p-tert-Amylphenol sulfide	PAS.
RUBBER-PROCESSING CHEMICALS, ACYCLIC	
*Accelerators:	
Butyraldehyde-ammonia	MON.
n-Butyraldehyde-butylamine	DUP.
Di-n-butylammonium oleate	DUP.
*Dithiocarbamic acid derivatives:	
Dibutyldithiocarbamic acid, sodium salt	ALC, DUP, RBC, USR.
*Dibutyldithiocarbamic acid, zinc salt	ALC, DUP, GYR, PAS, USR, VNC.
Diethyldithiocarbamic acid, selenium salt	VNC.
Diethyldithiocarbamic acid, sodium salt	PAS, USR.
Diethyldithiocarbamic acid, tellurium salt	VNC.
*Diethyldithiocarbamic acid, zinc salt	ALC, GYR, RBC, USR, VNC.
Dimethyldithiocarbamic acid	PAS.
Dimethyldithiocarbamic acid, bismuth salt	VNC.
Dimethyldithiocarbamic acid, copper salt	VNC.
Dimethyldithiocarbamic acid, lead salt	VNC.
*Dimethyldithiocarbamic acid, potassium salt	GYR, PAS, USR.
Dimethyldithiocarbamic acid, selenium salt	VNC.
*Dimethyldithiocarbamic acid, sodium salt	ALC, BFG, DUP, GYR, PAS, VNC.
Dimethyldithiocarbamic acid, sodium salt and sodium polysulfide.	BFG, GNT, USR.
All other	PAS, GYR, x.
*Thiurams:	
Bis(dibutylthiocarbamoyl)sulfide	USR.
Bis(diethylthiocarbamoyl)disulfide	GYR, PAS.
*Bis(dimethylthiocarbamoyl)disulfide	BFG, CLY, DUP, GYR, MON, RBC, USR, VNC, :
Bis(dimethylthiocarbamoyl)sulfide	DUP, GYR, USR.
Bis(dimethylthiocarbamoyl)tetrasulfide	DUP.
Xanthates and sulfides:	
Di-n-butylxantho disulfide	USR.
Di-isopropylxantho disulfide	BFG.
Zinc dibutylxanthate	USR.
All other acyclic accelerators:	
Ethylenediamine carbonate	DUP.
Polyoxyalkylenetetrasulfide	TKL.
*Blowing agents:	
1,1′-Azobisformamide	NPI, USR.
Urea-biuret mixture	SW.
*Conditioning and lubricating agents:	
Methyl stearyl-10-sulfonic acid, sodium salt	DUP.
Mono- and dialkyl acid phosphates, mixed	DUP.
Mono- and dialkyl phosphate ammonium salts, mixed	DUP.

17B.--*Rubber-processing chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
BER-PROCESSING CHEMICALS, ACYCLIC--Continued	
and modifiers:	
ercaptans, mixed	PLC.
mercaptans	HK, PAS, PLC.
rate	USR.
----------	USR.

Elastomers (Synthetic Rubbers)

18B.--*Elastomers (synthetic rubbers) for which U.S. production or sales were reported, identified by manufacturer, 1960*

rs (synthetic rubbers) for which separate statistics are given in table 18A are marked below with an as- (*); products not so marked do not appear in table 18A because the reported data are accepted in confidence not be published. Manufacturers' identification codes shown below are taken from table 23]

Product	Manufacturers' identification codes (according to list in table 23)
ELASTOMERS, CYCLIC	
iiene-styrene type (S-type)	ASY, BFG, CPY, FIR, FRS, GGC, GNT, GYR, PLC, SHC, TUS, URC, USR.
iiene-styrene-vinylpyridine type	BFG, FIR, GNT, GYR, PLC, USR.
ane type	BFG, DUP, GNT, NOP, TKL, USR.
ELASTOMERS, ACYCLIC	
late ester type	BFG, FIR.
iiene type	FRS, GYR, SHC.
iiene-acrylonitrile type (N-type)	BFG, FIR, GYR, USR.
roprene type (Neoprene)	DUP.
tylene-isoprene type (Butyl)	ENJ.
ide polymers	TKL.
products of natural rubber	GYR, HPC.
type	DCC, SPD, UCS.
r	ASY, BFG, DUP, ENJ, GYR, SHC.

Plasticizers

TABLE 19B.--*Plasticizers for which U.S. production or sales were reported, identified i manufacturer, 1960*

[Plasticizers for which separate statistics are given in table 19A are marked below with an asterisk (* not so marked do not appear in table 19A because the reported data are accepted in confidence and may lished. Manufacturers' identification codes shown below are taken from table 23. An x signifies that turer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification cod (according to list in table 23)
PLASTICIZERS, CYCLIC	
Coumarone-indene plasticizer	NEV.
N-Cyclohexyl-p-toluenesulfonamide	MON.
Dibenzyl sebacate	WTH.
Diethylene glycol dibenzoate	TNP.
Di-tert-octylphenyl ether	DOW.
Diphenyl cyclohexane, o-, m-, p-	MON.
Dipropanediol dibenzoate	TNP.
N-Ethyl-p-toluenesulfonamide	MON.
Isopropylidenediphenoxypropanol	DOW.
Naphthalene, alkylated	ACC.
Phosphoric acid esters:	
*Cresyl diphenyl phosphate	CEL, KLK, MON, MTR, SPP.
Dibutyl phosphate	MON.
Diphenyl mono-o-xenyl phosphate	DOW.
Diphenyl octyl phosphate	MON.
Methyl diphenyl phosphate	MON.
Tri(tert-butylphenyl) phosphate	DOW.
*Tricresyl phosphate	CEL, FMP, KLK, MON, MTR.
*Triphenyl phosphate	CEL, DOW, EK, MON, MTR.
*Phthalic anhydride esters:	
Butyl benzyl phthalate	MON.
Butyl cyclohexyl phthalate	ACP.
*Butyl decyl phthalate	ACP, PCC, THC.
Butyl 2-ethylhexyl phthalate	ACP, MON, UCC.
Butyl isodecyl phthalate	GRH, ROS, RUB.
*Butyl iso-octyl phthalate	GRH.
*Butyl octyl phthalate	EKT.
Butyl phthalyl butyl glycolate	MON, NOP.
Castor oil phthalate	DUP
Diamyl phthalate	FCP.
Di(2-butoxyethyl) phthalate	FMP, GRH, KES.
*Dibutyl phthalate	ACP, COM, DEC, DUP, EKT, FMP, GRD, GRH, MON, NPI, PCC, PFZ, RUB, SW, WTC, WTH.
*Dicyclohexyl phthalate	ACP, DUP, FMP, MON.
*Didecanoyl phthalate (Dicapryl phthalate)	ACP, GRH, WTH.
Di-n-decyl phthalate	DEC.
Di(2-(2-ethoxyethoxy)ethyl) phthalate	FMP.
Diethylene glycol phthalate	ARK.
Di(ethylhexyl) hexahydrophthalate	UCC.
Di(2-ethylhexyl) isophthalate	UCC.
*Diethyl phthalate	DUP, EKT, GRH, KF, MON.
Di-n-hexyl phthalate	CCA.
Diisobutyl phthalate	EKT.
*Diisodecyl phthalate	ACP, BFG, DEC, GRH, MON, PCC, PFZ, RUB,
*Di(2-methoxyethyl) phthalate	DUP, EKT, FMP, KES.
*Dimethyl phthalate	ACP, DUP, EKT, GRH, KF, MON.
Dinonyl phthalate	DEC.
*Dioctyl phthalates:	
*Di(2-ethylhexyl) phthalate	ACP, BFG, DEC, DUP, EKT, GRH, MON, NOP, ROS, RUB, SW, THC, UCC, WTC, WTH.
*Diiso-octyl phthalates and mixtures	ACP, BFG, DEC, EKT, FCP, FMP, GDL, GRH, ROS, RUB, SW, THC, WTH.
Di-n-octyl phthalate	KLK.

TABLE 19B.--*Plasticizers for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PLASTICIZERS, CYCLIC--Continued	
ıydride esters--Continued	
ɔhthalate	MON.
l phthalate	BFG, GRH, HPC, KES, PCC, PFZ, RUB.
cyl isodecyl phthalate	UCC.
i methyl phthalyl ethyl glycolate	MON.
ısodecyl phthalate	KLK.
ısooctyl phthalate	FCP.
ɾl phthalates:	
ɾl isodecyl phthalate	ACP, DEC, FMP, GRH, KLK, PCC, PFZ, RUB, THC.
n-decyl phthalate	ACP, DEC, FMP, GRH, HPC, PCC, PFZ, THC.
phthalic anhydride esters	ACP, ARG, DEC, FCP, FMP, HPC, MON, PFZ, THC, UCC.
ırfuryl oleate	CCW, EMR.
ɔnamide, o-, p- mixture	MON.
ɾclic plasticizers	AV, TNP.
PLASTICIZERS, ACYCLIC	
esters:	
ıtoxyethoxy)ethyl) adipate	FMP, TKL.
cyethyl) adipate	DEC.
lhexyl) adipate	DEC, EKT, FMP, HAL, KLK, PCC, ROS, RUB, THC, UCC, WTH.
l adipate	DEC, FMP, GRD, HAL, KES.
l adipate	ACP, BFG, DEC, FMP, GRH, HAL, KLK, LEH, MON, PCC, PFZ, RUB, THC, UCC.
ɾl adipate	ACP, BFG, DEC, EKT, FCP, FMP, GRH, KLK, LEH, MON, NQP, PCC, PFZ, RH, RUB, WTH.
ılipate	PCC.
ıdipate	KES, RUB.
isodecyl adipate	BFG, GRH.
ɾl adipate	DEC, FMP, GRH, MON, PCC, THC.
ılipic acid polyesters	MON, PFZ, RUB, UCC.
adipic acid esters	ACP, BFG, HAL, KES, LEH, PFZ, ROS, TKL.
i esters:	
lhexyl) azelate	DEC, DUP, EKT, EMR, HAL, PFZ.
l azelate	EKT, HAL.
ɾl azelate	EMR, FCP.
azelaic acid esters	ACP, EMR, GRD, PFZ.
ıstate	AHC, KES.
maleate	RH.
ɔxyethoxy)ethyl) methane	TKL.
ɜate	DUP, GRD, MON, RUB.
ɡlycol dinonanoate	EMR, RUB.
ɜate	DUP.
diglycolate	CCA, FMP.
lhexamido)diethyl diethylhexoate	UCC.
largonate	EMR.
lpropionate	EKT.
ıanoate (Isodecyl pelargonate)	EMR.
ɣristate	DRW.
esters	DRW, FOR, HAL, KES.
ɜsters:	
thyl oleate	HAL, KES.
ɜte	AHC, CCW, FMP, KES, NOP, RH, RUB, WTH.
trioleate	DRW, EMR.
ɜate	AHC, EMR, FOR, NOP.
oleic acid esters	AHC, EMR, RH.

TABLE 19B.--*Plasticizers for which U.S. production or sales were reported, identified l manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
PLASTICIZERS, ACYCLIC--Continued	
Palmitic acid esters:	
Iso-octyl palmitate	RUB.
All other palmitic acid esters	EKT, FOR.
*Phosphoric acid esters	EKT, FMP, SFA, UCC.
Polyethylene glycol di-2-ethylhexoate	UCC, x.
Ricinoleic and acetylricinoleic acid esters:	
n-Butyl acetylricinoleate	BAC, DEC.
Butyl ricinoleate	BAC, DEC.
*Glycerol monoricinoleate	BAC, CCW, GLY, HAL, NOP.
All other ricinoleic and acetylricinoleic acid esters	BAC, DEC, KES, NOP.
*Sebacic acid esters:	
*Dibutyl sebacate	DEC, EKT, GRD, HAL, PCC, RH, WTH.
*Di(2-ethylhexyl) sebacate	DEC, GRD, GRH, PCC, PFZ, RH, WTH.
All other sebacic acid esters	DEC, FCP, HAL, NOP, RH, RUB, WTH, x.
*Stearic acid esters:	
*n-Butyl stearate	AHC, FMP, HAL, KES, NOP, RUB, SCP, WTH.
All other stearic acid esters	ARG, BAC, CCW, DRW, FMP, HK, HPC, KES, NOP,
Tributyl acetylcitrate	PFZ.
*Triethylene glycol di(caprylate-caprate)	DRW, FOR, GRH, RUB.
Triethylene glycol di-2-ethylbutyrate	UCC.
All other acyclic plasticizers	AHC, ARG, DUP, EKT, EMR, FCP, FMP, HAL, HP(ROS, RUB, UCC.

Surface-Active Agents

TABLE 20B. *--Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1960*

[active agents for which separate statistics are given in table 20A are marked below with an asterisk (*); ts not so marked do not appear in table 20A because the reported data are accepted in confidence and may published. Manufacturers' identification codes shown below are taken from table 23. An x signifies that nufacturer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, CYCLIC	
nd ethers, nonsulfonated:	
rohexitol castor oil polyethoxyethyl ether	APD.
rohexitol dioleate	APD.
rohexitol glycerol monolaurate	APD.
rohexitol monolaurate	APD.
rohexitol monolaurate polyethoxyethyl ether	APD.
rohexitol mono-oleate	APD.
rohexitol mono-oleate polyethoxyethyl ether	APD.
rohexitol monopalmitate	APD.
rohexitol monopalmitate polyethoxyethyl ether	APD.
rohexitol monostearate	APD.
rohexitol monostearate polyethoxyethyl ether	APD.
rohexitol tall oil ester	APD.
rohexitol tall oil polyethoxyethyl ether	APD.
rohexitol tetrastearate	APD.
rohexitol trioleate	APD.
rohexitol trioleate polyethoxyethyl ether	APD.
rohexitol triricinoleate	APD.
rohexitol tristearate	APD.
rohexitol tristearate polyethoxyethyl ether	APD.
r oil phthalate polyester	APD.
butylphenoxy polyethoxyethanol	DUP, GAF, RH.
ylphenoxy polyethoxyethanol	GAF, JCC.
ylphenoxy polyethoxyethanol	LEV, MON, PCS, RH, UCC.
se polyethoxyethyl distearate	APD.
se polyethoxyethyl oleate	APD.
ctylphenoxy polyethoxyethanol	DRW, GAF, NOP, OMC.
alkylphenoxy polyethoxyethanol	RH.
phenoxy polyethoxyethanol	AHC, APD, CLY, DOW, DRW, GAF, HPC, JCC, OMC, PCS, RH, STP, UCC, VIS.
lphenol-formaldehyde polyethoxyethanol	x.
lphenol-formaldehyde polyethoxyethyl tall oil ester	x.
xy polyethoxyethanol	FBC, GAF, NOP.
polyethoxyethanol	HPC.
decylphenoxy polyethoxyethanol	ORO, PCS.
oxy polyethoxyethanol	VIS.
ther	HDG, TRC, VIS.
n-containing surface-active agents, non-fonated:	
ldimethyl hydrogenated tallow ammonium chloride	ARC.
ldimethyloctadecylammonium chloride	APX, ITX, ONX, RET.
ldimethyltetradecylammonium chloride	ITX.
ldodecyldimethylammonium chloride	APD, DEP, FIN, ITX, ONX, SDH, x.
l-2-heptadecyl-1-hydroxyethyl-2-imidazolinium-onium chloride.	PCS.
lhexadecyldimethylammonium chloride	FIN, ONX, RH, SDW.
l(polyethoxyethyl)bis(tall oil amidoethyl)-onium chloride.	APD.
l(polyethoxyethylcoco)dimethylammonium chloride	GAF.
ltrimethylammonium chloride	COM.
ylethyl-5-hydroxycycloimidine, sodium ethylate, ium ethionate.	MIR.

TABLE 20B.--*Surface-active agents for which U.S. production or sales were reported, identi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
SURFACE-ACTIVE AGENTS, CYCLIC--Continued	
*Nitrogen-containing surface-active agents, non-sulfonated--Continued	
3,4-Dichlorobenzyldodecyldimethylammonium chloride	ONX, SDW.
(Dodecylbenzyl)diethyl(2-hydroxyethyl)ammonium chloride	ORO.
(Dodecylbenzyl)ethyldimethylammonium chloride	ONX.
(Dodecylbenzyl)triethylammonium chloride	PC.
(Dodecylbenzyl)trimethylammonium chloride	ITX, WTC.
Dodecyl(dimethylbenzyl)dimethylammonium chloride	ONX.
2-Dodecylisoquinolinium bromide	ITX, ONX.
(Dodecylmethylbenzyl)trimethylammonium chloride	RH.
1-Dodecylpyridinium chloride	HK.
(Ethoxybenzyl)dimethyl(octylphenoxy)ammonium chloride	RH.
(Ethoxybenzyl)dimethyl(octyltolyloxy)ammonium chloride	RH.
2-Heptadecenyl-1-hydroxyethyl-2-imidazoline	APD, GGY, UVC.
2-Heptadecyl-1-hydroxyethyl-2-imidazoline	GGY.
1-Hexadecylpyridinium chloride	FBS.
N-(2-Hydroxyethyl)-1,2-diphenylethylenediamine	APX.
1-Hydroxyethyl-2-tridecylimidazolium chloride	GGY.
1-Hydroxyethyl-2-undecylimidazoline	GGY, UVC.
Lauroyl-5-ethoxycycloimidine, disodium ethionate	MIR.
Lauroylethyl-5-hydroxycycloimidine, sodium ethylate, sodium ethionate.	MIR.
2-Lauroyloxyethylcarbamoyl-1-methylpyridinium chloride	WTC.
Mixed alkylbenzyldimethylammonium chloride	FIN, RH.
Oleoyl imidazoline	PCS.
Oxazoline, substituted	COM, NOP.
Ricinoleyl imidazoline	PCS.
Rosin aminopolyethoxyethanol	APD, HPC, PCS, VIS.
Rosin polyamidoimidazoline	GRD, PCS, UVC.
Stearoylethyl-5-hydroxycycloimidine, sodium ethylate, sodium ethionate.	MIR.
Stearoyl imidazoline	SCO.
2-Stearoyloxyethylcarbamoyl-1-methylpyridinium chloride	WTC.
All other	APD, PCS.
Phosphorus-containing surface-active agents:	
Dinonylphenoxy polyethoxyethyl phosphate	GAF.
Nonylphenoxy polyethoxyethyl phosphate	GAF, TCC.
Other	GAF.
*Sulfated and sulfonated cyclic surface-active agents:	
*Alkyl benzenoid compounds, sulfated and sulfonated:	
*Decylbenzenesulfonic acid	EFH, HLI, MON, SCO, STP.
Didodecylbenzenesulfonic acid	CO.
*Dodecylbenzenesulfonic acid	CI, CO, KRY, LEV, MON, NAC, NOP, PIL, STP, TN, TRP, WTC, WTU.
*Dodecylbenzenesulfonic acid, ammonium salt	ATR, PRX, VIS, WTU.
Dodecylbenzenesulfonic acid, butylammonium salt	WTC.
*Dodecylbenzenesulfonic acid, calcium salt	RH, STP, TRP, VIS, WTC.
Dodecylbenzenesulfonic acid, cyclohexylamine salt	GAF.
*Dodecylbenzenesulfonic acid, isopropylammonium salt	APD, PCS, STP, TRP, WTC.
Dodecylbenzenesulfonic acid, mixed alkylamine salts	PCS.
Dodecylbenzenesulfonic acid, potassium salt	TRP.
*Dodecylbenzenesulfonic acid, sodium salt	AHC, AML, ATR, CO, DEP, EMK, HLI, HRT, PC, PG, PIL, PRX, SOC, TDC, TN, TRP,
*Dodecylbenzenesulfonic acid, triethanolamine salt	AML, ATR, CO, HLI, NAC, PCS, PIL, STP, WTC, x.

3LE 20B.--*Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1960*-- Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
URFACE-ACTIVE AGENTS, CYCLIC--Continued	
and sulfonated cyclic surface-active s--Continued	
enzenoid compounds, sulfated and fonated--Continued	
benzenesulfonic acid, sodium salt	WTU.
lbenzenesulfonic acid, sodium salt	MON.
cylbenzenesulfonic acid	WTU.
cylbenzenesulfonic acid, ammonium salt	PRX, WTU.
cylbenzenesulfonic acid, sodium salt	CP, PRX, WTU.
ther	FIN.
derivatives, sulfonated:	
sulfonic acid, ammonium salt	CRZ.
sulfonic acid, calcium salt	CWP, INP, LKY, MAR, NYP, PSP.
sulfonic acid, chromium salt	MAR.
sulfonic acid, iron salt	CRZ.
sulfonic acid, magnesium salt	MAR.
sulfonic acid, sodium salt	CRZ, CWP, INP, MAR, WVA.
lene derivatives, sulfonated:	
lnaphthalenesulfonic acid	GAF.
naphthalenesulfonic acid	CMG, GGY, PFZ, SCP.
ylnaphthalenesulfonic acid	CI, GAF, MRA, SAN.
lecylnaphthalenesulfonic acid	PFZ.
propylnaphthalenesulfonic acid	DUP, GAF, GRD, PFZ, WTU.
tylnaphthalenesulfonic acid	x.
opylnaphthalenesulfonic acid	BRY, CMG, DUP, NAC, NOP, ONX.
lenedi (2-naphthalenesulfonic acid)	DUP.
l alkylnaphthalenesulfonic acid	UDI.
lnaphthalenesulfonic acid	ONX.
hydronaphthalenesulfonic acid	DUP.
n-containing surface-active agents	
lfated and sulfonated:	
ylethylmorpholinium ethyl sulfate	APD.
lohexyl-N-palmitoyl taurine	GAF.
ldodecylbenzyl)-N-methyl taurine, sodium salt	ORO.
ylbenzenesulfonamide	MAH.
tadecylmethylbenzimidazolinesulfonic acid	TRC.
ther	APD.
ier sulfated and sulfonated cyclic rface-active agents:	
enesulfonic acid, sodium salt	NES, UPF.
lhydroxybiphenylsulfonic acid	FBS, RBC.
yldiphenyloxidedisulfonic acid, sodium salt	DOW.
ylphenoxy polyethoxyethyl sulfate	GAF.
lphenoxy polyethoxyethyl sulfate	GAF, STP, TRP, WTC.
tylphenoxy polyethoxyethyl sulfate	RH.
tylphenoxy polyethoxyethyl sulfonate	RH.
oleum sulfonate, water soluble type, sodium salt	SIN, SOI, SON.
enesulfonic acid, potassium salt	MYW, NES.
enesulfonic acid, sodium salt	CO, NES, PIL, STP, TRP, WTU.
ilorophenol sulfate, ethanolamine salt	GAF.
nesulfonic acid, ammonium salt	WTU.
nesulfonic acid, sodium salt	CO, NES, PIL, STP, TRP, WTU.
other	GAF, NES.
SURFACE-ACTIVE AGENTS, ACYCLIC	
nd ethers, nonsulfonated:	
lene glycol monolaurate	CCW, GLY, HAL, HDG, KAL, KES, NOP, QCP, WTC.
lene glycol mono-oleate	EMR, GLY, HAL, HDG, KES, NOP, WTC.
lene glycol monostearate	AML, CCW, CP, GLY, HAL, KES, NOP, PC, PCS, QCP, UVC, VAL, VND, WTC.

TABLE 20B.--*Surface-active agents for which U.S. production or sales were reported, identi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Esters and ethers, nonsulfonated--Continued	
Diethylene glycol tall oil ester	WTC, x.
Dihexitol ethoxyethylpropoxypropyl diglycolate	APD.
Diisobutylene maleate	RH.
Dipolyethoxyethyl polyoxypropylene glycol ether	PCS, VIS, WYN.
Ethylene glycol mono-oleate	EFH, HAL.
*Ethylene glycol monostearate	CCW, GLY, HAL, KES, KNP, PCS, STP, VND.
Glycerol diacetyltartrate mono and di esters of fatty acids.	WTC.
Glycerol dioleate	HAL, KES, LEV.
Glycerol maleate mono-oleate	DRW, NOP, WTC.
Glycerol mono and di esters of fatty acids	KES.
*Glycerol monococate	CP, HDG, VND.
Glycerol monoester of lard	DRW, GLY, x.
*Glycerol monolaurate	HAL, KES, KNP.
*Glycerol mono-oleate	APD, CCW, DRW, EFH, EMR, GLY, HAL, HDG, K SPP, STP, x.
*Glycerol monostearate	APD, APX, BCN, CCW, CI, CP, CRC, DRW, GLY LUR, MCO, MRA, NOP, NW, PC, PCS, PG, UV x.
Hexitol polyethoxyethyl beeswax ester	APD.
Hexitol polyethoxyethyl dioleate	APD.
Hexitol polyethoxyethyl hexaoleate	APD.
Hexitol polyethoxyethyl hexa(tall oil) ester	APD.
Hexitol polyethoxyethyl lanolin ester	APD.
Hexitol polyethoxyethyl oleate	APD, HDG.
Hexitol polyethoxyethyl pentalaurate	APD.
Hexitol polyethoxyethyl penta(tall oil) ester	APD.
Hexitol polyethoxyethyl stearate	APD.
Hexitol polyethoxyethyl tetra(oleate, laurate) ester	APD.
Hexitol polyethoxyethyl tetra(tall oil) ester	APD.
*Methoxy polyethoxyethyl coconut oil ester	DRW, JOR, KES, ONX.
Mixed monoglycerides of fatty acids	x.
Pentaerythritol distearate	VAL.
Polyethoxyethyl castor oil ester	GAF, GGY, NOP, UVC, WTC.
*Polyethoxyethyl castor oil ether	APD, DRW, NOP, VIS.
Polyethoxyethyl castor oil phthalate	APD.
*Polyethoxyethyl coconut oil ester	NOP, PG, UVC.
Polyethoxyethyl decyl ether	AHC, PCS.
Polyethoxyethyl diglycolate	APD.
*Polyethoxyethyl dilaurate	DEX, EFH, GGY, GLY, HAL, HDG, JOR, KES, PC
*Polyethoxyethyl dioleate	CI, EFH, GGY, GLY, HAL, HDG, KES, NOP, OTH UVC.
Polyethoxyethyl distearate	GLY, HAL, KES, PCS, QCP.
Polyethoxyethyl dodecyl ether	AAC, APD, DRW, DUP, GAF, JCC, PCS, UCC.
Polyethoxyethyl tert-dodecyl thioether	EFH, MON, PAS.
Polyethoxyethyl hexadecyl ether	AHC, APD.
Polyethoxyethyl hexadecyl, octadecenyl ether	AHC.
Polyethoxyethyl hydrogenated castor oil ether	APD, PCS.
Polyethoxyethyl lanolin ether	AHC, APD, VIS.
Polyethoxyethyl mixed fatty acid esters and ethers	APD.
*Polyethoxyethyl monolaurate	ARC, BSC, CCA, DEX, DRW, GGY, GLY, HAL, JO NOP, QCP, SRR, SYC.
*Polyethoxyethyl mono-oleate	AHC, ARC, CCA, CI, DEX, DRW, EFH, GAF, GGY HDG, KES, NOP, ONX, PCS, SPP, SYC, UVC.
Polyethoxyethyl monopalmitate	APD.
Polyethoxyethyl monoricinoleate	KES, NOP, UVC.

LE 20B.-- *Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1960*-- Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
d ethers, nonsulfonated--Continued	
oxyethyl monostearate	AHC, AML, APD, ARC, DEX, DRW, GAF, GGY, GLY, HAL, HDG, JOR, KES, KNP, NOP, ONX, PC, PCS, PD, RH, WTC.
oxyethyl octadecyl ether	AAC, APD.
oxyethyl oleyl ether	AAC, APD, DRW, DUP, GAF, NOP.
oxyethyl resin ester	APD, VIS, x.
oxyethyl resin ether	APD.
oxyethyl sesquicocate	JRG.
oxyethyl tall oil ester	AML, APD, APX, ARC, DRW, EFH, KES, MON, NOP, OMB, PAR, PCS, UVC, WTC.
oxyethyl tallow ester	AHC, DEX, SOS.
oxyethyl tertiary acetylene glycol	AIR.
oxyethyl tridecyl ether	AHC, APD, DRW, EFH, GAF, JCC, MON, OMC, PCS, UCC, VIS, x.
cerol oleate	WTC.
panediol monococate	CP.
panediol monolaurate	CP, HAL, KES.
panediol mono-oleate	HAL, KES.
panediol monostearate	CCW, CP, HAL, KES, PCS, PG, WTC.
panediol polyethoxyethyl stearate	APD.
olyethoxyethyl polyoxypropylene glycol ether	APD.
ier	JCC, JRG, KES, PCS, PFZ, UCC, WTC.
containing surface-active agents, nonsulfonated:	
ino polyethoxyethanol	APD, GAF, NOP.
oethyl)-N-(hydroxyethyl)coconut oil amide	DEX, NOP, PC.
oethyl)-N-(hydroxyethyl)octadecanamide	AHC, AML, CI, DEP, DEX, HRT, MRA, NOP, ONX, QCP, SAN, SCP, TRC, WTU.
oethyl)-N-(hydroxyethyl)oleamide	CI, CMC, DEX, NOP, SOC, WTU, x.
oethyl)-N-(hydroxyethyl)palm oil amide	SCP, UVC.
(2-hydroxyethyl)bisoleamide	STP.
(2-hydroxyethyl)decanamide	GGY.
(2-hydroxyethyl)dodecanamide	DRW, HLI, KRY, NOP, PCS, PG.
(2-hydroxyethyl)octadecanamide	AML, BSC, EMR, GAF, GGY, JOR, MRA, NOP, ONX, QCP, TXC, WTU.
(2-hydroxyethyl)oleamide	CCW, GGY, MRA, NOP, PCS, SCP, STP, WTC.
(2-hydroxyethyl)tall oil amide	EFH, EMR.
(2-hydroxyethyl)tallow amide	PG.
monium oleate	GNT.
(polyethoxyethyl)methylammonium chloride	APD.
thyldipolyethoxyethylammonium chloride	ARC.
nut oil-β-alanine	GNM, UVC.
t oil amide of bis(diethanolamine)	AML, BSC, CMC, DEP, HLI, JRG, MOA, MRV, NOP, PCS, PNX, QCP, TCC, TRP, VAL.
t oil amide of mono(diethanolamine)	APX, CP, EFH, EMK, GGY, HRT, KNP, MOA, NOP, ONX, PC, PCS, PG, STP, TRP, VND, WTC, WTU.
t oil amide of diethanolamine, neither bis nor mono	DEX, DRW, JOR, JRG, KRY, LEV, LUR, MRA, PCS, SCO, TXC, x.
t oil amide of diethylenetriamine	APX, NOP.
t oil amide of diisopropanolamine	x.
t oil amide of isopropanolamine	ARC, LEV, STP, TRP.
t oil amide of monoethanolamine	APX, HRT, PCS, PG, UVC, WTC, WTU.
t oil amine acetate	ARC, PCS.
imethylammonium chloride	ARC.
yl sarcosine, sodium salt	GGY.
seed oil mixed amines	GNM.
oethyl-N′,N″-dioctadecyldiethylenetriamine acetate	TRC.
etaine	CCW, DUP, UVC.

TABLE 20B.--*Surface-active agents for which U.S. production or sales were reported, identifi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 23
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Nitrogen-containing surface-active agents, non-sulfonated--Continued	
Dicocodimethylammonium chloride	ARC, GNM.
Dihydrogenated tallow dimethylammonium chloride	ARC, GNM, ONX.
N-(3-Dimethylamino)oleamide	CCW.
Dimethyldisoya-ammonium chloride	ARC.
Dodecyl, hexadecyltrimethylammonium chloride	DUP.
N-Dodecyl-β-iminodipropionic acid	GNM.
Dodecyltrimethylammonium chloride	ARC, GNM.
Ethyldimethyloctadecylammonium bromide	ITX.
N,N-Ethylene bis-octadecanamide	CCW.
N,N-Ethylene bis-oleamide	CCW.
Ethylhexadecyldimethylammonium bromide	FIN, ONX.
Hexadecylbetaine	DUP.
Hexadecyltrimethylammonium bromide	AHC, FIN.
Hexadecyltrimethylammonium chloride	ARC.
N-(2-Hydroxyethyl)octadecanamide	NOP, STP, UVC.
N-(2-Hydroxyethyl)oleamide	EFH, FBC, UVC.
N-(2-Hydroxyethyl)-N-(2-stearoylaminoethyl)glycine	GAF.
N-(2-Hydroxyethyl)tetradecanamide	WTC.
N-(2-Hydroxypropyl)dodecanamide	PCS, WTU.
N-(2-Hydroxypropyl)oleamide	WTC.
N-(2-Hydroxypropyl)tetradecanamide	WTU.
N-Lauroyl polypeptide	MYW.
*N-Lauroyl sarcosine, sodium salt	CP, GGY, ONX.
N-Octadecyl-β-alanine, sodium salt	DUP.
Octadecyl amine acetate	ACY, ARC, GNM.
Octadecyltrimethylammonium chloride	ARC.
Octyl amine acetate	ARC.
Oleamide of diethylenetriamine	APD, PCS, UVC.
Oleyl amine acetate	GNM.
Oleoylamino polyethoxyethanol	ARC, GAF.
Oleoyl polypeptide	MYW.
N-Olecyl sarcosine, sodium salt	GAF, GGY.
Pelargonamide of tetraethylenepentamine	AHC.
Polyethoxyethyl N-coco amine	ARC.
Polyethoxyethyl N-hydrogenated tallow amine	ARC.
Polyethoxyethyl mixed fatty acid amides	GAF.
Polyethoxyethyl N-octadecyl amine	ARC.
Polyethoxyethyl N-soya amine	ARC.
Polyethoxyethyl N-tallow amine	ARC.
Polyethoxyethyl N-tallow trimethyldiamine	ARC.
Polypeptide	MYW.
Soyatrimethylammonium chloride	ARC.
*Stearamide of diethylenetriamine	APX, DEP, NOP, ONX, QCP, UVC.
Stearamide of tetraethylenepentamine	AHC, DEX, ONX, UVC.
1-Stearamido-1′-adipoamido diethylenetriamine	APX.
Stearoylbiguanide hydrochloride	GAF.
Stearoyl-N-(2-hydroxyethyl)octadecanamide	WTC.
N-Stearoyl sarcosine, sodium salt	GAF, GGY.
Tallow amine acetate	ARC, GNM.
Tallow amine acetate, hydrogenated	ARC.
N-Tallow-β-aminodipropionic acid, sodium salt	GNM.
Tallow diethanolamine acetate	PG.
Tallow propylenediamine	APD.

ıBLE 20B.-- ***Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1960*****--Continued**

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
·containing surface-active agents, non-	
ɔnated--Continued	
,N′-Tetrakishydroxyethyl(polyoxyethylenepolyoxy-	VIS, WYN.
rlene)ethylenediamine.	
,N′-Tetrakishydroxyethylethylenediamine stearate---	AHC.
ınolamine myristate----------	DOM.
ınolamine oleate----------	CMC, DOM, HDG, NOP, QCP, SRR, TCC.
ınolamine resinate----------	APD.
ınolamine stearate----------	AML, HDG, TCC.
ıyl hydrogenated tallow ammonium chloride----------	ARC.
ıyl tallow ammonium chloride----------	ARC, GNM.
ıer----------	ACY, APD, APX, ARC, CBP, CCW, DUP, FIN, GAF, GGY, GNM, HNC, ONX, PCS, PG, TCC, TRC, VIS, x, x.
ıs-containing surface-active agents, nonsulfonated:	
phosphates, diethanolamine salt----------	DUP.
yl polyphosphate, potassium salt----------	DEX.
yl polyphosphate, sodium salt----------	VIC.
l polyethoxyethyl phosphate----------	GAF.
lhexyl phosphate, sodium salt----------	UCC, UVC.
mono and dialkyl acid phosphates----------	DUP, VIC.
phosphate, alkylamine salt----------	DUP.
polyphosphate, potassium salt----------	DEX, UVC.
polyphosphate, sodium salt----------	CRC, VIC.
phosphate----------	DUP.
polyethoxyethyl phosphate----------	GAF.
her----------	ACY, DUP, VIC, UVC.
fatty acids, nonsulfonated:	
t oil, potassium salt----------	LUR, OTT, PCH, SAN.
t oil, triethanolamine salt----------	PG.
il, potassium salt----------	EFH, PCH.
il, sodium salt----------	LUR.
oil, sodium salt----------	LUR, OTT.
ium laurate----------	BSC, DRW, NOP.
ium oleate----------	AML, EFH, NOP, OTH, OTT, PCH, QCP, SAN, SHP, WBG, x.
ium stearate----------	DEX, QCP, VAL.
ium tallate----------	BSC, CON, DRW, EFH, KAL, LUR, OTT, PCH, PCS, PNX, QCP.
ı oleate----------	DEP, LUR, MRV, NOP, QCP, WBG.
ı resinate----------	MRA, QCP.
ı stearate----------	LEV, MAL, NOP, WTC.
ı tallate----------	ACY, BSC, DEX, NOP, QCP.
ı, potassium salt----------	OTT.
ı, sodium salt----------	CON, LUR, NOP, QCP.
ther----------	DEP, DEX, KAL, MRV, OTT, WHI.
l and sulfonated acyclic surface-active agents:	
, sulfated and sulfonated:	
yloleic acid, sulfonated----------	DUP.
ic acid, sulfonated (Sulfonated red oil)----------	ACT, ACY, AHC, BRY, DEX, DRW, GAF, KAL, LEA, LUR, MRA, MRV, NOP, PC, PFZ, QCP, SCO, SON, SWT, TN, WHI, WHW.
inoleic acid, sulfonated----------	DRW, NOP.
ols, sulfated and sulfonated:	
yl sulfate----------	DUP, ONX, PCS.
yl sulfate, triethanolamine salt----------	DUP.
-Diethyl-6-tridecyl sulfate----------	UCC.
ecyl, octadecenyl sulfate----------	DUP.
ecyl sulfate, 2-amino-2-methylpropanol salt---------	DUP.
ecyl sulfate, ammonium salt----------	AAC, DUP, ONX, PCS, STP, TRP.
ecyl sulfate, diethanolamine salt----------	AAC, DUP, HLI, ONX, PCS, STP, TRP.
ecyl sulfate, N,N-diethylcyclohexylamine salt-------	DUP.

TABLE 20B.--*Surface-active agents for which U.S. production or sales were reported, identi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
*Sulfated and sulfonated acyclic surface-active agents--Continued	
*Alcohols, sulfated and sulfonated--Continued	
Dodecyl sulfate, magnesium salt	AAC.
Dodecyl sulfate, monoisopropanolamine salt	JRG, PCS.
Dodecyl sulfate, potassium salt	PG.
*Dodecyl sulfate, sodium salt	AAC, DUP, HLI, HLN, JRG, KRY, ONX, PCS, SYC, TRP.
*Dodecyl sulfate, triethanolamine salt	AAC, DUP, HLI, KRY, ONX, PCS, PG, RET,
2-Ethylhexyl sulfate	AAC, UCC, WTC.
7-Ethyl-2-methyl-4-undecyl sulfate	UCC.
Hexadecyl, octadecenyl sulfate	CMG.
Hexadecyl sulfate	AAC, DUP, GGY.
Octadecyl sulfate	AAC, DUP, EMK, ONX, PG.
Octadecyl sulfate, triethanolamine salt	DUP.
Octyl sulfate, sodium salt	DUP.
Tridecyl sulfate, sodium salt	AAC.
All other	PCS, x.
*Esters and ethers, sulfated and sulfonated:	
Bis-sulfosuccinate ester of tallow monoglyceride	ACY.
Bis(tridecyl)sulfosuccinate, sodium salt	ACY.
Butyl ethylene glycol sulfo-oleate	SAN.
n-Butyl sulfo-oleate	AHC, AML, NOP, ONX, PC.
n-Butyl sulforicinoleate	DEC, NOP.
Coco isethionate, sodium salt	DRW, GAF, LEV.
Didecanoyl sulfosuccinate, sodium salt	RH.
Di(2-ethylhexyl)sulfosuccinate	ACY, AHC, AML, CRC, EMK, GGY, HRT, MOA,
Dihexyl sulfosuccinate	ACY, MOA.
Dipentyl sulfosuccinate, sodium salt	ACY.
Dodecyl sulfoacetate	NAC.
Glycerol mono(coconut oil)ester, sulfated, ammonium salt.	CP, KAL.
Glycerol mono(coconut oil)ester, sulfated, sodium salt	CP.
Glycerol monostearate sulfoacetate	WTC.
Glycerol tri(sulfo-oleate)	AHC, DRW, MRV, NOP, SCP.
*Isopropyl sulfo-oleate	AHC, BRY, DEX, HRT, QCP, SON, TXC.
Lauroyl-2-hydroxy-1-propane sulfonic acid	LUR, SDH.
Methyl, ethyl, propyl sulfo-oleate	NOP.
Methyl sulfo-oleate	AHC.
Octadecyl disodiumsuccino disodium sulfosuccinate	ACY.
Oleoyl isethionate, sodium salt	GAF.
Polyethoxyethyl dodecyl sulfate	WTC.
Polyethoxyethyl dodecyl sulfate, sodium salt	AAC, PCS, PG.
Polyethoxyethyl dodecyl sulfate, triethanolamine salt	PG.
Polyethoxyethyl octadecyl sulfate	DUP.
*n-Propyl sulfo-oleate	ACY, BSC, EFH, EMR, LEA, MRV.
All other	DEX, x.
*Nitrogen-containing surface-active agents, sulfated and sulfonated:	
N-(Aminoethyl)-N-(hydroxyethyl)octadecanamide, methyl sulfate.	DUP.
Coconut oil amide of isopropanolamine, sulfated, sodium salt.	APX, ONX, QCP, SON.
*Coconut oil amide of monoethanolamine, sulfated, potassium salt.	DEX, EMK, HRT, ONX.
Coconut oil amide of monoethanolamine, sulfated, sodium salt.	AML, DEP, QCP.

ABLE 20B. --*Surface-active agents for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SURFACE-ACTIVE AGENTS, ACYCLIC--Continued	
and sulfonated acyclic surface-active agents--	
inued	
en-containing surface-active agents, sulfated and	
lfonated--Continued	
-Hydroxyethyl)neat's-foot oil amide, sulfated,	APX.
monium salt.	
-Hydroxyethyl)octadecanamide, sulfated----------	NOP.
-Hydroxyethyl)oleamide, sulfated----------	NOP, SCP.
-Hydroxyethyl)tallow sulfosuccinamide----------	SCP.
droxyethyl-N,N′,N′-tris(hydroxypropyl)ethylene-	DUP.
amine distearate, methyl sulfate.	
oylsulfoacetoethanolamide, potassium salt----------	WTC.
thyl-N-oleoyl taurine----------	CRC, DEP, DRW, GAF, HRT, MRA, NOP, VAL, WIC.
thyl-N-palmitoyl taurine----------	GAF.
thyl-N-tallow taurine----------	LEV.
yristoylethyl)sulfosuccinamide----------	WTC.
tadecylsulfosuccinamide, disodium salt----------	ACY.
leoylisopropyl)sulfosuccinamide----------	WTC.
ethoxyethyl mixed primary amines, sulfated---------	RH.
N′,N′-Tetrakis-(2-hydroxypropyl)ethylenediamine	DUP.
oleate, methyl sulfate.	
other----------	x.
fats, and waxes, sulfated and sulfonated:	
al fats and oils, sulfated and sulfonated:	
ease, other than wool, sulfonated----------	NOP, WHW.
rd oil, sulfonated----------	APX, EFH, WAW, WHI.
at's-foot oil, sulfonated----------	ACT, APX, FBC, KAL, LUR, MRD, NOP, OTT, PC, WHW.
llow, sulfonated----------	ACT, ACY, AHC, BRY, CRC, DRW, EFH, FRR, LEA, LUR, MRA, MRD, NOP, ONX, OTT, PC, QCP, ROY, SCP, SID, SON, SOS, WHI.
ol grease, sulfonated----------	FBC, WHI.
and marine-animal oils, sulfated and sulfonated:	
d oil, sulfonated----------	ACT, DRW, EFH, FBC, MRD, NOP, OTT, SAN, WAW, WHI, WHW.
rring oil, sulfonated----------	NOP.
xed fish oils, sulfonated----------	SCO.
rtially hydrogenated fish oil, sulfonated----------	AML.
erm oil, sulfonated----------	ACT, CI, DRW, EFH, FBC, HRT, KAL, KNG, LEA, MRD, NOP, ONX, OTT, QCP, RTC, SAN, SON, SWT, WBG, WHI, WHW.
ale oil, sulfonated----------	KNG.
table oils, sulfated and sulfonated:	
stor oil, sulfonated----------	AAE, ACT, ACY, AHC, AML, APX, BRY, BSC, CI, CRC, DEX, DRW, DUP, EFH, FBC, GAF, HRT, KAL, KNG, LEA, LUR, MRA, MRD, MRV, NOP, ONX, OTT, PC, ROY, SAN, SCO, SCP, SLC, SON, SWT, WBG, WHI, WHW, WTU.
conut oil, sulfonated----------	ACY, LEA, LUR, MRD, NOP, RTC, WHW.
ttonseed oil, sulfonated----------	NOP, RTC.
nseed oil, sulfonated----------	LEA.
stard-seed oil, sulfonated----------	LEA, LUR, NOP.
anut oil, sulfonated----------	ACY, AHC, LEA, NOP, ROY, RTC, SCP, SLC, SOS.
peseed oil, sulfonated----------	NOP.
ce-bran oil, sulfonated----------	DRW, EFH, HRT, KNG, LUR, NOP, OTT, ROY, x.
ybean oil, sulfonated----------	DRW, HRT, KAL, LEA, MRD, ONX.
other oils, fats, and waxes, sulfated and sulfonated:	
eostearine, sulfonated----------	WHW.
ll oil, sulfonated----------	ACY, AHC, APX, NOP, QCP, WHW.
l other----------	FRR.
r acyclic surface-active agents:	
alkane sulfonic acid, sodium salt----------	DUP.
her----------	TN.

Pesticides and Other Organic Agricultural Chemicals

TABLE 21B. --*Pesticides and other organic agricultural chemicals for which U.S. production or s reported, identified by manufacturer, 1960*

[Pesticides and other organic agricultural chemicals for which separate statistics are given in table below with an asterisk (*); products not so marked do not appear in table 21A because the reported d cepted in confidence and may not be published. Manufacturers' identification codes shown below are t table 23. An x signifies that the manufacturer did not consent to his identification with the design

Chemical	Manufacturers' identification c (according to list in table 2
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC	
*Fungicides:	
2,6-Bis(dimethylaminomethyl)cyclohexanone	MTL.
Captan (N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide).	CHO.
Chloranil (Tetrachloro-p-quinone)	USR.
5-Chloro-2-mercaptobenzothiazole, laurylpyridinium salt	VNC.
Dichlone (2,3-Dichloro-1,4-naphthoquinone)	SF, USR.
2,4-Dichloro-6-(o-chloroanilino)-s-triazine	CHG.
3,5-Dimethyltetrahydro-2H,1,3,5-thiadiazine-2-thione	CLY, UCC.
Dodecylguanidine acetate	ACY.
Glyodin (2-Heptadecyl-2-imidazoline acetate)	UCC.
2-Mercaptobenzothiazole, monoethanolamine salt	VNC.
*Mercury fungicides:	
2-Chloro-4-(hydroxymercuri)phenol	DUP.
N-(Ethylmercuri)-p-toluenesulfonanilide	DUP.
1,4,5,6,7,7-Hexachloro-N-(ethylmercuri)-5-norbornane-2,3-dicarboximide (Emmi).	RBC.
4-(Hydroxymercuri)-2-nitrophenol	DUP.
8-(Methylmercurioxy)quinoline	MTL.
2-(Phenylmercuriamino)ethyl acetate	CLY.
N-Phenylmercuriformamide	VIN.
Phenylmercuryammonium acetate	GUA, SCI.
Phenylmercury hydroxide	MTL, WRC.
Phenylmercury lactate	MTL.
Phenylmercury naphthenate	HNX, MTL.
Phenylmercury oleate	CLY, GUA, HNX, MTL.
Phenylmercury propionate	MTL.
Tris(2-hydroxyethyl)(phenylmercuri)ammonium lactate	CLY.
2-(1-Methylheptyl)-4,6-dinitrophenyl crotonate (Karathane).	RH.
*Naphthenic acid, copper salt	CCA, FER, HNX, HSH, SHP, SM, SOC, SRR, T
*Pentachlorophenol	DOW, FRO, MON, RCI.
Pentachlorophenol, sodium salt	DOW, MON.
*8-Quinolinol (8-Hydroxyquinoline), copper salt	GAM, HNX, MTL.
2,3,4,6-Tetrachlorophenol	DOW.
2,3,4,6-Tetrachlorophenol, sodium salt	DOW.
Trichloromethylthiophthalimide	CHO.
*2,4,5-Trichlorophenol	DA, DOW, HK.
*2,4,5-Trichlorophenol, ethanolamine salt	DOW, GAF.
*2,4,5-Trichlorophenol, sodium salt	DOW, MON.
2,4,6-Trichlorophenol	DA, DOW.
2,4,6-Trichlorophenol, potassium salt	CLY.
*Herbicides and other plant hormones:	
1-n-Butyl-3-(3,4-dichlorophenyl)-1-methylurea	DUP.
2-sec-Butyl-4,6-dinitrophenol	DOW.
2-sec-Butyl-4,6-dinitrophenol, triethanolamine salt	DOW, SAC.
2-Chloro-4,6-bis(ethylamino)-s-triazine	GGY.
2-Chloro-4-ethylamino-6-isopropylamino-s-triazine	GGY.
3-(p-Chlorophenyl)-1,1-dimethylurea (CMU)	DUP.

LE 21B.--*Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
es and other plant hormones--Continued	
hlorophenyl)-1,1-dimethylurea trichloroacetate-----	ACG.
-Dichlorophenoxy)ethyl hydrogen sulfate, sodium	UCC.
-Dichlorophenyl)-1,1-dimethylurea----------	DUP.
chloropropionanilide----------	x.
hydro-3,6-pyridazinedione (Maleic hydrazide)-------	ACY, USR.
methyl-3-phenylurea----------	DUP.
methyl-3-phenylurea trichloroacetate----------	ACG.
yl tetrachloroterephthalate----------	DA.
nitro-o-cresol (DNOC)----------	SAC.
nitro-o-cresol, sodium salt (Sinox)----------	SAC.
ellic acid----------	ABB, MRK, PFZ.
butyric acid----------	ARA.
pyl carbanilate (Isopropyl N-phenylcarbamate) (IPC)	FMP, PPG.
pyl 3-chlorocarbanilate (Isopropyl N-(3-chloro- yl)carbamate) (CIPC).	PPG.
thaleneacetic acid and derivatives:	
phthaleneacetamide----------	AMC.
phthaleneacetic acid----------	AMC, COK.
phthaleneacetic acid, methyl ester----------	AMC, COK.
phthaleneacetic acid, sodium salt----------	AMC, BKL, COK.
phthylphthalamic acid----------	USR.
icyclo[2,2,1]heptane-2,3-dicarboxylic acid, dium salt (Endothal).	x.
yacetic acid derivatives:	
hloro-o-tolyloxy)acetic acid----------	DOW, RIV.
-Dichlorophenoxy)acetic acid (2,4-D)----------	DA, DOW, MON.
-Dichlorophenoxy)acetic acid, dimethylamine salt---	AMC, DA, DOW, OTH, RIV.
-Dichlorophenoxy)acetic acid esters:	
2,4-Dichlorophenoxy)acetic acid, butoxyethoxypropyl ester.	DA.
2,4-Dichlorophenoxy)acetic acid, 2-butoxyethyl ester	x.
2,4-Dichlorophenoxy)acetic acid, butoxypolypropyl- eneglycol ester.	DOW.
2,4-Dichlorophenoxy)acetic acid, n-butyl ester------	AMC, DA, DOW, MON, RIV.
2,4-Dichlorophenoxy)acetic acid, sec-butyl ester----	MON.
2,4-Dichlorophenoxy)acetic acid, ethyl ester--------	x.
2,4-Dichlorophenoxy)acetic acid, 2-ethylhexyl ester-	DA.
2,4-Dichlorophenoxy)acetic acid, iso-octyl ester----	DOW, MON, OTH, RIV.
2,4-Dichlorophenoxy)acetic acid, isopropyl ester----	AMC, DA, DOW, MON, RIV.
2,4-Dichlorophenoxy)acetic acid, propylene glycol ester.	RIV.
2,4-Dichlorophenoxy)acetic acid, tetrahydrofurfuryl ester.	OTH.
ll other----------	DOW.
-Dichlorophenoxy)acetic acid, sodium salt----------	DOW.
4,5-Trichlorophenoxy)acetic acid (2,4,5-T)----------	DA, DOW, MON.
4,5-Trichlorophenoxy)acetic acid esters:	
2,4,5-Trichlorophenoxy)acetic acid, butoxyethoxy- propyl ester.	DA, MON.
2,4,5-Trichlorophenoxy)acetic acid, 2-butoxyethyl ester.	x.
2,4,5-Trichlorophenoxy)acetic acid, butoxypoly- propyleneglycol ester.	DOW.
2,4,5-Trichlorophenoxy)acetic acid, n-butyl ester---	DA, DOW, MON, RIV.

TABLE 21B.--*Pesticides and other organic agricultural chemicals for which U.S. production or s reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table 2
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
*Herbicides and other plant hormones--Continued	
Phenoxyacetic acid derivatives--Continued	
*(2,4,5-Trichlorophenoxy)acetic acid esters--Continued	
(2,4,5-Trichlorophenoxy)acetic acid, 2-ethylhexyl ester.	DA.
*(2,4,5-Trichlorophenoxy)acetic acid, iso-octyl ester-	DOW, MON, OTH, RIV.
(2,4,5-Trichlorophenoxy)acetic acid, isopropyl ester-	DA, MON.
(2,4,5-Trichlorophenoxy)acetic acid, tetrahydrofurfuryl ester.	OTH.
All other	DOW.
*Phenylmercury acetate (PMA)	BKM, CLY, GUA, MTL, SCI, WRC.
N-Tolylphthalamic acid	USR.
2-(2,4,5-Trichlorophenoxy)ethyl 2,2-dichloropropionate	DOW.
(2,4,5-Trichlorophenoxy)propionic acid	BKL, DOW.
Tris(2,4-dichlorophenoxyethyl) phosphite	USR.
Zinc cyclohexylamine complex	BFG.
Insect attractants:	
4-(p-Acetoxyphenyl)-2-butanone	TBK.
sec-Butyl 4(and 5)-chloro-2-methylcyclohexanecarboxylate-	TBK.
tert-Butyl 4(and 5)-chloro-2-methylcyclohexanecarboxylate	TBK.
*Insecticides:	
Allethrin (Allyl homolog of Cinerin I)	BPC.
Benzyl thiocyanate	HK.
Bis(S'-diethoxyphosthinethioylmercapto)methane	FMP.
S,S-Bis(2,3-p-dioxanedithiol) O,O-diethyl phosphorodithioate.	HPC.
*Chlorinated insecticides:	
Aldrin (Hexachloro-hexahydro-endo, exo-dimethanonaphthalene).	SHC.
2,2-Bis(p-chlorophenyl)ethanol	ARA.
1,1-Bis(p-chlorophenyl)-2-nitrobutane	COM.
1,1-Bis(p-chlorophenyl)-2-nitropropane	COM.
2-(p-tert-Butylphenoxy)-1-methylethyl-2-chloroethyl sulfite (Aramite).	USR.
Chlordan (Octachloro-tetrahydro-methanoindan)	VEL.
Chlorinated mixed terpenes (Strobane)	BFG.
p-Chlorophenyl p-chlorobenzenesulfonate	DA, DOW.
S-(p-Chlorophenylthio)methyl O,O-diethyl phosphorodithioate.	SF.
p-Chlorophenyl 2,4,5-trichlorophenyl sulfone	FMP.
6-Chloropiperonyl chrysanthemummonocarboxylate	BPC.
4,4'-Dichlorobenzilic acid	GGY.
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethane (DDD)	ACG, RH.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane	RH.
1,1-Dichloro-2-(o-chlorophenyl)-2-(p-chlorophenyl)-ethane.	PIC.
O-(2,4-Dichlorophenyl) O,O-diethyl phosphorothioate	VC.
4,4'-Dichloro-α-(trichloromethyl)benzhydrol	RH.
Dieldrin (Hexachloro-epoxy-octahydro-endo, exo-dimethanonaphthalene).	SHC.
O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate.	DOW.
Endrin (Hexachloro-epoxy-octahydro-endo, endo-dimethanonaphthalene).	SHC, VEL.
Heptachlor (Heptachloro-tetrahydromethanoindene)	VEL.

LE 21B.--*Pesticides and other organic agricultural chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, CYCLIC--Continued	
ides--Continued	
nated insecticides--Continued	
chlorocyclohexane (Benzene hexachloride)----------	ACG, DA, FRO, HK, PPG, SF.
ane----------	HK.
phene (Chlorinated camphene)----------	HPC.
1-Trichloro-2,2-bis(p-chlorophenyl)ethane (DDT)----	ACG, DA, GGY, LEB, MTO, OMC.
1-Trichloro-2,2-bis(p-methoxyphenyl)ethane (Methychlor).	DUP.
ohexyl-4,6-dinitrophenol----------	DOW.
ethyl O-(3-chloro-4-methylumbelliferone) phosothioate.	CHG.
ethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phorothioate.	GGY.
ethyl O-(2-pyrazinyl) phosphorothioate----------	ACY.
ethyltoluamide----------	CWL, HPC.
methyl O-(p-nitrophenyl) phosphorothioate (Methyl thion).	MON, SHC, VEL, VIC.
methyl S-(4-oxo-1,2,3-benzotriazin-3(4H)-ethyl) phosphorodithioate.	CHG.
rl O-(p-nitrophenyl)benzene phosphorothioate (EPN)--	VIC.
yl methylcarbamate----------	UCC.
ion (O,O-Diethyl O-(p-nitrophenyl) phosphorothioate)	ACY, AMP, MON, VEL.
te (Isobornyl thiocyanatoacetate)----------	BKC, HPC.
cides:	
valeryl-1,3-indandione----------	INC.
valeryl-1,3-indandione, calcium salt----------	MOT.
aloyl-1,3-indandione----------	MOT, PIC.
rin (3-(Acetonylbenzyl)-4-hydroxycoumarin)----------	ABB, PEN.
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC	
des:	
,4-bromoacetoxybutene-2----------	VIN.
um succinate----------	MAL.
um undecenoate (Calcium hendecenoate)----------	WTM.
hyldithiocarbamic acid, ferric salt (Ferbam)--------	DUP, RBC, WRC.
hyldithiocarbamic acid, zinc salt (Ziram)----------	ALC, DUP, GYR, RBC, USR, WRC, x.
ium cyanodithioimidocarbonate----------	BKM.
ene bis(dithiocarbamic acid), diammonium salt-------	RBC.
ene bis(dithiocarbamic acid), disodium salt (Nabam)-	CIS, DUP, RBC, RH.
ene bis(dithiocarbamic acid), manganese salt nzate).	DUP, RH.
ene bis(dithiocarbamic acid), zinc salt (Zineb)-----	CIS, DUP, RH.
yl-(mercurithio)-1,2-propanediol----------	DUP.
mercury acetate----------	DUP, MTL.
mercury chloride----------	DUP, MTL.
mercury phosphate----------	DUP.
xyethylmercury acetate----------	WRC.
hoxyethylmercury acetate----------	SCI, WRC.
rlmercury nitrile----------	WRC.
undecenoate (Zinc hendecenoate)----------	WTM.
cides: α,β-Dichloroisobutyric acid, sodium salt------	x.

TABLE 21B.-- *Pesticides and other organic agricultural chemicals for which U.S. production or s reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
PESTICIDES AND OTHER ORGANIC AGRICULTURAL CHEMICALS, ACYCLIC--Continued	
Herbicides and other plant hormones:	
Cacodylic acid	ASL.
2-Chloroallyl diethyldithiocarbamate	MON.
N,N-Diallyl-2-chloroacetamide	MON.
2,3-Dichloroallyl diisopropyl thiocarbamate	MON.
2,2-Dichloropropionic acid, sodium salt	DOW.
Diethyl dithiobis(thionoformate)	RBC.
0,0-Dimethyl 2,2,2-trichloro-1-n-butyryloxyethyl phosphonate.	CHG.
Ethyl N,N-di-n-propylthiocarbamate	SF.
Hexachloroacetone	ACG.
*Methanearsonic acid, disodium salt	ASL, CLY, VIN.
Octyldodecylammoniummethyl arsonate	VIN.
S,S,S-Tributyl phosphorotrithioate	CHG, VC.
Trichloroacetic acid, sodium salt (TCA)	DOW.
*Insecticides:	
Aliphatic thiocyanates	RH.
0-(2,2-Dichlorovinyl) 0,0-dimethyl phosphate (DDVP)	MTR, SHC.
0,0-Diethyl S-2-(ethylthio)ethyl phosphorodithioate	CHG.
0,0-Diethyl 0-[2-(ethylthio)ethyl] phosphorothioate	CHG.
0,0-Diethyl S-[2-(ethylthio)ethyl] phosphorothioate	CHG.
0,0-Diethyl S-(ethylthio)methyl phosphorodithioate	ACY.
Diethyl phosphorochloridothioate	VIC.
0,0-Diethyl phosphorochlorodithioate	MON.
0,0-Dimethyl 0-(2-methoxycarbonyl)isopropenyl phosphate	SHC.
0,0-Dimethyl S-(N-methylcarbamoylmethyl) phosphorodithioate.	ACY.
Dimethyl phosphorochloridothioate	VIC.
0,0-Dimethyl phosphorochlorodithioate	MON.
Ethyl pyrophosphate (Tetraethyl pyrophosphate) (TEPP)	AMP, OTH, TGL.
Malathion (S-(1,2-Bis(ethoxycarbonyl)ethyl) 0,0-dimethyl phosphorodithioate).	ACY.
Metaldehyde	COM.
Rodenticides: Sodium fluoroacetate	RBC.
Soil conditioners: Polyacrylonitrile, hydrolyzed, sodium salt.	ACY.
*Soil fumigants:	
*Bromomethane (Methyl bromide)	AMP, DOW, GLC, KLK, MCH.
Chloropicrin	DOW, IMC.
*1,2-Dibromo-3-chloropropane	AMP, DOW, SHC.
1,2-Dichloropropane	DOW, SHC.
1,3-Dichloropropane	DOW.
1,3-Dichloropropene	DOW, SHC.
N-Methyldithiocarbamic acid, sodium salt	DUP, SF.

Miscellaneous Synthetic Organic Chemicals

LE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*

ıeous chemicals for which separate statistics are given in table 22A are marked below with an asterisk (*); ʟs not so marked do not appear in table 22A because the reported data are accepted in confidence and may ɔublished. Manufacturers' identification codes shown below are taken from table 23. An x signifies that the ɔurer did not consent to his identification with the designated product]

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC	
ɜnzothiazole	FMT.
ɔtylphenate	ROS.
ɜcid salts:	
ɹm benzoate	GAF.
benzoate, tech	HN, TNP.
benzoate, U.S.P	HK, HN, MON, TNP.
ɹinone (p-Quinone)	EKT, HSH.
ɜzole	ACY.
peroxide	CAD, SDH, WTL.
esorcinol	GAF.
aminophenol hydrochloride	EK.
al stains	HLC, NAC.
loro-2-hydroxyphenyl] sulfite	OPC.
dichlorobenzoyl) peroxide	CAD.
uoride-phenol complex	ACG.
Butoxyethoxy)ethoxy]-4,5-methylenedioxy-2-propyl-e (Piperonyl butoxide).	FMP.
utylbenzoic acid, barium bis-salt	CCA.
-tert-Butyl-4-methoxyphenol	EKT, UPM.
yl peroxybenzoate	WTL.
utylpyrocatechol	DOW.
	GLD, HPC.
te-1 (N,N′-Diethyl-N,N′-diphenylurea)	PAS.
indicators	EK, HLC, LAM, NAC.
reagents	ACG, ARA, EK, FIN, GAM, HLC, LAM, MAL, NAC, PIC, PLN.
coumarin	TBK.
yllin, sodium-potassium-copper	KCH.
rol	CW.
ydroperoxide	HPC.
anone peroxide	WTL.
ene-1,2-dicarboxylic acid (Tetrahydrophthalic l), disubstituted, polyester salts:	
ı salt	DEC.
ı cadmium salt	DEC.
m salt	DEC.
ohexylenedimethanol	EKT.
ıexyltaurine, sodium salt	GAF.
ɪtanepropionic acid	ARA.
ɪtanepropionyl chloride	ARA.
ɔpane	MAL, OH, OMS, TAE.
ɜ and derivatives	SBR.
onaphthalene (Decalin)	DUP.
phenyl phosphite	HKP.
ɡallophenone	ARA.
ɔonucleic acid	SBR.
ıitrophenol	HPC.
omo-5,5-dimethylhydantoin	ARA.

TABLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, iden manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*2,6-Di-tert-butyl-p-cresol:	
*Food grade	CAT, EKT, HPC, KPT, SHC.
*Tech	ACY, BFG, CAT, EKT, HPC, KPT, SHC.
2,5-Di-tert-butylhydroquinone	EKT.
1,3-Dichloro-5,5-dimethylhydantoin	GLY.
p-(Dichlorosulfamoyl)benzoic acid (Halazone)	ABB.
Dicyclohexylammonium nitrite	OMC.
Dicyclopentadienyliron	TNA.
Didecyl phenyl phosphite	HKP.
2,5-Diethoxyaniline	EKT.
2,2'-Dihydroxy-4,4'-dimethoxybenzophenone	GAF.
2,6-Dihydroxyisonicotinic acid (2,6-Dihydroxy-4-carboxy-pyridine).	EK.
3,5-Diiodosalicylic acid	MRT.
Diisopropylenebenzene hydroperoxide	HPC.
2,5-Dimethoxyaniline	EKT.
*p-Dimethoxybenzene (Dimethyl ether of hydroquinone)	ASL, EKT, FBS.
Dimethyl xylyl phosphate	TNA.
4,4-Dinitrocarbanilide-4,6-dimethyl-2-pyrimidinol	MRK.
Dioxane (1,4-Diethylene oxide)	UCC.
Diphenyl hydrogen phosphite	HKP.
Diphenylpentaerythritol diphosphite	HKP
1,2-Epoxy-3-phenoxypropane (Glycidyl phenyl ether)	SHC.
6-Ethoxy-m-anol (Propenylmethylguaethol)	FBS.
5-Ethyl-10,10-diphenylphenazasiline	MRK.
Ethylenediaminebis[o-hydroxyphenylacetic acid], monosodium ferric salt.	GGY.
2-Ethylhexyl octylphenyl phosphite	VC.
Ethyl hydrocaffeate	FBS.
4-Ethylmorpholine	JCC, UCC.
1-Ethyl-3-(5-nitro-2-thiazolyl)urea	MRK.
Ethyl 2-phenylbutyrate	MAL.
Fenchone	HNW.
*Flotation reagents:	
Dicresylphosphorodithioic acid (Dicresylthiophosphoric acid).	ACY.
Dicresylphosphorodithioic acid, ammonium salt	ACY.
Dicresylphosphorodithioic acid, sodium salt	KCU.
2,2'-Dimethylthiocarbanilide (Di-o-tolylthiourea)	DUP.
Rosin amines	HPC.
Thiocarbanilide (Diphenylthiourea)	ACY, MON.
Furan derivatives:	
2-Furaldehyde (Furfural)	QKO.
2-Furoic acid	QKO.
Tetrahydrofurfuryl alcohol	QKO.
Gallic acid, tech	HSH, MAL.
*Gasoline additives:	
p-Butylaminophenol	DUP.
2,6-Di-tert-butylphenol	TNA.
*N,N'-Di-sec-butyl-p-phenylenediamine	DUP, EKT, UPM.
*N,N'-Disalicylidene-1,2-propanediamine	DUP, EKT, SOI, SPP, UPM.
Methylcyclopentadienylmanganese tricarbonyl	TNA.
2,2'-Thiobis[6-tert-butylphenol]	CAT.
All other	EKT, UPM.
Glyceryl p-aminobenzoate	x.
*Hexamethylenetetramine, tech	BOR, DUP, HKD, HN, PLS, UCP.
2-Hydroxy-4-methoxybenzophenone	GAF.

LE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
thyl-5,5-dimethylhydantoin	GLY.
lidinethione (1,3-Ethylene-2-thiourea)	PAS, RBC.
cresols	CP, GIV.
fonic acid-iron complex	CRZ.
ng oil additives:	
ulfurized and sulfurized compounds:	
clic compounds, sulfurized	SIN, SOI.
ocyclic compounds, sulfurized	ORO.
oil ester, sulfurized	LUB.
nes, sulfurized	LUB.
d disulfide	HK.
uble petroleum sulfonates:	
oluble petroleum sulfonate, ammonium salt	SIN.
oluble petroleum sulfonate, barium salt	ACY, ATR, CO, LUB, SIN, SON, x.
oluble petroleum sulfonate, calcium salt	CO, LUB, ORO, SHO, SIN, SOI, SON.
oluble petroleum sulfonate, sodium salt	CO, MOR, NOP, PAR, SHO, SOC, SOI, SON, SUN.
salts:	
m salt of dodecylphenol	x.
m salt of nonylphenol	CCA.
m salts of other alkylphenols	LUB.
um salt of octylphenol-formaldehyde	SHC.
um salt of polypropylphenol	ORO.
um salts of other alkylphenols	LUB, SIN.
ther	ACY, ENJ, GDC, LUB, MON, ORO, SIN.
rodithioates (Dithiophosphates)	ORO, x.
er	ENJ, GDC, MON, ORO, TNA, VC.
e	HNW, HPC.
yl hydroperoxide	HNW, HPC.
phenol	ASL, EKT, FBS.
zylphenol mixture	DOW.
ylenebis[6-tert-butylphenol]	CAT.
ylenebis[4-chlorophenol] (Dichlorophene)	GIV.
ylenebis[2,6-di-tert-butylphenol]	SHC.
ylenebis[3,4,6-trichlorophenol] (Hexachlorophene)	GIV.
ylenedi-p-cresol (Bis(5-methyl-2-hydroxyphenyl)-).	GIV.
llate	HSH.
coside	CRN.
orpholine	JCC, UCC.
enyl phosphates	TNA.
-2-pyrrolidone, monomer	GAF.
rpinyl ether	HPC.
e	JCC, UCC.
e oleate	PCH.
e salt of p-toluenesulfonic acid	AMB.
c acid salts:	
m naphthenate	HSH.
naphthenate	x.
a naphthenate	CCA.
a naphthenate	CCA, FER, HNX, HSH, SHP, SOC, SPP, SRR, SW, WTC.
m naphthenate	HNX.
lead manganese naphthenate	HNX, HSH, SW.
naphthenate	CCA, CCC, CS, FER, HNX, HSH, SHP, SOC, SPP, SRR, SW, WTC.
aphthenate	CCA, CCC, HNX, HSH, SOC, SRR, WTC.
aphthenate	CCA, CCC, CCW, FER, HNX, HSH, SHP, SOC, SPP, SRR, SW, WTC, x.

TABLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, ident manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Naphthenic acid salts--Continued	
Lithium naphthenate	CCA.
*Manganese naphthenate	CCA, CCC, FER, HNX, HSH, SHP, SOC, SPP,
Mercury naphthenate	HNX, MTL.
Nickel naphthenate	CCA.
Rare earths naphthenate	CCA, HNX.
Strontium naphthenate	CCA.
*Zinc naphthenate	CCA, CCC, FER, HNX, HSH, SHP, SOC, SRR,
Organic mercury compounds:	
Phenyl mercuric borate	WRC.
Pyridyl mercuric acetate	MAL.
All other	MTL.
Phenolthiosulfonic acid	GAF.
2-Phenoxyethanol (Ethylene glycol monophenyl ether)	DOW, UCC.
2-(2-Phenoxyethoxy)ethanol (Diethylene glycol phenyl ether).	DOW.
Phenyl acid phosphate	VC.
2,2′-(p-Phenyleneoxy)diethanol (2,2-Paraphenylenedioxy-diethanol).	EKT.
Phenylmagnesium bromide	ARA.
4-Phenylmorpholine	UCC.
5-Phosphorylribose-1-pyrophosphate	PBS.
*Photographic chemicals:	
3-Amino-1,2,4-triazole (5-Amino-1,3,4-triazole)	FMT.
*Benzotriazole	EK, FMT, MRT.
Catechol (Pyrocatechin)	KPC.
5-Chlorobenzotriazole	FMT.
3-Chloro-4-diethylaminobenzenediazonium chloride (p-Diazo-2-chloro-N,N-diethylaniline) - zinc chloride.	FMT.
2,4-Diaminophenol dihydrochloride (Amidol)	VPC.
2,5-Diethoxy-4-diethylaminobenzenediazonium chloride - zinc chloride.	FMT.
2,5-Diethoxy-4-morpholinobenzenediazonium chloride (1-N-Morpholino-4-diazo-2,5-diethoxybenzene) - zinc chloride.	IDC.
*p-Diethylaminobenzenediazonium chloride (p-Diazo-N,N-diethylaniline) - zinc chloride.	FMT, GAF, IDC, MRT.
N,N-Diethyl-p-phenylenediamine hydrochloride	EKT.
N,N-Diethyltoluene-2,5-diamine, monohydrochloride	EKT.
2,5-Dihydroxybenzenesulfonic acid	EK.
p-Dimethylaminobenzenediazonium chloride (p-Diazo-N,N-dimethylaniline) - zinc chloride.	FMT, IDC.
2,5-Dimethylbenzothiazole	FMT.
p-(N-Ethylbenzimido)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)	CRS, EKT.
p-[(2-Hydroxyethyl)methylamino]benzenediazonium chloride (p-Diazo-N-hydroxyethyl-N-methylaniline) - zinc chloride.	FMT, IDC.
3-Hydroxy-N-(2-hydroxyethyl)-2-naphthamide (β-Oxynaphthoicmonoethanolamide).	FMT.

LE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, CYCLIC--Continued	
hic chemicals--Continued	
droxyphenyl)glycine	IDC.
xy-1-naphthol	EKT.
laminophenol sulfate (Metol)	EK, HSH.
lbenzotriazole	EK.
lbenzoxazole	FMT.
lnaphthoxazole	FMT.
benzimidazole	EK, FMT.
5-mercaptotetrazole	FMT.
l-3-pyrazolidone	GGY.
lpyrocatechol	EKT.
iodiresorcinol (Diresorcyl sulfide)	BKC.
er	FMT.
acid, lead salt, dibasic	NTL.
	GLD, HPC.
ene terephthalate	DUP, EK.
llate	EKT, FIN, HN, HSH.
d pyrimidine derivatives	PBS, SBR.
l (Pyrogallic acid)	HSH, MAL.
lic acid (2,4-Dihydroxybenzoic acid), lead salt	CIT.
d salts:	
m resinate	JMS, MAL.
resinate	JMS, SRR, SW.
zinc resinate	JOD.
resinate	WTC.
resinate	JMS.
sinate	JMS.
sinate	HSH, JMS, SRR.
se resinate	JMS, SRR.
sinate	GLD, JMS, SW.
ilide, polybrominated	FIN.
acid, lead salt	NTL.
	DCC, SPD.
cylic acid	MON, MRK.
esoxide (Cresylic acid, sodium salt)	DEX, GOC.
fatty acyl chloride	GAF.
salts (Linoleic-rosin acid salts):	
zinc tallate	HSH.
tallate	CCA, HNX, WTC.
tallate	CCA, CCC, FER, HNX, HSH, SHP, SRR, WTC.
tallate	CCA, HNX, SHP.
llate	CCA, HNX, SRR, WTC.
nganese tallate	HSH.
llate	CCA, CCC, FER, HNX, HSH, SHP, SRR, WTC.
se tallate	CCA, CCC, FER, HNX, HSH, SHP, SRR, WTC.
yceryl tallate	CCA.
llate	CCA, HNX, HSH.
id	MAL.
aterials, synthetic:	
toluenesulfonic acid, formaldehyde condensate ol-formaldehyde sulfonate), sodium salt.	GAF, GGY.
halenesulfonic acid, formaldehyde condensate and .	GRD, NAC, NOP, NYC, RH.

TABLE 22B.-- ***Miscellaneous chemicals for which U.S. production or sales were reported, id manufacturer, 1960*** **--Continued**

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, CYCLIC--Continued	
*Tanning materials, synthetic--Continued	
2-Naphtholsulfonic acid, formaldehyde condensate	NOP.
1-Phenol-2-sulfonic acid, formaldehyde condensate	NOP, RH.
1-Phenol-4-sulfonic acid, formaldehyde condensate	NOP.
Styrene maleic anhydride interpolymer, partial sodium salt.	DUP.
Sulfonyldiphenolsulfonic acid, formaldehyde condensate	GAF.
2-Terpinoxyethanol (Ethylene glycol terpinyl ether)	HPC.
Tetra(diphenylphosphito)pentaerythritol	HKP.
1,2,3,4-Tetrahydronaphthalene (Tetralin)	DUP.
Tetrahydro-2-naphthylmethylidyne-1-octadecenylpyrimidine	SPP.
Tetrahydrothiophene	ORO, PAS.
Tetraphenylbutadiene	ARA.
Textile chemicals, other than surface-active agents:	
N-Benzyl(and N,N-dibenzyl)-p-sulfanilic acid	GAF.
1,3-Bis(hydroxymethyl)-2-imidazolidone (Dimethylol ethylene urea).	ACY, DEX.
1-[(Octadecyloxy)methyl]pyridinium chloride	DUP.
Phenol, sulfurated	GAF.
Protalbinic acid	CMG.
2,2',4,4'-Tetrahydroxybenzophenone	GAF.
2,2'-Thiobis[4-chlorophenol]	GIV.
2,2'-Thiobis[4,6-dichlorophenol]	CAT, MON, SDH.
o-Tolylbiguanide	MON.
3,4,4'-Trichlorocarbanilide	MON.
Tri-(m,p)-cresyl borate	USB.
s-Trioxane	CEL.
Triphenyl phosphite	HKP, MON.
1-Vinyl-2-pyrrolidinone, monomer	GAF.
1-Vinyl-2-pyrrolidinone, polymer	GAF, SH.
1-Vinyl-2-pyrrolidinone - vinyl acetate copolymer	GAF.
MISCELLANEOUS CHEMICALS, ACYCLIC	
*Acetaldehyde	BFG, CEL, COM, DUP, EKT, EKX, HPC, MTC
Acetamide	ACG.
Acetamidine hydrochloride	MRK.
2-Acetamidoethanol (N-Acetylethanolamine)	RBC, UCC.
Acethydrazide trimethylammonium chloride	ARA.
*Acetic acid, synthetic, 100%	CEL, COM, EKT, HPC, PUB, UCC.
*Acetic acid salts:	
Aluminum acetate	ACY, NOP, UCC.
Aluminum subacetate	MAL.
*Ammonium acetate	ACG, BKC, MAL.
Barium acetate	ACG, BKC, MAL.
Cadmium acetate	ACG, MAL.
Calcium acetate	ACG, BKC, MAL.
Chromium acetate	ACY.
Cobalt acetate	BKC, HSH, SHP.
Copper acetate	ACG, BKC, UCC.
Lead acetate	ACG, BKC, MAL, NTL, SRR, SW.
Lead subacetate	ACG, BKC, MAL.
Lead tetraacetate	ARA.
Magnesium acetate	ACG, MAL.
Manganese acetate	HSH, SHP.

BLE 22B. ***--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
. salts--Continued	
acetate	ACG, BKC, MAL.
etate	BKC, HSH, SHP.
ı acetate	ACG, BKC, MAL, UCC.
etate	MAL.
etate	ACG, BKC, CEL, EKT, MAL, UCC.
ate	ACG, BKC, HSH, MAL, UCC.
ı acetate	NTL.
	UCC.
rdride, 100%:	
aldehyde	HPC.
rlene	UCC.
vered acetic acid by the vapor-phase process	CEL.
ic acid (other than recovered) by the vapor-process.	CEL, EKT.
	KES.
	KES.
	EKT.
ıtation	PUB.
ne	ACP, HPC, SHC, SOC.
propyl alcohol	EKT, ENJ, SHC, UCC.
	CEL.
nicarbazone	NOR.
odium bisulfite	FMT.
le	EKX, UCC.
oride	TBK.
lcarboxylic acid	NAC.
oxide	WTL.
l-serine	SBR.
Acrylaldehyde)	SHC, UCC.
id	BFG, RH, UCC.
nomers not specifically listed	RH.
ile	ACY, BFG, DUP, MTC, UCC.
i	CS, DUP, MON, NAC.
le	CS, DUP.
nonohydric, unsubstituted:	
C_9 or lower:	
alcohol	DOW, SHC.
lcohols:	
xed:	
yl alcohol (n-Pentyl alcohol)	PAS.
opentyl alcohol (Isoamyl alcohol)	FB, USI.
Methyl-2-butanol (tert-Amyl alcohol)	PAS.
Pentanol	PAS.
d:	
sel oil, crude	USI.
sel oil, refined	COM, PUB, USI.
her than fusel oil:	
Primary mixed	EKX, PAS, UCC.
Secondary mixed	PAS.
Other	PAS.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, ide manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Alcohols, monohydric, unsubstituted--Continued	
*Alcohols C_9 or lower--Continued	
*Butyl alcohols:	
Primary:	
Iso (Isopropylcarbinol)	CEL, DUP, EKT, EKX, UCC.
*Normal (n-Propylcarbinol)	CEL, DUP, PUB, UCC.
Secondary (Methylethylcarbinol)	ENJ, SHC.
Tertiary (Trimethylcarbinol)	SHC.
Mixed	CEL, EKX.
*Ethyl alcohol, synthetic	DUP, EKX, ENJ, HPC, SHC, UCC, USI.
2-Ethyl-1-butanol (sec-Hexyl alcohol)	UCC.
2-Ethyl-1-hexanol	CEL, EKX, UCC.
Hexyl alcohol	CEL, ENJ, UCC.
1-Hexyn-3-ol	AIR.
3-Hexyn-2-ol	LIL.
*Iso-octyl alcohols	EKX, ENJ, GOC, SOI.
*Isopropyl alcohol	ENJ, SHC, UCC.
*Methanol, synthetic	ACN, CEL, COM, DUP, ESC, HPC, MAL, MTC
3-Methyl-3-pentanol	AIR.
4-Methyl-2-pentanol (1-Methylisobutylcarbinol)	SHC, UCC.
3-Methyl-1-pentyn-3-ol (Methylparafynol)	AIR.
*1-Octanol	DUP.
*2-Octanol	RH, WTH.
Octanols, mixed	PG.
Propyl alcohol (Propanol)	CEL, DUP, UCC.
2-Propyn-1-ol	GAF.
All other	AIR, CEL, EKX.
*Alcohols C_{10} and higher:	
Decyl alcohols	DUP, ENJ, PG, SOI, UCC.
3,9-Diethyl-6-tridecanol	UCC.
Dodecyl alcohol (Lauryl alcohol)	DUP, PG.
7-Ethyl-2-methyl-4-hendecanol	UCC.
*1-Hexadecanol (Cetyl alcohol)	ADM, DUP, WTH.
1-Octadecanol (Stearyl alcohol)	ADM, DUP, PG.
cis-9-Octadecen-1-ol (Oleyl alcohol)	ADM, DUP.
1-Tridecanol	ENJ.
2,6,8-Trimethyl-4-nonanol	UCC.
All other	ADM, DUP, GOC, PG, RH.
Aldol (Acetaldol)	UCC.
Alkyl dinitriles	CLB.
Alkylene oxides, mixed	DOW.
Alkyl sulfides	ORO.
Allyl cyanide	RBC.
1-Allyl-3-(2-hydroxyethyl)-2-thiourea (N-β-Hydroxyethyl-N′-allylthiourea).	FMT, IDC.
Allyl isothiocyanate, nonflavoring grade	FBS.
Allyl methacrylate	SAR.
1-(Allyloxy)-2,3-epoxypropane (Allyl glycidyl ether)	SHC.
3-(Allyloxy)-1,2-propanediol (Allyl glyceryl ether)	SHC.
Aluminum isopropoxide (Aluminum isopropylate)	ORT, SFA.
Amidinourea (Guanylurea) phosphate	ACY.
Amidinourea (Guanylurea) sulfate	ACY.
*Amines:	
*Butylamine	EKT, PAS, UCC.
tert-Butylamine	MTC, RH.
Cetyldimethylamine	ONX.
Coco alkylenediamines	ARC, GNM.
*Coconut oil amine	ADM, ARC, GNM.
Diallylamine	SHC.
Dibutylamine	PAS, UCC.
*Diethylamine	DUP, PAS, UCC.

LE 22B. -- *Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
ntinued	
mine hydrochloride	BKL.
thyldihexylamine	UCC.
netriamine	DOW, UCC.
hylethylenediamine	COK.
ethyl-1,4-pentanediamine (Novoldiamine)	SDH.
hyl-1,3-propanediamine	UCC.
pylamine	PAS, UCC.
lamine	COM, DUP, PAS, RH.
lamine sulfate	RH.
ethyloctadecylamine (Stearyldimethylamine)	ARC, x.
ethyl-1,3-propanediamine	UCC.
lamine (Diamylamine)	EK, PAS.
lamine	PAS.
lenetriamine	UCC.
amine	ARC, GNM.
ine	PAS, UCC.
ediamine	DOW, UCC.
ediamine dihydrochloride	BKC, NES.
l amines, hydrogenated	ADM.
ylamine	ADM, ARC.
anediamine (Hexamethylenediamine)	CS, DUP.
inobispropylamine	UCC.
lamine	PAS.
ylamine	PAS, UCC.
mine, mono-	COM, DUP, PAS, RH.
ylamine	ARC, GNM.
ine	ALB, ARC, RH, UCC.
kylamines	ARC, GNM.
ine	ARC, GNM.
mine (Monoamylamine)	ALB, PAS.
amines, mixed	RH.
panediamine (Propylenediamine)	UCC.
panediamine	UCC.
mine	PAS, UCC.
lkylamines	ARC.
l oil amine	ARC, GNM.
alkylenediamines	ARC, GNM.
amine	ADM, ARC, GNM.
amine, dihydrogenated	ADM, ARC, GNM.
amine, hydrogenated	ADM, ARC, GNM.
methylamines, dihydrogenated	ARC, GNM.
ow-1,3-propanediamine	GNM.
thylenepentamine	DOW, UCC.
,N'-Tetramethyl-1,3-butanediamine	UCC.
,N'-Tetramethylethylenediamine	ALB.
ropenyldiethylenetriamine	RBC.
ylamine	PAS.
rylylamine	GNM.
ylamine	PAS, UCC.
ylenetetramine	DOW, UCC.
hylamine	COM, DUP, PAS, RH.
hylethylenediamine	RH.
tylamine	PAS.
pylamine	PAS.
her	ADM, ALB, ARC, EK, GNM, x.
id reaction products	SHC.
l-butanol	COM.
thanethiol hydrochloride	EVN.

TABLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, ide manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
1-Aminoethanol (Acetaldehyde ammonia)	TBK.
Aminoethoxypropylsilane	UCS.
2-(2-Aminoethylamino)ethanol (Aminoethylethanolamine)	DOW, UCC.
2-Amino-2-ethyl-1,3-propanediol	COM.
Aminoguanidine bicarbonate	TRJ.
Aminoguanidine sulfate	GAF.
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, VAL.
3-Amino-1-propanol	ACY, UCC.
*Amyl acetates, 90%:	
Amyl acetate (n-Pentyl acetate)	COM, EK, MAL, TBK.
Isopentyl acetate (Isoamyl acetate)	FB, NW.
Mixed	PAS, PUB, UCC.
Azelaic acid	EMR.
2,2′-Azobis[2-methylpropionitrile] (α,α′-Azodiisobutyronitrile).	WST.
Barbituric acid, ammonium and sodium salts	KF.
Behenic acid	ADM.
Bis[2-(2-butoxyethoxy)ethyl] ether (Tetraethylene glycol dibutyl ether).	RBC.
Bis(2-butoxyethyl) ether (Diethylene glycol di-n-butyl ether).	DOW, UCC.
Bis(2-chloroethoxy)methane (Dichloroethylformal)	TKL.
*Bis(2-chloroethyl) ether (Dichlorodiethyl ether)	DOW, JCC, QMC, UCC, WYN.
Bis(2-chloro-1-methylethyl) ether (Dichloroisopropyl ether)	DOW, JCC, UCC, WYN.
Bis(2,6-dimethyl-4-heptyl) maleate	GAF.
Bis(dodecyltrimethylammonium) polythionate	BKC, PAS.
Bis(2-ethoxyethyl) ether (Diethylene glycol diethyl ether)	UCC.
1,3-Bis(hydroxymethyl)urea (Dimethylolurea)	DUP, x.
Bis[2-(2-methoxyethoxy)ethyl] ether (Tetraethylene glycol dimethyl ether).	ASL.
Bis(2-methoxyethyl) ether (Diethylene glycol dimethyl ether)	ASL.
Bis(tributyltin) oxide	SCI.
Biuret	SW.
Boric acid esters:	
Trihexylene glycol biborate	USB.
All other	USB.
Boron alcoholate	SFA.
Boron fluoride ethyl ether complex	ACG, HSH.
Boron trifluoride monoethylamine complex	ACG.
Bromal	SDW.
N-Bromoacetamide	ARA.
2-Bromododecanoic acid (α-Bromolauric acid)	DUP.
N-Bromosuccinimide (Succinibromimide)	ARA, SDW.
1,2(and 1,3)-Butanediol (Butylene glycol)	CEL.
1,4-Butanediol	GAF.
2,3-Butanedione 2-oxime	EK.
2-Butanone (Methyl ethyl ketone)	ENJ, SHC.
Butanone mixture	CEL.
2-Butanone oxime	ALB, NAC, x.
2-Butanone peroxide	CAD, SHC, WTL.

.E 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
:SCELLANEOUS CHEMICALS, ACYCLIC--Continued	
.,4-diol	GAF.
·one (Methyl vinyl ketone)	PFZ.
;hanol (Ethylene glycol monobutyl ether)	OMC, UCC.
ɣethoxy)ethanol (Diethylene glycol monobutyl	OMC, UCC.
ɪtoxyethoxy)ethoxy]ethanol (Triethylene glycol ʼl ether).	DOW, OMC.
ɣethoxy)ethyl acetate	UCC.
;hoxy-2-propanol	UCC.
;hyl acetate	UCC.
ʏpropylene glycol	UCC.
;ates, 90%:	
----------	CEL, EKT, PAS, UCC.
----------	CEL, COM, EK, EKT, PUB, UCC.
ɣy	ENJ, HPC, PUB, SHC.
----------	CEL, EKT.
;ylaminoethanol	x.
ɪide	x.
›xide	UCC.
ɜr (Di-n-butyl ether)	EK, UCC.
⊥ hydroperoxide	SHC, WTL.
ʏlimino)diethanol (N,N-Bis)2-hydroxyethyl)butyl-	PAS.
;yanate	CWN.
;ate	COM.
ɪum	AMP.
⊥ peroxide (Di-tert-butyl peroxide)	SHC, WTL.
⊥ peroxyacetate	WTL.
⊥ peroxyisobutyrate	WTL.
(Ethylacetylene)	AIR.
⊥,4-diol	GAF.
ɪyde	CEL, EKX, UCC.
ɪyde oxime	NAC.
›id	CEL, EKT, UCC.
ɪhydride	EKT, UCC.
›one	GAF.
›ile	EKX.
ɪloride	HK, TBK.
ɜulfide	ACG, BKT, FMW, OLH, PAS, PPG, SF, WRS.
methyl semicarbazide	NOR.
esters:	
ɜe acetate	AV, CEL, DUP, EKT.
ɜe acetate butyrate	EKT.
ɜe acetate propionate	EKT.
ɜe propionate	CEL.
llulose (Cellulose nitrate)	DUP, HPC.
ɜr	x.
ethers:	
llulose	DOW, HPC.
iromethylcellulose	GNM, HPC.
ɜthylcellulose	HPC, UCC.
ɜllulose	DOW.
ɔarboxymethylcellulose, 100%	BUK, DUP, HPC, KON, WYN.
ɔarboxymethylhydroxyethylcellulose	BUK, HPC.
ɜr	EK.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, id manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Chloral (Trichloroacetaldehyde)	DA, FMW, GGY, MTO.
Chloroacetamide	BPC.
*Chloroacetic acid, mono-	BPC, BUK, DOW, HPC, MON.
Chloroacetic acid, mono, derivatives:	
Butyl chloroacetate	MON.
*Ethyl chloroacetate	DOW, KF, MON.
Methyl chloroacetate	BPC, DOW, KF.
Sodium chloroacetate	DOW.
Chloroacetonitrile	BPC.
Chloroacetyl chloride	DOW.
*2-Chloro-N,N-dimethylethylamine (Dimethylaminoethyl chloride) hydrochloride.	ABB, BKL, GAM, HEX, MCH, NES.
2-Chloro-N,N-dimethylpropylamine hydrochloride	NES.
3-Chloro-N,N-dimethylpropylamine hydrochloride	MCH.
2''-Chloro-1,1' -dimethyltriethylamine	NES.
2-Chloroethanol (Ethylene chlorohydrin)	OMC, UCC.
2-(2-Chloroethoxy)ethyl 2-chloroethyl ether (Triethylene glycol dichloride).	UCC.
N-(2-Chloroethyl)diisopropylamine hydrochloride	MCH.
2-Chloroethyl vinyl ether	UCC.
4-Chloro-3-hydroxybutyronitrile	EK.
Chloromaleic anhydride	RBC.
Chloromethoxypropylmercuric acetate	SCI.
Chloromethyl methyl ether	EK, HK, x.
1-Chloro-1-penten-3-one (β-Chlorovinyl ethyl ketone)	ABB.
*3-Chloro-1,2-propanediol (Glycerol α-chlorohydrin)	EKT, EVN, FBS.
2-Chloro-1-propanol	BPC.
Chloro-2-propanone (Chloroacetone)	EK.
N-Chlorosuccinimide (Succinichlorimide)	NAC.
2-Chlorotriethylamine hydrochloride	BKL, MCH, NES.
4-Chloro-N,N,1-trimethylpropylamine hydrochloride	MCH.
Chlorotrimethylsilane	UCS.
Citric acid	BZ, MLS, PFZ.
Citric acid salts:	
Ammonium citrate	MAL, PFZ.
Barium citrate	SW.
Calcium citrate	PFZ.
Ferric ammonium citrate	MAL, PFZ.
Ferric citrate	MAL.
Ferrous calcium citrate	BKL.
Manganese citrate	MAL.
Potassium citrate	MAL, PFZ.
Sodium citrate	MAL, PFZ.
Coconitrile	GNM.
Coconut oil amide	ADM, ARC, KES.
Crotonaldehyde	CEL, EKT, UCC.
Crotonic acid (2-Butenoic acid)	EKT, UCC.
2-Cyanoacetamide	GAM, KF.
Cyanoacetic acid	KF.
2-Cyanopropylamine	EKT.
n-Decane	HMY.
1,10-Decanediol	NEP.
Decanoic acid (Capric acid)	FOR.
Decanoyl chloride	HK.
2,3-Dibromo-1-propanol	DUP.

,E 22B. ***--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960***--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
SCELLANEOUS CHEMICALS, ACYCLIC--Continued	
kyethane (Ethylene glycol di-n-butyl ether)-----	DOW, UCC.
minoethanol----------	PAS.
narate----------	MON, RUB.
hoxytin (Dibutyl tin methoxide)----------	x.
l-2-thiourea----------	PAS.
dilaurate----------	CCA.
maleate----------	CCA.
mercaptopropionate----------	CCA.
etaldehyde----------	FMW.
etic acid----------	KF.
etyl chloride----------	KF.
methylsilane----------	UCS.
drogenmethylsilane----------	UCS.
thylvinylsilane----------	DCC.
3,3'-thiodipropionate----------	ACY, EVN, HAB.
xypropane)amine----------	DUP.
methylsilane----------	UCS.
ipate----------	ARA.
minum chloride----------	TNA.
minoethanol----------	PAS, UCC.
minoethyl methacrylate----------	DUP.
nopropionamide----------	DUP.
c-butylethylmalonate----------	ABB.
tylmalonate----------	BPC.
c-butylmalonate----------	ABB.
bamoyl chloride----------	GAM.
rbonate (Ethyl carbonate)----------	DIM, FMP.
ethylmalonate (Diethyl malonic ester)----------	JCC, LIL.
glycol----------	ACN, DOW, GAF, OMC, UCC, WYN.
glycol chloroformate----------	PPG.
thoxymethylene)malonate----------	KF.
thylisopentylmalonate----------	BPC, LIL.
thylmalonate (Ethyl malonic ester)----------	LIL.
thyl(1-methylbutyl)malonate----------	ABB.
l-1-hexyl fumarate----------	RUB.
l-1-hexyl maleate----------	AHC, QCP.
ylhydroxylamine oxalate----------	EK.
aleate----------	ACY, UCC.
alonate (Malonic ester)----------	ABB, KF, LIL.
l-methylbutyl)malonate----------	ABB, LIL.
xalate (Ethyl oxalate)----------	FMP.
iophosphoryl chloride----------	ACY.
yl-2-thiourea----------	PAS.
c acid----------	DUP.
roxy-2-butanone----------	GAF.
roxy-3,3-dimethylbutyric acid, γ-lactone (Panto-).	ACY.
roxy-2-propanone----------	ABB, ARP, BAX, DLI, PFZ.
yl fumarate----------	RUB.
opylaminoethanol----------	PAS, UCC.
ylammonium nitrite----------	OMC.
yl peroxydicarbonate (Isopropyl percarbonate)----	PPG.
ethane (Ethylene glycol dimethyl ether)----------	ARA, ASL.
pentane----------	RBC.

TABLE 22B. -- *Miscellaneous chemicals for which U.S. production or sales were reported, ia manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
N,N-Dimethylacetamide	DUP, EK.
*2-Dimethylaminoethanol	PAS, RH, UCC.
3-Dimethylaminopropionitrile	ACY.
Dimethylcarbamoyl chloride	GAM.
Dimethylcyanamide	DUP.
N,N-Dimethylformamide	DUP.
Dimethylglyoxime	EK.
2,6-Dimethyl-4-heptanol (Diisobutylcarbinol)	UCC.
2,5-Dimethyl-2,5-hexanediol	AIR.
2,5-Dimethyl-3-hexyne-2,5-diol	AIR.
1,1-Dimethylhydrazine	FMW.
Dimethyl malonate	KF.
3,6-Dimethyl-4-octyne-3,6-diol	AIR.
Di(4-methyl-2-pentyl) maleate	RUB.
2,2-Dimethyl-1,3-propanediol (Neopentyl glycol)	EKX.
Dimethyl sulfoxide	CRZ.
1,3-Dimethylurea	PAS.
Dioctyl maleate	RUB.
Dipropylene glycol	CEL, DOW, JCC, OMC, UCC.
n-Dodecane	HMY.
Dodecanemethylenimine (Dodecyl-azomethine)	SPP.
1-Dodecene	HMY.
*Dodecenylsuccinic anhydride	HMY, MON, NAC.
Dodecylnitrile	GNM.
Dodecylsuccinimide	SPP.
*Epichlorohydrin	DOW, SHC, UCC.
Erucamide	ADM, FIN.
Erucic acid	ADM.
*Ethanolamines:	
*2-Aminoethanol (Monoethanolamine)	ACN, DOW, JCC, OMC, UCC.
*2,2′-Iminodiethanol (Diethanolamine)	ACN, DOW, JCC, OMC, UCC.
*2,2′,2″-Nitrilotriethanol (Triethanolamine)	ACN, DOW, JCC, OMC, UCC.
Ethanolamine salt with formaldehyde	RH.
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	DOW, OMC, UCC.
2-(2-Ethoxyethoxy)ethanol (Diethylene glycol monoethyl ether).	DOW, OMC, UCC.
2-[2-(2-Ethoxyethoxy)ethoxy]ethanol (Triethylene glycol monoethyl ether).	DOW, OMC.
2-(2-Ethoxyethoxy)ethyl acetate	UCC.
2-Ethoxyethyl acetate	EKT, UCC.
3-Ethoxypropionitrile	ACY.
1-Ethoxy-1,3,3-trimethoxypropane	KF.
*Ethyl acetate, 85%	CEL, COM, EKT, ENJ, HPC, PUB, SRC, UCC.
Ethyl acetoacetate	FMP, UCC.
*Ethyl acrylate	CEL, RH, UCC.
Ethylaluminum dichloride	TNA.
Ethylaluminum sesquichloride	TNA.
2-Ethylaminoethanol (Ethylmonoethanolamine)	PAS, UCC.
Ethyl bromoacetate	DOW.
Ethyl 2-bromopropionate	VAL.
2-Ethylbutyraldehyde	UCC.
2-Ethylbutyric acid (Diethylacetic acid)	UCC.
Ethyl carbamate	FMP.
Ethyl chloroformate	FMP.
Ethyl cyanoacetate	GAM, KF.

LE 22b. ***--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960--***Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
from ethyl alcohol----------	OH.
carbonate----------	JCC.
glycol----------	ACN, CAU, CEL, DOW, DUP, ENJ, GAF, JCC, OMC, UCC, WYN.
glycol diacetate----------	UCC.
glycol dimethacrylate----------	SAR.
oxide----------	ACN, CAU, DOW, GAF, JCC, OMC, UCC, WYN.
er:	
e----------	MAL.
----------	EKX, ENJ, HPC, UCC, USI.
----------	MAL, OMS.
mate----------	COM, FB, TBK, UCC.
xanal (α-Ethylcaproaldehyde)----------	EKX, UCC.
,3-hexanediol----------	UCC.
xanoic acid (α-Ethylcaproic acid)----------	EKT, UCC.
xanoic acid (α-Ethylcaproic acid) salts:	
m 2-ethylhexanoate----------	WTC.
2-ethylhexanoate----------	CCA.
1 2-ethylhexanoate----------	CCA, ROS.
1 2-ethylhexanoate----------	CCA, FER, HNX, HSH, SRR, SW, WTC.
2-ethylhexanoate----------	CCA, CCW, FER, HNX, HSH, SHP, SRR, SW, WTC.
2-ethylhexanoate----------	CCA, SRR.
ethylhexanoate----------	CCA, HNX, HSH, NTL, SHP, SRR, SW, WTC.
1 2-ethylhexanoate----------	WTC.
se 2-ethylhexanoate----------	CCA, HNX, HSH, SRR, SW.
rths 2-ethylhexanoate----------	CCA.
um 2-ethylhexanoate----------	CCA.
ethylhexanoate----------	CCA, HNX, HSH, ROS, SRR, WTC.
um 2-ethylhexanoate----------	CCA, HNX.
-hexyl acetate----------	DEC, EKT, UCC.
-hexyl acrylate----------	CEL, UCC.
-(hydroxymethyl)-1,3-propanediol (Trimethylol-).	CEL.
ylimino)diethanol (N,N-Bis-(2-hydroxyethyl)-ine).	PAS.
sohexyl acetate----------	EKT.
tate----------	KF.
esium bromide----------	ARA.
ercapto)ethanol----------	PAS.
lysiloxanes----------	SFA.
opionate----------	FB, NW, TBK.
opyl nitrate----------	TNA.
licate (Tetraethoxysilane)----------	MTR, SFA, UCC.
lfate (Diethyl sulfate)----------	UCC.
yl ether----------	UCC.
oils, chemically modified:	
oil, phosphated----------	VIC.
le oils, brominated----------	DOM, RT.
er----------	BAC, RT, SPP.
ids, chemically modified:	
(lauric-stearic) acids----------	DUP.
oil fatty acids, dehydrated----------	BAC.
acid, dehydrated----------	RH.
id esters, not included with plasticizers or ace-active agents:	
palmitate----------	NOP.
stearate----------	FBS.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, iden manufacturer, 1960*--Continued

Chemical	Manufacturers' identification co (according to list in table 23
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Fatty acid esters, not included with plasticizers or surface-active agents--Continued	
Hexadecyl stearate	KES.
*Isopropyl myristate	AHC, GIV, KES, PRP.
*Isopropyl oleate	AHC, KES, PRP.
Isopropyl palmitate	AHC, GIV, KES, PRP.
Isopropyl stearate	KES.
Methyl decanoate	FOR.
Methyl ester of coconut oil	FOR.
Methyl ester of lard oil	CCW.
Methyl esters of tallow	FOR.
Methyl 12-hydroxystearate	BAC.
Methyl myristate	FOR.
Methyl octanoate	FOR.
Pentaerythritol monostearate	x.
1,2-Propylene glycol dioleate	DRW.
Vinyl stearate, monomer and polymer	AIR.
All other	RT, x, x.
Fish oil amide, hydrogenated	ADM.
Flotation reagents:	
Isopropyl ethylthionocarbamate	DOW.
Phosphorodithioates (Dithiophosphates):	
Potassium dihexyl phosphorodithioate	ACY.
Sodium di-sec-butyl diethyl phosphorodithioate	ACY.
Sodium di-sec-butyl phosphorodithioate	ACY.
Sodium diethyl phosphorodithioate	ACY.
Sodium dihexyl phosphorodithioate	ACY.
Sodium diisopropyl phosphorodithioate	ACY.
Sodium ethyl(and methyl) phosphorodithioates	ACY.
Xanthates:	
Potassium n-butylxanthate	USR.
Potassium sec-butylxanthate	DOW.
Potassium ethylxanthate	ACY, DOW.
Potassium hexylxanthate	DOW.
Potassium isopropylxanthate	DOW.
Potassium pentylxanthates	ACY, DOW.
Potassium sec-pentylxanthate	DOW.
Sodium n-butylxanthate	DOW, KCC, USR.
Sodium sec-butylxanthate	ACY.
Sodium ethylxanthate	ACY, DOW.
Sodium isopropylxanthate	ACY, DOW.
All other	ACY.
*Formaldehyde, 37% by weight	ACN, BOR, CEL, COM, DUP, HKD, HN, HPC, RCI, RH, SPN, TRJ, UCP.
Formamide	DUP.
*Formic acid, 90%	DUP, HN, MAL, VIC.
*Formic acid salts:	
Aluminum formate	VIC, UCC.
Ammonium formate	ACG, HEX.
Calcium formate	TRJ.
Chromic formate	GAF.
Lead formate	NTL.
Nickel formate	HSH.
Sodium formate, refined	ACG, RPC.
Sodium formate, tech	HN, HPC.
Thallous formate	EK.
*Fumaric acid	BZ, MON, NAC.

3LE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
IISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
ıcid, lead salt (Tetrabasic)	NTL.
acid, tech	DLI, PFZ.
acid	CS.
synthetic	DOW, SHC.
tri(polyoxypropylene) ether	JCC, UCC, WYN.
Aminoacetic acid), tech	BPC.
ethyl ester hydrochloride	BPC.
acid (Hydroxyacetic acid)	DUP.
trile	ACY.
	UCC.
hydrochloride	ACY, NYC.
-1-isonitrosoguanyl-1-tetrazene	REM.
ed hydrocarbons:	
)butane (n-Butyl bromide)	ABB, DOW, EK, MCH.
)butane (sec-Butyl bromide)	ABB, BPC.
ıloromethane	DOW.
)-3-chloropropane (Trimethylenechlorobromide)	DOW, MCH.
)decane	DUP.
hane (Ethyl bromide)	DOW, MCH.
)hexadecane (Cetyl bromide)	DOW.
)hexane (n-Hexyl bromide)	BPC.
)-3-hexyne	LIL.
)-octadecane	DUP, GAF.
)pentane (n-Amyl bromide)	DOW.
)pentane (1-Methylbutyl bromide)	ABB, LIL.
)propane (n-Propyl bromide)	BPC, CLB, DOW, EK.
)propene (Allyl bromide)	CLB, DOW.
)propyne	GAF.
ichloromethane	DOW.
ifluoromethane	DOW, DUP.
tetrachloride	ACG, ACS, DA, DOW, FMW, FRO, MAL, PPG, SF.
ıated paraffins:	
than 35% chlorine	HK.
64% chlorine	CCH, DA, DVC, HK, HPC, KPC, UWS, WOI.
or more chlorine	DA, DVC, WOI.
obutane (n-Butyl chloride)	PUB, UCC.
obutane	NES.
o-1,1-difluoroethane	ACG.
difluoromethane	ACG, DUP, PAS, UCC.
ododecane (Lauryl chloride)	x.
lodecanes, mixed	SDH.
ododecene	x.
ethane (Ethyl chloride):	
	AME, DOW, DUP, HPC, MTO, TNA, USI.
	DOW, SHC.
form:	
	ACS, BR, DA, DOW, DUP, FRO, SF.
	ACS, DA, DOW.
methane (Methyl chloride):	
	ASL, DCC, SPD.
ıed (refrigerant grade)	ACS, DA, DOW, DUP.
o-3-methylbutane (Isoamyl chloride)	LIL.
o-2-methylpropane (tert-Butyl chloride)	EK.
o-2-methylpropene (Methallyl chloride)	FMP.
pentanes, mixed isomers	PAS.

TABLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, iden manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Halogenated hydrocarbons--Continued	
2-Chloropropane (Isopropyl chloride)	DOW.
3-Chloropropene (Allyl chloride)	DOW, SHC.
1-Chloro-5,5,7,7-tetramethyl-2-octene	x.
Chlorotrifluoroethylene, (Trifluorovinyl chloride)	ACG.
Chlorotrifluoroethylene, polymerized	ACG, HK.
Chlorotrifluoromethane	ACG, DUP, PAS.
Dibromodifluoromethane	DOW.
1,2-Dibromoethane (Ethylene dibromide)	AMP, DOW, ETD, FMW, GLC, MCH.
Dibromomethane (Methylene bromide)	DOW.
1,2-Dibromo-1,1,2,2-tetrafluoroethane	DUP.
1,4-Dichlorobutane	DUP.
*Dichlorodifluoromethane	ACG, DUP, PAS, UCC.
*1,2-Dichloroethane (Ethylene dichloride)	AME, DA, DOW, JCC, MTC, OMC, PPG, RH, T
Dichlorofluoromethane	ACG.
*Dichloromethane (Methylene chloride)	ACS, DA, DOW, DUP, FRO, SF.
Dichloropentanes, mixed isomers	PAS.
1,2-Dichloropropane (Propylene dichloride)	DOW, JCC, OMC, UCC, WYN.
2,3-Dichloropropene	UCC.
*Dichlorotetrafluoroethane	ACG, DUP, PAS, UCC.
1,1-Difluoroethane	ACG.
1,1-Difluoroethylene	ACG.
Difluorotetrachloroethane	DUP.
Diiodomethane (Methylene iodide)	NTB.
Iodoethane (Ethyl iodide), tech	CLB.
Iodoform (Triiodomethane)	NTB.
Iodomethane (Methyl iodide), tech	CLB.
2-Iodopropane	EK.
Pentachloroethane	DUP.
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	DOW.
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)	DUP, PPG.
*Tetrachloroethylene (Perchloroethylene)	DA, DOW, DUP, FRO, HK, PPG, SF, TTX.
Tetrafluoroethylene, monomer	DUP.
Tetrafluoroethylene polymer (Teflon)	DUP.
Tetrafluoromethane	DUP.
1,1,1-Trichloroethane (Methyl chloroform)	DOW.
1,1,2-Trichloroethane (Vinyl trichloride)	DOW, UCC.
*Trichloroethylene	AMP, DOW, DUP, HK, PPG, TTX.
*Trichlorofluoromethane	ACG, DUP, PAS, UCC.
1,2,3-Trichloropropane	DOW, SHC.
*Trichlorotrifluoroethane	ACG, DUP, PAS, UCC.
*Vinyl chloride, monomer (Chloroethylene)	ACS, AME, BFG, DA, DOW, GNT, GYR, MTC,
Vinyl fluoride	DUP.
Vinylidene chloride, monomer (1,1-Dichloroethylene)	DOW, TNA.
All other	CLB, UCC.
2-Heptanone (Methyl amyl ketone)	UCC.
3-Heptanone (Ethyl butyl ketone)	UCC.
9H-Hexadecafluorononanoic acid	DUP.
Hexadecane	HMY.
1-Hexadecene	HMY.
Hexadecenylsuccinic anhydride	HMY.
Hexadienal	UCC.
Hexa(2-ethylbutoxy)disiloxane	UCC.
Hexamethyleneadipamide	CS.

BLE 22B. ***--Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960--Continued***

Chemical	Manufacturers' identification codes (according to list in table 23)
:SCELLANEOUS CHEMICALS, ACYCLIC--Continued	
ıedione (Acetonylacetone)	RBC.
ɪanetriol	UCC.
acid (Caproic acid)	TBK.
ɜ-one (Allylacetone)	FMP.
ɜtates	CEL.
ıer	UCC.
ɔxy)ethanol (Ethylene glycol hexyl ether)	UCC.
ʟic acid, β-lactone (β-Propiolactone)	CEL.
ʟonitrile (Ethylene cyanohydrin)	UCC, x.
ɜ and salts	FMT, OMC.
ʟnoethanol	NOR.
ʁymethyl)-2-methyl-1,3-propanediol (Trimethylol-).	TRJ.
ʁymethyl)-2-nitro-1,3-propanediol (Tris(hydroxy-)nitromethane).	COM.
ʁymethyl)octadecanamide (N-Hydroxymethylstear- .	DUP.
y-4-methyl-2-pentanone (Diacetone alcohol)	SHC, UCC.
nodipropionitrile	ACY.
ylmercury iodide	NTB.
ic acid (2-Hydroxyethanesulfonic acid)	GAF.
bic acid and sodium salt	BAX, MLS, MRK, PFZ.
isobutyrate	EKX.
vinyl ether	UCC.
aldehyde	EKX.
ic acid and anhydride	EKT.
ic acid, zinc salt	EKT.
onitrile	EKX.
oic acid, mixed isomers	UCC.
noic acid, mixed isomers	UCC.
ʻl acetate	DEC.
ʻl mercaptopropionate	EVN.
ɪnolamines:	
ıo-2-propanol (Monoisopropanolamine)	DOW, UCC.
ɪminodi-2-propanol (Diisopropanolamine)	DOW, UCC.
.ʼʼ-Nitrilotri-2-propanol (Triisopropanolamine)	DOW, UCC.
ɪpoxypropionitrile	ACY.
ʻl acetate	EKT, ENJ, HPC, UCC.
ɪpylaminoethanol	PAS.
ʻl chloroformate	FMP, PPG.
ʻl ether	ENJ, SHC, UCC.
ʻic acid	UCC.
ʻone (Diisobutyl ketone)	UCC.
ɜ acid (Methylenesuccinic acid) and esters	PFZ.
ɪcid, 100%:	
ɜ	AMZ, CLN, DUP.
ɪnal	DUP.
ʟcal	AMZ, CLN, DUP.
ɪcid salts:	
ɪm lactate	AMZ, SHF.
ɪ zirconium lactate	NTL.
tium lactate	MAL.
ɪium lactate	NTL.
anhydride	FB.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, iden manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Lactide (3,6-Dimethyl-2,5-p-dioxanedione)	CLN.
Lauric acid salts	CCW.
*Lauroyl chloride	DRW, GAF, HK, TBK, WTC.
Lauroyl peroxide	CAD, WTL.
Levulinic acid	QKO.
*Linoleic acid salts:	
*Calcium linoleate	CCA, LEF, SHP, SRR, WTC.
*Cobalt linoleate	HSH, SHP, SRR.
Copper linoleate	WTC.
Iron linoleate	HSH.
Lead linoleate	HNX, SHP, SRR.
Lead manganese linoleate	SDH, SRR.
Manganese linoleate	SHP, SRR.
*Lubricating oil additives:	
Chloronaphtha xanthate	MON.
Chlorosulfurized hydrocarbon	ENJ.
Chlorosulfurized lard oil	CCW.
Chlorosulfurized sperm oil	CCW.
High-molecular-weight hydrocarbons and their phosphorus derivatives.	SOI.
Lauryl and diethylaminoethyl polymethacrylates	DUP.
Oxidized hydrocarbons	ALX.
*Phosphorodithioates (Dithiophosphates):	
Barium alkyl phosphorodithioates	LUB.
Barium dioctyl phosphorodithioate	ACY.
Barium polyisobutylene phosphorodithioate	x.
Nickel zinc alkyl phosphorodithioates	SIN.
Zinc di(butylhexyl) phosphorodithioate	ORO.
Zinc dihexyl phosphorodithioate	MON, SIN.
Zinc diisopropyl phosphorodithioate	ACY.
Zinc hexyl isopropyl phosphorodithioate	x.
All other	ENJ, LUB.
Sulfurized butenes	LUB.
*Sulfurized lard oil	CCW, GOC, SOI.
Sulfurized methyl oleate	SIN.
*Sulfurized sperm oil	CCW, LUB, SIN, SOI, WBG, x.
Tetradecyl selenide	ORO.
All other	CCW, ENJ, GDC, HK, LUB, MON, ORO, SIN.
Magnesium methylate	MRT, SFA.
Maleic acid	ACP, NAC, PFN, x.
Maleic acid, tribasic lead salt	NTL.
*Maleic anhydride	ACY, MON, NAC, PCC, RCI, SOC.
Malic acid	EK, NAC, PFN.
Malonamide	KF.
Malonic acid	KF.
Mannitol	APD.
Mannitol hexanitrate	APD.
Mercaptoacetic acid (Thioglycolic acid)	EVN.
*Mercaptoacetic acid (Thioglycolic acid) derivatives:	
2-Aminoethyl mercaptoacetate (Monoethanolamine thioglycolate).	EVN, HAB, RET.
*Ammonium mercaptoacetate (Ammonium thioglycolate)	EVN, HAB, HLN, RET, SUM.
Antimony mercaptoacetate	CCA.
Calcium mercaptoacetate	EVN.
Dibutyltin mercaptoacetate	x.

BLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
acetic acid (Thioglycolic acid) derivatives--inued	
ne glycol dimercaptoacetate	EVN.
tyl mercaptoacetate	EVN.
mercaptoacetate	EVN.
ethanol	UCC.
to-1,2-propanediol (Thioglycerol)	EVN.
propionic acid	EVN.
oxide	SHC, UCC.
aps of oxidized hydrocarbons	ALX.
lamide	RH.
late monomers, above methyl	DUP.
lic acid	DUP, RH.
lonitrile	EKT.
yethanol (Ethylene glycol monomethyl ether)	DOW, OMC, UCC.
hoxyethoxy)ethanol (Diethylene glycol monomethyl .	DOW, OMC, UCC.
Methoxyethoxy)ethoxy]ethanol (Triethylene glycol thyl ether).	DOW, OMC, UCC.
hoxyethoxy)ethyl 2-methoxyethyl ether (Triethylene dimethyl ether).	ASL.
yethyl acetate	UCC.
y-4-methyl-2-pentanol	SHC.
y-4-methyl-2-pentanone	SHC.
olyethylene glycol	JCC, UCC.
y-2-propanol	DOW.
ypropionitrile	ACY.
hoxypropoxy)propanol (Dipropylene glycol methyl .	DOW.
Methoxypropoxy)propoxy]propanol (Tripropylene methyl ether).	DOW.
lacetamide	EK.
acetate	BOR, COL, FBS, SRC, UCC.
acetoacetate	UCC.
acrylate, monomer	CEL, RH.
luminum sesquichloride	TNA.
laminoethanol (N-Methylethanolamine)	UCC.
borate	CAL, HUC, MHI, SFA.
borate azeotrope methanol	SFA.
l-1-buten-3-yne (Isopropenylacetylene)	AIR.
l-3-butyn-2-ol	AIR.
chloroformate	DLM.
cyanoacetate	KF.
2-cyanoacrylate	EKT.
dichloroacetate	KF, PD.
thylenebisacrylamide	ACY.
thylenebisoctadecanamide	ARC.
ether (Dimethyl ether)	COM, DUP.
formate	DUP.
lglucamine	DUP.
glycolate (Methyl hydroxyacetate)	DUP.
hexanoate (Methyl caproate)	FOR.
l-2-hexanone (Methyl isoamyl ketone)	UCC.
ethylimino)diethanol (Methyl diethanolamine)	UCC.
llactonitrile (Acetone cyanohydrin)	DUP, RH.
agnesium bromide	ARA.

TABLE 22B.--*Miscellaneous chemicals for which U.S. production or sales were reported, ident manufacturer, 1960*--Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
Methyl methacrylate, monomer	DUP, RH, USP.
2-Methyl-2-nitro-1,3-propanediol	COM.
2-Methyl-2-nitro-1-propanol	COM.
2-Methyl-2,4-pentanediol (Hexylene glycol)	SHC, UCC.
4-Methyl-2-pentanone (Methyl isobutyl ketone)	SHC, UCC.
4-Methyl-2-pentanone oxime (Methylisobutyl ketoxime)	ALB.
4-Methyl-2-pentyl acetate	PUB, SHC, UCC.
Methylpolyethanolamine	GAF.
2-Methyl-2-propyl-1,3-propanediol	FBS.
Methyl sulfate (Dimethyl sulfate)	DUP.
Methyl sulfide (Dimethyl sulfide)	CRZ.
N-Methyltaurine	GAF.
2-Methylvaleraldehyde (2-Methylpentaldehyde)	UCC.
2-Methylvaleric acid	UCC.
Methyl vinyl ether	GAF.
Mucochloric acid (2,3-Dichloro-3-formylacrylic acid)	EK.
Myristoyl chloride	TBK, x.
Nitriminobispropionic acid	ACY.
Nitroethane	COM.
Nitromethane	COM.
1-Nitropropane	COM.
2-Nitropropane	COM.
Nonanoic acid (Pelargonic acid)	EMR.
Nylon (Polyhexamethylene adipamide)	CS, DUP.
1-Octadecene	HMY, x.
Octadecyl isocyanate	MOB.
n-Octane	HMY.
1-Octanethiol (n-Octyl mercaptan)	PAS.
Octanoic acid (Caprylic acid)	FOR.
*Octanoic acid (Caprylic acid) salts:	
Aluminum octanoate	LEF, NOP.
Barium octanoate	CCW.
Cadmium octanoate	CCW.
Stannous octanoate	WTC.
Zinc octanoate	BKC.
2-Octanone (Hexyl methyl ketone)	ACP, EKT, TBK, WTH.
3-Octanone (Amyl ethyl ketone)	SHC.
Octanoyl chloride	TBK.
1-Octene	HMY.
1-(and 2-)Octene	WTH.
2-Octene	ACP, x.
Octenylsuccinic anhydride	HMY.
Oleamide (Octadecene amide)	ADM, ARC, FIN.
*Oleic acid salts:	
Aluminum oleate	MAL, WTC.
Barium zinc oleate	HSH.
Cobalt oleate	CCW.
Copper oleate	SHP, SRR, WTC.
Lead oleate	SHP, SRR, WTC.
Oleonitrile	ARC, GNM.
Oleoyl chloride	DEP, GAF, WTH.
*Oxalic acid	ACG, HK, MAL, PFZ, VIC.
*Oxalic acid salts:	
Ammonium oxalate	ACG, BKC, PFZ.
Calcium oxalate	VIC.

LE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
id salts--Continued	
ammonium oxalate	PFZ.
oxalate	PFZ.
sodium oxalate	PFZ.
um binoxalate	BKG.
um oxalate	ACG, PFZ.
binoxalate	VIC.
oxalate	ACG, BKC, MAL, VIC.
loride	EK.
hydrocarbon mixtures, other than lubricating oil es.	ALX.
methylenimine (Caprolactam)	NAC.
acid salts:	
m palmitate	LEF, NOP, WTC.
lmitate	ACY, NOP, WTC.
chloride	GAF, TBK.
ldehyde	CEL, DUP, HN.
de (Paracetaldehyde)	UCC.
hritol	COM, DCI, HN, HPC, RCI, TRJ.
hritol, di- and tri-	HPC.
hritol tetranitrate	APD, DUP, HPC, TRJ.
nedione (Acetylacetone)	UCC.
ne (Methyl propyl ketone)	UCC.
ne (Diethyl ketone)	UCC.
trate (Amyl nitrate)	TNA.
methanethiol (Perchloromethyl mercaptan)	CHO.
tic acid	FMB.
(Carbonyl chloride)	DLM, DUP, PPG, SWC.
s acid esters, not elsewhere specified (*See also* icizers, Surface-Active Agents, Pesticides, Flota- reagents, and Lubricating oil additives):	
hloroethyl) vinyl phosphonate	MON.
thylhexyl) hydrogen phosphate	UCC, VC.
thylhexyl) hydrogen phosphite	HKP, VC.
hosphates (mono and di)	VC, VIC.
ropyl thiophosphate	TNA.
butylphosphonate	VC.
yl hydrogen phosphate	DUP.
hydrogen phosphite	VC.
ctyl hydrogen phosphate	VIC.
l hydrogen phosphite	VC.
phosphates (mono and di)	VIC.
hexyl phosphates (mono and di)	VIC.
hosphates (mono and di)	VIC.
yl hydrogen phosphate	VC.
yl octyl hydrogen phosphate	VC.
phosphates (mono and di)	HK, VC, VIC.
yl phosphates (Mono and distearyl phosphates)	HK.
hosphates (mono and di)	DUP.
phosphates (Mono and diamyl phosphates)	HK, VIC.
l phosphate	CEL, COM, FMP.
l phosphite	HKP.
l phosphite	VC.
utyl phosphate	EKT, FMP.
-octyl phosphite	VC.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identi manufacturer, 1960*--Continued

Chemical	Manufacturers' identification c (according to list in table 2
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Phosphorus acid esters, not elsewhere specified--Continued	
Trimethyl phosphite	VC.
Trioctadecyl phosphate	IOC.
Tris(2-chloroethyl) phosphate	CEL, ENJ.
Tris(2-chloroethyl) phosphite	VC.
Tris(2,3-dibromopropyl) phosphate	DUP, MCH.
Tris(2-ethylhexyl) phosphite	HKP, VC.
All other	VC.
Pimelic acid (Heptanedioic acid)	ACY.
Pine oil, synthetic	CBY.
Polyacrylamide	ACY.
Polyacrylic acid	BFG, NOP.
*Polyacrylic acid salts:	
Ammonium polyacrylate	BFG, NOP.
Sodium polyacrylate	ALC, BFG, JOR, RH.
All other	BFG, GRD.
Polyacrylonitrile	DUP.
Polyethoxyethylsorbitol	APD.
*Polyethylene glycol	ACN, DOW, JCC, OMC, UCC, WYN, x.
Polyethylene glycol dimethacrylate	SAR.
Polyethylene glycol maleate	CCA.
Polyethylene oxide	UCC.
Polyethylene polysulfide	BFG, TKL.
Polygalacturonic acid	SKG.
Polyglycerol	CP, DRW.
Polyglycols, ethylene glycol and glycol ethers, mixtures	DOW.
Polyoxypropylene ethers	WYN.
Polypropoxysorbitol	APD.
Polypropylene glycol	DOW, JCC, OMC, UCC, WYN.
Polytetramethylene glycol	DUP.
Propionaldehyde	EKX, UCC.
*Propionic acid	CEL, COM, DUP, EKT, UCC.
Propionic acid salts:	
*Calcium propionate	CEL, DUP, UCC.
Sodium propionate	CEL, DUP, UCC.
Zinc propionate	BKC.
Propionic anhydride	EKT, UCC.
Propionitrile	UCC.
Propionyl chloride	ABB, TBK.
Propyl acetate	CEL.
Propylene carbonate	JCC, UCC.
*Propylene glycol (1,2-Propanediol)	CEL, DOW, DUP, JCC, OMC, UCC.
Propylene glycol, mixed ethers	DOW.
*Propylene oxide	CEL, DOW, JCC, OMC, UCC, WYN.
Propyl isocyanate	CWN.
Propyl 4-methylvalerate (Propyl isocaproate)	COM.
Propyl nitrate	TNA.
Propyne (Methylacetylene)	AIR.
Rare sugars	PFN.
Ricinolamide	TKL.
Ricinoleic acid, calcium salt	BAC.
Sarcosine (N-Methylaminoacetic acid)	ATL, DUP, GAF, HMP, VPC.
Sarcosine, sodium salt	GGY.
Sebacic acid	RH, WTH.
Semicarbazide base and hydrochloride	FMT.

ɪE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*--Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ɪSCELLANEOUS CHEMICALS, ACYCLIC--Continued	
ɪg agents:	
ɜnetrinitrilo)pentaacetic acid	RPC.
ɜnetrinitrilo)pentaacetic acid, monosodium ɜn ferric salt.	GGY.
ɜnetrinitrilo)pentaacetic acid, sodium salt	DOW, GGY, HMP.
ɪroxyethylglycine, sodium salt	DOW, GGY, HMP, RPC.
ɜdinitrilo)tetraacetic acid (Ethylenediamine-ɜetic acid).	DOW, GAF, GGY, GLY, HMP, RPC, VIC.
ɜdinitrilo)tetraacetic acid, diammonium salt	GGY.
ɜdinitrilo)tetraacetic acid, dihydrogen disodium	DOW, EK, GGY, HMP, HRT, RPC.
ɜdinitrilo)tetraacetic acid, disodium calcium	DOW, GGY.
ɜdinitrilo)tetraacetic acid, disodium copper	GGY.
ɜdinitrilo)tetraacetic acid, disodium iron salt	HMP.
ɜdinitrilo)tetraacetic acid, disodium zinc salt, ɜte.	GGY.
ɜdinitrilo)tetraacetic acid, manganese salt	GGY, RPC.
ɜdinitrilo)tetraacetic acid, monohydrogen ɪum salt.	DOW, GGY, HMP, RPC.
ɜdinitrilo)tetraacetic acid, monosodium iron salt	DOW, GGY, GLY, RPC.
ɜdinitrilo)tetraacetic acid, tetrapotassium salt	GGY.
ɜdinitrilo)tetraacetic acid, tetrasodium salt	ACY, DOW, GAF, GGY, GLY, HMP, MOA, NOP, RPC, TCC.
ɪonic acid, sodium salt	PFN, WIC.
ɔxyheptanoic acid, sodium salt	PCW.
ʞyethylethylenedinitrilo)triacetic acid	GGY.
ʞyethylethylenedinitrilo)triacetic acid, iron salt.	HMP.
ʞyethylethylenedinitrilo)triacetic acid, trisodium	DOW, GGY, HMP, MOA, RPC, TCC.
ɪriacetic acid and salts	GGY, HMP.
ɪr	RPC.
	DCC, ORO, SPD.
ɪthyldithiocarbamate	EK.
yl oxalacetate	FMP.
ɪaldehydebisulfite	EK.
ɪaldehydesulfoxylate	NOP, RH, ROY.
ɪoxide (Sodium methylate)	HSH, KF, QMC, x.
ypectate	SKG.
ɪitol borate	APD.
ɪ (2,4-Hexadienoic acid), potassium and sodium	UCC.
	APD, MRK.
ɪri(polyoxypropylene) ether	UCC.
ɪ acyl chloride salt of sodium lysalbinate	LMI.
(Octadecane amide)	ADM, DUP, FIN.
ɪd salts:	
stearates:	
ɪm monostearate	LEF, MAL, MCO, NOP, SYP.
ɪm distearate	ACY, HNX, JTC, LEF, MAL, NOP, PRP, SYP, WTC.
ɪm tristearate	ACY, HNX, LEF, MAL, NOP, PRP, SYP, WTC.
stearate	DEX, FRR, LEF, NOP, SYP, WTC.
tearate	LEF, NOP, PRP, SYP, WTC.
stearate	SYP, WTC.
stearate	ACY, CCW, HNX, JTC, LEF, MAL, MCO, NOP, NTL, PRP, SYP, WTC.

TABLE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, ide manufacturer, 1960*-- Continued

Chemical	Manufacturers' identification (according to list in table
MISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
*Stearic acid salts--Continued	
Cobalt stearate	WTC.
Ferric stearate	WTC.
*Lead stearate	HSH, LEF, NOP, NTL, WTC.
Lead stearate, dibasic	NOP, NTL, WTC.
Lithium hydroxystearate	WTC.
*Lithium stearate	LEF, NOP, PRP, WTC.
*Magnesium stearate	ACY, JTC, LEF, MAL, MCO, NOP, PRP, SYP.
Nickel stearate	WTC.
Stannous stearate	WTC.
*Zinc stearate	ACY, CCW, HNX, HSH, JTC, LEF, MAL, MCO, SYP, WTC.
All other	APD, MCO.
Stearonitrile (Octadecanenitrile)	GNM.
Stearoyl chloride	GAF, WTC.
Succinic acid	ARA, CS, NAC.
Succinic acid, sodium salt	MAL.
Succinic anhydride	NAC.
Succinimide	ARA, NAC.
Succinonitrile	ACY.
Succinyl peroxide	WTL.
Sucrose octa-acetate	UCC.
Tallow amide, hydrogenated	ADM, ARC.
Tallow fatty acyl chloride	GAF.
Tallow nitrile	GNM.
Tartaric acid salts, nonmedicinal	MAL, PFZ.
1,1,3,3-Tetraethoxypropane	KF.
Tetraethylammonium chloride	PAS.
Tetra-2-ethylbutyl 2-ethylhexyl ortho-silicate	UCC.
*Tetraethylene glycol	DOW, JCC, UCC.
Tetraethylene glycol dimethacrylate	SAR.
Tetraethyllead	DUP, TNA.
Tetraethyl orthosilicate	UCC.
Tetrahydroxysuccinic acid (Dioxytartaric acid)	ACY.
Tetrakis(hydroxymethyl)phosphonium chloride	HK.
N,N,N′,N′-Tetrakis(2-hydroxypropyl)ethylenediamine	MON, WYN.
Tetramethyl(and ethyl)lead	DUP.
Tetramethylguanidine	ACY.
Tetramethyllead	DUP, TNA.
Tetraoctyl orthosilicate	MON.
Thioacetamide	ARA, EK.
2,2′-Thiodiethanol (Thiodiethylene glycol)	UCC.
3,3′-Thiodipropionitrile	HAB.
Titanic acid esters	DUP.
Triallyl cyanurate	ACY.
Trichloroacetyl chloride	EK.
Trichloroethylsilane (Ethyl silicone trichloride)	DCC, UCS.
Trichloromethylsilane	DCC.
Trichloro-octadecylsilane	DCC.
Trichloropentylsilane	UCS.
Trichlorovinylsilane	DCC, UCS.
Triethoxyethylsilane	UCS.
Triethoxyvinylsilane	UCS.
Triethyl acetylcitrate	PFZ.
Triethylaluminum	TNA.

LE 22B. --*Miscellaneous chemicals for which U.S. production or sales were reported, identified by manufacturer, 1960*-- Continued

Chemical	Manufacturers' identification codes (according to list in table 23)
ISCELLANEOUS CHEMICALS, ACYCLIC--Continued	
mmonium hydrogen maleate	x.
ɔron	TNA.
ɑe glycol	ACN, DOW, GAF, JCC, OMC, UCC.
ɑe glycol dimethacrylate	SAR.
ɔrthoacetate	EK, KF.
ɔrthoformate	KF.
ɔrthopropionate	KF.
ɑcetic anhydride	EK.
ylaluminum	TNA.
yboroxine	CAL.
aluminum	TNA.
methyl-4-nonanone	UCC.
orthoformate	KF.
methyl-1,3-pentanediol	EKX.
methyl-1,3-pentanediol monoisobutyrate	EKX.
ylphosphine oxide	EK.
(polypropoxypropyl)hexane	UCC.
aluminum	TNA.
ene glycol	DOW.
c acid (Undecylenic acid)	BAC, WTM.
ompounds or mixtures, 100%:	
compounds	ACN, DUP, GCC, JDC, MON, MSC, SNO, SOH.
id fertilizer	ACN, CFA, DUP, GCC, HPC, JDC, MON, MSC, SNI, SNO, SOH, SPN.
d fertilizer	ACN, DUP, GCC, JDC, MON, MSC, SHC, SNO, SOH, SPN.
tics	DUP, MON, MSC.
ɪer	ACN, DUP, MON, MSC, SNO, SOH, SPN.
ɔxide	FMB.
hane copolymer	DUP.
ɪcid	UCC.
tate, monomer	AIR, CEL, DUP, PCA, UCC.
ɪaldehydesulfoxylate	NOP, RH, ROY.

Directory of Manufacturers

The Directory of Manufacturers lists the companies that report their production organic chemicals to the U.S. Tariff Commission. The name of each manufacturer i by an alphabetical identification symbol. These identification symbols consist of not three capital letters, and usually bear a relation to the company name. In most inst signed symbols were approved by the companies they identify.

For 1960, the Directory of Manufacturers lists 713 primary manufacturers (see Some of the companies that report production of synthetic organic chemicals consum tire output in further manufacturing.

The Directory of Manufacturers lists the reporting companies in two ways: Sect them in alphabetical order by identification symbols. Section 2 lists the reporting co alphabetical order by company name, and gives the corresponding identification sym company address.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*

SECTION 1. ALPHABETICAL DIRECTORY BY CODE

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tarif for 1960 are listed below in the order of their identification codes as used in tables in pt. III. S table lists these manufacturers alphabetically and gives their office address]

Code	Name of company
AAC	American Alcolac Corp.
AAE	American Aniline & Extract Co., Inc.
ABB	Abbott Laboratories
ABR	Andrew Brown Co.
ABS	American Brake Shoe Co., American Brakeblok Div.
ACC	Amoco Chemicals Corp.
ACG	Allied Chemical Corp., General Chemical Div.
ACN	Allied Chemical Corp., Nitrogen Div.
ACO	Acralite Co., Inc., Acco Polymers Div.
ACP	Allied Chemical Corp., Plastics Div.
ACR	Acme Resin Corp.
ACS	Allied Chemical Corp., Solvay Process Div.
ACT	Arthur C. Trask Co.
ACY	American Cyanamid Co.
ADC	Ad-Co Color Corp.
ADM	Archer-Daniels-Midland Co.
AHC	Arnold, Hoffman & Co., Inc.
AIR	Air Reduction Co., Inc., Air Reduction Chemical Co. Div.
AKL	Reichhold Chemicals, Inc., Alkydol Laboratories Div.
ALB	Ames Laboratories, Inc.
ALC	Alco Oil & Chemical Corp.
ALL	Alliance Color & Chemical Co.
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.
ALX	Alox Corp.
AMB	American Bio-Synthetics Corp.
AMC	Amchem Products, Inc.
AME	American Chemical Corp.
AMF	American Marietta Co., Ferbert-Schorndorfer Co. Div.
AMK	American Alkyd Industries
AML	Amalgamated Chemical Corp.
AMO	American Oil Co. (Texas)
AMP	American Potash & Chemical Corp.
AMR	American Marietta Co., Adhesive, Resin & Chemical Div.
AMS	American Marietta Co., Ridgway Color & Chemical Co. Div.
AMZ	American Maize Products Co.
APC	Appleton Coated Paper Co.
APD	Atlas Chemical Industries, Inc.
APR	Atlas Processing Co.
APV	Armstrong Paint & Varnish Works, Inc.
APX	Apex Chemical Co., Inc.
ARA	Arapahoe Chemicals, Inc.
ARC	Armour & Co., Armour Industrial Chemical
ARG	Argus Chemical Corp.
ARK	Armstrong Cork Co.
ARO	Arco Co.
ARP	Armour & Co., Armour Pharmaceutical Co.
ASH	Ashland Oil & Refining Co.
ASL	Ansul Chemical Co.
AST	Astra Pharmaceutical Products, Inc.
ASY	American Synthetic Rubber Corp.
ATL	Atlantic Chemical Corp., Macromol Div.
ATR	Atlantic Refining Co.
AUG	Augusta Chemical Co.
AV	American Viscose Corp.
AVS	AviSun Corp.
BAC	Baker Castor Oil Co.
BAL	Baltimore Paint & Chemical Corp.
BAT	Bates Chemical Co., Inc.
BAX	Baxter Laboratories, Inc.
BCI	Belding Corticelli Industries
BCN	Beech-Nut Life Savers, Inc.
BCO	Blane Corp.
BEN	Bennett's
BFG	B. F. Goodrich Co., B. F. Goodrich Chemi
BGC	Balfour-Guthrie & Co., Ltd., Chemical Di
BIF	Bioferm Corp.
BIS	Bios Laboratories, Inc.
BKC	J. T. Baker Chemical Co.
BKL	Berkeley Chemical Corp.
BKM	Buckman Laboratories, Inc.
BKS	Berkshire Color & Chemical Co.
BKT	J. T. Baker Chemical Co., Taylor Chemical
BL	Belle Chemical Co., Inc.
BLN	Brooklyn Color Works, Inc.
BME	Bendix Aviation Corp., Marshall-Eclipse I
BOR	Borden Chemical Co.
BOY	Walter N. Boysen Co.
BPC	Benzol Products Co.
BR	Brown Co.
BRD	Bird & Son, Inc., Floor Covering Div.
BRR	Brown Co., Resi-Chem Div.
BRS	Bristol-Meyers Co., Bristol Laboratories
BRU	M. A. Bruder & Sons, Inc.
BRY	Bryant Chemical Corp.
BSC	Burkart-Schier Chemical Co.
BUC	Blackman-Uhler Chemical Co.
BUK	Buckeye Cellulose Corp.
BUR	Burroughs Wellcome & Co. (U.S.A.), Inc.
BZ	Bzura, Inc.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Name of company	Code	Name of company
:t Chemical Corp.	DA	Diamond Alkali Co.
.ery Chemical Co.	DAN	Dan River Mills, Inc.
.tal Plastics, Inc.	DAV	H. B. Davis Co.
ılin Corp. of America	DCC	Dow Corning Corp.
:asieu Chemical Corp.	DCI	Delaware Chemicals, Inc.
; Bay Timber Co.	DEC	Deecy Products Co.
ı Pharmaceutical Products, Inc.	DEP	DePaul Chemical Co., Inc.
ıel Cabot, Inc.	DEX	Dexter Chemical Corp.
;by Chemicals, Inc.	DGS	Douglas Chemical Corp.
ŧway Colors, Inc.	DLH	Delhi-Taylor Oil Corp.
Lisle Chemical Works, Inc., Advance Solvents Chemical Div.	DLI	Dawe's Laboratories, Inc.
;e Chemical Corp.	DLM	Delmar Chemical Co., Inc.
ıton Chemical Co.	DLT	Delta Chemical Works, Inc.
nico, Inc.	DOD	Donald A. Dodd
wn Central Petroleum Corp.	DOM	Dominion Products, Inc.
lisle Chemical Works, Inc.	DOW	Dow Chemical Co.
tinental-Diamond Fibre Corp.	DRG	Drug Processors, Inc.
cord-Danan Co.	DRW	E. F. Drew & Co., Inc.
anese Corp. of America:	DSC	Dye Specialties, Inc.
elanese Chemical Co. Div.	DSO	DeSoto Chemical Coatings, Inc.
elanese Polymer Co. Div.	DUN	Frank W. Dunne Co.
tral Paint & Varnish Works, Inc.	DUP	E. I. duPont de Nemours & Co., Inc.
perative Farm Chemicals Association	DVC	Dover Chemical Co.
negies Fine Chemicals of Kearny	DYK	Dykem Co.
mfax, Inc.	EAK	J. S. & W. R. Eakins, Inc.
magro Corp.	EDC	Edcan Laboratories
uffer Chemical Co., Calhio Chemicals Div.	EDY	Eddystone Manufacturing Co.
loids, Inc.	EFH	E. F. Houghton & Co.
ifornia Ink Co., Inc.	EK	Eastman Kodak Co.
mical Insecticide Corp.	EKT	Eastman Kodak Co., Tennessee Eastman Co. Div.
y Chemical Corp.	EKX	Eastman Kodak Co., Texas Eastman Co. Div.
mlek Laboratories, Inc.	EMK	Emkay Chemical Co.
umbia Organic Chemicals, Inc.	EMR	Emery Industries, Inc.
ndard Brands, Inc., Clinton Corn Processing o. Div.	EN	Endo Laboratories, Inc.
ver Chemical Co.	ENJ	Enjay Chemical Co.
A. Cleary Corp.	EPC	Epoxylite Corp.
penter-Morton Co.	ERD	Erdmann Chemical Co., Inc.
ıcolloid, Inc.	ESC	Escambia Chemical Corp.
mical Manufacturing Co., Inc.	ETD	Ethyl-Dow Chemical Co.
ıtinental Oil Co.	EVM	Everledge Manufacturing, Inc.
:kerille Chemicals, Inc.	EVN	Evans Chemetics, Inc.
: Reduction Co., Inc., Colton Chemical Co. Div.	EW	Westinghouse Electric Corp.
mmercial Solvents Corp.	FAR	Farnow, Inc.
ıcord Chemical Co., Inc.	FB	Fritzsche Bros., Inc.
ppers Creek Chemical Corp.	FBC	Fiber Chemical Corp.
mmercial Resins Corp.	FBS	Fries Bros., Inc.
lgate-Palmolive Co.	FCD	France, Campbell & Darling, Inc.
llds Pulp Colors, Inc.	FCL	Federal Color Laboratories, Inc.
mical Products Corp.	FCP	J. P. Frank Chemical & Plastics Corp.
liance Varnish Co., Inc., Coast Paint & Lacquer Co. Div.	FEL	Felton Chemical Co., Inc.
mical Process Co.	FER	Ferro Corp., Ferro Chemical Div.
nsolidated Paint Co.	FG	Foster Grant Co., Inc.
ok Paint & Varnish Co.	FH	Foster-Heaton Co.
polymer Rubber & Chemical Corp.	FIN	Fine Organics, Inc.
own Chemical Corp.	FIR	Firestone Tire & Rubber Co., Firestone Plastics Co. Div.
rn Products Co.	FLA	Florida Chemical Co., Inc.
ownoil Chemical Co., Inc.	FLH	H. B. Fuller Co.
rus Chemical Co., Inc.	FLO	Florasynth Laboratories, Inc.
own Tar & Chemical Works, Inc.	FLW	W. P. Fuller & Co.
ry Chemicals, Inc.	FMB	Food Machinery & Chemical Corp., Becco Chemical Div.
own Zellerbach Corp., Chemical Products Div.	FMF	Schuylkill Chemical Co.
emstrand Corp	FMP	Food Machinery & Chemical Corp., Chemicals & Plastics Div.
sden Petroleum Corp.	FMT	Fairmount Chemical Co., Inc.
tter Laboratories	FMW	Food Machinery & Chemical Corp., Chemical Div.
llett-Week Corp.	FOM	Formica Corp., Subsidiary of American Cyanamid Co.
wles Chemical Co.	FOR	Foremost Food & Chemical Co., El Dorado Div.
rwin Co.	FPI	Furane Plastics, Inc.
nsolidated Water Power & Paper Co.	FRE	Freeman Chemical Corp.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Code	Name of company
FRM	Farmers' Chemical Co.
FRO	Vulcan Materials Co., Frontier Chemical Co. Div.
FRR	Estate of W. U. Farrington
FRS	Firestone Tire & Rubber Co., Firestone Synthetic Rubber & Latex Co. Div.
FSH	Frisch & Co., Inc.
GAF	General Aniline & Film Corp.
GAM	Gamma Chemical Corp.
GAN	Gane's Chemical Works, Inc.
GCC	W. R. Grace & Co., Nitrogen Products Div.
GDC	Gulf Research & Development Co.
GDL	Gordon-Lacey Chemical Products Co., Inc.
GDN	Gordon Chemicals, Inc.
GE	General Electric Co., Chemical Materials Dept.
GEI	General Electric Co., Insulating Materials Dept.
GGC	Goodrich-Gulf Chemicals, Inc.
GGY	Geigy Chemical Corp.
GIL	Gilman Paint & Varnish Co.
GIV	Givaudan Corp.
GLC	Great Lakes Chemical Corp.
GLD	Glidden Co.
GLY	Chas. L. Huisking & Co., Inc., Glyco Chemicals Div.
GNF	General Foods Corp., Maxwell House Div.
GNM	General Mills, Inc.
GNT	General Tire & Rubber Co., Chemical Div.
GOC	Gulf Oil Corp.
GOR	Gordon Chemical Co., Inc.
GPR	Grain Processing Corp.
GRA	Great American Plastics Co.
GRD	W. R. Grace & Co., Dewey & Almy Chemical Div.
GRG	P. D. George Co.
GRH	W. R. Grace & Co., Hatco Chemical Div.
GRP	W. R. Grace & Co., Polymer Chemicals Div.
GRS	Great Southern Chemical Corp.
GRV	Grand Rapids Varnish Corp.
GRW	Great Western Sugar Co.
GUA	Guard Chemical Co.
GUY	Guyan Color & Chemical Works, Inc.
GYR	Goodyear Tire & Rubber Co.
HAB	Halby Products Co., Inc.
HAL	C. P. Hall Co. of Illinois
HAM	Hampden Color & Chemical Co.
HAN	Hanna Paint Manufacturing Co., Inc.
HAP	Hexcel Products, Inc., Applied Plastics Div.
HAR	Allied Chemical Corp., National Aniline Div., Harmon Color Works
HCC	Holland Color & Chemical Co.
HDG	Hodag Chemical Corp.
HER	Heresite & Chemical Corp.
HET	Heterochemical Corp.
HEX	Hexagon Laboratories, Inc.
HFT	Hoffman-Taff, Inc.
HK	Hooker Chemical Corp.
HKD	Hooker Chemical Corp., Durez Plastics Div.
HKP	Hooker Chemical Corp., Phosphorus Div.
HLC	Hartman-Leddon Co., Inc.
HLI	Haag Laboratories, Inc.
HLN	Helene Curtis Industries, Inc.
HMP	Hampshire Chemical Corp.
HMY	Humphrey-Wilkinson, Inc.
HN	Heyden Newport Chemical Corp.
HNC	H & N Chemical Co.
HNW	Heyden Newport Chemical Corp., Newport Industries Div.
HNX	Heyden Newport Chemical Corp., Nuodex Products Div.
HOF	Hoffmann-LaRoche, Inc.
HPC	Hercules Powder Co.
HRS	Harris Standard Paint Co., Inc.
HRT	Hart Products Corp.
HSH	Harshaw Chemical Co.
HST	Hoechst Chemical Corp.
HUC	Hukill Chemical Corp.
HUS	Husky Oil Co.
HVG	Haveg Industries, Inc., Resin & Compou
HYN	Hynson, Westcott & Dunning, Inc.
ICC	Interchemical Corp., Color & Chemicals
ICF	Interchemical Corp., Finishes Div.
IDC	Industrial Dyestuff Co.
IFF	International Flavors & Fragrances, In
IMC	International Minerals & Chemical Corp
IMP	Hercules Powder Co., Imperial Color Ch Corp. Div.
INC	Inland Chemical Corp.
INL	Inland Steel Container Co.
INP	International Paper Co.
IOC	Pfaudler Permutit, Inc., Ionac Chemica
IPR	Inter-Pacific Resins, Inc.
IRC	International Resistance Co.
IRI	Ironsides Co.
ITX	Intex Chemical Corp.
JAM	Jamestown Paint & Varnish Co.
JCC	Jefferson Chemical Co., Inc.
JDC	John Deere Chemical Co.
JEN	Jennison-Wright Corp.
JMS	J. Meyer & Sons, Inc.
JNS	S. C. Johnson & Son, Inc.
JOB	Jones-Blair Paint Co.
JOD	Jones-Dabney Co.
JOR	W. H. & F. Jordan, Jr. Manufacturing C
JRG	Andrew Jergens Co.
JSC	Jersey State Chemical Co.
JTC	Joseph Turner & Co.
JWL	Jewel Paint & Varnish Co.
KAL	Kali Manufacturing Co.
KCC	Kennecott Copper Corp., Chino Mines Di
KCH	Keystone Chemurgic Corp.
KCR	Knudsen Creamery Co. of California, Ca
KCU	Kennecott Copper Corp., Utah Copper Di
KCW	Keystone Color Works, Inc.
KEL	Kelly-Pickering Chemical Corp.
KEN	Kendall Refining Co.
KES	Kessler Chemical Co., Inc.
KF	Kay-Fries Chemicals, Inc.
KLK	Kolker Chemical Corp.
KLS	Kilsdonk Chemical Corp.
KND	Knoedler Chemical Co.
KNG	O. L. King & Co.
KNP	Knapp Products, Inc.
KON	H. Kohnstamm & Co., Inc.
KPC	Koppers Co., Inc., Chemicals & Dyestuf
KPI	Kenrich Petrochemicals, Inc.
KPP	Koppers Co., Inc., Plastics Div.
KPT	Koppers Co., Inc., Tar Products Div.
KPV	Keystone Paint & Varnish Corp.
KRM	Lawter Chemicals, Inc., Krumbhaar Resi
KRY	Krystall Chemical Co.
KYN	Kyanize Paints, Inc.
KYS	Keysor Chemical Co.
LAM	LaMotte Chemical Products Co.
LAS	LaSalle Chemical Corp.
LEA	Leatex Chemical Co.
LEB	Lebanon Chemical Corp.
LEF	Leffingwell Chemical Co.
LEH	Lehigh Chemical Co.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Name of company	Code	Name of company
L. Lemke & Co., Inc.	NOP	Nopco Chemical Co., Inc.
nard Refineries, Inc.	NOR	Norwich Pharmacal Co.
er Brothers Co.	NPI	National Polychemicals, Inc.
is Tar Products Co.	NPP	National Plastic Products Co.
Lilly & Co.	NSC	National Starch & Chemical Corp.
eside Laboratories, Inc.	NSP	National Southern Products Corp.
Regis Paper Co., Lake States Yeast & hemical Div.	NTB	National Biochemical Co.
rence Mills, Inc.	NTC	National Casein Co.
rles R. Long, Jr. Co.	NTL	National Lead Co.
rizol Corp.	NVF	National Vulcanized Fibre Co.
rge Lueders & Co.	NW	Northwestern Chemical Co.
rel Soap Manufacturing Co., Inc.	NYC	American Dyewood Co., New York Color & Chemical Co., Inc. Div.
Lever Co., Inc.	NYP	New York & Pennsylvania Co., Inc.
d'k H. Levey Co., Inc.		
ier Color & Chemical Co.	OB	O'Brien Corp.
linckrodt Chemical Works	OCF	Owens-Corning Fiberglas Corp.
rican Can Co., Marathon Div.	ODB	Odessa Butadiene Co.
o B. May, Inc.	ODS	Odessa Styrene Co.
g-Warner Corp., Marbon Chemical Div.	OH	Ohio Chemical & Surgical Equipment Co.
loskey Varnish Co.	OIL	Oil & Chemical Products, Inc.
higan Chemical Corp.	OLC	Old Colony Tar Co., Inc.
he Chemical Co.	OLH	Old Hickory Chemical Co., Inc.
horter Chemicals, Inc.	OMB	Olin Mathieson Chemical Corp., Blockson Chemical Co. Div.
yland Plastics, Inc.	OMC	Olin Mathieson Chemical Corp.
lical Chemicals Corp.	OMS	Olin Mathieson Chemical Corp., E. R. Squibb & Sons Div.
mee Chemical Co.	ONX	Onyx Chemical Corp.
ferson Lake Sulphur Co., Merichem Co. Div.	OPC	Orbis Products Corp.
ded Fiber Glass Body Co.	ORG	Organics, Inc.
gruder Color Co., Inc.	ORO	California Chemical Co., Oronite Div.
al Hydrides, Inc.	ORT	Ortho Chemical Corp.
iland Industrial Finishes Co.	OSB	C. J. Osborn Co.
anol Chemical Co., Inc.	OTA	Ottawa Chemical Co.
J. Merkin Paint Co., Inc.	OTH	California Chemical Co., Ortho Div.
les Chemical Co.	OTT	Ottol Oil Co.
nesota Mining & Manufacturing Co.		
nesota Paints, Inc.	PAI	Pennsylvania Industrial Chemical Corp.
na Industries, Inc.	PAN	Pan American Petroleum Corp.
ay Chemical Co.	PAR	Pennsylvania Refining Co.
nsanto Chemical Co.	PAS	Pennsalt Chemicals Corp.
neral Oil Refining Co.	PAT	Patent Chemicals, Inc.
tomco, Inc.	PBS	Pabst Brewing Co.
sa Plastics Co.	PC	Proctor Chemical Co., Inc.
gnolia Plastics, Inc.	PCA	Pacific Carbide & Alloys Co.
jamin Moore & Co.	PCC	Pittsburgh Coke & Chemical Co., Pittsburgh Chemical Co. Div.
tro-Atlantic, Inc.	PCH	Peerless Chemical Co.
rblette Corp.	PCO	Peerless Color Co., Inc.
rden-Wild Corp.	PCS	Process Chemicals Co.
rck & Co., Inc.	PCW	Pfister Chemical Works, Inc.
rningstar Paisley, Inc.	PD	Parke-Davis & Co.
rton Chemical Co.	PDC	Poughkeepsie Dyestuff Corp.
rlowe-Van Loan Corp.	PEK	Peck's Products Co.
rwear Paint Co.	PEL	Pelron Corp.
x Marx Color & Chemical Co.	PEN	S. B. Penick & Co.
ssissippi Chemical Corp.	PER	Perry & Derrick Co., Inc.
nsanto Chemical Co., Plastics Div.	PET	Petroleum Chemicals, Inc.
talsalts Corp.	PFN	Pfanstiehl Laboratories, Inc.
ntrose Chemical Corp. of California	PFP	Phelan-Faust Paint Manufacturing Co.
ntrose Chemical Co.	PFZ	Chas. Pfizer & Co., Inc.
epan Chemical Co., Maywood Chemical Works Div.	PG	Procter & Gamble Co., Procter & Gamble Manufacturing Co. Div.
lied Chemical Corp., National Aniline Div.	PGU	Perkins Glue Co.
rda Essential Oil & Chemical Co., Inc.	PHR	Pharmachem Corp.
pera Chemical Co., Inc.	PIC	Pierce Chemical Co.
ase Chemical Co., Inc.	PIL	Pilot Chemical Co. of California
ville Chemical Co.	PIT	Pitt-Consol Chemical Co.
lok Chemicals, Inc.	PLA	Plastics Corp. of America
P. Nonweiler Co.	PLC	Phillips Chemical Co.
	PLN	Planetary Chemical Co., Inc.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continue

Code	Name of company
PLP	Phillips Petroleum Co.
PLS	Plastics Engineering Co.
PLU	Plumb Chemical Corp.
PLY	Polymer Industries, Inc.
PNT	Pantasote Co.
PNX	Phoenix Oil Co.
POL	Polymer Corp.
PPG	Pittsburgh Plate Glass Co.
PRD	Productol Co.
PRO	Pure Oil Co.
PRP	M. W. Parsons-Plymouth, Inc.
PRT	Pratt & Lambert, Inc.
PRX	Purex Corp., Ltd.
PSP	Puget Sound Pulp & Timber Co.
PTT	Petro-Tex Chemical Corp.
PUB	Publicker Industries, Inc.
PUL	Paul-Lewis Laboratories, Inc.
PYL	Polychemical Laboratories, Inc.
PYR	Poly Resins
PYZ	Polyrez Co., Inc.
QCP	Quaker Chemical Products Corp.
QKO	Quaker Oats Co.
RAB	Raybestos-Manhattan, Inc., Raybestos Div.
RB	Robert & Co., Inc.
RBC	Roberts Chemicals, Inc.
RCC	Rexall Chemical Co.
RCD	Richardson Co.
RCI	Reichhold Chemicals, Inc.
RDA	Rhodia, Inc.
RED	Red Spot Paint & Varnish Co., Inc.
REL	Reliance Varnish Co., Inc.
REM	Remington Arms Co., Inc.
REP	Republic Creosoting Co.
RET	Rayette, Inc., Chemical Div.
REZ	Rezolin, Inc.
RGC	Rogers Corp.
RH	Rohm & Haas Co.
RIC	Richfield Oil Corp.
RIK	Riker Laboratories, Inc.
RIL	Reilly Tar & Chemical Corp.
RIV	Riverdale Chemical Co.
RMC	Rinshed-Mason Co.
ROC	Rock Hill Printing & Finishing Co.
ROM	Roma Chemical Corp.
ROS	Rosett Chemicals, Inc.
ROY	Royce Chemical Co.
RPC	Refined Products Corp.
RSA	R. S. A. Corp.
RT	F. Ritter & Co.
RTC	Ritter Chemical Co., Inc.
RUB	Rubber Corp. of America
RUR	Ruberoid Co.
SAC	Standard Agricultural Chemicals, Inc.
SAL	Dr. Salsbury's Laboratories
SAN	Sandoz, Inc.
SAR	Sartomer Resins, Inc.
SBR	Schwartz Bioresearch, Inc.
SCC	Standard Chlorine Chemical Co., Inc.
SCF	Schaefer Varnish Co., Inc.
SCH	Schering Corp.
SCI	Stecker Chemicals, Inc.
SCN	Schenectady Varnish Co., Inc.
SCO	Scholler Bros., Inc.
SCP	Standard Chemical Products, Inc.
SCR	R. P. Scherer Corp.
SCS	Stanley Works, Stanley Chemical Co. Div.
SDC	American Marietta Co., Southern Dyestuff Co. Div.
SDG	Sterling Drug, Inc., Glenbrook Laboratories Div.
SDH	Sterling Drug, Inc., Hilton-Davis Chemi
SDW	Sterling Drug, Inc., Winthrop Laborator
SED	Seidlitz Paint & Varnish Co.
SF	Stauffer Chemical Co.
SFA	Stauffer Chemical Co., Anderson Chemica
SH	Stein, Hall & Co., Inc.
SHC	Shell Oil Co., Shell Chemical Co. Div.
SHF	National Dairy Products Corp., Sheffiel Co. Div.
SHL	Shulton, Inc.
SHO	Shell Oil Co.
SHP	Shepherd Chemical Co.
SID	George F. Siddall Co., Inc.
SIM	Simpson Redwood Co.
SIN	Sinclair Refining Co.
SIP	James B. Sipe & Co.
SK	Smith, Kline & French Laboratories
SKG	Sunkist Growers, Inc.
SLC	Soluol Chemical Co., Inc.
SLV	Salvo Chemical Corp.
SM	Socony Mobil Oil Co., Inc., Mobil Oil C
SNA	Sun Chemical Corp., Ansbacher-Siegle Cc
SNC	Sonoco Products Co.
SNI	Southern Nitrogen Co.
SNM	Mansun Paint Co., Inc.
SNO	SunOlin Chemical Co.
SNT	Suntide Refining Co.
SOC	Standard Oil Co. of California, Westerr Inc.
SOG	Signal Oil & Gas Co.
SOH	Solar Nitrogen Chemicals, Inc., Sohio C Agent
SOI	Standard Oil Co. of Indiana
SOL	Solar Chemical Corp.
SON	Sonneborn Chemical & Refining Corp.
SOR	Southern Resin Glue Co.
SOS	Southern Sizing Co.
SPC	Chemetron Corp., Specific Pharmaceutica Products Div.
SPD	General Electric Co., Silicone Products
SPL	Spaulding Fibre Co., Inc.
SPN	Spencer Chemical Co.
SPP	Socony Paint Products Co.
SRC	Shawinigan Resins Corp.
SRL	G. D. Searle & Co.
SRR	Fred'k A. Stresen-Reuter, Inc.
STA	A. E. Staley Manufacturing Co.
STD	Standard Dyestuff Corp.
STG	Wm. J. Stange Co.
STN	Standard Naphthalene Products Co., Inc.
STP	Stepan Chemical Co.
STT	Standard Toch Chemicals, Inc.
SUC	Standard Ultramarine & Color Co.
SUM	Summit Chemical Products Corp.
SUN	Sun Oil Co.
SVC	Sullivan Varnish Co.
SVT	Solvent Chemical Co., Inc.
SW	Sherwin-Williams Co.
SWC	S & W Chemical Co., Inc.
SWT	Swift & Co.
SYC	Synthetic Chemicals, Inc.
SYP	Synthetic Products Co.
SYR	Synco Resins, Inc.
SYV	Synvar Corp.
TAE	Thomas A. Edison Industries, McGraw-Edi
TAR	Witco Chemical Co., Inc., Tar Distillin Div.
TAY	Taylor Fibre Co.
TBK	Trubek Laboratories
TCC	Tanatex Chemical Corp.
TDC	Diversey Corp.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Name of company	Code	Name of company
langle Chemical Co.	VIC	Stauffer Chemical Co., Victor Chemical Works Div.
ompson Chemical Co.	VIN	Vineland Chemical Co.
onderoga Chemical Corp.	VIS	Visco Products Co.
okol Chemical Corp.	VLY	Verley Chemical Co., Inc.
masset Colors, Inc.	VNC	Vanderbilt Chemical Corp.
nessee Corp.	VND	Van Dyk & Co., Inc.
yl Corp.	VPC	Verona-Pharma Chemical Corp.
nessee Products & Chemical Corp.	VPT	Vickers Petroleum Co., Inc.
s River Chemical Corp.	VSV	Valentine Sugars, Inc., Valite Div.
jan Powder Co.	VTM	Vitamins, Inc.
plow Chemical Co.	VTV	Vita-Var Corp.
rex Chemical Industries, Inc.		
as-U.S. Chemical Co.	WAS	T. F. Washburn Co.
sey Varnish Co.	WAW	W. A. Wood Co.
aco, Inc.	WBG	White & Bagley Co.
as Butadiene & Chemical Corp.	WCA	West Coast Adhesives Co.
Chemical Co.	WDC	Western Dry Color Co.
	WEV	Geo. D. Wetherill Varnish Co.
E. Staley Manufacturing Co., U B S Chemical	WHI	White & Hodges, Inc.
o. Div.	WHW	Whittemore-Wright Co., Inc.
ion Carbide Corp., Union Carbide Chemicals	WIC	Wica Co., Inc.
o. Div.	WIL	Wilson & Co., Inc., Wilson Laboratories Div.
ion Carbide Corp., Union Carbide Plastics Co.	WLM	Wilmot & Cassidy, Inc.
iv.	WOI	Western Organics, Inc.
ion Carbide Corp., Silicones Div.	WON	Woonsocket Color & Chemical Co.
versal Detergents, Inc. & Petrochemicals Co.	WPC	Warren Paint & Color Co.
l Uhlich & Co., Inc.	WRC	Wood Ridge Chemical Corp.
ted Cork Companies	WRD	Weyerhaeuser Co., Roddis Div.
gerer & Co.	WRN	Warner-Jenkinson Manufacturing Co.
ion Oil Co. of California	WRS	Wheeler, Reynolds & Stauffer
ted States Pipe & Foundry Co.	WST	Westville Laboratories, Inc.
john Co.	WTC	Witco Chemical Co., Inc.
versal Oil Products Co.	WTH	Wallace & Tiernan, Inc., Harchem Div.
ted Rubber & Chemical Co.	WTL	Wallace & Tiernan, Inc., Lucidol Div.
S. Borax Research Corp.	WTM	Wallace & Tiernan, Inc.
tional Distillers & Chemical Corp., U.S.	WTT	John H. Witte & Sons, Resin Div.
Industrial Chemicals Co. Div.	WTU	Witco Chemical Co., Inc., Ultra Chemical Works, Inc. Div.
S. Oil Co.	WVA	West Virginia Pulp & Paper Co., Polychemicals Div.
S. Plastic Products Corp.	WYN	Wyandotte Chemicals Corp.
S. Rubber Co., Naugatuck Chemical Div.	WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.
versal Chemicals Corp.		
versal Western Chemical Corp.		
	YAC	Yates Co.
chem	YAW	Young Aniline Works, Inc.
chhold Chemicals, Inc., Varcum Chemical Div.		
rginia-Carolina Chemical Corp.		
sicol Chemical Corp.		

TABLE 23. --*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

SECTION 2. ALPHABETICAL DIRECTORY BY COMPANY

[Names of synthetic organic chemical manufacturers that reported production or sales to the U.S. Tariff for 1960 are listed below alphabetically, together with their identification codes as used in tables Sec. 1 of this table lists these manufacturers in the order of their identification codes]

Code	Name of company	Office address
ABB	Abbott Laboratories	14th St. and Sheridan Rd., North Chicago, Ill.
ACR	Acme Resin Corp	1401 Circle Ave., Forest Park, Ill.
ACO	Acralite Co., Inc., Acco Polymers Div	59 Kent St., Brooklyn 22, N.Y.
ADC	Ad-Co Color Corp	66 Lister Ave., Newark 5, N.J.
	Air Reduction Co., Inc.:	
AIR	Air Reduction Chemical Co. Div	150 E. 42d St., New York 17, N.Y.
COL	Colton Chemical Co. Div	1747 Chester Ave., Cleveland 14, Ohio.
ALC	Alco Oil & Chemical Corp	Trenton Ave. and William St., Philadelphia 34, Pa.
ALL	Alliance Color & Chemical Co	33 Avenue P, Newark 5, N.J.
	Allied Chemical Corp.:	
ACG	General Chemical Div	40 Rector St., New York 6, N.Y.
NAC	National Aniline Div	40 Rector St., New York 6, N.Y.
HAR	Harmon Color Works	40 Rector St., New York 6, N.Y.
ACN	Nitrogen Div	40 Rector St., New York 6, N.Y.
ACP	Plastics Div	40 Rector St., New York 6, N.Y.
ACS	Solvay Process Div	P.O. Box 271, Syracuse 1, N.Y.
ALX	Alox Corp	3943 Buffalo Ave., Niagara Falls, N.Y.
AML	Amalgamated Chemical Corp	Ontario and Rorer Sts., Philadelphia 34, Pa.
AMC	Amchem Products, Inc	Brookside Ave., Ambler, Pa.
AAC	American Alcolac Corp	3440 Fairfield Rd., Baltimore 26, Md.
AMK	American Alkyd Industries	Broad and 14th Sts., Carlstadt, N.J.
AAE	American Aniline & Extract Co., Inc	Venango and F Sts., Philadelphia 34, Pa.
AMB	American Bio-Synthetics Corp	710 W. National Ave., Milwaukee 4, Wis.
ABS	American Brake Shoe Co., American Brakeblok Div.	900 W. Maple Rd., Troy, Mich.
MAR	American Can Co., Marathon Div	Menasha, Wis.
AME	American Chemical Corp	2112 E. 223d St., Long Beach 10, Calif.
ACY	American Cyanamid Co	30 Rockefeller Plaza, New York 20, N.Y.
NYC	American Dyewood Co., New York Color & Chemical Co., Inc. Div.	374 Main St., Belleville 9, N.J.
WYT	American Home Products Corp., Wyeth Laboratories, Inc. Div.	P.O. Box 8299, Philadelphia 1, Pa.
AMZ	American Maize Products Co	250 Park Ave., New York 17, N.Y.
	American Marietta Co.:	
AMR	Adhesive, Resin & Chemical Div	42 S. 3d St., Newark, Ohio, and 3400 13th Ave., S.W., Seattle 4, Wash.
AMF	Ferbert-Schorndorfer Co. Div	12815 Elmwood Ave., Cleveland 11, Ohio.
AMS	Ridgway Color & Chemical Co. Div	75 Front St., Ridgway, Pa.
SDC	Southern Dyestuff Co. Div	P.O. Box 10098, Charlotte 1, N.C.
AMO	American Oil Co. (Texas)	P.O. Box 401, Texas City, Tex.
AMP	American Potash & Chemical Corp	3000 W. 6th St., Los Angeles 54, Calif.
ASY	American Synthetic Rubber Corp	P.O. Box 360, Louisville 1, Ky.
AV	American Viscose Corp	1617 Pennsylvania Blvd., Philadelphia 3, Pa.
ALB	Ames Laboratories, Inc	132 Water St., S. Norwalk, Conn.
ACC	Amoco Chemicals Corp	130 E. Randolph Dr., Chicago 1, Ill.
ASL	Ansul Chemical Co	Staunton St., Marinette, Wis.
APX	Apex Chemical Co., Inc	200 S. 1st St., Elizabethport 1, N.J.
APC	Appleton Coated Paper Co	825 E. Wisconsin Ave., Appleton, Wis.
ARA	Arapahoe Chemicals, Inc	2855 Walnut St., Boulder, Colo.
ADM	Archer-Daniels-Midland Co	700 Investors Bldg., Minneapolis 40, Minn.
ARO	Arco Co	7301 Bessemer Ave., Cleveland 27, Ohio.
ARG	Argus Chemical Corp	633 Court St., Brooklyn 31, N.Y.
	Armour & Co.:	
ARC	Armour Industrial Chemical Co. Div	110 N. Wacker Dr., Chicago 6, Ill.
ARP	Armour Pharmaceutical Co. Div	P.O. Box 511, Kankakee, Ill.
ARK	Armstrong Cork Co	W. Liberty St., Lancaster, Pa.
APV	Armstrong Paint & Varnish Works, Inc	1330-1500 S. Kilbourn Ave., Chicago 23, Ill.
AHC	Arnold, Hoffman & Co., Inc	55 Canal St., Providence 1, R.I.
ASH	Ashland Oil & Refining Co	1401 Winchester Ave., Ashland, Ky.
AST	Astra Pharmaceutical Products, Inc	7 Neponset St., Worcester 6, Mass.
ATL	Atlantic Chemical Corp	153 Prospect St., Passaic, N.J.
	Macromol Div	153 Prospect St., Passaic, N.J.
ATR	Atlantic Refining Co	260 S. Broad St., Philadelphia 1, Pa.
APD	Atlas Chemical Industries, Inc	New Murphy Rd. and Concord Pike, Wilmington 99, Del.
APR	Atlas Processing Co	P.O. Box 1786, 3546 Midway St., Shreveport, La.
AUG	Augusta Chemical Co	P.O. Box 660, Augusta, Ga.
AVS	AviSun Corp	1345 Chestnut St., Philadelphia 7, Pa.

TABLE 23. --*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Name of company	Office address
ker Castor Oil Co	40 Avenue A, Bayonne, N.J.
T. Baker Chemical Co	600 N. Broad St., Phillipsburg, N.J.
Taylor Chemical Div	600 N. Broad St., Phillipsburg, N.J.
lfour-Guthrie & Co., Ltd., Chemical Div.	P.O. Box 1627, Tacoma 1, Wash.
ltimore Paint & Chemical Corp	2325 Annapolis Ave., Baltimore 30, Md.
tes Chemical Co., Inc	Scottdale Rd., Lansdowne, Pa.
xter Laboratories, Inc	Morton Grove, Ill.
ech-Nut Life Savers, Inc	Canajoharie, N.Y.
lding Corticelli Industries	1407 Broadway, New York 18, N.Y.
lle Chemical Co., Inc	534 Pearl St., Reading, Pa.
ndix Aviation Corp., Marshall-Eclipse Div.	P.O. Box 538, Troy, N.Y.
nnett's	65 W. 1st South, Salt Lake City 10, Utah.
nzol Products Co	237 South St., Newark 5, N.J.
rkeley Chemical Corp	11 Summit Ave., Berkeley Heights, N.J.
rkshire Color & Chemical Co	12th and Bern Sts., Reading, Pa.
ioferm Corp	P.O. Box 1375, Wasco, Calif.
ios Laboratories, Inc	17 W. 60th St., New York 23, N.Y.
ird & Son, Inc., Floor Covering Div	1934 E. Clark St., E. Walpole, Mass.
lackman-Uhler Chemical Co	Camp Croft, Spartanburg, S.C.
lane Corp	35 Pequit St., Canton, Mass.
orden Chemical Co	350 Madison Ave., New York 17, N.Y.
org-Warner Corp., Marbon Chemical Div	P.O. Box 68, Washington, W. Va.
alter N. Boysen Co	1001 42d St., Oakland 8, Calif.
ristol-Meyers Co., Bristol Laboratories Div.	P.O. Box 657, Syracuse 1, N.Y.
rooklyn Color Works, Inc	681 Morgan Ave., Brooklyn 22, N.Y.
rown Co	650 Main St., Berlin, N.H.
rown Co., Resi-Chem Div	100 E. Broadway, Swanton, Ohio.
ndrew Brown Co	5431 District Blvd., Los Angeles 22, Calif.
. A. Bruder & Sons, Inc	52d St. and Grays Ave., Philadelphia 43, Pa.
ryant Chemical Corp	6 North St., N. Quincy 71, Mass.
uckeye Cellulose Corp	2899 Jackson Ave., Memphis 8, Tenn.
uckman Laboratories, Inc	1256 N. McLean, Memphis 8, Tenn.
urkart-Schier Chemical Co	1228 Chestnut St., Chattanooga 2, Tenn.
urroughs Wellcome & Co. (U.S.A.), Inc	1 Scarsdale Rd., Tuckahoe 7, N.Y.
zura, Inc	Clark St. and Broadway, Keyport, N.J.
amuel Cabot, Inc	246 Summer St., Boston 10, Mass.
adet Chemical Corp	2153 Lockport-Olcott Rd., Burt, N.Y.
alcasieu Chemical Corp	P.O. Box 6, 821 Gravier St., New Orleans 12, La.
alifornia Chemical Co.:	
Cronite Div	200 Bush St., San Francisco 20, Calif.
Ortho Div	Lucas and Ortho Way, Richmond, Calif.
alifornia Ink Co., Inc	545 Sansome St., San Francisco 11, Calif.
allery Chemical Co	Callery, Pa.
apital Plastics, Inc	250 Mill St., Rochester 14, N.Y.
arlisle Chemical Works, Inc	West St., Reading 15, Ohio.
Advance Solvents & Chemical Div	500 Jersey Ave., New Brunswick, N.J.
arnegies Fine Chemicals of Kearny	1106 Harrison Ave., Kearny, N.J.
arpenter-Morton Co	376 3d St., Everett 49, Mass.
arus Chemical Co., Inc	1375 8th St., LaSalle, Ill.
arwin Co	Stiles Lane, North Haven, Conn.
ary Chemicals, Inc	P.O. Box 38, East Brunswick, N.J.
atalin Corp. of America	1 Park Ave., New York, N.Y.
elanese Corp. of America:	
Celanese Chemical Co. Div	522 5th Ave., New York 36, N.Y.
Celanese Polymer Co. Div	744 Broad St., Newark 2, N.J.
entral Paint & Varnish Works, Inc	59 Prospect St., Brooklyn 1, N.Y.
hase Chemical Corp	3527 Smallman St., Pittsburgh 1, Pa.
hemagro Corp	P.O. Box 4913, Hawthorn Rd., Kansas City 20, Mo.
hemetron Corp., Specific Pharmaceuticals, Chemical Products Div.	386 Park Ave. S., New York 16, N.Y.
hemfax, Inc	P.O. Box 763, Gulfport, Miss.
hemical Insecticide Corp	30 Whitman Ave., Metuchen, N.J.
hemical Manufacturing Co., Inc	Megonoto Rd., Ashland, Mass.
hemical Process Co	1901 Spring St., Redwood City, Calif.
hemical Products Corp	P.O. Box 815, Cartersville, Ga.
hemico, Inc	2508 E. Bailey Rd., Cuyahoga Falls, Ohio.
hemlek Laboratories, Inc	4040 W. 123d St., Worth, Ill.
hemstrand Corp	350 5th Ave., New York 1, N.Y.
hilds Pulp Colors, Inc	43 Summit St., Brooklyn 31, N.Y.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Code	Name of company	Office address
CBP	Ciba Pharmaceutical Products, Inc------	556 Morris Ave., Summit, N.J.
CIT	City Chemical Corp----------	132 W. 22d St., New York 11, N.Y.
CLY	W. A. Cleary Corp----------	P.O. Box 749, New Brunswick, N.J.
CCH	Clinton Chemical Co----------	P.O. Box 108, Phillipsburg, Pa.
CLV	Clover Chemical Co----------	360 Regis Rd., Pittsburgh 36, Pa.
COK	Cockerille Chemicals, Inc----------	Greenwood, Va.
CP	Colgate-Palmolive Co----------	300 Park Ave., New York 22, N.Y.
CW	Collett-Week Corp----------	Quimby St., Ossining 12, N.Y.
CI	Colloids, Inc----------	394 Frelinghuysen Ave., Newark 12, N.J.
CC	Collway Colors, Inc----------	15 Market St., Paterson 1, N.J.
CLB	Columbia Organic Chemicals, Inc--------	1012 Drake St., Columbia, S.C.
CMC	Comcolloid, Inc----------	3240 Grace Ave., New York 69, N.Y.
COR	Commercial Resins Corp----------	594 James Ave., St. Paul 2, Minn.
COM	Commercial Solvents Corp----------	260 Madison Ave., New York 16, N.Y.
CON	Concord Chemical Co., Inc----------	205 S. 2d St., Camden 1, N.J.
CDF	Concord-Danan Co----------	3475 3d Ave., New York 56, N.Y.
CPT	Consolidated Paint Co----------	3101 E. 11th St., Los Angeles 23, Calif.
CWP	Consolidated Water Power & Paper Co----	1140 E. John St., Wisconsin Rapids, Wis.
CD	Continental-Diamond Fibre Corp---------	70 S. Chapel St., Newark, Del.
CO	Continental Oil Co----------	1000 S. Pine, Ponca City, Okla.
CPV	Cook Paint & Varnish Co----------	P.O. Box 389, Kansas City 41, Mo.
CFA	Cooperative Farm Chemicals Association-	P.O. Box 80, Lawrence, Kans.
COP	Coopers Creek Chemical Corp----------	River Rd., W. Conshohocken, Pa.
CBC	Coos Bay Timber Co----------	P.O. Box 869, Coos Bay, Oreg.
CPY	Copolymer Rubber & Chemical Corp-------	P.O. Box 2591, Baton Rouge 1, La.
CRN	Corn Products Co----------	717 5th Ave., New York 22, N.Y.
CSD	Cosden Petroleum Corp----------	P.O. Box 1311, Big Spring, Tex.
CWL	Cowles Chemical Co----------	7016 Euclid Ave., Cleveland 3, Ohio.
ALT	Crompton & Knowles Corp., Althouse Chemical Co. Div.	540 Pear St., Reading, Pa.
CBY	Crosby Chemicals, Inc----------	P.O. Box 111, Picayune, Miss.
CCP	Crown Central Petroleum Corp----------	American Bldg., Baltimore 2, Md.
CRC	Crown Chemical Corp----------	240 India St., Providence 3, R.I.
CRO	Crownoil Chemical Co., Inc----------	2-14 49th Ave., Long Island 1, N.Y.
CRT	Crown Tar & Chemical Works, Inc--------	900 Wewatta St., Denver 4, Colo.
CRZ	Crown Zellerbach Corp., Chemical Products Div.	343 Sansome St., Camas, Wash.
CUT	Cutter Laboratories----------	4th and Parker Sts., Berkeley 10, Calif.
DAN	Dan River Mills, Inc----------	Danville, Va.
DAV	H. B. Davis Co----------	Bush and Severn Sts., Baltimore 30, Md.
DLI	Dawe's Laboratories, Inc----------	4800 S. Richmond St., Chicago 32, Ill.
DEC	Deecy Products Co----------	120 Potter St., Cambridge 42, Mass.
JDC	John Deere Chemical Co----------	Pryor, Okla.
DCI	Delaware Chemicals, Inc----------	726 King St., Wilmington, Del.
DLH	Delhi-Taylor Oil Corp----------	P.O. Box 4067, Corpus Christi, Tex.
DLM	Delmar Chemical Co., Inc----------	P.O. Box 108, Elkton, Md.
DLT	Delta Chemical Works, Inc----------	23 W. 60th St., New York 23, N.Y.
DEP	DePaul Chemical Co., Inc----------	44-27 Purvis St., Long Island 1, N.Y.
DSO	DeSoto Chemical Coatings, Inc----------	1350 S. Kostner Ave., Chicago 23, Ill.
TTX	Detrex Chemical Industries, Inc--------	P.O. Box 501, Detroit 32, Mich.
DEX	Dexter Chemical Corp----------	845 Edgewater Rd., New York 63, N.Y.
DA	Diamond Alkali Co----------	300 Union Commerce Bldg., Cleveland 14, Ohio.
TDC	Diversey Corp----------	1820 Roscoe St., Chicago 13, Ill.
DOD	Donald A Dodd----------	Rt. 5, Box 621, Everett, Wash.
DOM	Dominion Products, Inc----------	10-40 44th Dr., Long Island 1, N.Y.
DGS	Douglas Chemical Corp----------	1624 Darrow Ave., Evanston, Ill.
DVC	Dover Chemical Co----------	15th and Davis Sts., Dover, Ohio.
DOW	Dow Chemical Co----------	Main St., Midland, Mich.
DCC	Dow Corning Corp----------	P.O. Box 592, Midland, Mich.
DRW	E. F. Drew & Co., Inc----------	416 Division St., Boonton, N.J.
DRG	Drug Processors, Inc----------	1219 E. Church St., Adrian, Mich.
DUN	Frank W. Dunne Co----------	1007 41st St., Oakland 8, Calif.
DUP	E. I. duPont de Nemours & Co., Inc-----	10th and Market Sts., Wilmington 98, Del.
DSC	Dye Specialties, Inc----------	26 Journal Sq., Jersey City 6, N.J.
DYK	Dykem Co----------	2307 N. 11th St., St. Louis 6, Mo.
EAK	J. S. & W. R. Eakins, Inc----------	55 Berry St., Brooklyn 11, N.Y.
EK	Eastman Kodak Co----------	343 State St., Rochester 4, N.Y.
EKT	Tennessee Eastman Co. Div----------	P.O. Box 511, Kingsport, Tenn.
EKX	Texas Eastman Co. Div----------	P.O. Box 2068, Longview, Tex.
EDC	Edcan Laboratories----------	10 Pine St., S. Newark, Conn.
EDY	Eddystone Manufacturing Co----------	P.O. Box 471, Wilmington 99, Del.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Name of company	Office address
ɔmas A. Edison Industries, McGraw-Edison Co. Div.	120 S. LaSalle St., Chicago 3, Ill.
ɛry Industries, Inc	4300 Carew Tower, Cincinnati 2, Ohio.
ɛay Chemical Co	319 2d St., Elizabethport, N.J.
io Laboratories, Inc	84-40 101st St., Richmond Hill 18, N.Y.
jay Chemical Co	15 W. 51st St., New York 19, N.Y.
ɔxylite Corp	1428 N. Tyler Ave., North El Monte, Calif.
imann Chemical Co., Inc	66 Lister Ave., Newark 5, N.J.
cambia Chemical Corp	P.O. Box 467, Pensacola, Fla.
hyl Corp	100 Park Ave., New York 17, N.Y.
hyl-Dow Chemical Co	Midland, Mich.
ans Chemetics, Inc	250 E. 43d St., New York 17, N.Y.
erledge Manufacturing, Inc	Harrison City, Pa.
irmount Chemical Co., Inc	117 Blanchard St., Newark 5, N.J.
rmers' Chemical Co	P.O. Box 591, Kalamazoo, Mich.
rnow, Inc	4-83 48th Ave., Long Island 1, N.Y.
tate of W. U. Farrington	P.O. Box 389, E. Greenwich, R.I.
deral Color Laboratories, Inc	7526 Chickering Ave., Cincinnati 32, Ohio.
lton Chemical Co., Inc	599 Johnson Ave., Brooklyn 37, N.Y.
rro Corp., Ferro Chemical Div	P.O. Box 349, Bedford, Ohio.
ber Chemical Corp	P.O. Box 218, Matawan, N.J.
ne Organics, Inc	205 Main St., Lodi, N.J.
restone Tire & Rubber Co.:	
Firestone Plastics Co. Div	P.O. Box 690, Pottstown, Pa.
Firestone Synthetic Rubber & Latex Co. Div	381 W. Wilbeth Rd., Akron 1, Ohio.
lorasynth Laboratories, Inc	900 Van Nest Ave., New York 62, N.Y.
lorida Chemical Co., Inc	P.O. Box 997, Lake Alfred, Fla.
ɔod Machinery & Chemical Corp.:	
Becco Chemical Div	Sawyer Ave. and River Rd., Tonawanda, N.Y.
Chemical Div	161 E. 42d St., New York 17, N.Y.
Chemicals & Plastics Div	1701 Patapsco Ave., Baltimore 26, Md., and P.O. Box 98, Nitro, W. Va.
ɔremost Food & Chemical Co., El Dorado Div.	P.O. Box 599, Oakland 4, Calif.
ɔrmica Corp., Subsidiary of American Cyanamid Co.	4614 Spring Grove Ave., Cincinnati 32, Ohio.
oster Grant Co., Inc	289 N. Main St., Leominster, Mass.
oster-Heaton Co	16 E. 5th., Paterson 4, N.J.
rance, Campbell & Darling, Inc	N. Michigan Ave., Kenilworth, N.J.
. P. Frank Chemical & Plastics Corp	5410 Avenue U, Brooklyn 34, N.Y.
reeman Chemical Corp	222 E. Main St., Port Washington, Wis.
ries Bros., Inc	P.O. Box 8, Carlstadt, N.J.
risch & Co., Inc	88 E. 11th St., Paterson 4, N.J.
ritzsche Bros., Inc	76 9th Ave., New York 11, N.Y.
. B. Fuller Co	4819 Industrial Ct., Cincinnati 17, Ohio.
. P. Fuller & Co	450 E. Grand Ave., S. San Francisco, Calif.
urane Plastics, Inc	4516 Brazil St., Los Angeles 39, Calif.
amma Chemical Corp	355 Lexington Ave., New York 17, N.Y.
ane's Chemical Works, Inc	535 5th Ave., New York 17, N.Y.
eigy Chemical Corp	P.O. Box 430, Yonkers, N.Y.
eneral Aniline & Film Corp	435 Hudson St., New York, N.Y.
eneral Electric Co.:	
Chemical Materials Dept	1 Plastics Ave., Pittsfield, Mass.
Insulating Materials Dept	1 Campbell Rd., Schenectady 6, N.Y.
Silicone Products Dept	Waterford, N.Y.
eneral Foods Corp., Maxwell Hous Div	1125 Hudson St., Hoboken, N.J.
eneral Mills, Inc	9200 Wayzata Blvd., Minneapolis 26, Minn.
eneral Tire & Rubber Co., Chemical Div.	1708 Englewood Ave., Akron 9, Ohio.
P. D. George Co	5200 N. 2d St., St. Louis 7, Mo.
ilman Paint & Varnish Co	W. 8th and Pine Sts., Chattanooga 1, Tenn.
ivaudan Corp	109-201 Delawanna Ave., Delawanna, N.J.
lidden Co	900 Union Commerce Bldg., Cleveland 14, Ohio.
B. F. Goodrich Co., B. F. Goodrich Chemical Co. Div.	3135 Euclid Ave., Cleveland 15, Ohio.
oodrich-Gulf Chemicals, Inc	1717 E. 9th St., Cleveland 14, Ohio.
Goodyear Tire & Rubber Co	1144 E. Market St., Akron 16, Ohio.
Gordon Chemical Co., Inc	88 Webster St., Worcester 3, Mass.
Gordon Chemicals, Inc	Broad and 13th Sts., Carlstadt, N.J.
Gordon-Lacey Chemical Products Co., Inc	57-02 48th St., Maspeth 78, N.Y.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continued

Code	Name of Company	Office address
	W. R. Grace & Co.:	
GRD	Dewey & Almy Chemical Div----------	62 Whittemore Ave., Cambridge 40, Mass.
GRH	Hatco Chemical Div----------	King George Post Rd., P.O. Box 27, Fords, N.J.
GCC	Nitrogen Products Div----------	147 Jefferson, Memphis 7, Tenn.
GRP	Polymer Chemicals Div----------	225 Allwood Rd., Clifton, N.J.
GPR	Grain Processing Corp----------	1600 Oregon St., Muscatine, Iowa.
GRV	Grand Rapids Varnish Corp----------	1350 Steele Ave. SW., Grand Rapids 2, Mich.
GRA	Great American Plastics Co----------	85 Factory St., Nashua, N.H.
GLC	Great Lakes Chemical Corp----------	2024 Filer City Rd., Filer City, Mich.
GRS	Great Southern Chemical Corp----------	P.O. Box 4166, Corpus Christi, Tex.
GRW	Great Western Sugar Co----------	P.O. Box 5308, Terminal Annex, Denver 17, Colo.
GUA	Guard Chemical Co----------	N. Water St., Ossining, N.Y.
GOC	Gulf Oil Corp----------	P.O. Drawer 2100, Houston 1, Tex.
GDC	Gulf Research & Development Co--------	P.O. Drawer 2038, Pittsburgh 30, Pa.
GUY	Guyan Color & Chemical Works, Inc-----	Box 1088, Huntington 1, W. Va.
HNC	H & N Chemical Co----------	88 Bleeker St., Paterson 4, N.J.
HLI	Haag Laboratories, Inc----------	14110 S. Seeley, Blue Island, Ill.
HAB	Halby Products Co., Inc----------	P.O. Box 366, Wilmington 99, Del.
HAL	C. P. Hall Co. of Illinois----------	5245 W. 73d St., Chicago 38, Ill.
HAM	Hampden Color & Chemical Co----------	5 Albany St., Springfield 5, Mass.
HMP	Hampshire Chemical Corp----------	Poisson Ave., Nashua, N.H.
HAN	Hanna Paint Manufacturing Co., Inc----	1313 Windsor Ave., Columbus 16, Ohio.
HRS	Harris Standard Paint Co., Inc--------	1026 N. 19th St., Tampa 1, Fla.
HSH	Harshaw Chemical Co----------	1945 E. 97th St., Cleveland 6, Ohio.
HRT	Hart Products Corp----------	1440 Broadway, New York 18, N.Y.
HLC	Hartman-Leddon Co., Inc----------	60th and Woodland Ave., Philadelphia 43, Pa.
HVG	Haveg Industries, Inc., Resin & Compound Div.	Plastics Park, Wilmington 8, Del.
HLN	Helene Curtis Industries, Inc---------	4401 W. North Ave., Chicago 39, Ill.
HPC	Hercules Powder Co----------	910 Hercules Tower, Wilmington 99, Del.
IMP	Imperial Color Chemical & Paper Corp. Div.	P.O. Box 231, Glen Falls, N.Y.
HER	Heresite & Chemical Co----------	822 S. 14th St., Manitowoc, Wis.
HET	Heterochemical Corp----------	111 E. Hawthorne Ave., Valley Stream, N.Y.
HEX	Hexagon Laboratories, Inc----------	3536 Peartree Ave., New York 69, N.Y.
HAP	Hexcel Products, Inc., Applied Plastics Div.	130 Penn St., El Segundo, Calif.
HN	Heyden Newport Chemical Corp----------	342 Madison Ave., New York 17, N.Y.
HNW	Newport Industries Div----------	P.O. Box 911, Pensacola, Fla.
HNX	Nuodex Products Div----------	830 Magnolia Ave., Elizabeth, N.J.
HDG	Hodag Chemical Corp----------	7247 N. Central Park Ave., Skokie, Ill.
HST	Hoechst Chemical Corp----------	129 Quidnick St., W. Warwick, R.I.
HOF	Hoffmann-LaRoche, Inc----------	324 Kingsland Rd., Nutley 10, N.J.
HFT	Hoffman-Taff, Inc----------	P.O. Box 1246, Springfield, Mo.
HCC	Holland Color & Chemical Co----------	492 Douglas Ave., Holland, Mich.
HK	Hooker Chemical Corp----------	666 5th Ave., New York 19, N.Y.
HKD	Durez Plastics Div----------	Walck Rd., N. Tonawanda, N.Y.
HKP	Phosphorus Div----------	Buffalo Ave. and 47th St., Niagara Falls, N.Y.
EFH	E. F. Houghton & Co----------	303 W. Lehigh Ave., Philadelphia 33, Pa.
GLY	Chas. L. Huisking & Co., Inc., Glyco Chemicals Div.	417 5th Ave., New York 16, N.Y.
HUC	Hukill Chemical Corp----------	2533 Broadway Ave., Cleveland 13, Ohio.
HMY	Humphrey-Wilkinson, Inc----------	Devine St., North Haven, Conn.
HUS	Husky Oil Co----------	P.O. Box 380, Cody, Wyo.
HYN	Hynson, Westcott & Dunning, Inc-------	Charles and Chase Sts., Baltimore 1, Md.
IDC	Industrial Dyestuff Co----------	Dexter Rd., E. Providence 14, R.I.
INC	Inland Chemical Corp----------	415 Lexington Ave., New York 17, N.Y.
INL	Inland Steel Container Co----------	6532 S. Menard Ave., Chicago 38, Ill.
	Interchemical Corp.:	
ICC	Color & Chemicals Div----------	150 Wagaraw Rd., Hawthorne, N.J.
ICF	Finishes Div----------	224 McWhorter St., Newark 1, N.J.
IFF	International Flavors & Fragrances, Inc----------	521 W. 57th St., New York 19, N.Y.
IMC	International Minerals & Chemical Corp.	5401 Old Orchard Rd., Skokie, Ill.
INP	International Paper Co----------	220 E. 42d St., New York 17, N.Y.
IRC	International Resistance Co----------	401 N. Broad St., Philadelphia 8, Pa.
IPR	Inter-Pacific Resins, Inc----------	P.O. Box 445, Sweet Home, Oreg.
ITX	Intex Chemical Corp----------	165 Main St., Lodi, N.J.
IRI	Ironsides Co----------	270 W. Mound St., Columbus 15, Ohio.

TABLE 23. --*Synthetic organic chemicals*: *Directory of manufacturers, 1960*--Continued

Name of company	Office address
mestown Paint & Varnish Co	Jamestown, Pa.
:fferson Chemical Co., Inc	P.O. Box 303, Houston 1, Tex.
:fferson Lake Sulphur Co., Merichem)o. Div.	1914 Haden Rd., Houston 15, Tex.
mison-Wright Corp	Box 4187, Station E, Toledo 9, Ohio.
irew Jergens Co	2535 Spring Grove Ave., Cincinnati 14, Ohio.
:sey State Chemical Co	59 Lee Ave., Haledon, N.J.
vel Paint & Varnish Co	345 N. Western Ave., Chicago 12, Ill.
C. Johnson & Son, Inc	1525 Howe St., Racine, Wis.
mes-Blair Paint Co	P.O. Box 35286, Dallas 35, Tex.
mes-Dabney Co	1481 S. 11th St., Louisville 8, Ky.
H. & F. Jordan, Jr. Manufacturing)o.	2126 E. Somerset St., Philadelphia 34, Pa.
Li Manufacturing Co	427 E. Moyer St., Philadelphia 25, Pa.
r-Fries Chemicals, Inc	180 Madison Ave., New York 16, N.Y.
lly-Pickering Chemical Corp	956 Bransten Rd., San Carlos, Calif.
ndall Refining Co	77 Kendall Ave., Bradford, Pa.
necott Copper Corp.:	
)hino Mines Div	Hurley, N. Mex.
Utah Copper Div	P.O. Box 1650, Salt Lake City 10, Utah.
nrich Petrochemicals, Inc	57-02 48th St., Maspeth 78, N.Y.
ssler Chemical Co., Inc	State Rd. and Cottman Ave., Philadelphia 35, Pa.
rsor Chemical Co	26000 Bouquet Canyon Rd., Saugus, Calif.
rstone Chemurgic Corp	R.D. #2, Bethlehem, Pa.
rstone Color Works, Inc	151 W. Gay Ave., York, Pa.
rstone Paint & Varnish Corp	71 Otsego St., Brooklyn 31, N.Y.
sdonk Chemical Corp	101 Canal St., Lock Haven, Pa.
L. King & Co	640 Gilman St., Berkeley 10, Calif.
npp Products, Inc	180 Hamilton Ave., Lodi, N.J.
)edler Chemical Co	651 High St., Lancaster, Pa.
ndsen Creamery Co. of California,)alresin Co. Div.	4543 Brazil St., Los Angeles 39, Calif.
Kohnstamm & Co., Inc	161 Avenue of the Americas, New York 13, N.Y.
ker Chemical Corp	600 Doremus Ave., Newark 5, N.J.
)pers Co., Inc.:	
)hemicals & Dyestuffs Div	Koppers Bldg., 430 7th Ave., Pittsburgh 19, Pa.
)lastics Div	Koppers Bldg., 430 7th Ave., Pittsburgh 19, Pa.
Tar Products Div	Koppers Bldg., 430 7th Ave., Pittsburgh 19, Pa.
rstall Chemical Co	1301 W. Belden Ave., Chicago 14, Ill.
nize Paints, Inc	2d and Boston Sts., Everett 49, Mass.
ceside Laboratories, Inc	1707 E. North Ave., Milwaukee 1, Wis.
Motte Chemical Products Co	Chestertown, Md.
Salle Chemical Corp	21-23 Merseles St., Jersey City 2, N.J.
nrel Soap Manufacturing Co., Inc	Thompson and Tioga Sts., Philadelphia 34, Pa.
rence Mills, Inc	19 S. Canal St., Lawrence, Mass.
rter Chemicals, Inc., Krumbhaar lesin Div.	3550 Touhy Ave., Chicago 45, Ill.
atex Chemical Co	2722 N. Hancock St., Philadelphia 33, Pa.
)anon Chemical Corp	P.O. Box 532, Lebanon, Pa.
:fingwell Chemical Co	10523 S. Santa Gertrudes Rd., Whittier, Calif.
nigh Chemical Co	P.O. Box 120, Chestertown, Md.
L. Lemke & Co., Inc	199 Main St., Lodi, N.J.
)nard Refineries, Inc	E. Superior St., Alma, Mich.
rer Brothers Co	390 Park Ave., New York 22, N.Y.
Lever Co., Inc	Howard and Huntington Sts., Philadelphia 33, Pa.
ed'k H. Levey Co., Inc	380 Madison Ave., New York 17, N.Y.
ris Tar Products Co	P.O. Box A, Lyons, Ill.
. Lilly & Co	740 S. Alabama St., Indianapolis 6, Ind.
nrles R. Long, Jr. Co	1630 W. Hill St., Louisville 10, Ky.
)rizol Corp	Cleveland 17, Ohio.
)rge Lueders & Co	427 Washington St., New York 13, N.Y.
gnolia Plastics, Inc	5547 Peachtree Industrial Blvd., Chamblee, Ga.
gruder Color Co., Inc	2385 Richmond Terrace, Staten Island 2, N.Y.
her Color & Chemical Co	1700 N. Elston Ave., Chicago 22, Ill.
llinckrodt Chemical Works	3600 N. 2d St., St. Louis 7, Mo.
nsun Paint Co., Inc	416 Boulevard, E. Paterson, N.J.
rblette Corp	37-31 30th St., Long Island City 1, N.Y.
rden-Wild Corp	500 Columbia St., Somerville 43, Mass.
rlowe-Van Loan Corp	1511 Byrum St., High Point, N.C.
x Marx Color & Chemical Co	192 Coit St., Irvington 11, N.J.
ryland Plastics, Inc	25 E. Central Ave., Federalsburg, Md.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continue

Code	Name of company	Office address
MCO	Mathe Chemical Co	169 Millbank St., Lodi, N.J.
MEE	Maumee Chemical Co	1310 Expressway Dr., Toledo 8, Ohio.
MAY	Otto B. May, Inc	52 Amsterdam St., Newark 5, N.J.
MCC	McCloskey Varnish Co	7600 State Rd., Philadelphia 49, Pa.
MCW	McWhorter Chemicals, Inc	1645 S. Kilbourn Ave., Chicago 23, Ill.
MED	Medical Chemicals Corp	4122 W. Grand Ave., Chicago 51, Ill.
MRK	Merck & Co., Inc	Lincoln Ave., Rahway, N.J.
MJM	M. J. Merkin Paint Co., Inc	1441 Broadway, New York 18, N.Y.
MPC	Mesa Plastics Co	12270 Nebraska Ave., Los Angeles 25, Calif.
MHI	Metal Hydrides, Inc	12-24 Congress St., Beverly, Mass.
MTL	Metalsalts Corps	200 Wagaraw Rd., Hawthorne, N.J.
MRA	Metro-Atlantic, Inc	2072 Smith St., Centerdale 11, R.I.
JMS	J. Meyer & Sons, Inc	4321 N. 4th St., Philadelphia 40, Pa.
MCH	Michigan Chemical Corp	500 N. Bankson St., St. Louis, Mich.
MID	Midland Industrial Finishes Co	E. Water St., Waukegan, Ill.
MLS	Miles Chemical Co	1127 Myrtle St., Elkhart, Ind.
MOR	Mineral Oil Refining Co	P.O. Drawer C, Dickinson 1, Tex.
MMM	Minnesota Mining & Manufacturing Co	900 Bush Ave., St. Paul 6, Minn.
MNP	Minnesota Paints, Inc	1101 S. 3d St., Minneapolis 15, Minn.
MIR	Miranol Chemical Co., Inc	277 Coit St., Irvington 11, N.J.
MSC	Mississippi Chemical Corp	P.O. Box 563, Yazoo City, Miss.
MOB	Mobay Chemical Co	Penn Lincoln Parkway, W. Pittsburgh, Pa.
MFG	Molded Fiber Glass Body Co	4601 Benefit Ave., Ashtabula, Ohio.
MOA	Mona Industries, Inc	65 E. 23d St., Paterson 17, N.J.
MON	Monsanto Chemical Co	800 N. Lindbergh Blvd., St. Louis 66, Mo.
MTC	Plastics Div	812 Monsanto Ave., Springfield 2, Mass., and P.O. Box Texas City, Tex.
	Western Div	P.O. Box 120, Santa Clara, Calif.
MTR	Montrose Chemical Co	100 Lister Ave., Newark 5, N.J.
MTO	Montrose Chemical Corp. of California	500 S. Virgil Ave., Los Angeles 5, Calif.
MR	Benjamin Moore & Co	548 5th Ave., New York 36, N.Y.
MRN	Morningstar Paisley, Inc	1770 Canalport Ave., Chicago 16, Ill.
MRT	Morton Chemical Co	110 N. Wacker Dr., Chicago 6, Ill.
MRW	Morwear Paint Co	568 14th St., Oakland 12, Calif.
MOT	Motomco, Inc	89 Terminal Ave., Clark, N.J.
NTB	National Biochemical Co	3127 W. Lake St., Chicago 12, Ill.
NTC	National Casein Co	601 W. 80th St., Chicago 20, Ill.
SHF	National Dairy Products Corp., Sheffield Chemical Co. Div.	P.O. Box 630, Norwich, N.Y.
USI	National Distillers & Chemical Corp., U.S. Industrial Chemicals Co. Div.	99 Park Ave., New York 16, N.Y.
NTL	National Lead Co	111 Broadway, New York 6, N.Y.
NPP	National Plastic Products Co	Odenton, Md.
NPI	National Polychemicals, Inc	Eames St., Wilmington, Mass.
NSP	National Southern Products Corp	P.O. Box 390, Tuscaloosa, Ala.
NSC	National Starch & Chemical Corp	750 3d Ave., New York 17, N.Y.
NVF	National Vulcanized Fibre Co	1000 Beach St., Wilmington, Del.
NES	Nease Chemical Co., Inc	P.O. Box 221, State College, Pa.
NEP	Nepera Chemical Co., Inc	Rt. 17 and Averill Ave., Harriman, N.Y.
NEV	Neville Chemical Co	Neville Island, Pittsburgh 25, Pa.
NYP	New York & Pennsylvania Co., Inc	425 Park Ave., New York 22, N.Y.
NIL	Nilok Chemicals, Inc	2000 College Ave., Niagara Falls, N.Y.
NON	A. P. Noweiler Co	P.O. Box 1007, Oshkosh, Wis.
NOP	Nopco Chemical Co., Inc	60 Park Pl., Newark 2, N.J.
NEO	Norda Essential Oil & Chemical Co., Inc	601 W. 26th St., New York 1, N.Y.
NW	Northwestern Chemical Co	120 N. Aurora St., W. Chicago, Ill.
NOR	Norwich Pharmacal Co	17 Eaton Ave., Norwich, N.Y.
OB	O'Brien Corp	2001 W. Washington Ave., South Bend 21, Ind.
ODB	Odessa Butadiene Co	P.O. Box 1161, El Paso, Tex.
ODS	Odessa Styrene Co	P.O. Box 1161, El Paso, Tex.
OH	Ohio Chemical & Surgical Equipment Co	1400 E. Washington Ave., Madison 10, Wis.
OIL	Oil & Chemical Products, Inc	295 Madison Ave., New York 17, N.Y.
OLC	Old Colony Tar Co., Inc	500 5th Ave., New York 36, N.Y.
OLH	Old Hickory Chemical Co., Inc	P.O. Box 1480, Richmond 12, Va.
OMC	Olin Mathieson Chemical Corp	P.O. Box 1996, Baltimore 3, Md.
OMB	Blockson Chemical Co. Div	Joliet, Ill.
OMS	E. R. Squibb & Sons Div	745 5th Ave., New York 22, N.Y.
ONX	Onyx Chemical Corp	190 Warren St., Jersey City 2, N.J.
OPC	Orbis Products Corp	601 W. 26th St., New York 1, N.Y.
ORG	Organics, Inc	1724 Greenleaf Ave., Chicago 26, Ill.
ORT	Ortho Chemical Corp	52-20 37th St., Long Island City 1, N.Y.

TABLE 23. --*Synthetic organic chemicals*: *Directory of manufacturers, 1960*--Continued

Name of company	
. Osborn Co	1301 W. Blancke St., Linden, N.J.
wa Chemical Co	700 N. Wheeling St., Toledo 5, Ohio.
l Oil Co	455 Cortlandt St., Belleville 9, N.J.
s-Corning Fiberglas Corp	National Bank Bldg., Toledo 1, Ohio.
t Brewing Co	917 W. Juneau Ave., Milwaukee 1, Wis.
fic Carbide & Alloys Co	P.O. Box 5607, Portland 17, Oreg.
American Petroleum Corp	P.O. Box 591, Tulsa 2, Okla.
asote Co	26 Jefferson St., Passaic, N.J.
e-Davis & Co	Foot of Jos. Campau, Detroit 32, Mich.
. Parsons-Plymouth, Inc	59 Beekman St., New York 38, N.Y.
nt Chemicals, Inc.	335 McLean Blvd., Paterson 4, N.J.
-Lewis Laboratories, Inc	4215 N. Port Washington Ave., Milwaukee 12, Wis.
's Products Co	610 E. Clarence Ave., St. Louis 15, Mo.
less Chemical Co	3850 Oakman Blvd., Detroit 4, Mich.
less Color Co., Inc	521 North Ave., Plainfield, N.J.
on Corp	7847 W. 47th St., Lyons, Ill.
. Penick & Co	100 Church St., New York, N.Y.
salt Chemicals Corp	3 Penn Center, Philadelphia 2, Pa.
sylvania Industrial Chemical Corp-	120 State St., Box 240, Clairton, Pa.
sylvania Refining Co	Butler Savings and Trust Bldg., Butler, Pa.
ins Glue Co.	632 Cannon Ave., Lansdale, Pa.
y & Derrick Co., Inc	2510 Highland Ave., Cincinnati 12, Ohio.
oleum Chemicals, Inc	P.O. Box 1522, Lake Charles, La.
o-Tex Chemical Corp	P.O. Box 2584, Houston 1, Tex.
stiehl Laboratories, Inc	1219 Glen Rock Ave., Waukegan, Ill.
idler Permutit, Inc., Ionac emical Co. Div.	Birmingham, N.J.
ter Chemical Works, Inc	Linden Ave., Ridgefield, N.J.
. Pfizer & Co., Inc.	235 E. 42d St., New York 17, N.Y.
machem Corp	Broad and Wood Sts., Bethlehem, Pa.
an-Faust Paint Manufacturing Co-	932 Loughborough Ave., St. Louis 11, Mo.
lips Chemical Co	Adams Bldg., Bartlesville, Okla.
lips Petroleum Co	Phillips Bldg., Bartlesville, Okla.
nix Oil Co	9505 Cassius Ave., Cleveland 5, Ohio.
ce Chemical Co	P.O. Box 117, Rockford, Ill.
t Chemical Co. of California	11756 Burke St., Santa Fe Springs, Calif.
-Consol Chemical Co	191 Doremus Ave., Newark 5, N.J.
sburgh Coke & Chemical Co., Pitts- rgh Chemical Co. Div.	2000 Grant Bldg., Pittsburgh 30, Pa.
sburgh Plate Glass Co	1 Gateway Center, Pittsburgh 22, Pa.
etary Chemical Co., Inc	3500 DeKalb St., St. Louis 18, Mo.
tics Corp. of America	700 Canal St., Box 1158, Stamford, Conn.
tics Engineering Co	1607 Geele Ave., Sheboygan, Wis.
ib Chemical Corp	4837 James St., Philadelphia 37, Pa.
chemical Laboratories, Inc	490 Hunts Point Ave., New York 59, N.Y.
mer Corp	Fairmont and Alton Aves., Reading, Pa.
mer Industries, Inc	Viaduct Rd., Springdale, Conn.
Resins	11655 Wicks St., Sun Valley, Calif.
rez Co., Inc	So. Columbia St. and Railroad, Woodbury, N.J.
hkeepsie Dyestuff Corp	77 N. Water St., Poughkeepsie, N.Y.
t & Lambert, Inc	75 Tonawanda St., Buffalo 7, N.Y.
ess Chemicals Co	8733 S. Dice Rd., Santa Fe Springs, Calif.
ter & Gamble Co., Procter & Gamble nufacturing Co. Div.	301 E. 6th St., Cincinnati 2, Ohio.
tor Chemical Co., Inc	P.O. Box 399, Salisbury, N.C.
luctol Co	417 S. Hill St., Los Angeles 13, Calif.
licker Industries, Inc	1429 Walnut St., Philadelphia 2, Pa.
t Sound Pulp & Timber Co	300 Laurel St., Bellingham, Wash.
Oil Co	200 E. Gulf Rd., Palatini, Ill.
x Corp., Ltd	9300 Rayo Ave., South Gate, Calif.
ter Chemical Products Corp	Elm, Lime, and Sandy Sts., Conshohocken, Pa.
ter Oats Co	Merchandise Mart Plaza, Chicago 54, Ill.
. A. Corp	690 Saw Mill River Rd., Ardsley, N.Y.
estos-Manhattan, Inc., Raybestos .v.	P.O. Box 1021, Bridgeport 2, Conn.
tte, Inc., Chemical Div	261 E. 5th St., St. Paul 1, Minn.
Spot Paint & Varnish Co., Inc.	110 Main St., Evansville 8, Ind.
ned Products Corp	624 Schuyler Ave., Lyndhurst, N.J.
hhold Chemicals, Inc	525 N. Broadway, White Plains, N.Y.
kydol Laboratories Div	7738 W. 61st Pl., Summit, Ill.
rcum Chemical Div	Niagara Falls, N.Y.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Continue

Code	Name of company	Office address
RIL	Reilly Tar & Chemical Corp----------	1615 Merchants Bank Bldg., Indianapolis 4, Ind.
REL	Reliance Varnish Co., Inc----------	4730 Crittenden Dr., Louisville 9, Ky.
CPL	Coast Paint & Lacquer Co. Div-------	P.O. Box 1113, Houston 1, Tex.
REM	Remington Arms Co., Inc----------	939 Barnum Ave., Bridgeport 2, Conn.
REP	Republic Creosoting Co----------	1615 Merchants Bank Bldg., Indianapolis 4, Ind.
RCC	Rexall Chemical Co----------	8480 Beverly Blvd., Los Angeles 54, Calif.
REZ	Rezolin, Inc----------	1651 18th St., Santa Monica, Calif.
RDA	Rhodia, Inc----------	60 E. 56th St., New York 22, N.Y.
RCD	Richardson Co----------	27th Ave. and Lake St., Melrose Park, Ill.
RIC	Richfield Oil Corp----------	555 S. Flower St., Los Angeles 17, Calif.
RIK	Riker Laboratories, Inc----------	19901 Nordhoff St., Northridge, Calif.
RMC	Rinshed-Mason Co----------	5935 Milford Ave., Detroit 10, Mich.
RT	F. Ritter & Co----------	4001 Goodwin Ave., Los Angeles 39, Calif.
RTC	Ritter Chemical Co., Inc----------	403 W. Main St., Amsterdam, N.Y.
RIV	Riverdale Chemical Co----------	220 E. 17th St., Chicago Heights, Ill.
RB	Robert & Co., Inc----------	20 Vesey St., New York 7, N.Y.
RBC	Roberts Chemicals, Inc----------	P.O. Box 446, Nitro, W. Va.
ROC	Rock Hill Printing & Finishing Co-----	Rock Hill, S.C.
RGC	Rogers Corp----------	Mill St., Rogers, Conn.
RH	Rohm & Haas Co----------	222 W. Washington Sq., Philadelphia 5, Pa.
ROM	Roma Chemical Corp----------	900 Passaic Ave., E. Newark, N.J.
ROS	Rosett Chemicals, Inc----------	84 Waydell St., Newark 5, N.J.
ROY	Royce Chemical Co----------	Carlton Ave., Carlton Hill, N.J.
RUB	Rubber Corp. of America----------	New South Rd., Hicksville, N.Y.
RUR	Ruberoid Co----------	500 5th Ave., New York 36, N.Y.
SWC	S & W Chemical Co., Inc----------	P.O. Box 995, LaPorte, Tex.
LKY	St. Regis Paper Co., Lake States Yeast & Chemical Div.	603 W. Davenport St., Rhinelander, Wis.
SAL	Dr. Salsbury's Laboratories----------	500 Gilbert St., Charles City, Iowa.
SLV	Salvo Chemical Corp----------	Rothschild, Wis.
SAN	Sandoz, Inc----------	61-63 Van Dam St., New York 13, N.Y.
SAR	Sartomer Resins, Inc----------	32d and Spring Garden Sts., Philadelphia 4, Pa.
SCF	Schaefer Varnish Co., Inc----------	15th and Magnolia Sts., Louisville 10, Ky.
SCN	Schenectady Varnish Co., Inc----------	Congress St. and 9th Ave., Schenectady 1, N.Y.
SCR	R. P. Scherer Corp----------	9425 Grinnell Ave., Detroit 13, Mich.
SCH	Schering Corp----------	1011 Morris Ave., Union, N.J.
SCO	Scholler Bros., Inc----------	Collins and Westmoreland Sts., Philadelphia 34, Pa.
FMF	Schuylkill Chemical Co----------	2346 Sedgley Ave., Philadelphia 32, Pa.
SBR	Schwarz Bioresearch, Inc----------	230 Washington St., Mt. Vernon, N.Y.
SRL	G. D. Searle & Co----------	P.O. Box 5110, Chicago 80, Ill.
SED	Seidlitz Paint & Varnish Co----------	18th and Garfield, Kansas City 10, Mo.
SRC	Shawinigan Resins Corp----------	644 Monsanto Ave., Springfield 1, Mass.
SHO	Shell Oil Co----------	50 W. 50th St., New York 20, N.Y.
SHC	Shell Chemical Co. Div----------	50 W. 50th St., New York 20, N.Y.
SHP	Shepherd Chemical Co----------	2803 Highland Ave., Cincinnati 12, Ohio.
SW	Sherwin-Williams Co----------	101 Prospect Ave., N.W., Cleveland 1, Ohio.
SHL	Shulton, Inc----------	P.O. Box 46, Clifton, N.J.
SID	George F. Siddall Co., Inc----------	P.O. Box 925, Spartanburg, S.C.
SOG	Signal Oil & Gas Co----------	P.O. Box 5008, Harrisburg Station, Houston 12, Tex.
SIM	Simpson Redwood Co----------	2301 N. Columbia Blvd., Portland 17, Oreg.
SIN	Sinclair Refining Co----------	600 5th Ave., New York 20, N.Y.
SIP	James B. Sipe & Co----------	Box 8010, Pittsburgh 16, Pa.
SK	Smith, Kline & French Laboratories----	1500 Spring Garden St., Philadelphia 1, Pa.
SM	Socony Mobil Oil Co., Inc., Mobil Oil Co. Div.	612 S. Flower St., Los Angeles 54, Calif., and P.O. Beaumont, Tex.
SPP	Socony Paint Products Co----------	Metuchen, N.J.
SOH	Solar Nitrogen Chemicals, Inc., Sohio Chemical Co., Agent.	554A Guildhall Bldg., Cleveland 15, Ohio.
SOL	Solar Chemical Corp----------	29 Fuller St., Leominster, Mass.
SLC	Soluol Chemical Co., Inc----------	Green Hill and Market Sts., W. Warwick, R.I.
SVT	Solvent Chemical Co., Inc----------	341 Commercial St., Malden 48, Mass.
SON	Sonneborn Chemical & Refining Corp----	300 Park Ave. S., New York 10, N.Y.
SNC	Sonoco Products Co----------	Hartsville, S.C.
SNI	Southern Nitrogen Co----------	P.O. Box 246, Savannah, Ga.
SOR	Southern Resin Glue Co----------	P.O. Box 352, Fayetteville, N.C.
SOS	Southern Sizing Co----------	3056 SE. Main St., East Point, Ga.
SPL	Spaulding Fibre Co., Inc----------	310 Wheeler St., Tonawanda, N.Y.
SPN	Spencer Chemical Co----------	610 Dwight Bldg., Kansas City 5, Mo.
STA	A. E. Staley Manufacturing Co----------	22d and Eldorado Sts., Decatur, Ill.
UBS	U B S Chemical Co. Div----------	491 Main St., Cambridge 42, Mass.
SAC	Standard Agricultural Chemicals, Inc--	1301 Jefferson St., Hoboken, N.J.
CLN	Standard Brands, Inc., Clinton Corn Processing Co. Div.	Clinton, Iowa.

TABLE 23.--*Synthetic organic chemicals*: *Directory of manufacturers, 1960*-- Continued

Name of company	Office address
iard Chemical Products, Inc--------	1301 Jefferson St., Hoboken, N.J.
iard Chlorine Chemical Co., Inc----	115 Jacobus Ave., S. Kearny, N.J.
iard Dyestuff Corp-----------------	19 E. 5th St., Paterson 4, N.J.
iard Naphthalene Products Co., Inc-	115 Jacobus Ave., S. Kearny, N.J.
iard Oil Co. of California, Western erations, Inc.	225 Bush St., San Francisco 20, Calif.
iard Oil Co. of Indiana------------	910 S. Michigan Ave., Chicago 80, Ill.
iard Toch Chemicals, Inc-----------	2600 Richmond Ter., Staten Island 3, N.Y.
iard Ultramarine & Color Co--------	P.O. Box 2166, Huntington 18, W. Va.
J. Stange Co-----------------------	342 N. Western Ave., Chicago 12, Ill.
ley Works, Stanley Chemical Co. Div	Berlin St., E. Berlin, Conn.
ffer Chemical Co-------------------	380 Madison Ave., New York 17, N.Y.
derson Chemical Co. Div------------	380 Madison Ave., New York 17, N.Y.
lhio Chemicals Div-----------------	380 Madison Ave., New York 17, N.Y.
ctor Chemical Works Div------------	155 N. Wacker Dr., Chicago 6, Ill.
ker Chemicals, Inc-----------------	45 N. Broad St., Ridgewood, N.J.
n, Hall & Co., Inc-----------------	285 Madison Ave., New York 17, N.Y.
an Chemical Co---------------------	Evans and Winnetta, Northfield, Ill.
ywood Chemical Works Div-----------	100 W. Hunter Ave., Maywood, N.J.
ling Drug, Inc.:	
enbrook Laboratories Div-----------	1450 Broadway, New York 18, N.Y.
lton-Davis Chemical Co. Div--------	2235 Langdon Farm Rd., Cincinnati 13, Ohio.
nthrop Laboratories Div------------	1450 Broadway, New York 18, N.Y.
'k A. Stresen-Reuter, Inc----------	400 W. Roosevelt Ave., Bensenville, Ill.
ivan Varnish Co--------------------	410 N. Hart St., Chicago 22, Ill.
it Chemical Products Corp----------	11 William St., Belleville 9, N.J.
Chemical Corp., Ansbacher-Siegle rp. Div.	92 Chestnut Ave., Staten Island 5, N.Y.
ist Growers, Inc-------------------	707 W. 5th St., Los Angeles, Calif.
Oil Co-----------------------------	1608 Walnut St., Philadelphia 3, Pa.
)lin Chemical Co-------------------	1616 Walnut St., Philadelphia, Pa.
ide Refining Co--------------------	P.O. Box 658, Corpus Christi, Tex.
't & Co----------------------------	4115 S. Packers Ave., Chicago 9, Ill.
o Resins, Inc----------------------	Henry St., Bethel, Conn.
hetic Chemicals, Inc---------------	335 McLean Blvd., Paterson 4, N.J.
hetic Products Co------------------	1636 Wayside Rd., Cleveland 20, Ohio.
ar Corp----------------------------	726 King St., Wilmington 99, Del.
itex Chemical Corp-----------------	Belleville Turnpike, Kearny, N.J.
lor Fibre Co-----------------------	P.O. Box 471, Norristown, Pa.
iessee Corp------------------------	61 Broadway, New York 6, N.Y.
iessee Products & Chemical Corp-----	2611 West End Ave., Nashville 5, Tenn.
ico, Inc---------------------------	135 E. 42d St., New York 17, N.Y.
is Butadiene & Chemical Corp-------	440 Bank of the Southwest Bldg., Houston 2, Tex.
is-U.S. Chemical Co----------------	P.O. Box 667, Port Neches, Tex.
Chemical Co------------------------	20-21 Wagaraw Rd., Fair Lawn, N.J.
okol Chemical Corp-----------------	P.O. Box 27, Bristol, Pa.
nasset Colors, Inc-----------------	120 Lister Ave., Newark 5, N.J.
npson Chemical Co------------------	90 Mendor Ave., Pawtucket, R. I.
onderoga Chemical Corp-------------	Marguerite Ave., Leominster, Mass.
s River Chemical Corp--------------	P.O. Box 71, Toms River, N.J.
sey Varnish Co---------------------	520 W. 25th St., Chicago 16, Ill.
hur C. Trask Co--------------------	327 S. LaSalle St., Chicago 4, Ill.
plow Chemical Co-------------------	100 New St., Paterson 1, N.J.
angle Chemical Co------------------	206 Lower Elm St., Macon, Ga.
jan Powder Co----------------------	17 N. 7th St., Allentown, Pa.
bek Laboratories-------------------	State Highway 17, E. Rutherford, N.J.
eph Turner & Co--------------------	P.O. Box 88, Ridgefield, N.J.
l Uhlich & Co., Inc----------------	90 West St., New York 6, N.Y.
erer & Co--------------------------	161 Avenue of the Americas, New York 13, N.Y.
on Carbide Corp.:	
nion Carbide Chemicals Co. Div------	270 Park Ave., New York 17, N.Y.
nion Carbide Plastics Co. Div-------	270 Park Ave., New York 17, N.Y.
ilicones Div-----------------------	270 Park Ave., New York 17, N.Y.
on Oil Co. of California-----------	461 S. Boylston St., Los Angeles 17, Calif.
ted Cork Companies-----------------	Central Ave., Kearny, N.J.
ted Rubber & Chemical Co-----------	P.O. Box 149, Baytown, Tex.
. Borax Research Corp--------------	630 Shatto Pl., Los Angeles 5, Calif.
. Oil Co---------------------------	P.O. Box 307, Providence, R.I.
ted States Pipe & Foundry Co-------	3300 1st Ave. N., Birmingham 2, Ala.
. Plastic Products Corp------------	Lake and Whitman Aves., Metuchen, N.J.

TABLE 23.--*Synthetic organic chemicals: Directory of manufacturers, 1960*--Contin

Code	Name of company	Office address
USR	U.S. Rubber Co., Naugatuck Chemical Div.	1230 Avenue of the Americas, New York 20, N.Y.
UVC	Universal Chemicals Corp	48 Hunt St., Central Falls, R.I.
UDI	Universal Detergents, Inc. and Petrochemicals Co.	1825 E. Spring St., Long Beach 6, Calif.
UPM	Universal Oil Products Co	30 Algonquin Rd., Des Plaines, Ill.
UWS	Universal Western Chemical Corp	12800 E. Imperial Hwy., P.O. Box 487, Norwalk, Calif.
UPJ	Upjohn Co	301 Henrietta St., Kalamazoo 99, Mich.
VAL	Valchem	1407 Broadway, New York 18, N.Y.
VSV	Valentine Sugars, Inc., Valite Div	726 Whitney Bldg., New Orleans 2, La.
VNC	Vanderbilt Chemical Corp	230 Park Ave., New York 17, N.Y.
VND	Van Dyk & Co., Inc	11 William St., Belleville 9, N.J.
VEL	Velsicol Chemical Corp	330 E. Grand Ave., Chicago 11, Ill.
VLY	Verley Chemical Co., Inc	200 Pulaski St., Newark 5, N.J.
VPC	Verona-Pharma Chemical Corp	Box 385, Iorio Ct., Union, N.J.
VPT	Vickers Petroleum Co., Inc	P.O. Box 2240, Wichita 1, Kans.
VIN	Vineland Chemical Co	W. Wheat Rd., Vineland, N.J.
VC	Virginia-Carolina Chemical Corp	401 E. Main St., Richmond 6, Va.
VIS	Visco Products Co	1020 Holcombe Blvd., Houston 25, Tex.
VTM	Vitamins, Inc	809 W. 58th St., Chicago 21, Ill.
VTV	Vita-Var Corp	10 Commerce Ct., Newark 2, N.J.
FRO	Vulcan Materials Co., Frontier Chemical Co. Div.	P.O. Box 545, Wichita 1, Kans.
WTM	Wallace & Tiernan, Inc	25 Main St., Belleville 9, N.J.
WTH	Harchem Div	P.O. Box 178, Newark 1, N.J.
WTL	Lucidol Div	1740 Military Rd., Buffalo 5, N.Y.
WRN	Warner-Jenkinson Manufacturing Co	2526 Baldwin St., St. Louis 6, Mo.
WPC	Warren Paint & Color Co	700 Wedgewood Ave., Nashville 4, Tenn.
WAS	T. F. Washburn Co	2244 Elston Ave., Chicago 14, Ill.
WCA	West Coast Adhesives Co	11104 NW. Front Ave., Portland 10, Oreg.
WDC	Western Dry Color Co	600 W. 52d St., Chicago 9, Ill.
WOI	Western Organics, Inc	12800 E. Imperial Hwy., Santa Fe Springs, Calif.
EW	Westinghouse Electric Corp	Gateway Center, Pittsburgh 30, Pa.
WST	Westville Laboratories, Inc	Route 110, Monroe, Conn.
WVA	West Virginia Pulp & Paper Co., Polychemicals Div.	270 Park Ave., New York 17, N.Y.
WEV	Geo. D. Wetherill Varnish Co	Haddon Ave. and White Horse Pike, Camden 3, N.J.
WRD	Weyerhaeuser Co., Roddis Div	Marshfield, Wis.
WRS	Wheeler, Reynolds & Stauffer	636 California St., San Francisco 8, Calif.
WBG	White & Bagley Co	100 Foster St., Worcester 8, Mass.
WHI	White & Hodges, Inc	576 Lawrence St., Lowell, Mass.
WHW	Whittemore-Wright Co., Inc	62 Alford St., Boston 29, Mass.
WIC	Wica Co., Inc	P.O. Box 506, Charlotte, N.C.
WLM	Wilmot & Cassidy, Inc	108 Provost St., Brooklyn 22, N.Y.
WIL	Wilson & Co., Inc., Wilson Laboratories Div.	4221 S. Western Ave., Chicago 9, Ill.
WTC	Witco Chemical Co., Inc	122 E. 42d St., New York 17, N.Y.
TAR	Tar Distilling Co., Inc. Div	550 5th Ave., New York 36, N.Y.
WTU	Ultra Chemical Works, Inc. Div	2 Wood St., Paterson 6, N.J.
WTT	John H. Witte & Sons, Resin Div	217 Front St., Burlington, Iowa.
WAW	W. A. Wood Co	108 Spring St., Everett 49, Mass.
WRC	Wood Ridge Chemical Corp	Park Pl. E., Wood Ridge, N.J.
WON	Woonsocket Color & Chemical Co	179 Sunnyside Ave., Woonsocket, R.I.
WYN	Wyandotte Chemicals Corp	1609 Biddle Ave., Wyandotte, Mich.
YAC	Yates Co	2211 Peninsula Dr., Erie, Pa.
YAW	Young Aniline Works, Inc	2731 Boston St., Baltimore 24, Md.

APPENDIXES

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

24 summarizes, for the period 1958-60, U.S. imports of coal-tar products dutiable graphs 27 and 28 of the Tariff Act of 1930. The data, which were obtained by analyzing vering imports through all U.S. customs districts, are given in detail in a separate ne Tariff Commission.[1]

), general imports of coal-tar chemicals entered under paragraph 27 totaled 19.8 nds, with a foreign invoice value of $11.5 million, compared with imports of 28.8 nds, valued at $14.0 million, in 1959. Most of the coal-tar chemicals imported in 1960 red to be competitive (duty based on "American selling price"). In terms of quantity, rcent of the total imports of these products in 1960 came from West Germany; imports ountry amounted to 7.6 million pounds, compared with 10.8 million pounds in 1959. om France in 1960 amounted to 2.5 million pounds, compared with 2.7 million pounds nports from the United Kingdom totaled 2.0 million pounds in 1960, compared with 2.4 nds in 1959. In 1960 sizable quantities of products that are dutiable under paragraph 27 imported from Italy (1,287,000 pounds), Switzerland (1,135,000 pounds), Japan (876,000 he Netherlands (610,000 pounds), Belgium (478,000 pounds), Spain (364,000 pounds), 220,000 pounds), and Sweden (95,000 pounds). Smaller quantities came from Austria nds) and Norway (11,000 pounds).

4.--*Coal-tar intermediates and finished coal-tar products: U.S. general imports, classified by use, 1958-60*

Product	1958		1959		1960	
	Quantity	Foreign invoice value	Quantity	Foreign invoice value	Quantity	Foreign invoice value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
s[1]	14,408	10,654	28,842	14,033	19,806	11,491
l-tar products, total	7,092	15,784	11,259	21,901	12,299	22,209
l	3,440	6,467	4,251	7,867	4,053	7,619
	947	1,833	1,117	2,391	1,135	2,471
mpositions	24	45	24	48	11	20
	342	666	462	777	379	599
	716	1,576	917	1,921	769	1,692
	59	131	94	215	124	312
active	220	631	170	494	265	735
ent brightening agents	289	293	280	416	296	454
	48	118	64	154	6	20
	175	252	169	312	194	335
	23	74	32	104	28	82
	18	17	20	15	11	8
	575	824	888	987	809	874
r	4	7	14	33	26	17
organic pigments and lakes)	209	286	202	401	203	562
and pharmaceuticals	1,550	7,185	2,305	10,676	2,106	10,350
perfume materials	391	610	559	865	749	1,226
	1,502	1,236	3,942	2,092	5,188	2,452

small quantities of organic pesticides and agricultural chemicals, rubber-processing chemicals, and ve agents.

ompiled from the records of the U.S. Bureau of Customs.

riff Commission, *Imports of Coal-Tar Products, 1960*, 1961 [processed].

The most important individual intermediates imported in 1960 were phthalic an ethylbenzene, acetoacetanilide, cyclohexanone oxime, Bisphenol A, and gamma acid imports of phthalic anhydride, which totaled 4.8 million pounds, came principally fi Germany, France, and Italy; imports of ethylbenzene, which amounted to 2.2 millior came from Canada. Imports of acetoacetanilide, which came from the United Kingdo Germany, and Switzerland, totaled 791,000 pounds in 1960, and imports of cyclohex which came from Japan, amounted to 400,000 pounds. Imports of Bisphenol A, whicl West Germany and Canada, totaled 388,000 pounds. Imports of gamma acid, which t 326,000 pounds, came from West Germany, Italy, France, the Netherlands, and Jap the other important individual chemicals imported, anthraquinone came from France Kingdom, and Japan; refined naphthalene came from Belgium, the Netherlands, Wes Switzerland, and Canada; and 2,4,5-trichlorophenoxyacetic acid came from West Ge Germany was also the source of all the imports of phenyl isocyanate and 1-naphthol; all the hydroxycinnamic acid, sodium salt; and Canada, of all the phthalic acid, diisc dioctyl esters.

Imports in 1960 of all finished coal-tar products that are dutiable under paragra prised 1,770 items, with a total weight of 12.3 million pounds and a foreign invoice v $22.2 million. In 1959, imports consisted of 1,968 items, with a total weight of 11.3 pounds and a foreign invoice value of $21.9 million. In 1958, imports consisted of 1, with a total weight of 7.1 million pounds and a foreign invoice value of $15.8 million. as in 1958 and 1959, medicinals and pharmaceuticals were the most important group coal-tar products imported. Imports of medicinals and pharmaceuticals in 1960 amo $10.4 million (foreign invoice value), or 47 percent of the value of all imports under 28. In 1959, imports of medicinals and pharmaceuticals amounted to $10.7 million (i voice value), or 49 percent of the value of all imports under paragraph 28.

Imports of coal-tar dyes, the next most important group of products entered und graph 28 in 1960, were 3 percent smaller in that year than in 1959 and 18 percent lar in 1958. In 1960, imports of dyes (excluding synthetic organic pigments) were valued million (foreign invoice value), or 34 percent of total imports under paragraph 28. In ports of dyes (excluding synthetic organic pigments) were valued at $7.9 million, or of total imports under paragraph 28. In 1960, imports of synthetic organic pigments (lakes) were valued at $561,000, compared with $401,000 in 1959. Imports of flavor a materials in 1960 ($1,226,000) were 42 percent greater than those in 1959 ($865,000) imports of other coal-tar products entered under paragraph 28 (chiefly synthetic resi at $2.5 million, were 17 percent greater than those in 1959.

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

ıse the synthetic organic chemical industry has evidenced considerable interest in sta- chemical research, the Tariff Commission for a number of years has collected and statistics on the number of technically trained research workers in the industry, their and the cost of research (see table 25). Such information is not available elsewhere. ıe companies that produce synthetic organic chemicals also manufacture other prod- the cost of research applicable to synthetic organic chemicals must therefore be allo- ɜome instances the allocation is somewhat arbitrary. Moreover, since not all com- ɔort their research activities to the Tariff Commission, the data given in table 25 are ; 80 percent complete. Notwithstanding these limitations, the statistics do indicate ends in the amount of research conducted in the field of synthetic organic chemicals. ɔ0, 449 companies reported research activities on synthetic organic chemicals. The technically trained research workers reported for 1960 was 17,664, compared with ɔ reported for 1959. The average salary paid in 1960 was $10,371, compared with 1959. Total salaries paid research workers in 1960 amounted to $183 million, com- ı $142 million in 1959. In 1960 the gross cost of research was $413 million--$50 ɔre than in 1959. Research conducted for the industry outside the facilities of the re- mpanies--a cost not included in the gross cost given above--amounted to $23 million, 5 million more than in 1959. This figure, however, probably does not represent all projects conducted for the reporting companies in universities and private laboratories, sulting services.

--Synthetic organic chemical industry: Number of research workers, salaries paid research workers, and cost of research, 1956-60

Year	Companies reporting	Technically trained research workers[1]	Salaries paid research workers	Total reported cost of research		
				Within the plant		Outside the plant
				Gross	Net[2]	
	Number	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
----------	409	15,498	117,186	313,430	308,376	12,566
----------	441	14,852	133,005	309,716	305,748	16,687
----------	447	14,242	124,151	313,315	309,070	13,839
----------	471	15,585	142,389	362,971	355,825	18,261
----------	449	17,664	183,192	412,507	405,623	22,897

years 1956-57 a technically trained research worker was defined as a person with technical training en- ɜearch work and earning not less than $4,500 per year; for 1958-60 a research worker was defined as such ɔning not less than $5,000 per year.
·cost figure is obtained by deducting from gross cost the credits for salable products obtained in the ɜearch.

C. Glossary of Synonymous Names of Cyclic Intermediates

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

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

Cyclic intermediates: Glossary of synonymous names

Common name	Standard (Chemical Abstracts
Acedianthrone	Aceanthra[2,1-a]aceanthrylene-5,13-di
1,2-Acenaphthenedione	Acenaphthenequinone.
4-Acetamido-2-aminophenol hydrochloride	3′-Amino-4′-hydroxyacetanilide hydroc
p-Acetamidobenzenesulfonyl chloride	N-Acetylsulfanilyl chloride.
5-Acetamido-2-hydroxybenzoic acid	5-Acetamidosalicylic acid.
1-Acetamido-2-methoxynaphthalene	N-(2-Methoxy-1-naphthyl)acetamide.
1-Acetamido-2-naphthol	N-(2-Hydroxy-1-naphthyl)acetamide.
1-Acetamido-7-naphthol	N-(7-Hydroxy-1-naphthyl)acetamide.
2-Acetamido-4-nitrophenol	2′-Hydroxy-5′-nitroacetanilide.
5-Acetamido-orthanilic acid	5-Acetamido-2-aminobenzenesulfonic ac
Acetanilide-p-sulfonic acid	N-Acetylsulfanilic acid.
Acetanilid sulfon chloride	N-Acetylsulfanilyl chloride.
Acetate leuco violet	1,4-Diamino-2,3-dihydroanthraquinone.
p-Acetoacetchloranilide	4′-Chloroacetoacetanilide.
Acetoacet-o-chloroanilide	2′-Chloroacetoacetanilide.
o-Acetoacetochloroanilide	2′-Chloroacetoacetanilide.
Acetoaceto-1-naphthylamide	N-1-Naphthylacetoacetamide.
N-Acetoaceto-1-naphthylamine	N-1-Naphthylacetoacetamide.
m-Acetoacetoxylidide	2′,4′-Acetoacetoxylidide.
Acetoacet-o-toluidide	o-Acetoacetotoluidide.
Acetoacet-o-toluidine	o-Acetoacetotoluidide.
Acetoacetyl-o-anisidine	o-Acetoacetanisidide.
Acetoacetyl benzidine	4′,4‴-Biacetoacetanilide.
Acetyl-p-amino-o-aminophenol hydrochloride	3′-Amino-4′-hydroxyacetanilide hydrocl
1-Acetyl-3-(4-amino-m-anisyl)urea	1-Acetyl-3-(4-amino-3-methoxyphenyl)u
Acetylamino Cleve's acid	8-Acetamido-5-amino-2(and 3)-naphthal
N-Acetyl-1-amino-8-naphthol-3,6-disulfonic acid	8-Acetamido-1-naphthol-3,6-disulfonic
Acetyl-o-anisidine	o-Acetanisidide.
Acetyl-p-anisidine	p-Acetanisidide.
Acetyldiaminoanthraquinone	1,5(or 1,8)-Diacetamidoanthraquinone.
Acetyl-2,4-diaminophenol hydrochloride	3′-Amino-4′-hydroxyacetanilide hydrocl
Acetyl H acid	8-Acetamido-1-naphthol-3,6-disulfonic
Acetyl-1,4-naphthalenediamine-6(and 7)-sulfonic acids	8-Acetamido-5-amino-2(and 3)-naphthal
Acetyl-p-nitro-o-aminophenol	2′-Hydroxy-5′-nitroacetanilide.
Acetyl-m-phenylenediamine	3′-Aminoacetanilide.
Acetyl-p-phenylenediamine	4′-Aminoacetanilide.
Acetyl-p-phenylenediamine sulfate	p-Aminoacetanilide sulfate.
N^4-Acetyl-N^1-2-pyrimidinylsulfanilamide	4′-(2-Pyrimidinylsulfamoyl)acetanilide
Acetylsulfadiazine	4′-(2-Pyrimidinylsulfamoyl) acetanilic
Acetylsulfamerazine	4′-(4-Methyl-2-pyrimidinylsulfamoyl)ac
Acetylsulfamethazine	4′-(4,6-Dimethyl-2-pyrimidinylsulfamoyl
N^1-Acetylsulfanilamide	N-Sulfanilylacetamide.
N^4-Acetylsulfanilamide	4′-Sulfamoylacetanilide.
2-(N^4-Acetylsulfanilamido)thiazole	4′-(2-Thiazolylsulfamoyl)acetanilide.
Acetylsulfathiazole	4′-(2-Thiazolylsulfamoyl)acetanilide.
N^4-Acetyl-2-sulfo-p-phenylenediamine	5-Acetamido-2-aminobenzenesulfonic aci
N-Acetyl-o-toluidine	o-Acetotoluidide.
1,2,4-Acid	1-Amino-2-naphthol-4-sulfonic acid.
Amichin	8-Amino-6-methoxyquinoline.
m-Aminoacetanilide	3′-Aminoacetanilide.
p-Aminoacetanilide	4′-Aminoacetanilide.
p-Aminoacetanilide sulfate	4′-Aminoacetanilide sulfate.
m-Aminoacetophenone	3′-Aminoacetophenone.
6-(p-Aminoanilino)metanilic acid	5-Amino-2-(p-aminoanilino)benzenesulfc
p-Aminoazobenzene	p-Phenylazoaniline.
Aminoazobenzene disulfo acid	6-Amino-3,4′-azodi[benzenesulfonic aci
Aminoazobenzene-3,4-disulfonic acid	6-Amino-3,4′-azodi[benzenesulfonic aci
p-Aminoazobenzene hydrochloride	p-Phenylazoaniline hydrochloride.
Aminoazobenzene-m-sulfonic acid	m-(p-Aminophenylazo)benzenesulfonic ac
Aminoazobenzene-p-sulfonic acid	p-(p-Aminophenylazo)benzenesulfonic ac
o-Aminoazotoluene	4-(o-Tolylazo)-o-toluidine [NH_2=1].
o-Aminoazotoluene sulfate	4-(o-Tolylazo)-o-toluidine sulfate.
4-Aminoazotoluene-4-sulfonic acid and salt	4-(4-Amino-m-tolylazo)-m-toluenesulfon salt.
o-Aminoazotoluenesulfonic acid and salt	4-(4-Amino-m-tolylazo)-m-toluenesulfon salt.

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

Common name	Standard (Chemical Abstracts) name
ienetoluidine	4-(2,4-Xylylazo)-o-toluidine [NH_2=1].
ienearsonic acid	Arsanilic acid [AsO_3H_2=1].
ienesulfonanilide	Metanilanilide.
ienesulfonanilide	Sulfanilanilide.
ienesulfonic acid	Metanilic acid [SO_3H=1].
ienesulfonic acid	Sulfanilic acid [SO_3H=1].
ioic acid	Anthranilic acid [COOH=1].
ioyl I(or J) acid	6-(m-Aminobenzamido)-1-naphthol-3-sulfonic acid.
ioyl I(or J) acid	6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid.
ioyl-m-phenylenediamine	2,4,4′-Triaminobenzophenone.
ienyl	2-Biphenylamine.
ienyl	2-Biphenylamine.
ienyl	4-Biphenylamine.
iromoanthraquinone-2,5-disulfonic acid	5-Amino-8-bromo-1,6-anthraquinonedisulfonic acid.
iromo-4-(p-toluidine)anthraquinone	1-Amino-2-bromo-4-(p-toluidino)anthraquinone.
iutyl-p-anisolesulfonamide	N^1-Butyl-4-methoxymetanilamide [SO_2NH_2=1].
(n-butyl)phenol	p-Butylaminophenol.
-chloroacetanilide	4′-Chloroglycinanilide.
chlorobenzenesulfonic acid	6-Chlorometanilic acid [SO_3H=1].
chlorobenzenesulfonic acid	5-Chlorometanilic acid [SO_3H=1].
chlorobenzenesulfonic acid	4-Chlorometanilic acid [SO_3H=1].
chlorobenzoic acid	4-Chloroanthranilic acid [COOH=1].
chlorobenzoic acid	5-Amino-2-chlorobenzoic acid.
odiphenyl	Chloro-2-(or 3, or 4)-biphenylamine.
odiphenyl ether	5-Chloro-2-phenoxyaniline.
odiphenyl ether	p-(p-Chlorophenoxy)aniline
chlorotoluene [CH_3=1]	6-Chloro-o-toluidine [NH_2=1].
chlorotoluene [CH_3=1]	5-Chloro-o-toluidine [NH_2=1].
chlorotoluene [CH_3=1]	4-Chloro-o-toluidine [NH_2=1].
chlorotoluene [CH_3=1]	3-Chloro-o-toluidine [NH_2=1].
chlorotoluene hydrochloride	4-Chloro-o-toluidine hydrochloride.
cresol [CH_3=1]	2-Amino-p-cresol [OH=1].
cresol methyl ether [CH_3=1]	5-Methyl-o-anisidine [NH_2=1].
cresyl methyl ether	5-Methyl-o-anisidine [NH_2=1].
o-psi-cumene	2,4-Dimethylbenzylamine.
cumene	2,4-Dimethylbenzylamine.
orobenzenesulfonic acid	2,5-Dichlorosulfanilic acid.
4-diethoxybenzene	2,5-Diethoxyaniline.
diethylaminotoluene hydrochloride	N^5,N^5-Diethyltoluene-2,5-diamine hydrochloride.
ylaniline	N,N-Diethyl-p-phenylenediamine.
3-dihydroxyanthraquinone	4-Aminoxanthopurpurin.
4-dimethoxybenzene	2,5-Dimethoxyaniline.
ethylaniline	N,N-Dimethyl-p-phenylenediamine.
ethylaniline sulfate	N,N-Dimethyl-p-phenylenediamine sulfate.
6-dinitrophenol and salt	Picramic acid and salt.
henyl	2-Biphenylamine.
henyl	4-Biphenylamine.
henylamine	N-Phenyl-p-phenylenediamine.
henylamine-2-sulfonic acid	5-Amino-2-anilinobenzenesulfonic acid.
nyl ether	p-Phenoxyaniline.
oxyethylaniline	2-(p-Amino-N-ethylanilino)ethanol.
id	7-Amino-1,3-naphthalenedisulfonic acid.
hydroxybenzenearsonic acid	4-Hydroxy-o-arsanilic acid [AsO_3H_2=1].
J) acid	6-Amino-1,3-naphthalenedisulfonic acid.
isobutylphenol	(p-Isobutylamino)phenol.
methylanisole [CH_3O=1]	3-Methyl-p-anisidine [NH_2=1].
-(3-methyl-5-pyrazolone)-2,2′-stilbenedi-acid.	4′-Amino-4′-(3-methyl-5-oxo-2-pyrazolin-1-yl)-2,2′-stilbenedisulfonic acid.
naphthalenesulfonic acid	Naphthionic acid.
hthalene-3,6,8-trisulfonic acid	7-Amino-1,3,6-naphthalenetrisulfonic acid.
naphthoic lactam	Naphthostyril.
naphthol	8-Amino-2-naphthol.
naphthol-2,4-disulfonic acid	8-Amino-1-naphthol-5,7-disulfonic acid.
naphthol-3,6-disulfonic acid	8-Amino-1-naphthol-3,6-disulfonic acid.
naphthol-4,6-disulfonic acid	8-Amino-1-naphthol-3,5-disulfonic acid.
naphthol-3,6-disulfonic acid	7-Amino-1-naphthol-3,6-disulfonic acid.
naphthol-1,3-disulfonic acid	8-Amino-1-naphthol-5,7-disulfonic acid.

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts
4-Amino-5-naphthol-1,7-disulfonic acid	8-Amino-1-naphthol-3,5-disulfonic aci
5-Amino-4-naphthol-2,7-disulfonic acid	8-Amino-1-naphthol-3,6-disulfonic aci
6-Amino-4-naphthol-2,7-disulfonic acid	7-Amino-1-naphthol-3,6-disulfonic aci
1-Amino-8-naphthol-4-sulfonic acid	8-Amino-1-naphthol-5-sulfonic acid.
2-Amino-5-naphthol-7-sulfonic acid	6-Amino-1-naphthol-3-sulfonic acid.
2-Amino-6-naphthol-8-sulfonic acid	6-Amino-2-naphthol-4-sulfonic acid.
2-Amino-8-naphthol-6-sulfonic acid	7-Amino-1-naphthol-3-sulfonic acid.
4-Amino-3-naphthol-1-sulfonic acid	1-Amino-2-naphthol-4-sulfonic acid.
4-Amino-5-naphthol-1-sulfonic acid	8-Amino-1-naphthol-5-sulfonic acid.
6-Amino-4-naphthol-2-sulfonic acid	7-Amino-1-naphthol-3-sulfonic acid.
7-Amino-3-naphthol-1-sulfonic acid	6-Amino-2-naphthol-4-sulfonic acid.
7-Amino-4-naphthol-2-sulfonic acid	6-Amino-1-naphthol-3-sulfonic acid.
2-Amino-4-nitroanisole [CH_3O=1]	5-Nitro-o-anisidine [NH_2=1].
2-Amino-5-nitroanisole	4-Nitro-o-anisidine [NH_2=1].
2-Amino-6-nitroanisole	3-Nitro-o-anisidine [NH_2=1].
4-Amino-3-nitroanisole	2-Nitro-p-anisidine [NH_2=1].
4-Amino-4-nitrodiphenylamine-2-sulfonic acid	2-(p-Aminoanilino)-5-nitrobenzenesulf
2-Amino-4-nitro-1-phenol-6-sulfonic acid	6-Amino-4-nitro-1-phenol-2-sulfonic a
2-Aminophenetole [C_2H_5O=1]	o-Phenetidine [NH_2=1].
Aminophenol sulfamide	2-Amino-1-phenol-4-sulfonamide.
o-Aminophenol-p-sulfonamide	2-Amino-1-phenol-4-sulfonamide.
o-Aminophenol-p-sulfonic acid	2-Amino-1-phenol-4-sulfonic acid.
m-Aminophenylcarboxypyrazolone	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-acid.
1-(m-Aminophenyl)-3-methyl-5-pyrazolone	1-(m-Aminophenyl)-3-methyl-2-pyrazoli
Aminophenylphenyl ether	p-Phenoxyaniline.
m-Aminophenylpyrazolonecarboxylic acid	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-acid.
1-(m-Aminophenyl)-5-pyrazolone-3-carboxylic acid	1-(m-Aminophenyl)-5-oxo-2-pyrazoline-acid.
p-Aminophenyl-p-tolylaminesulfonic acid	5-Amino-2-(p-toluidino)benzenesulfoni
2-Amino-4(3H)-pyrimidone	Isocytosine.
Amino R acid	3-Amino-2,7-naphthalenedisulfonic aci
5-Aminosaligenin-2-methyl ether	5-Amino-2-methoxybenzyl alcohol.
6-Amino-3-(p-toluenesulfone)amino-4-methoxytoluene	4′-Amino-5′-methyl-p-toluenesulfon-o-
3′-Amino-(p-toluenesulfone)ethoxytoluene	3-Methyl-N-(p-toluenesulfono)-p-phene
2-Aminotoluene-5-sulfonic acid	4-Amino-m-toluenesulfonic acid [SO_3H=
N-(4-Amino-m-tolyl)-p-quinone imine	N-(4-Amino-m-tolyl)-p-benzoquinone im
ω-Amino-1,2,4-trimethylbenzene	2,4-Dimethylbenzylamine.
Aminoviolanthrene	16-Aminoviolanthrone.
Amylnaphthalenes	Pentylnaphthalenes.
o-Amylphenol	o-Pentylphenol.
p-sec-Amylphenol	p-(1-Methylbutyl)phenol.
p-tert-Amylphenol	p-(1,1-Dimethylpropyl)phenol.
Aniline-2,4-disulfonic acid	4-Amino-m-benzenedisulfonic acid.
Aniline-2,5-disulfonic acid	2-Amino-p-benzenedisulfonic acid.
Aniline oil	Aniline.
Aniline salt	Aniline hydrochloride.
Aniline-m-sulfonic acid	Metanilic acid [SO_3H=1].
Aniline-p-sulfonic acid	Sulfanilic acid [SO_3H=1].
Aniline-omega-sulfonic acid	Anilinomethanesulfonic acid.
4-Anilino-4′-hydroxydiphenylamine	p-(p-Anilinoanilino)phenol.
6-Anilinometanilic acid	5-Amino-2-anilinobenzenesulfonic acid
2-Aniside-4-acetylurea	1-Acetyl-3-(4-amino-3-methoxyphenyl)u
o-Anisidine nitrate	4(or 5)-Nitro-o-anisidine [NH_2=1].
2-Anisidine-4-sulfobutylamide	N^1-Butyl-4-methoxymetanilamide.
o-Anisidine-p-sulfonic acid	4-Methoxymetanilic acid [SO_3H=1].
2-(m-Anisyl)-4-chloroanthranilic acid	4-Chloro-N-(m-methoxyphenyl)anthranil
N-(p-Anisyl)-4-chloroanthranilic acid	4-Chloro-N-(p-methoxyphenyl)anthranil
N-(m-Anisyl)-4-chloroanthranilic acid	4-Chloro-N-(m-methoxyphenyl)anthranil
α-(p-Anisyl)-α-ethyl-p-methoxyacetophenone	2-Ethyl-4′-methoxy-2-(p-methoxyphenyl
α-(p-Anisyl)-p-methoxyacetophenone	4′-Methoxy-2-(p-methoxyphenyl)acetoph
N-(p-Anisyl)-4-nitroanthranilic acid	N-(p-Methoxyphenyl)-4-nitroanthranili
N-(p-Anisyl)-p-phenylenediamine	N-(p-Methoxyphenyl)-p-phenylenediamin
1,2-Anthrapyridine	Naphtho[2,3-h]quinoline.
Anthraquinonylaminoanthraquinone	1,1′-Iminodianthraquinone.
1,4,9,10-Anthratetrol	Leucoquinizarin.

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

Common name	Standard (Chemical Abstracts) name
arboxylic acid----------	Antipyric acid.
,N-dimethylaniline hydrochloride)-------	p-Dimethylaminobenzenediazonium chloride.
phenylamine----------	p-Anilinobenzenediazonium chloride.
line----------	p-(p-Aminophenylazo)phenol.
----------	3,3′-Azoxydianiline.
aniline----------	3,3′-Azoxydianiline.
de----------	α,α-Dichlorotoluene.
disulfonic acid----------	4-Formyl-m-benzenedisulfonic acid.
onosulfonic acid----------	o-Formylbenzenesulfonic acid.
lo-1-anthraquinonylimino)-5-benzamido- ne.	4,5′-Dibenzamido-1,1′-iminodianthraquinone.
mido-2,5-diethoxyphenyl)-1-methyldiazo- esulfonic acid.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
lo-2,5-diethoxyphenyl)-N-methyldiazo-	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
lo-2,5-diethoxyphenyl)-3-sulfoethyl-1- ene.	2-[3-(4-Benzamido-2,5-diethoxyphenyl)-1-methyltriazen-3-yl]ethanesulfonic acid.
ldo-6-methoxy-m-tolyl)-1-methyldiazo- c acid.	[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]acetic acid.
ldo-6-methoxy-m-tolyl)-N-methyldiazo]-	[3-(4-Benzamido-6-methoxy-m-tolyl)-1-methyltriazen-3-yl]acetic acid.
----------	7H-Benz[de]anthracen-7-one.
lianthraquinonyldiimide----------	3,9-Bis[1-anthraquinonylamino]-7H-benz[de]anthracen-7-one.
nzene----------	Azobenzene.
licarboxylic acid----------	Isophthalic acid.
arboxylic acid----------	Terephthalic acid.
etriol----------	Phloroglucinol.
sulfonic acid----------	4,4′-Diamino-2,2′-biphenyldisulfonic acid.
nedisulfonic acid----------	4,4′-Diamino-2,2′-biphenyldisulfonic acid.
lfonic acid----------	4,4′-Diamino-3-biphenylsulfonic acid.
l-2(1H)-one----------	Naphthostyril.
nonmedicinal grade)----------	p-Aminobenzoic acid, ethyl ester.
cyanomethyl ketone----------	2-Benzofuranacetonitrile.
ran-2-one----------	Coumarin.
one----------	Coumarin.
ride----------	α,α,α-Trichlorotoluene.
nilide----------	2-Benzoylacetanilide.
tanilide----------	2-Benzoylacetanilide.
no-4-aminoanthraquinone----------	1-Amino-4-benzamidoanthraquinone.
no-1,4-diethoxybenzene----------	2′,5′-Diethoxybenzanilide.
no-1,4-dimethoxybenzene----------	2′,5′-Dimethoxybenzanilide.
no-2-nitrodimethoxybenzene----------	2′,5′-Dimethoxy-4′-nitrobenzanilide.
no-2-nitrohydroquinone, diethyl ester----	2′,5′-Diethoxy-4′-nitrobenzanilide.
id----------	6-Benzamido-1-naphthol-3-sulfonic acid.
ophene----------	Phenyl-2-thienyl ketone.
amide----------	Hydrocinnamamide.
minophenol hydrochloride----------	4-Amino-α-phenyl-m-cresol hydrochloride.
ide----------	α-Chlorotoluene.
hlorophenol----------	4-Chloro-α-phenyl-o-cresol [OH=1].
de----------	Phenylacetonitrile.
ylaniline----------	N-Ethyl-N-phenylbenzylamine.
ethyl-p-nitrosoaniline----------	N-Ethyl-N-(p-nitrosophenyl)benzylamine.
ydroxy-4-methylcoumarin----------	3-Benzyl-4-methylumbelliferone.
cetophenone----------	Chalcone.
eaminoantipyrine----------	4-Benzylideneiminoantipyrine.
ptan----------	α-Toluenethiol.
ylcarbamate----------	α-Phenyl-p-cresol carbamate.
acetanilide----------	4′,4‴-Biacetoacetanilide.
----------	Stilbene.
----------	Benzil.
e----------	Stilbene.
ine----------	2-Biphenylamine.
oxide----------	Dibenzofuran.
etoacetanilide)----------	4′,4‴-Biacetoacetanilide.

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts)
N,N′-Bis(acetoacetyl)benzidine	4′,4‴-Biacetoacetanilide.
1,3-Bis(4-biphenyl)-2-thiourea	4,4′-Diphenylthiocarbanilide.
N,N-Bis(2-hydroxyethyl)aniline	2,2′-(Phenylimino)diethanol.
N,N-Bis(2-hydroxyethyl-m-toluidine)	2,2′-(m-Tolylimino)diethanol.
2,2′-Bis(4-hydroxyphenyl)propane	4,4′-Isopropylidinediphenol.
N,N′-Bis-6-(1-naphthol-3-sulfonic acid)urea	6,6′-Ureylenebis[1-naphthol-3-sulfonic
Bisphenol A	4,4′-Isopropylidinediphenol.
Bisphenol B	2,2′-Bis(4-hydroxyphenyl)butane.
Bisphenol C	4,4′-Isopropylidinedi-o-cresol.
Bisphenol G	4,4′-Isopropylidinebis[2-isopropylphen
3,3′-Bitolylene-4,4′-diisocyanate	Isocyanic acid, (3,3′-dimethyl-4,4′-bi
B.O.N	3-Hydroxy-2-naphthoic acid.
Broenner's acid	6-Amino-2-naphthalenesulfonic acid.
Bromamine acid	1-Amino-4-bromo-2-anthraquinonesulfonic
p-Bromoacetamidoanthraquinone	1-Acetamido-4-bromoanthraquinone.
Bromobenzanthrone	3-Bromo-7H-benz[de]anthracen-7-one.
2-Bromobiphenylene oxide	2-Bromodibenzofuran.
p-Bromomethylaminoanthraquinone	4-Bromo-1-methylaminoanthraquinone.
4-Bromo-N-methyl-1,9-anthrapyridone	6-Bromo-3-methyl-7H-dibenz[f,ij]isoquir dione.
α-Bromo-p-nitroacetophenone	2-Bromo-4′-nitroacetophenone.
Bromoquinizarin	2-Bromoquinizarin.
o-(3-Bromo-p-tolyl)benzoic acid	3′-Bromo-4′-methyl-2-biphenylcarboxylic
6-tert-Butyl-2,4-dimethylacetophenone	2′-tert-Butyl-4′,6′-dimethylacetophenon
n-Butyl-p-nitrobenzoate	p-Nitrobenzoic acid, n-butyl ester.
p-Carboxybenzenesulfonamide	p-Sulfamoylbenzoic acid.
3-Carboxy-4-hydroxyacetanilide	5-Acetamidosalicylic acid.
3-(Carboxymethyl)-1-(5-chloro-2-methoxyphenyl)-3-methyltriazene.	N-(5-Chloro-2-methoxyphenylazo)-N-methy
(o-Carboxyphenyl)acetic acid	α-Carboxy-o-toluic acid.
Cassella acid	3-Amino-1,5-naphthalenedisulfonic acid.
Chicago acid	8-Amino-1-naphthol-5,7-disulfonic acid.
Chlorinated cresols	Cresols, chlorinated.
2-Chloro-3-acetamino-9,10-anthrahydroquinone acid ester.	2-Acetamido-3-chloro-9,10-dihydro-9,10-9,10-disulfonic acid, diethyl ester.
2-Chloro-3-acetaminoanthraquinone	2-Acetamido-3-chloroanthraquinone.
2-Chloro-3-acetamino-9,10-dihydroxyanthracene-9,10-disulfonic acid ester.	2-Acetamido-3-chloro-9,10-dihydro-9,10-10-disulfonic acid, diethyl ester.
o-Chloroacetoacetanilide	2′-Chloroacetoacetanilide.
Chloroacetylarsanilic acid	N-Acetyl-2-chloroarsanilic acid [AsO_3H_2
5-Chloro-2-aminoanisole [CH_3O=1]	4-Chloro-o-anisidine [NH_2=1].
4-Chloro-2-amino-6-benzenesulfonic acid	5-Chlorometanilic acid [SO_3H=1].
6-Chloro-3-aminobenzotrifluoride	6-Chloro-α,α,α-trifluoro-m-toluidine [N
Chloroaminophenol	2-Amino-4-chlorophenol.
2-Chloro-4-aminotoluene [CH_3=1]	3-Chloro-p-toluidine [NH_2=1].
3-Chloro-2-aminotoluene [CH_3=1]	6-Chloro-o-toluidine [NH_2=1].
5-Chloro-2-aminotoluene [CH_3=1]	4-Chloro-o-toluidine [NH_2=1].
m-Chloroaniline-o-sulfonic acid	2-Amino-6-chlorobenzenesulfonic acid.
p-Chloroaniline-m-sulfonic acid	6-Chlorometanilic acid.
p-Chloroaniline-o-sulfonic acid	2-Amino-5-chlorobenzenesulfonic acid.
4-Chloro-o-anisidine [CH_3O=1]	5-Chloro-o-anisidine [NH_2=1].
5-Chloro-o-anisidine [CH_3O=1]	4-Chloro-o-anisidine [NH_2=1].
3-Chloro-2-anthracenecarboxylic acid	3-Chloro-2-anthroic acid.
2-Chloroanthraquinone-3-carboxylic acid	3-Chloro-2-anthraquinonecarboxylic acid.
Chloroarsacetin	N-Acetyl-2-chloroarsanilic acid [AsO_3H_2=
2-Chlorobenzaldehyde-5-sulfonic acid	4-Chloro-3-formylbenzenesulfonic acid.
4-Chlorobenzaldehyde-2-sulfonic acid	5-Chloro-2-formylbenzenesulfonic acid.
1-Chloro-5-benzamideanthraquinone	1-Benzamido-5-chloroanthraquinone.
Chlorobenzanthrone	Chloro-7H-benz[de]anthracen-7-one.
4-Chlorobenzotrifluoride	4-Chloro-α,α,α-trifluorotoluene.
Chlorobenzyl cyanide	(p-Chlorophenyl)acetonitrile.
1-Chloro-2-carboxyanthraquinone	1-Chloro-2-anthraquinonecarboxylic acid.
p-Chloro-m-cresol [CH_3=1]	6-Chloro-m-cresol [OH=1].
2-Chloro-1,4-dihydroxyanthraquinone	2-Chloroquinizarin.
Chloro H acid	8-Chloro-1-naphthol-3,6-disulfonic acid.
5-Chloro-8-hydroxyquinoline	5-Chloro-8-quinolinol.
3-Chloro-3′-methoxy-6-diphenylaminecarboxylic acid	4-Chloro-N-(m-methoxyphenyl)anthranilic

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts) name
ıethoxy-6-diphenylaminecarboxylic acid---	4-Chloro-N-(p-methoxyphenyl)anthranilic acid.
ɛthoxy-5-nitrotoluene----------	2-(Chloromethyl)-4-nitroanisole [CH_3O=1].
-2-methoxyphenyl)-1-methyldiazoamino]-	N-(5-Chloro-2-methoxyphenylazo)-N-methylglycine.
i.	
ıanthraquinone----------	1-Chloro-2-methylanthraquinone.
itroaniline----------	2-Chloro-4-nitroaniline.
.troaniline----------	4-Chloro-2-nitroaniline.
ɔobenzene----------	1-Chloro-2-nitrobenzene.
itrobenzotrifluoride----------	4-Chloro-α,α,α-trifluoro-3-nitrotoluene.
itro-1-phenol-6-sulfonic acid----------	4-Chloro-6-nitro-1-phenol-2-sulfonic acid.
itrophenyl ether----------	1-(4-Chloro-2-nitrophenoxy)benzene.
ɔl----------	o-Chlorophenol.
ɔl----------	p-Chlorophenol.
ıydrazine-p-sulfonic acid----------	4-Chloro-3-hydrazinobenzenesulfonic acid.
ıenyl)-3-methyl-5-pyrazolone----------	1-(m-Chlorophenyl)-3-methyl-2-pyrazolin-5-one.
ıenyl phenol----------	2-Chloro-6-phenylphenol.
4-sulfophenyl)-3-methyl-2-pyrazolin-5-one	5-Chloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.
4-sulfophenyl)-3-methyl-5-pyrazolone-----	5-Chloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.
3-sulfophenyl)-3-methyl-5-pyrazolone-----	4-Chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.
ɔluene sodium sulfonate----------	3-Chloro-p-toluenesulfonic acid, sodium salt [SO_3H=1].
ɛne-2-sulfonic acid----------	5-Chloro-o-toluenesulfonic acid [SO_3H=1].
ɛnethioglycolic acid----------	(4-Chloro-o-tolylthio)acetic acid.
ɔluidine [CH_3=1]----------	5-Chloro-o-toluidine [NH_2=1].
ɔluidine [CH_3=1]----------	4-Chloro-o-toluidine [NH_2=1].
ɔluidine [CH_3=1]----------	4-Chloro-o-toluidine [NH_2=1].
ɔluidine-p-sulfonic acid----------	2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1].
ɔluidine-5-sulfonic acid----------	6-Amino-4-chloro-m-toluenesulfonic acid [SO_3H=1].
ɔluidine-4-sulfonic acid----------	2-Amino-5-chloro-p-toluenesulfonic acid [SO_3H=1].
ɔlylmercaptoacetic acid----------	(4-Chloro-o-tolylthio)acetic acid.
o-tolyl)-3-methyl-3-triazeneacetic acid--	N-(5-Chloro-o-tolyl)-N-methylglycine.
hioglycolic acid----------	(4-Chloro-o-tolylthio)acetic acid.
ylenol----------	4-Chloro-3,5-xylenol.
nesulfonic acid----------	6-Amino-3-chloro-2,5-xylenesulfonic acid [SO_3H=1].
-xylylmercaptoacetic acid----------	(4-Chloro-2,5-xylylthio)acetic acid.
acid----------	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
----------	Styrene.
acid----------	5-Amino-2-naphthalenesulfonic acid.
acid----------	8-Amino-2-naphthalenesulfonic acid.
, mixed----------	5(and 8)-Amino-2-naphthalenesulfonic acid.
----------	2-Methyl-p-anisidine [NH_2=1].
p-Cresidine----------	5-Methyl-o-anisidine [NH_2=1].
hyl ether----------	m-Methylanisole [CH_3O=1].
onic acid----------	5-Hydroxy-m-toluenesulfonic acid [SO_3H=1].
.cid----------	2,3-Cresotic acid.
.cid----------	2,4-Cresotic acid.
acid----------	2,3-Cresotic acid.
ide----------	p-Tolyl disulfide.
hyl ether----------	m-Methylanisole [CH_3O=1].
----------	p-Isopropylbenzaldehyde.
----------	1,2,4-Trimethylbenzene.
----------	2,4,5-Trimethylaniline.
.e----------	p-Isopropylbenzaldehyde.
.ine----------	Picolinonitrile.
.ine----------	Nicotinonitrile.
.ine----------	Isonicotinonitrile.
----------	6-Amino-1-naphthalenesulfonic acid.
p-toluidine----------	2-(p-Aminophenyl)-6-methylbenzothiazole.
n----------	4′-Methoxy-2-(p-methoxyphenyl)acetophenone.
----------	3-Methyl-1-phenyl-2-pyrazolin-5-one.
.cridine----------	Proflavine base.

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

Common name	Standard (Chemical Abstracts)
m-Diaminoanisole	5-Methoxy-m-phenylenediamine.
3,3′-Diaminoazoxybenzene	3,3′-Azoxydianiline.
2,2′-Diamino-5,5′-bi-m-toluenesulfonic acid	2,2′-Diamino-5,5′-dimethyl-3,3′-biphen acid.
4,4′-Diamino-1,1′-dianthraquinonylamine	1,1′-Iminobis[4-aminoanthraquinone].
4,4′-Diamino-1,1′-dianthrimide	1,1′-Iminobis[4-aminoanthraquinone].
Diamino-4,4′-dibenzoyl-1,1′-dianthraquinoneimine	1,1′-Iminobis[4-benzamidoanthraquinone
Diamino-4,5′-dibenzoyl-1,1′-dianthraquinonylamine	4,5′-Dibenzamido-1,1′-iminodianthraqui
1,4-Diamino-2,3-dihydroxyanthraquinone	1,4-Diaminohystazarin.
3,6-Diamino-2,7-dimethylacridine hydrochloride	Acridine yellow.
4,4′-Diamino-2,2′-dimethylbiphenyl	m-Tolidine.
4,4′-Diamino-2,2′-dimethyldiphenylmethane	4,4′-Methylenedi(m-toluidine).
4,4′-Diaminodiphenyl	Benzidine.
4,4′-Diaminodiphenylamine-2-sulfonic acid	5-Amino-2-(p-aminoanilino)benzenesulfo
p,p′-Diaminodiphenylmethane	4,4′-Methylenedianiline.
p,p′-Diaminodiphenylsulfide	4,4′-Thiodianiline.
3,3′-Diaminodiphenyl urea	3,3′-Diaminocarbanilide.
Di(p-aminophenyl)sulfide	4,4′-Thiodianiline.
1,3-Di(m-aminophenyl)urea	3,3′-Diaminocarbanilide.
2,6-Diaminotoluene-4-sulfonic acid	3,5-Diamino-p-toluenesulfonic acid.
Diamylphenol	2,4-Dipentylphenol.
1,5-Dianilinoanthraquinone-o,o′-dicarboxylic acid	1,5-Dianilino-2,6-anthraquinonedicarbo
o-Dianisidine	3,3′-Dimethoxybenzidine.
1,2-Di-p-anisyl-1,2-ethanediol	1,2-Di(p-methoxyphenyl)-1,2-ethanediol
2,4-Di(p-anisyl)-3-ethylhexane	2,4-Di(p-methoxyphenyl)-3-ethylhexane.
2,4-Di(p-anisyl)-3-ethylhexene	2,4-Di(p-methoxyphenyl)-3-ethylhexene.
α,β-Dianisylglycol	1,2-Di(p-methoxyphenyl)-1,2-ethanediol
3,4-Di(p-anisyl)hexane	3,4-Di(p-methoxyphenyl)hexane.
1,1′-Dianthraquinoneimine	1,1′-Iminodianthraquinone.
1,1′-Dianthraquinonylamine	1,1′-Iminodianthraquinone.
Dianthrimide	1,1′-Iminodianthraquinone.
Diazoaminobenzene	1,3-Diphenyltriazene.
Diazobenzene chloride	Benzenediazonium chloride.
4,5′-Dibenzamido-1,1′-aminodianthraquinone	4,5′-Dibenzamido-1,1′-iminodianthraqui
5,5′-Dibenzamido-1,1′-iminodianthraquinone	1,1′-Iminobis[5-benzamidoanthraquinone
Dibenzanthrone	Violanthrone.
2,2′-Dibenzanthronyl	(4,4′-Bi-7H-benz[de]anthracen)-7,7′-di
13,13-Dibenzanthronyl	(3,3′-Bi-7H-benz[de]anthracen)-7,7′-di
Dibenzopyran	Xanthene.
Dibenzopyrrole	Carbazole.
Dibenzoyl	Benzil.
4,5-Dibenzoylamidodianthraquinonylamine	4,5′-Dibenzamido-1,1′-iminodianthraqui
4,4′-Dibenzoyldiamino-1,1′-dianthrimide	1,1′-Iminobis[4-benzamidoanthraquinone
Dibenzyl	Bibenzyl.
Dibenzylaniline	N-Phenyldibenzylamine.
Dibenzyl disulphide	Benzyl disulfide.
Dibenzyl ether	Benzyl ether.
Dibenzyl sodium sulfanilate	N,N-Dibenzylsulfanilic acid, sodium sa
Dibromoaminoanthraquinone	1-Amino-2,4-dibromoanthraquinone.
7,16-Dibromo-6,15-dihydro-5,9,14,18-anthrazinetetrone	7,16-Dibromoindanthrene.
p-Dibromodihydroxynaphthalene	4,5-Dibromo-1,8-naphthalenediol.
2,6-Dibromo-1,5-dihydroxynaphthalene	2,6-Dibromo-1,5-naphthalenediol.
4,5-Dibromo-1,8-dihydroxynaphthalene	4,5-Dibromo-1,8-naphthalenediol.
1,4-Dichloroaniline	2,5-Dichloroaniline.
2,5-Dichloroaniline-4-sulfonic acid	2,5-Dichlorosulfanilic acid [SO_3=1].
1,5-Dichloro-4,8-anthraquinonedisulfonic acid	4,8-Dichloro-1,5-anthraquinonedisulfoni
1,8-Dichloro-4,5-anthraquinonedisulfonic acid	4,5-Dichloro-1,8-anthraquinonedisulfoni
2,6-Dichlorobenzalchloride	α,α,2,6-Tetrachlorotoluene.
o,o′-Dichlorobenzidine	3,3′-Dichlorobenzidine.
3,3′-Dichlorobenzidine base	3,3′-Dichlorobenzidine.
m,m′-Dichlorobenzidine hydrochloride	2,2′-Dichlorobenzidine hydrochloride.
2,4-Dichlorobenzyl chloride	α,2,4-Trichlorotoluene.
2,4-Dichlorobenzylidene chloride	α,α,2,4-Tetrachlorotoluene.
2,6-Dichlorobenzylidene chloride	α,α,2,6-Tetrachlorotoluene.
2,5-Dichlorophenylhydrazinesulfonic acid	2,5-Dichloro-4-hydrazinobenzenesulfonic
1-(2,5-Dichlorophenyl)-5-pyrazolone-3-carboxylic acid	1-(2,5-Dichlorophenyl)-5-oxo-2-pyrazoli acid.

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

Common name	Standard (Chemical Abstracts) name
-4-sulfobenzenediazohydroxide----------	2,6-Dichloro-4-hydroxydiazobenzenesulfonic acid.
ɔro-4-sulfophenyl)-3-methyl-5-pyrazolone-	2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl) benzenesulfonic acid.
-5-(p-toluenesulfonamido)-1-naphthol-----	N-(6,8-Dichloro-5-hydroxy-1-naphthyl)-p-toluene-sulfonamide [SO_2NH_2=1].
lfide----------	p-Tolyl disulfide.
----------	Bicyclohexyl.
line----------	2,2′-(Phenylimino)diethanol.
toluidine----------	2,2′-(m-Tolylimino)diethanol.
ɔenzene----------	p-Diethoxybenzene.
ɔxy-4-nitrophenyl)benzamide----------	2′,5′-Diethoxy-4′-nitrobenzanilide.
ɔxyphenol)benzamide----------	2′,5′-Diethoxybenzanilide.
ıe-m-sulfonic acid----------	N_1N-Diethylmetanilic acid [SO_3H=1].
ɔlylenediamine----------	N^2,N^5-Diformyltoluene-2,5-diamine [CH_3=1].
ɔenaphthylene----------	Acenaphthene.
acridine----------	Acridan.
4-oxo-2,6-pyridinedicarboxylic acid------	Chelidamic acid.
yanthraquinone----------	Xanthopurpurin.
yanthraquinone----------	Quinizarin.
yanthraquinone----------	Anthrarufin.
yanthraquinone----------	Chrysazin.
yanthraquinone----------	Anthraflavic acid.
ybenzoic acid----------	β-Resorcylic acid.
ıenyl----------	Biphenol.
y-1,4-diaminoanthraquinone----------	1,4-Diaminohystazarin.
ɛnzanthrone----------	16,17-Dihydroxyviolanthrone.
xydi-2-naphthylamine-7,7′-disulfonic acid	6,6′-Iminobis[1-naphthol-3-sulfonic acid].
y-4,8-dinitroanthraquinone----------	4,8-Dinitroanthrarufin.
xydiphenyldimethylmethane----------	4,4′-Isopropylidenediphenol.
xydiphenylsulfone----------	4,4′-Sulfonyldiphenol.
y-7,7′-disulfonic-2,2′-dinaphthylamine---	6,6′-Iminobis[1-naphthol-3-sulfonic acid].
ylaniline----------	2,2′-(Phenylimino)diethanol.
roxyethyl)aniline----------	2,2′-(Phenylimino)diethanol.
yl-3-toluidine----------	2,2′-(m-Tolylimino)diethanol.
roxyethyl)-m-toluidine----------	2,2′-(m-Tolylimino)diethanol.
ɔxy-2-methylaminoacetophenone----------	Adrenalone.
ynaphthalene----------	1,5-Naphthalenediol.
ynaphthalene----------	2,3-Naphthalenediol.
ynaphthalene-3,6-disulfonic acid---------	4,5-Dihydroxy-2,7-naphthalenedisulfonic acid.
ynaphthalene-4-sulfonic acid----------	4,5-Dihydroxy-1-naphthalenesulfonic acid.
ynaphthalene-6-sulfonic acid----------	6,7-Dihydroxy-2-naphthalenesulfonic acid.
ɔxyphenylpropane----------	4,4′-Isopropylidinediphenol.
ɛnaphthene----------	Acenaphthenequinone.
ybenzaldehyde----------	o-Veratraldehyde.
ybenzaldehyde----------	Veratraldehyde.
ɔenzene----------	Veratrole.
ybenzene----------	Veratrole.
ɔxybenzidine-4,4′-diisocyanate----------	Isocyanic acid, 3,3′-dimethoxy-4,4′-biphenylene ester.
ɔxybenzoin----------	p-Anisoin.
ɔxybenzoylphenylcarbinol----------	p-Anisoin.
ybenzyl alcohol----------	Veratryl alcohol.
ɔxy-4,4′-biphenylbis[3-methyl-3- hanesulfonic acid].	3,3′-Dimethoxy-4,4′-bis[3-methyl-3-sulfoethyltriazen-1-yl]biphenyl.
ɔimethoxy-4,4′-biphenylenebisazo)bis(N- ɛine).	3,3′-Dimethoxy-4,4′-bis[3-methyl-3-sulfoethyltriazen-1-yl]biphenyl.
3,3′-Dimethoxy-4,4′-biphenylene)bis(1- ɔoamino)]di(ethanesulfonic acid).	3,3′-Dimethoxy-4,4′-bis[3-methyl-3-sulfoethyltriazen-1-yl]biphenyl.
ɔimethoxy-4,4′-biphenylene)bis(3-methyl-3- rl)triazene).	3,3′-Dimethoxy-4,4′-bis[3-methyl-3-sulfoethyltriazen-1-yl]biphenyl.
ɛethylchalcone----------	α-Ethyl-4,4′-dimethoxychalcone.
ɔxy-α-hydroxy-α-phenylacetone----------	p-Anisoin.
hoxy-4-nitrophenyl)benzamide----------	2′,5′-Dimethoxy-4′-nitrobenzanilide.
hoxyphenyl)benzamide----------	2′,5′-Dimethoxybenzanilide.
anilide----------	Acetoxylidide.
ıoacetylcatechol----------	3′,4′-Dihydroxy-2-dimethylaminoacetophenone.
ıino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-	Aminopyrine.

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

Common name	Standard (Chemical Abstracts)
N,N-Dimethyl-3-aminophenol	m-(Dimethylamino)phenol.
Dimethylaniline	Xylidine.
Dimethylbenzene	Xylene.
2′,4-Dimethylbenzenesulfonanilide	p-Toluenesulfono-o-toluidide.
2,2′-Dimethylbenzidine	m-Tolidine.
3,3′-Dimethylbenzidine	o-Tolidine.
2,4-Dimethyl-6-tert-butylacetophenone	2′-tert-Butyl-4′,6′-dimethylacetopheno
1,3-Dimethyl-5-tert-butylbenzene	5-tert-Butyl-m-xylene.
2,7-Dimethylceroxanol	2,8-Dimethyl-13b-hydroxy-9(13b)-ceroxe
Dimethyldianthraquinonyl	2,2′-Dimethyl-1,1′-bianthraquinone.
2,2′-Dimethyl-1,1-dianthraquinonylamine	1,1′-Iminobis[2-methylanthraquinone].
Dimethylhydroresorcinol	Dimethyl-1,3-cyclohexanedione.
3,3′-Dimethyl-4,4′-methylenediphenyl isocyanate	Isocyanic acid, 2,2′-dimethyl-4,4′-metl phenylene ester.
Dimethyl-α-naphthylamine	N,N-Dimethyl-1-naphthylamine.
2,3-Dimethyl-5-oxo-1-phenyl-3-pyrazoline-4-carboxylic acid.	Antipyric acid.
2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one	Antipyrine.
2,7-Dimethylquinoline	m-Toluquinaldine.
Dinaphtho[1,2,3-cd,1′,2′,3′-lm]perylene-9,18-dione	Isoviolanthrone.
Dinaphtho[1,2,3-cd,3′,2′,1′-lm]perylene-5,10-dione	Violanthrone.
1,4-Dinitrobenzene	p-Dinitrobenzene.
2,4-Dinitrobenzene	m-Dinitrobenzene.
Dinitrochlorobenzene	1-Chloro-2,4-dinitrobenzene.
Dinitrochlorobenzenesulfonic acid	4-Chloro-3,5-dinitrobenzenesulfonic ac
3,5-Dinitro-4-chlorobenzoic acid	4-Chloro-3,5-dinitrobenzoic acid [COOH
2,6-Dinitro-4-chlorophenol	4-Chloro-2,6-dinitrophenol [OH=1].
Dinitro-o-cyclohexylphenol	2-Cyclohexyl-4,6-dinitrophenol [OH=1].
4,4′-Dinitro-1,1′-dianthraquinonylamine	1,1′-Iminobis[4-nitroanthraquinone].
Dinitrodibenzanthronyl	Dinitro(3,3′-bi-7H-benz[de]anthracene)
Dinitrohydroxydiphenylamine	p-(2,4-Dinitroanilino)phenol.
Dinitrotetramethyldiaminodiphenylmethane	4,4′-Methylenebis[N,N-dimethyl-2-nitro
2,4-Dinitrotoluenesulfonic acid	3,5-Dinitro-o-toluenesulfonic acid [SO
1,2-Dioxoacenaphthene	Acenaphthenequinone.
Dioxy S acid	4,5-Dihydroxy-1-naphthalenesulfonic ac
Diphenol	Biphenol.
Diphenyl	Biphenyl.
2,4-Diphenylamine-1-hydroxyanthraquinone	2,4-Dianilino-1-hydroxyanthraquinone.
2,4-Diphenylamino-1-oxyanthraquinone	2,4-Dianilino-1-hydroxyanthraquinone.
Diphenylcarbazide	1,5-Diphenylcarbohydrazide.
Diphenyleneimine	Carbazole.
Diphenylene oxide	Dibenzofuran.
Diphenyl epsilon acid	8-Diphenylamino-1,6-naphthalenedisulfo
Diphenyl ether	Phenyl ether.
Diphenyl ketone	Benzophenone.
Diphenylmethanol	Benzhydrol.
Diphenyl oxide	Phenyl ether.
1,3-Diphenyl-2-propen-1-one	Chalcone.
Diphenyl silicon dichloride	Dichlorophenylsilane.
1,3-Diphenylurea	Carbanilide.
N,N-Diphenylurea	Carbanilide.
sym-Diphenylurea	Carbanilide.
Dipyrazoledianthrone	[3,3′-Bianthra[1,9]pyrazole]-6,6′(2H,2′
1,3-Di-p-toluidineanthraquinone	1,3-Di(p-toluidino)anthraquinone.
1,4-Di-p-toluidineanthraquinone	1,4-Di(p-toluidino)anthraquinone.
1,3-Di(p-tolylamino)anthraquinone	1,3-Di(p-toluidino)anthraquinone.
1,4-Di-p-tolylaminoanthraquinone	1,4-Di(p-toluidino)anthraquinone.
S-Dixenylthiourea	4,4′-Diphenylthiocarbanilide.
Durene	1,2,4,5-Tetramethylbenzene.
N-Ethanol-N-ethyl-4-nitrosoaniline	2-(N-Ethyl-4-nitrosoanilino)ethanol.
2-Ethanolpyridine	2-Pyridineethanol.
2-Ethoxyaniline	o-Phenetidine [NH_2=1].
4-Ethoxyaniline	p-Phenetidine [NH_2=1].
2-Ethoxy-6-sulfonaphthalene	6-Ethoxy-2-naphthalenesulfonic acid.
Ethyl-p-aminobenzoate	p-Aminobenzoic acid, ethyl ester.

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

Common name	Standard (Chemical Abstracts) name
›-p-cresol----------	3-Ethylamino-p-cresol [OH=1].
(mono)----------	N-Ethylaniline.
;ylaniline----------	N-Ethyl-N-phenylbenzylamine.
ıilinesulfonic acid----------	α-(N-Ethylanilino)-p-toluenesulfonic acid [SO_3H=1].
ı-toluidine----------	N-Benzyl-N-ethyl-m-toluidine [NH_2=1].
ı-toluidino-o-sulfonic acid----------	4-(N-Benzyl-N-ethylamino)-o-toluenesulfonic acid [SO_3H=1].
›l monophenylether----------	2-Phenoxyethanol.
----------	4,4′-Bis[diethylamino]benzhydrol.
·hydroxyethyl)aniline----------	2-(N-Ethylanilino)ethanol.
base----------	4,4′-Bis[diethylamino]benzophenone.
·(2-methoxy-5-nitrophenyl)diazoamino]-5-ic acid.	2-[1-Ethyl-3-(2-methoxy-5-nitrophenyl)triazen-3-yl]-5-sulfobenzoic acid.
;hylpyridine----------	5-Ethyl-2-picoline.
›enzene----------	1-Ethyl-4-nitrobenzene.
›benzoate----------	p-Nitrobenzoic acid, ethyl ester.
›benzoylacetate----------	p-Nitrobenzoylacetic acid, ethyl ester.
ether----------	Phenetole.
ızylaniline----------	α-(N-Ethylanilino)-p-toluenesulfonic acid [SO_3H=1].
luidine-p-sulfonic acid----------	3-Ethylamino-p-toluenesulfonic acid [SO_3H=1].
›ase----------	4-Chloro-o-toluidine [NH_2=1].
ine----------	p-Aminobenzaldehyde.
-diethylaniline----------	p-(Diethylamino)benzaldehyde.
yrazolin-5-one----------	5-Oxo-3-pyrazoline-4-carboxaldehyde.
----------	2-Naphthol-6,8-disulfonic acid.
----------	7-Amino-1-naphthol-3-sulfonic acid.
› acid----------	7-Amino-1-naphthol-3,6-disulfonic acid.
ɛthylaniline----------	3-(N-Ethylanilino)-1,2-propanediol.
----------	8-Amino-1-naphthol-3,6-disulfonic acid.
----------	6,9-Dichloro-2-methoxyacridine.
zoic acid----------	Cyclohexanecarboxylic acid.
idine----------	Piperidine.
acid----------	α-Carboxy-o-toluic acid.
cylic acid----------	2,4-Cresotic acid [COOH=1].
lic acid----------	2,5-Cresotic acid [COOH=1].
acid----------	(3,4-Dimethoxyphenyl)acetic acid.
ic acid----------	(2,3-Dimethoxyphenyl)acetic acid.
itrile----------	(3,4-Dimethoxyphenyl)acetonitrile.
amine----------	3,4-Dimethoxyphenethylamine.
azinedibromoanthraquinone----------	7,16-Dibromoindanthrene.
----------	4,4′-Bis(dimethylamino)benzhydrol.
dimethyl ether----------	p-Dimethoxybenzene.
aminoanthraquinone----------	1-Amino-4-hydroxyanthraquinone.
marin----------	Umbelliferone.
henol----------	p-Phenylphenol.
yl-o-chloroaniline----------	2-(o-Chloroanilino)ethanol.
ethylaniline----------	2-(N-Ethylanilino)ethanol.
methylaniline----------	2-(N-Methylanilino)ethanol.
ethyl)-N-methylaniline----------	2-(N-Methylanilino)ethanol.
-3-toluidine----------	2-(m-Toluidino)ethanol.
anilic acid----------	6-Amino-1-phenol-2-sulfonic acid.
anilic acid----------	2-Amino-1-phenol-4-sulfonic acid.
methoxybenzaldehyde----------	o-Vanillin.
methylbenzoic acid----------	2,3-Cresotic acid [COOH=1].
methylbenzoic acid----------	2,4-Cresotic acid [COOH=1].
methylbenzoic acid----------	2,5-Cresotic acid [COOH=1].
methylcoumarin----------	4-Methylumbelliferone.
nitrometanilic acid----------	6-Amino-4-nitro-1-phenol-2-sulfonic acid.
nitrometanilic acid----------	2-Amino-6-nitro-1-phenol-4-sulfonic acid.
netole----------	o-Ethoxyphenol.
nylarsonic acid----------	p-Hydroxybenzenearsonic acid [AsO_3H_2=1].

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

Common name	Standard (Chemical Abstracts)
p-Hydroxyphenyl-n-butylamine	p-Butylaminophenol.
3-(p-Hydroxyphenyl)hydratropic acid	α-Phenylphloretic acid.
N-(p-Hydroxyphenyl)-2-naphthylamine	p-2-Naphthylaminophenol.
β-(p-Hydroxyphenyl)-α-phenylpropionic acid	α-Phenylphloretic acid.
3-(p-Hydroxyphenyl)-2-phenylpropionic acid	α-Phenylphloretic acid.
4-Hydroxypyridine-2,6-dicarboxylic acid	Chelidamic acid.
8-Hydroxyquinoline	8-Quinolinol.
m-Hydroxytoluene	m-Cresol [OH=1].
o-Hydroxytoluene	o-Cresol [OH=1].
p-Hydroxytoluene	p-Cresol [OH=1].
6-Hydroxy-m-toluidine [NH_2=1]	2-Amino-p-cresol [OH=1].
2-Hydroxy-p-toluic acid	2,4-Cresotic acid [COOH=1].
I acid	6-Amino-1-naphthol-3-sulfonic acid.
I acid imide	6,6′-Iminobis[1-naphthol-3-sulfonic aci
2,2′-(1,3-Indandione)quinoline	Quinophthalone.
Isobutyl p-nitrobenzoate	p-Nitrobenzoic acid, isobutyl ester.
Isodibenzanthrone	Isoviolanthrone.
p-Isopropylaniline	Cumidine.
Isopropylbenzene	Cumene.
Isopropyl p-toluenesulfonate	p-Toluenesulfonic acid, isopropyl ester
J acid	6-Amino-1-naphthol-3-sulfonic acid.
J acid imide	6,6′-Iminobis[1-naphthol-3-sulfonic aci
J acid urea	6,6′-Ureylenebis[1-naphthol-3-sulfonic
K acid	8-Amino-1-naphthol-3,5-disulfonic acid.
Koch's acid	8-Amino-1,3,6-naphthalenetrisulfonic ac
Lake red C amine	2-Amino-5-chloro-p-toluenesulfonic acid
Laurent's acid	5-Amino-1-naphthalenesulfonic acid.
Lead styphnate	Styphnic acid, lead salt.
Lead trinitroresorcinate	Styphnic acid, lead salt.
Leuco-1,4-di(methylamino)anthraquinone	1,4-Dimethylamino-9,10-anthradiol.
Methandrone	3′,4′-Dihydroxy-2-(dimethylamino)acetopl
Methane base	4,4′-Methylenebis[N,N-dimethylaniline].
Methane salt	4,4′-Methylenebis[3-hydroxy-2-naphthoic
o-Methoxyacetanilide	o-Acetanisidide.
p-Methoxyacetanilide	p-Acetanisidide.
4-Methoxy-4′-aminodiphenylamine	N-(p-Methoxyphenyl)-p-phenylenediamine.
2-Methoxy-4-aminodiphenylamine-2′-sulfonic acid	o-(4-Amino-2-anisidino)benzenesulfonic a
Methoxyaniline	Anisidine [NH_2=1].
o-Methoxyanilinomethanesulfonic acid	o-Anisidinomethanesulfonic acid.
2-(o-Methoxyanilino)-5-nitrobenzenesulfonic acid	2-(o-Anisidino)-5-nitrobenzenesulfonic a
o-Methoxyanilino-p-sulfonic acid	4-Methoxymetanilic acid [SO_3H=1].
Methoxybenzene	Anisole.
p-Methoxybenzoic acid	Anisic acid [COOH=1].
4-Methoxy-3′-chloro-6′-carboxydiphenylamine	4-Chloro-N-(p-methoxyphenyl)anthranilic [COOH=1].
2-Methoxy-6,9-dichloroacridine	6,9-Dichloro-2-methoxyacridine.
4′-Methoxy-4-nitrodiphenylamine-2′-sulfonic acid	2-(p-Anisidino)-5-nitrobenzenesulfonic a
2-[3-(2-Methoxy-4-nitrophenyl)-1-methyltriazeno]-5-sulfobenzoic acid.	2-[3-(2-Methoxy-4-nitrophenyl)-1-methylt 5-sulfobenzoic acid.
4-Methoxy-m-toluidine [CH_3=1]	5-Methyl-o-anisidine [NH_2=1].
6-Methoxy-m-toluidine [NH_2=1]	5-Methyl-o-anisidine [NH_2=1].
[3-(6-Methoxy-m-tolyl)-1-methyltriazeno]acetic acid	[3-(6-Methoxy-m-tolyl)-1-methyltriazen-3 acid.
4-Methyl-4-aminodiphenylamine-2-sulfonic acid	5-Amino-2-(p-toluidino)benzenesulfonic a
Methylaminosulfobenzoic acid	N-Methyl-5-sulfoanthranilic acid.
o-Methylaniline	o-Toluidine [NH_2=1].
Methylaniline (mono)	N-Methylaniline.

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

Common name	Standard (Chemical Abstracts) name
zanthrone	2-Methyl-7H-benz[de]anthracen-7-one.
ic acid	p-Toluic acid [COOH=1].
s(toluenediamine)	5,5′-Methylenebis[toluene-2,4-diamine].
enebis[o-tolylisocyanate]	Isocyanic acid, 3,3′-dimethyl-4,4′-methylenedi-phenylene ester.
-p-phenyleneisocyanate	Isocyanic acid, methylenedi-p-phenylene ester.
enediphenylisocyanate	Isocyanic acid, methylenedi-p-phenylene ester.
-o-tolylene isocyanate	Isocyanic acid, 3,3′-dimethyl-4,4′-methylenedi-phenylene ester.
ethylpyridine (MEP)	5-Ethyl-2-picoline.
hydroxycoumarin	4-Methylumbelliferone.
rdroxy-m-nitrobenzoate	p-Hydroxy-m-nitrobenzoic acid, methyl ester.
hydroxyquinolone	1-Methyl-4(1H)-quinolone.
(3-methyl-5-oxo-2-pyrazolin-1-yl)benzene-acid.	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluene-sulfonic acid [SO_3H=1].
(2-methyl-4-sulfophenyl)-5-pyrazolone	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluene-sulfonic acid.
l-4-nitro-o-anisyl)-p-toluenesulfonamide	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluene-sulfonamide.
nitrodiphenylamine	5-Nitro-N-phenyl-o-toluidine [NH_2=1].
(m-nitrophenyl)-5-pyrazolone	3-Methyl-1-(m-nitrophenyl)-2-pyrazolin-5-one.
enol	m-Cresol [OH=1].
enol	o-Cresol [OH=1].
enol	p-Cresol [OH=1].
phenylenediisocyanate	Isocyanic acid, 4-methyl-m-phenylene ester.
phenyl-5-pyrazolone	3-Methyl-1-phenyl-2-pyrazolin-5-one.
rlpyrazolone-3-sulfonic acid	m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
rlpyrazolone-4-sulfonic acid	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
peridine	2-Pipecoline.
l-5-pyrazolone)-m-toluenesulfonic acid	4-(3-Methyl-5-oxo-2-pyrazolin-1-yl)-m-toluenesulfonic acid.
line	Picoline.
inoline	Quinaldine.
(m-sulfophenyl)-2-pyrazolin-5-one	m-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
(p-sulfophenyl)-2-pyrazolin-5-one	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
ophenylpyrazolone, mixed	m(and p)-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzene-sulfonic acid.
(p-sulfophenyl)-5-pyrazolone	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
oluenesulfonate	p-Toluenesulfonic acid, methyl ester [SO_3H=1].
belliferone	4-Methylumbelliferone.
-vinylpyridine (MVP)	5-Vinyl-2-picoline.
ydrol	4,4′-Bis[dimethylamino]benzhydrol.
ketone	4,4′-Bis[dimethylamino]benzophenone.
enzene	Bromobenzene.
benzene	Chlorobenzene (mono).
e sodium sulfonates	Naphthalenesulfonic acids, sodium salt (mixed).
e-β-thioglycolic acid	(2-Naphthylthio)acetic acid.
-Naphthazolone	Naphthostyril.
nic acid	1-Amino-2-naphthalenesulfonic acid.
	1-Naphthol.
	2-Naphthol.
-8-chloro-3,6-disulfonic acid	8-Chloro-1-naphthol-3,6-disulfonic acid.
ethyl ether	2-Ethoxynaphthalene.
fochloride	1-Naphthalenesulfonyl chloride.
osultone	1-Naphthol-8-sulfonic acid sultone.
etonitrile	Naphthaleneacetonitrile.
amine	1-Naphthylamine.
amine	2-Naphthylamine.
amine-3,6-disulfonic acid	5-Amino-2,7-naphthalenedisulfonic acid.

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts)
1-Naphthylamine-3,8-disulfonic acid	8-Amino-1,6-naphthalenedisulfonic aci
1-Naphthylamine-4,7-disulfonic acid	4-Amino-1,6-naphthalenedisulfonic aci
1-Naphthylamine-4,8-disulfonic acid	4-Amino-1,5-naphthalenedisulfonic aci
2-Naphthylamine-1,5-disulfonic acid	2-Amino-1,5-naphthalenedisulfonic aci
2-Naphthylamine-3,6-disulfonic acid	3-Amino-2,7-naphthalenedisulfonic aci
2-Naphthylamine-4,8-disulfonic acid	3-Amino-1,5-naphthalenedisulfonic aci
2-Naphthylamine-5,7-disulfonic acid	6-Amino-1,3-naphthalenedisulfonic aci
2-Naphthylamine-6,8-disulfonic acid	7-Amino-1,3-naphthalenedisulfonic aci
1-Naphthylamine-2-sulfonic acid	1-Amino-2-napthalenesulfonic acid.
1-Naphthylamine-3-sulfonic acid	4-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-4-sulfonic acid	Naphthionic acid.
1-Naphthylamine-5-sulfonic acid	5-Amino-1-naphthalenesulfonic acid.
1-Naphthylamine-6-sulfonic acid	5-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-6(and 7)-sulfonic acid	5(and 8)-Amino-2-naphthalenesulfonic
1-Naphthylamine-7-sulfonic acid	8-Amino-2-naphthalenesulfonic acid.
1-Naphthylamine-8-sulfonic acid	8-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-1-sulfonic acid	2-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-5-sulfonic acid	6-Amino-1-naphthalenesulfonic acid.
2-Naphthylamine-6-sulfonic acid	6-Amino-2-naphthalenesulfonic acid.
2-Naphthylamine-8-sulfonic acid	7-Amino-1-naphthalenesulfonic acid.
1-Naphthylamine-3,6,8-trisulfonic acid	8-Amino-1,3,6-naphthalenetrisulfonic
2-Naphthylamine-3,6,8-trisulfonic acid	7-Amino-1,3,6-naphthalenetrisulfonic
1-Naphthylamino-2-carboxylic acid anthraquinone	1-(1-Naphthylamino)-2-anthraquinoneca
1-Naphthylisocyanate	Isocyanic acid, 1-naphthyl ester.
α-Naphthyl isocyanate	Isocyanic acid, 1-naphthyl ester.
2-Naphthylmercaptoacetic acid	(2-Naphthylthio)acetic acid.
Naphthylmethanesulfonic acid	1-Naphthalenemethanesulfonic acid.
β-Naphthylthioglycolic acid	(2-Naphthylthio)acetic acid.
Nevile & Winther's acid	1-Naphthol-4-sulfonic acid.
3-Nitro-4-aminoanisole [CH_3O=1]	2-Nitro-p-anisidine [NH_2=1].
4-Nitro-2-aminoanisole [CH_3O=1]	5-Nitro-o-anisidine [NH_2=1].
5-Nitro-2-aminoanisole [CH_3O=1]	4-Nitro-o-anisidine [NH_2=1].
6-Nitro-2-aminoanisole [CH_3O=1]	3-Nitro-o-anisidine [NH_2=1].
o-Nitro-p-aminophenol	4-Amino-2-nitrophenol.
p-Nitro-o-aminophenol	2-Amino-4-nitrophenol.
5-Nitro-o-aminophenol	2-Amino-5-nitrophenol.
4-Nitro-2-aminophenol-6-sulfonic acid	6-Amino-4-nitro-1-phenol-2-sulfonic ac
6-Nitro-2-aminophenol-4-sulfonic acid	2-Amino-6-nitro-1-phenol-4-sulfonic ac
4-Nitro-4′-amino-2-sulfodiphenylamine	2-(p-Aminoanilino)-5-nitrobenzenesulfc
5-Nitro-2-aminotoluene [CH_3=1]	4-Nitro-o-toluidine [NH_2=1].
p-Nitroaniline-o-sulfonic acid	2-Amino-5-nitrobenzenesulfonic acid.
m-Nitro-p-anisidine [CH_3O=1]	2-Nitro-p-anisidine [NH_2=1].
3-Nitro-p-anisidine [CH_3O=1]	2-Nitro-p-anisidine [NH_2=1].
4-Nitro-2-anisidine [CH_3O=1]	5-Nitro-o-anisidine [NH_2=1].
5-Nitro-2-anisidine [CH_3O=1]	4-Nitro-o-anisidine [NH_2=1].
2-Nitroanisole-4-sulfodiethylamide	N,N-Diethyl-3-nitro-p-methoxybenzenesu
1-Nitroanthraquinone-2-carboxylic acid	1-Nitro-2-anthraquinonecarboxylic acid
Nitrobenzene-2,5-disulfonic acid	2-Nitro-p-benzenedisulfonic acid.
1-Nitrobenzene-4-sulfonic acid	p-Nitrobenzenesulfonic acid [SO_3H=1].
2-Nitrobenzenesulfonic acid	o-Nitrobenzenesulfonic acid [SO_3H=1].
3-Nitrobenzenesulfonic acid	m-Nitrobenzenesulfonic acid [SO_3H=1].
3-Nitrobenzenesulfonyl chloride	m-Nitrobenzenesulfonyl chloride [SO_3Cl
m-Nitrobenzoyl J acid	6-(m-Nitrobenzamido)-1-naphthol-3-sulf
p-Nitrobenzoyl J acid	6-(p-Nitrobenzamido)-1-naphthol-3-sulf
m-Nitrochlorobenzene	1-Chloro-3-nitrobenzene.
o-Nitrochlorobenzene	1-Chloro-2-nitrobenzene.
p-Nitrochlorobenzene	1-Chloro-4-nitrobenzene.
2-Nitro-1-chlorobenzene-4-sulfobutylamide	N-Butyl-4-chloro-3-nitrobenzenesulfona
2-Nitro-1-chlorobenzene-4-sulfodiethylamide	4-Chloro-N,N-diethyl-3-nitrobenzenesul
o-Nitrochlorobenzene-p-sulfonic acid	4-Chloro-3-nitrobenzenesulfonic acid.
p-Nitrochlorobenzene-o-sulfonic acid	2-Chloro-5-nitrobenzenesulfonic acid.
3-Nitro-4-chlorobenzoylbenzoic acid	o-(4-Chloro-3-nitrobenzoyl)benzoic aci
4-Nitro-6-chloro-1,3-dimethoxybenzene	6-Chloro-1,3-dimethoxy-4-nitrobenzene.
2-Nitro-4-chlorophenol	4-Chloro-2-nitrophenol.
2-Nitro-4-chlorophenol-6-sulfonic acid	4-Chloro-6-nitro-1-phenol-2-sulfonic a
m-Nitro-p-chlorotoluene	4-Chloro-3-nitrotoluene.
o-Nitro-p-chlorotoluene	4-Chloro-2-nitrotoluene.

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

Common name	Standard (Chemical Abstracts) name
ılorotoluene	2-Chloro-4-nitrotoluene.
ılorotoluene	4-Chloro-2-nitrotoluene.
resol [CH_3=1]	2-Nitro-p-cresol [OH=1].
methyl ether	4-Methyl-2-nitroanisole [CH_3O=1].
hlorobenzene	1,4-Dichloro-2-nitrobenzene.
enyl	2-Nitrobiphenyl.
enyl	4-Nitrobiphenyl.
iphenylaminesulfonic acid	2-Anilino-5-nitrobenzenesulfonic acid [SO_3H=1].
enylamino-2-sulfonic acid	2-Anilino-5-nitrobenzenesulfonic acid [SO_3H=1].
oquinone, diethyl ether	1,4-Diethoxy-2-nitrobenzene.
oquinone, dimethyl ether	1,4-Dimethoxy-2-nitrobenzene.
ydroxy-1-phenylarsonic acid	4-Hydroxy-3-nitrobenzenearsonic acid.
ethoxy-3-aminotoluene [CH_3=1]	5-Methyl-4-nitro-o-anisidine [NH_2=1].
ethoxy-5-(p-toluenesulfonamido)toluene	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluenesulfonamide.
ethylaniline	5-Nitro-o-toluidine [NH_2=1].
ethylanthraquinone	2-Methyl-1-nitroanthraquinone.
thalene-4,8-disulfonic acid	3-Nitro-1,5-naphthalenedisulfonic acid.
-naphthalenedisulfonic acid	3-Nitro-1,5-naphthalenedisulfonic acid.
thalic acid tolylimide	4-Nitro-N-(p-tolyl)naphthalimide.
henol-4,6-disulfonic acid	6-Nitro-1-phenol-2,4-disulfonic acid.
ylhydrazine	m-Nitrophenylhydrazine.
henylmercapto)aniline	p-(p-Nitrophenylthio)aniline.
henyl)-5-pyrazolone-3-carboxylic acid	1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
lonecarboxylic acid	1-(m-Nitrophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid.
ethylaniline	N,N-Diethyl-p-nitrosoaniline.
methylaniline	N,N-Dimethyl-p-nitrosoaniline.
aphthol	1-Nitroso-2-naphthol.
tearoylamino-p-toluenesulfonic acid	3-Nitro-5-stearoylamido-p-toluenesulfonic acid [SO_3H=1].
eneanilide	5-Nitro-n-phenyl-o-toluidine [NH_2=1].
p-toluenesulfone)amino-4-methoxytoluene	N-(5-Methyl-4-nitro-o-methoxyphenyl)-p-toluenesulfonamide.
toluenesulfone-o-toluide	4′-Nitro-p-toluenesulfono-o-toluidide.
enesulfonic acid	3-Nitro-p-toluenesulfonic acid [SO_3H=1].
ene-o-sulfonic acid	5-Nitro-o-toluenesulfonic acid [SO_3H=1].
oluidine [CH_3=1]	4-Nitro-o-toluidine [NH_2=1].
oluidine [CH_3=1]	2-Nitro-p-toluidine [NH_2=1].
oluidine [CH_3=1]	5-Nitro-o-toluidine [NH_2=1].
oluidine [CH_3=1]	2-Nitro-p-toluidine [NH_2=1].
oluidine [CH_3=1]	5-Nitro-o-toluidine [NH_2=1].
oluidine [CH_3=1]	4-Nitro-o-toluidine [NH_2=1].
ine sulfone	4′-Nitro-p-toluenesulfono-o-toluidide.
oluidine-4-sulfonic acid	4-Amino-5-nitro-m-toluenesulfonic acid [SO_3H=1].
o-tolyl)-p-toluenesulfonamide	4′-Nitro-p-toluenesulfono-o-toluidide.
,4-trichlorobenzene	1,2,4-Trichloro-5-nitrobenzene.
threne	16-Nitroviolanthrone.
ylene	4-Nitro-o-xylene.
-xylene	4-Nitro-m-xylene.
-xylol	2-Nitro-p-xylene.
-xylol	4-Nitro-m-xylene.
acid	o-Aminobenzenesulfonic acid [SO_3H=1].
troaniline	4′-Nitrooxanilic acid.
trophenylamine	4′-Nitrooxanilic acid.
ıenyldiamine	3′-Aminooxanilide.
ıenyldiamine	4′-Aminooxanilide.
ran-2,6-dicarboxylic acid	Chelidonic acid.
ole	2-Hydroxycarbazole.
ıoic acid	1-Hydroxy-2-naphthoic acid.
ıoic acid	3-Hydroxy-2-naphthoic acid.
mide	1,4,5,8-Tetrakis[1′,1″,1‴,1⁗-anthraquinonylamino]anthraquinone.

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts
Peri acid	8-Amino-1-naphthalenesulfonic acid.
Phenethylene	Styrene.
Phenol, sodium salt	Sodium phenoxide.
1-Phenylacetylcarbinol	1-Hydroxy-1-phenyl-2-propanone.
3-Phenylacrylophenone	Chalcone.
2-Phenylamine-5-naphthol-7-sulfonic acid	6-Anilino-1-naphthol-3-sulfonic acid.
2-Phenylamine-8-naphthol-6-sulfonic acid	7-Anilino-1-naphthol-3-sulfonic acid.
N-Phenylaniline	Diphenylamine.
Phenylarsonic acid	Benzenearsonic acid.
N-Phenylazoaniline	1,3-Diphenyltriazene.
Phenylbiphenyl	Terphenyl.
Phenyl bromide	Bromobenzene.
1-Phenyl-3-carboxy-5-pyrazolone-4-sulfonic acid	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3 acid.
Phenyldiethanolamine	2,2′-(Phenylimino)diethanol.
N,N′-p-Phenylenebis[acetamide]	N,N′-(p-Phenylene)bis[acetamide].
m-Phenylenediaminedisulfonic acid	4,6-Diamino-m-benzenedisulfonic acid.
m-Phenylenediaminesulfonic acid	2,4-Diaminobenzenesulfonic acid.
p-Phenylenediaminesulfonic acid	2,5-Diaminobenzenesulfonic acid.
Phenylene nerol acid	5-Amino-2-(p-aminoanilino)benzenesulfc
Phenylethanolamine	2-Anilinoethanol.
Phenyl gamma acid	7-Anilino-1-naphthol-3-sulfonic acid.
Phenylhydrazine-p-sulfonic acid	p-Hydrazinobenzenesulfonic acid [SO_3H=
Phenylhydrazine-2-sulfonic acid	o-Hydrazinobenzenesulfonic acid [SO_3H=
Phenylhydrazine-3-sulfonic acid	m-Hydrazinobenzenesulfonic acid [SO_3H=
N-Phenyl-N′-(β-hydroxyethyl)thiourea	1-(2-Hydroxyethyl)-3-phenyl-2-thioure
Phenyl isocyanate	Isocyanic acid, phenyl ester.
Phenyl J acid	6-Anilino-1-naphthol-3-sulfonic acid.
Phenylmalonic ester	Phenylmalonic acid, diethyl ester.
Phenylmethanesulfonic acid	α-Toluenesulfonic acid.
Phenyl-β-naphthylamine	N-Phenyl-2-naphthylamine.
N-Phenyl-1-naphthylamine-8-sulfonic acid	8-Anilino-1-naphthalenesulfonic acid.
α-Phenyl-β-(4-oxophenyl)propionic acid	α-Phenylphloretic acid.
Phenyl peri acid	8-Anilino-1-naphthalenesulfonic acid.
N-Phenyl-p-phenylenediaminesulfonic acid	5-Amino-2-anilinobenzenesulfonic acid
1-Phenyl-5-pyrazolone-3-carboxylic acid, ethyl ester	5-Oxo-1-phenyl-2-pyrazoline-3-carboxyl ethyl ester.
Phenyl silicon chloride	Trichlorophenylsilane.
Phenylstyryl ketone	Chalone.
1-Phenyl-4′-sulfo-5-pyrazolone-3-carboxylic acid	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3 acid.
Phthalyl chloride	Phthaloyl chloride.
3-Piperidino-1-propanol	1-Piperidinepropanol.
Piperidinopropyl alcohol	1-Piperidinepropanol.
Potassium-3-chloro-6-carboxy-3′-methoxydiphenylamine-	4-Chloro-N-(m-methoxyphenyl)anthranili potassium salt [COOH=1].
n-Propyl-p-nitrobenzoate	p-Nitrobenzoic acid, n-propyl ester.
Pseudocumene	1,2,4-Trimethylbenzene.
Pseudocumidine	2,4,5-Trimethylaniline.
Purpuroxanthin	Xanthopurpurin.
Pyrazoleanthrone	Anthra[1,9]pyrazol-6(2H)-one.
Pyrazoleanthrone yellow	[3,3′-Bianthra[1,9]pyrazole]-6,6′(2H,2
3-Pyrazolin-4-ylacetic acid	3-Pyrazoline-4-acetic acid.
3-Pyrazolone	3-Pyrazolin-5-one.
5-Pyrazolone	2-Pyrazolin-5-one.
Pyrazolone G	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)ben acid.
Pyrazolone T	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3 acid.
2-Pyridylethanol	2-Pyridineethanol.
R acid	2-Naphthol-3,6-disulfonic acid.
2R acid	7-Amino-1-naphthol-3,6-disulfonic acid
Red KB base	5-Chloro-o-toluidine [NH_2=1].
Rhoduline acid	6,6′-Iminobis[1-naphthol-3-sulfonic ac

Cyclic intermediates: Glossary of synonymous names--Continued

Common name	Standard (Chemical Abstracts) name
----------	8-Amino-1-naphthol-5-sulfonic acid.
----------	8-Amino-1-naphthol-5,7-disulfonic acid.
acid----------	2-Naphthol-6-sulfonic acid.
----------	2-Anthraquinonesulfonic acid, sodium salt.
late----------	Sodium phenoxide.
hionate----------	Naphthionic acid, sodium salt.
te----------	Sodium phenoxide.
late----------	Sodium phenoxide.
nylphenolate----------	o-Phenylphenol, sodium salt.
chlorophenolate----------	2,3,4,6-Tetrachlorophenol, sodium salt.
lorophenolate----------	2,4,5-Trichlorophenol, sodium salt.
----------	Styrene.
d----------	2-Benzoyl-4-sulfobenzoic acid [COOH=1].
ldehyde----------	o-Formylbenzenesulfonic acid [SO_3H=1].
nzoylbenzoic acid----------	2-Benzoyl-4-sulfobenzoic acid [COOH=1].
troanthraquinone----------	5-Nitro-1-anthraquinonesulfonic acid.
ethylpyrazolone----------	p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid.
l-5-pyrazolone-3-carboxylic acid----------	5-Oxo-1-(p-sulfophenyl)-2-pyrazoline-3-carboxylic acid.
tolylmethane----------	5,5′-Methylenebis[toluene-2,4-diamine].
p-benzoquinone----------	Chloranil.
quinone----------	Chloranil.
aminobenzhydrol----------	4,4′-Bis[diethylamino]benzhydrol.
aminobenzophenone----------	4,4′-Bis[diethylamino]benzophenone.
aminodiphenylmethane----------	4,4′-Methylenebis[N,N-diethylaniline].
aminotriphenylmethane----------	4,4′-Benzylidenebis[N,N-diethylaniline].
thalimide----------	4-Cyclohexene-1,2-dicarboximide.
iaminoacridine hydrochloride----------	2,7-Bis[dimethylamino]acridine hydrochloride.
iaminobenzophenone----------	4,4′-Bis[dimethylamino]benzophenone.
iaminobenzoylhydrol----------	4,4′-Bis[diethylamino]benzhydrol.
iaminodiphenylmethane----------	4,4′-Methylenebis[N,N-dimethylaniline].
iaminotriphenylmethane----------	4,4′-Benzylidinebis[N,N-dimethylaniline].
----------	4,4′-Thiodianiline.
iisulfonic acid----------	6,6′-Thiodimetanilic acid [SO_3H=1].
s(4-amino-o-benzenesulfonic acid)----------	6,6′-Thiodimetanilic acid [SO_3H=1].
ic acid----------	o-Mercaptobenzoic acid [COOH=1].
----------	2-Amino-1-naphthalenesulfonic acid.
----------	2-Phenylacetamide.
-diisocyanate----------	Isocyanic acid, 4(and 2)-methyl-m-phenylene ester.
lfochloride----------	p-Toluenesulfonyl chloride [SO_2Cl=1].
lfonamido-1-aminoanthraquinonesulfonic	1-Amino-4-(p-toluenesulfonamido)-2-anthraquinonesulfonic acid.
lfonic acid----------	p-Toluenesulfonic acid, methyl ester [SO_3H=1].
,6-triol----------	2-Methylphloroglucinol.
id----------	p-Toluic acid [COOH=1].
id----------	Phenylacetic acid.
-o-sulfonic acid----------	4-Amino-o-toluenesulfonic acid [SO_3H=1].
-p-sulfonic acid----------	2-Amino-p-toluenesulfonic acid [SO_3H=1].
-m-sulfonic acid----------	4-Amino-m-toluenesulfonic acid [SO_3H=1].
-omega-sulfonic acid----------	(o-Toluidino)methanesulfonic acid [SO_3H=1].
-m-sulfonic acid----------	6-Amino-m-toluenesulfonic acid [SO_3H=1].
-o-sulfonic acid----------	5-Amino-o-toluenesulfonic acid [SO_3H=1].
-o-sulfonic acid, isopropyl ester----------	5-Amino-o-toluenesulfonic acid, isopropyl ester [SO_3H=1].
-6-sulfonic acid----------	4-Amino-o-toluenesulfonic acid [SO_3H=1].
ino)metanilic acid----------	5-Amino-2-(p-toluidino)benzenesulfonic acid.
le----------	Phenylacetonitrile.
le----------	p-Tolunitrile.
lamino)anthraquinone----------	1,3-Di(p-toluidino)anthraquinone.
enzoic acid----------	o-(p-Tolyl)benzoic acid [COOH=1].
inol----------	o-Methylbenzyl alcohol.
mine----------	Toluenediamine.
ediamine----------	Toluene-2,5-diamine.
ediamine----------	Toluene-2,4-diamine.

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

Common name	Standard (Chemical Abstracts
5-m-Tolylenediamine	Toluene-3,5-diamine.
m-Tolylenediaminesulfonic acid	4,6-Diamino-m-toluenesulfonic acid [S
m-Tolylene diisocyanates	Isocyanic acid, 4(and2)-methyl-m-pher
[3-(p-Tolyl)-1-methyltriazeno]acetic acid	[3-(p-Tolyl)-1-methyltriazen-3-yl] ace
Tolyl peri acid	8-(p-Toluidino)-1-naphthalenesulfonic
2,4,6-Triaminobenzene trihydrochloride	1,3,5-Benzenetriamine trihydrochlorid
2,4,6-Triaminotoluene trihydrochloride	Toluene-2,4,6-triamine trihydrochlori
Trianthraquinonyldi-imide	1,4-Bis[1-anthraquinonylamino]anthraq
1,4-Trianthrimide	1,4-Bis[1-anthraquinonylamino]anthraq
Trichlorophenylsilicane	Trichlorophenylsilane.
1,2,4-Trihydroxyanthraquinone	Purpurin.
1,2,6-Trihydroxyanthraquinone	Flavopurpurin.
2,4,6-Trihydroxytoluene	2-Methylphloroglucinol.
1,3,5-Trimethylbenzene	Mesitylene.
2,4,6-Trimethylpyridine	s-Collidine.
Trinitrophenol	Picric acid.
2,4,6-Trinitroresorcin	Styphnic acid.
1,2,4-Trioxyanthraquinone	Purpurin.
1,3,5-Triphenylhexahydro-s-triazine	Hexahydro-1,3,5-triphenyl-s-triazine.
Triphenyl silicon chloride	Chlorotriphenylsilane.
3,3′-Ureyleneaniline	3,3′-Diaminocarbanilide.
Vinylbenzene	Styrene.
Vinyltoluene	Methylstyrene.
Violanthrene	Dinaphtho[1,2,3-cd,3′,2′,1′-lm]perylei
Xenylamine	4-Biphenylamine.
m-Xylidine acetate	2,4-Xylidine acetate.
m-Xylidinesulfonic acid	2-Amino-3,5-xylenesulfonic acid [SO_3H-
Xylyl chloride	4-Chloro-m-xylene.

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

revious reports in this series, individual toners and lakes were identified by the names
ı they were most commonly known in the literature and in the trade. In this report, they
tified by the names used in the second edition of *Colour Index*.
:acilitate comparison of the statistics shown in this report and those given in the reports
ier years, the following cross-reference list has been compiled. The list gives, for each
dex name used in tables 11A, 12, and 11B of this report, the corresponding name by which
ıent was identified in earlier reports.

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

Colour Index name	Common name
.ack 3	Logwood black.
.ue 1	Victoria pure blue B.
.ue 9	Setoglaucine.
.ue 14	Ethyl violet.
.ue 15	Phthalocyanine blue B, BG.
.ue 19	Alkali blue.
.ue 24	Peacock blue, fugitive.
.ue 25	Dianisidine blue.
'een 1	Brilliant green.
'een 2	Brilliant green and thioflavine.
'een 4	Malachite green.
'een 7	Phthalocyanine green.
'een 8	Pigment green B.
'ange 2	o-Nitroaniline orange.
'ange 5	2,4-Dinitroaniline orange.
'ange 13	Benzidine orange.
'ange 16	Dianisidine orange.
'6	Scarlet 2R.
d 1	Para red.
d 2	Naphthol AS and dca.
d 3	Toluidine red.
d 4	o-Chloro-p-nitroaniline red.
d 5	Naphthol AS-ITR and ITR base.
d 17	Naphthol AS-D and pnot.
d 18	Toluidine maroon.
d 22	Naphthol AS and pnot.
d 23	Naphthol AS-BS and pnoa.
d 38	Pyrazolone red.
d 41	Dianisidine red.
d 48	Permanent red 2B.
d 49	Lithol red R.
d 52	Lithol red 2G.
d 53	Red lake C.
d 57	Lithol rubine B.
d 60	Pigment scarlet 3B.
d 63	B.O.N. maroon.
d 81	Rhodamine 6G.
d 83	Alizarin red B.
d 90	Eosine.
olet 1	Rhodamine B.
olet 3	Methyl violet B.
olet 5	Helio fast rubine 4BL.
w 23	Tartrazine.
ow 2	Auramine.
llow 1	Hansa yellow G.
llow 3	Hansa yellow 10G.
llow 12	Benzidine yellow (dcb and aaa).
llow 13	Benzidine yellow (dcb and aamx).
llow 14	Benzidine yellow (dcb and aaot).

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