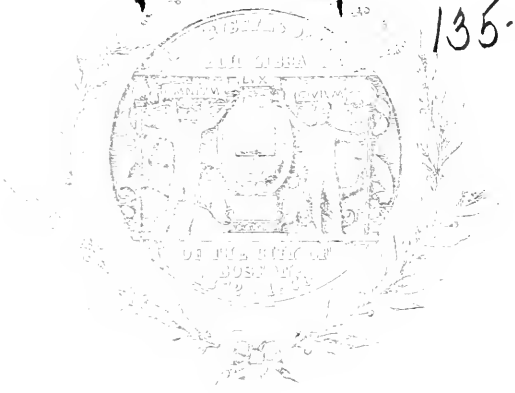

UNITED STATES TARIFF COMMISSION

SYNTHETIC ORGANIC CHEMICALS UNITED STATES PRODUCTION AND SALES

1939

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SYNTHETIC ORGANIC CHEMICALS, UNITED STATES PRODUCTION AND SALES, 1939

INTRODUCTION

The United States Tariff Commission's twenty-third annual report on the production and sales of synthetic organic chemicals in the United States includes all synthetic organic chemicals grouped under the following classifications: Coal-tar crudes, intermediates, dyes, color lakes, and toners; coal-tar and non-coal-tar medicinals, flavors, and perfume materials, resins, rubber chemicals, and miscellaneous chemicals. For the first time separate figures are shown for non-coal-tar rubber chemicals, and for plasticizers, both coal-tar and non-coal-tar. Among the synthetic products reported first in 1939 are synthetic ephedrine, sulfapyridine, and hormones.

Many of the basic products included in this report are essential to national well-being and to national defense. Toluol (p. 6) and phenol (p. 14) are the raw materials for the very important military explosives, trinitrotoluene and picric acid, and are considered by the War Department to be critical materials.

Incidental to the collection of production and sales statistics, the Commission has from time to time compiled data on research expenditures by the synthetic organic chemical industry in order to obtain information on the relationship between research and development in the industry. A summary of research expenditures in 1939 is shown in appendix A of this report.

The Tariff Commission also cooperates with the Department of Commerce in the analysis of imports of coal-tar intermediates and finished products. These data are issued semiannually by the Department of Commerce.[1] A summary of the data obtained in these analyses for 1938 and 1939 is given in appendix B.

Three hundred and six companies reported production and sales of synthetic organic chemicals in 1939. Appendix C is a directory of all manufacturers who have given permission to be identified as producers.

PART I.—SUMMARY, 1939

Activity in the synthetic organic chemical industry, as a whole, increased sharply in 1939 over 1938, and exceeded that in the previous peak year, 1937.

The acceleration in the rate of coke-oven operations resulted in an increase of almost a third in coal-tar production. Greater market demand caused increased production of crude products from tar. The output of toluene or tuluol, the raw material for the military explosive, trinitrotoluene, commonly called T. N. T. was the highest on record.

[1] United States Imports for Consumption of Dyes, Aromatic Chemicals, Medicinals, Intermediates, and other Coal-Tar Products, as defined in Paragraphs 27 and 28 of the Tariff Act of 1930, Semiannual Statement No. 2865.

The production of coal tar, and the production and sales of crudes produced in large volume are shown in table 1 for the years 1939, 1938, 1937, 1936, and the average for the period 1925–30.

TABLE 1.—*Comparison of United States production of tar and production and sales of certain crudes, average 1925–30, annual 1936–39*

[Production and sales in thousands of gallons, value in thousands of dollars]

Product	Average, 1925–30	1936	1937	1938	1939	Increase, 1939 over 1938
						Percent
Tar produced	630,536	560,386	603,053	419,580	554,406	32.1
Benzol:						
Production	22,257	19,413	26,795	17,745	30,470	71.7
Sales	22,257	19,145	22,141	17,176	26,628	55.0
Sales value	4,651	2,676	2,928	2,317	3,618	56.2
Motor benzol:						
Production	96,879	85,673	95,527	61,903	86,246	39.3
Sales	96,879	84,762	93,767	61,221	81,672	33.4
Sales value	15,920	7,629	8,385	6,064	7,679	26.6
Naphthalene:						
Production [1]	44,762	89,536	115,979	53,584	104,086	94.2
Sales [1]	44,762	74,054	109,394	50,693	87,837	73.3
Sales value	581	1,466	2,535	979	1,517	55.0
Creosote oil:						
Production	95,443	101,758	107,294	88,067	110,242	25.2
Sales	95,443	93,216	107,485	88,713	101,487	14.4
Sales value	11,742	10,294	12,472	10,820	12,385	14.5

[1] Thousands of pounds.

Source: Compiled from data reported to the Tariff Commission and to the Bureau of Mines.

The combined sales of all synthetic organic chemicals in 1939 were valued at $384,343,000, and not only exceeded by 39 percent those in 1938, a year of poor chemical sales, but surpassed the value of sales in any preceding year. The increase in sales value of coal-tar chemicals over 1938 was 42 percent, or from $130,462,000 to $184,645,000, and in non-coal-tar synthetic organic chemicals 36 percent, or from $146,435,000 to $199,698,000. The groups showing the largest percentage increase in sales value were intermediates, medicinals, and synthetic resins. The peak activity in synthetic organic chemicals in 1939 resulted from improved business conditions, a building up of inventories by both producers and consumers, and increased exports in the last quarter, particularly to countries whose imports of synthetic chemicals formerly came chiefly from the European belligerents. Although official export statistics do not give a total for all synthetic organic chemicals, it is known that exports of these synthetic products advanced considerably in 1939. The value of exports of all coal-tar chemicals was $9,891,000 in 1938 and $14,612,000 in 1939.

No significant increases in unit values of sales of synthetic organic chemicals occurred in 1939. Virtually all important raw materials for synthetic organic chemicals are abundant in the United States and in general have not advanced in price.

In 1939 a large part of the output of synthetic organic chemicals was consumed, as in preceding years, by producers in the manufacture of other chemicals. More than half of the coal-tar intermediates and of miscellaneous non-coal-tar chemicals, as well as smaller fractions of some of the other groups, was thus consumed by the producing companies. Accordingly the quantity of production is in excess of the

quantity of sales in some group totals and in many individual commodities appearing in the tables in this report.

Each product reported by the manufacturers is listed in the detailed tables shown in this report. Statistics of production and sales are given for as many separate chemicals as is possible without disclosing information concerning the operations of individual companies. The Commission withholds statistics for a product or a group of products unless at least three firms report, and unless the total production and sales are well distributed among the three or more firms. In nearly all instances the absence of numerical data indicated by a blank in the detailed tabulations is not because of a lack of production or sales figures, but because these data are confidential. All such figures, however, are included in their respective group totals.

Sales statistics given in the tables are intended to reflect only sales of chemicals produced by the seller. Every effort has been made to eliminate resales of purchased merchandise and intercompany transfers.

Group totals for 1939 are comparable with those for 1938 except in one instance. The total of non-coal-tar rubber chemicals, heretofore included under the total of the miscellaneous chemicals group, is shown separately in 1939. This change, however, is a minor one and does not affect appreciably the miscellaneous non-coal-tar chemicals total for comparative purposes.

The production and sales of intermediates and finished coal-tar products in 1939 are summarized in table 2, and a comparison of production and sales in 1939 with 1938, 1937, and 1936, and with the 1925–30 average is shown in table 3.

TABLE 2.—*Intermediates, dyes, and other coal-tar chemicals: Summary of United States production and sales, 1939*

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

Product	Number of manufacturers	Production	Sales		
			Quantity	Value	Value per pound
Intermediates	63	607,175	269,084	38,489	$0.14
Finished products, total	221	437,867	353,604	146,156	.41
Dyes:					
Classified		99,564	95,074	48,018	.50
Unclassified		20,627	19,420	22,206	1.14
Total	43	120,191	114,494	70,224	.61
Color lakes and toners	48	18,154	15,577	11,785	.76
Medicinals	44	15,188	12,932	13,711	1.06
Flavors and perfume materials	30	5,349	4,938	4,447	.90
Resins	64	179,338	128,420	23,028	.18
Rubber chemicals	10	29,966	20,965	10,081	.48
Miscellaneous [1]	51	69,681	56,278	12,880	.23

[1] Includes benzoate of ammonia, benzoate of soda, benzoyl peroxide, biological stains and chemical indicators, poisonous and tear gases, synthetic insecticides, photographic chemicals, plasticizers, synthetic tanning materials, textile chemicals, and others.

TABLE 3.—*Intermediates, dyes, and certain other classes of coal-tar chemicals: Comparison of United States production and sales, average 1925–30, annual 1936–39*

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

Product	Average, 1925–30	1936	1937	1938	1939	Increase, 1939 over 1938
Intermediates:						*Percent*
Production	267,492	509,706	575,893	401,943	607,175	51.1
Sales	109,133	223,119	242,194	171,514	269,084	56.9
Sales value	22,408	31,806	35,639	26,090	38,489	47.5
Finished coal-tar products: [1]						
Production	138,078	336,348	373,063	276,387	437,867	58.4
Sales	133,964	287,276	315,742	245,340	353,604	44.1
Sales value	65,027	120,765	128,736	104,372	146,156	40.0
Dyes:						
Production	94,003	119,523	122,245	81,759	120,191	47.0
Sales	92,207	117,573	118,046	87,803	114,494	30.4
Sales value	39,428	63,686	64,613	53,096	70,224	32.3
Medicinals:						
Production	4,508	12,034	14,800	11,097	15,188	36.9
Sales	4,106	10,079	11,989	8,885	12,932	45.5
Sales value	7,464	9,763	11,496	9,509	13,711	44.2
Flavors and perfume materials:						
Production	3,966	3,481	4,356	3,837	5,349	39.4
Sales	3,919	3,437	3,907	3,664	4,938	34.8
Sales value	2,901	3,220	3,983	3,368	4,447	32.0
Resins:						
Production	[2] 24,442	117,302	142,025	106,923	179,338	67.7
Sales	[2] 22,135	86,214	109,201	84,764	128,429	51.5
Sales value	[2] 7,756	17,056	20,582	15,811	23,028	45.6

[1] Includes color lakes, rubber chemicals, and miscellaneous coal-tar products not shown separately.
[2] 1927–30 average.

The production and sales in 1939 of the several groups of synthetic organic chemicals not of coal-tar origin are shown in table 4. The bulk of such chemicals are solvents and other industrial chemicals classified as miscellaneous. In table 5 production and sales of all non-coal-tar synthetic organic chemicals in 1939 are compared with those in 1938, 1937, and 1936, and with the average for 1925–30.

TABLE 4.—*Synthetic organic chemicals of non-coal-tar origin: Summary of United States production and sales, 1939*

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

Product	Number of manufacturers	Production	Sales		
			Quantity	Value	Value per pound
Medicinals	39	1,668	1,483	6,120	$4.13
Flavors and perfume materials	30	2,137	2,233	1,588	.71
Resins	19	33,690	34,877	15,983	.46
Rubber chemicals	8	13,122	11,896	3,086	.26
Miscellaneous	89	2,984,038	1,481,874	172,921	.12
Total		3,034,655	1,532,363	199,698	.13

TABLE 5.—*Synthetic organic chemicals of non-coal-tar origin: Comparison of United States production and sales, average 1925–30, annual, 1936–39*

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

Item	Average, 1925–30	1936	1937	1938	1939	Increase, 1939 over 1938
						Percent
Production	379,972	2,041,455	2,529,650	2,409,456	3,034,655	25.9
Sales	264,006	1,034,921	1,168,149	1,121,608	1,532,363	36.6
Sales value	44,499	105,832	119,420	[1] 146,435	199,698	36.4

[1] Adjusted so as to be on the same value basis as 1939.

PART II.—PRODUCTION AND SALES BY GROUPS, 1939

COAL-TAR CRUDES

An upswing in coke oven operations resulted in an increase in the production of coal tar from 419,580,000 gallons in 1938 to 554,406,000 gallons in 1939. Sixty-two percent of the output was sold in 1939 in comparison with 72 percent in 1938. Tar distilled by purchasers thereof in 1939 amounted to 334,871,000 gallons, or 17 percent more than in the preceding year.

Total production of toluene increased from 16,090,000 gallons in 1938 to 24,355,000 gallons in 1939. No toluene of nitration grade was produced commercially from petroleum in 1939. A solvent, however, containing approximately 50 percent toluene was produced in substantial quantities by two oil companies. Figures for this product are not included in this report.

The output of crude naphthalene increased 94 percent to 104,086,000 pounds, and the production of creosote oil advanced 25 percent to 110,242,000 gallons. Increased demands, particularly from synthetic resin manufacturers, were responsible for an increase in the recovery of crude cresylic acid and other crude tar acids. For the first time, one company reported cresylic acid produced in conjunction with petroleum refining.

Statistics of domestic production and sales of coal tar, crude light oil, and the crude products made from them, as well as the quantities of the several kinds of tar distilled are shown in table 6. These statistics represent a combination of data reported to the Tariff Commission by the distillers of purchased tar, and of data reported to the Bureau of Mines by coke-oven operators who distill tar produced by themselves.

TABLE 6.—*Coal-tar crudes:*[1] *United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information with regard to individual firms]

		Gallons	
Tar distilled by purchasers thereof:[2]			
Oil-gas tar		16,230,837	$809,362
Water-gas tar		21,320,255	958,079
Coal tar		297,320,098	15,892,717
Total		334,871,190	17,660,158

Product	Manufacturers' identification numbers of companies reporting to Tariff Commission (according to list on p. 58)	Production (quantity)	Sales		
			Quantity	Value	Unit value
Tar[3]—gallons		554,406,216	344,534,382	$16,585,734	$0.048
Light oil and derivatives:					
Crude light oil—gallons	57, 103, 116, 171, 180, X	170,993,376	9,397,726	730,591	.078
Benzol (except motor benzol)—gallons	8, 22, 62, 153, 171	30,470,459	26,627,639	3,617,953	.136
Motor benzol—do	22, 171, X	86,245,584	81,671,632	7,678,770	.094
Toluol, crude and refined—gallons	8, 22, 62, 107, 153, 171	24,355,116	24,683,051	4,952,453	.201
Solvent naphtha, crude and refined—gallons	8, 22, 62, 122, 153, 179, 180, X	7,468,386	7,093,186	1,355,079	.191
Xylol[3]—do		4,089,090	4,393,400	1,018,589	.232
Other light oil products—gallons	8, 22, 62, 153	6,684,622	4,562,135	443,469	.097
Naphthalene, crude (solidifying under 79° C.)[4]—pounds	22, 57, 116, 122, 171, 179, 180, 184, X.	104,085,593	87,836,963	1,517,240	.017
Anthracene, crude (less than 30 percent)[2]—pounds	179				
Cumene[2]—gallons	22				
Cresylic acid, crude (less than 75 percent)[2]—gallons	22, 204				
Pyridine—do	22, 122, 179	217,517	164,256	269,831	1.64
Creosote oil—do	11, 22, 56, 57, 68, 103, 107, 109, 116, 122, 124, 153, 179, 180, 184, X.	110,241,843	101,486,998	12,384,939	.122
Coal tar sold or consumed in coal-tar solution[2]—gallons	11, 22, 122				
Tars, crude and refined[2]—do	11, 22, 57, 62, 103, 122, 153, 171, 179, 180, 184, X, X.	33,957,602	32,258,215	2,181,744	.068
Tars, road[2]—do	11, 22, 68, 103, 109, 122, 124, 171, 179, 180, 184.	149,835,943	137,696,311	11,191,316	.081
Other distillates[5]—do	22, 56, 103, 116, 122, 166, 179, 180, 184, X, X, X.	42,680,447	10,740,339	1,542,251	.144
Pitch of tar—tons	11, 22, 56, 57, 68, 103, 109, 116, 122, 124, 166, 179, 180, 184, X.	568,153	306,457	4,358,507	14.22
Pitch of tar coke[2]—do	22, 68, 109, 122, 179, 180	90,124	81,443	1,016,351	12.48
Total				71,419,156	

[1] Data for coke ovens reported to Bureau of Mines, and for tar refineries and others, to United States Tariff Commission unless otherwise noted.
[2] Reported to United States Tariff Commission only.
[3] Reported to Bureau of Mines only.
[4] Includes refined naphthalene reported to Bureau of Mines.
[5] Includes crude tar acids reported to United States Tariff Commission and pheuol, sodium phenolate, and certain other products reported to Bureau of Mines.

COAL-TAR INTERMEDIATES

The production of 607,175,000 pounds of coal-tar intermediates in 1939 was the highest on record, exceeding by 51 percent the output in 1938, and by 5 percent the previous peak in 1937. Sales in 1939 were 269,084,000 pounds valued at $38,489,000, or an average of 14 cents per pound. The difference between production and sales of intermediates is due almost entirely to the large consumption by the producers in the manufacture of finished coal-tar products.

The production of intermediates used in the manufacture of synthetic resins increased more proportionately than did the total

production of intermediates; the output of phthalic anhydride and phenol increased 60 percent and 54 percent, respectively. The production and sales of virtually all intermediates used in the manufacture of dyes and medicinals were considerably higher in 1939 than in 1938; the output of 41,775,000 pounds of the basic commodity, aniline oil, was 56 percent more than in the preceding year. Among the many other intermediates that advanced in production were H acid 46 percent, p-dichlorobenzene 21 percent, dimethylaniline 52 percent, a-naphthylamine 39 percent, and sulfanilic acid and salt 25 percent.

Statistics of production and sales of coal-tar intermediates are shown in table 7.

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information with regard to individual firms. The figures thus concealed, however, are included in the total]

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Acetanilide, tech	44, 60, 62, 85, 138	487, 606			
Acetanilide-p-sulfonic acid	85				
Acetoacetanilide	36, 218				
Acetoacet-o-anisidide	218				
Acetoacet-o-chloranilide	218				
Acetoacet-m-xylidide	218				
Acetotoluide	8, 144, 218				
5-Acetylamino salicylic acid	1				
Acetyldiaminoanthraquinone	6				
Acetyl-1:4-naphthalene-diamine-6 and 7 sulfonic acid (acetylamino Cleve's acid).	144				
Acetyl-p-phenylenediamino (p-amino acetanilide).	44, 62, 85, 144	254, 293			
Acetyl-p-phenylenediamine sulfonic acid.	85				
Acetyl-p-toluidine	62, 99, X, X	854, 789			
Acridine yellow	62, 144				
Adipic acid	X				
a-Aminoanthraquinone and salt	62, 85, 144	255, 914			
b-Aminoanthraquinone	62, 85, 144	624, 118			
Aminoazobenzene and hydrochloride	6, 8, 44, 62, 85, 144, 165	197, 305			
Aminoazobenzene sulfonic acid	6, 8, 44, 62, 85, 144, 165	137, 527			
Aminoazobenzene disulfonic acid	6, 144				
p-Aminoazobenzene disulfonic acid	44				
Aminoazotoluene	8, 44, 62, 85, 144, 165	373, 193			
Aminoazotoluene mono sulfonate	85, 144				
Aminoazoxylene	6, 85, 144				
Aminoazoxylene-toluidine	8				
8-Amino-1:2-benzacridone	62				
o-Aminobenzoic acid (anthranilic acid)	7, 60, 62				
p-Aminobenzoic acid	62				
Amino-5-benzoylaminoanthraquinone	62				
m-Aminobenzoyl J acid	6, 62, 144, 165	27, 570			
p-Aminobenzoyl J acid	6, 62, 85, 144, 165	79, 400			
p-Aminobenzoyl-m-phenylenediamine	62				
m-Aminobenzoyl-p-tolylenediamine	62				
1-Amino-2-bromo-4-p-toluidine anthraquinone.	62				
Aminobutyrylaminodiethyl hydroquinone.	165				
Amino-4-chlorophenol	144				
2-Amino-4-chlorotoluene	62, 144				
2-Amino-6-chlorotoluene	62, 144				
m-Aminocresol methyl ether	44				
1-Amino-2:4-dibromoanthraquinone	62, 144				
p-Aminodiethyl benzaldehyde	62				
2-Amino-5-diethylaminotoluene hydrochloride.	X				
p-Aminodiethylaniline	85, X				
p-Aminodimethylaniline	69				
p-Aminodiphenylamine	62				

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Aminodiphenylamine sulfonic acid	6, 44, 85, 144				
Aminodiphenyl ether	165				
3-Amino-4-hydroxyphenyl arsonic acid	1				
4-Amino-3-methoxy diphenylamine-2-sulfonic acid.	44				
1:7-Aminonaphthol	62				
1-Amino-2-naphthol-4-sulfonic acid	44, 62, 85, 144	1, 083, 317			
1-Amino-8-naphthol-4-sulfonic acid	44, 62, 144				
1-Amino-8-naphthol-2:4-disulfonic acid (Chicago acid).	44, 62, 144	152, 487			
1-Amino-8-naphthol-3:6-disulfonic acid (H acid)	62, 85, 142, 144	3, 664, 378			
2-Amino-5-naphthol-7-sulfonic acid (J acid).	6, 44, 62, 85, 144	639, 114	46, 964	$81, 407	$1.73
2-Amino-8-naphthol-6-sulfonic acid (gamma acid).	6, 44, 62, 85, 144	1, 042, 278	184, 549	156, 533	.85
2-Amino-8-naphthol-3:6-disulfonic acid (2 R acid).	62, 144				
o-Aminophenol	62, 69, 225, 234, X	19, 910	15, 931	21, 798	1.37
o-Aminophenol sulfonic acid	44, 144				
p-Aminophenol and hydrochloride	8, 62, 69, 225, 234, X	1, 012, 442	439, 131	257, 676	.59
p-Aminophenylammonium-hydroxide	X				
m-Aminophenylpyrazolone carboxylic acid.	165				
p-Aminophenyl-p-tolylamine sulfonic acid.	44				
Aminopyrazolone	165, X				
2-Aminopyridine	176				
Aminosalicylic acid	6, 44, 144				
Amino Schaeffer ether	85				
2-Aminotoluene-5-sulfonic acid	44				
4-Aminotoluene-2-sulfonic acid	44				
Amylbenzyl cyclohexylamine	142				
Amyl naphthalenes	191				
Amyl phenol (p-tertiary)	191				
1-Anilido-2-carboxylic acid anthraquinone.	62				
Aniline disulfonic acid	44, 62, 144, 165	52, 788			
Aniline hydrochloride and sulfate	8, X				
Aniline methane sulfonic acid	165				
Aniline oil	8, 60, 62, 138, 142, 144, X	41, 775, 370	13, 348, 564	1, 436, 023	.11
Aniline omega sulfonic acid	62, 144, 165				
Anisic acid	X				
o-Anisidine	62, 142				
o-Anisidine omega sulfonic acid	6, 144, 165				
p-Anisidine	62, 142, 144				
Anthranilic acid (See o-Aminobenzoic acid).					
Anthracene, refined	179				
Anthraquinone (100 percent)	8, 144				
a-Anthraquinone hydrazine disulfonate	85				
Anthraquinone-a-sulfonic acid	85, 144				
Anthraquinone-b-sulfonic acid	85				
Anthraquinone-1:5-disulfonic acid	62, 85				
Anthraquinone-1:8-disulfonic acid	85				
Anthraquinone-2:6-disulfonic acid	62, 85, 144				
Anthraquinone-1:8-potassium disulfonate.	62				
Anthraquinone-1-sodium sulfonate	62				
Anthraquinone-2-sodium-sulfonate (silver salt).	6, 62, 144				
Anthraquinone-2:6-disulfonate	62				
1:9-Anthrathiazol-2-carbonyl chloride	62				
Azobenzene	X				
Azoxyaniline	165				
Benzaldehyde, tech	25, X, X				
Benzaldehyde disulfonic acid	85				
Benzamide	102				
Benzanthrone	6, 8, 62, 85, 144, 161	278, 279			
Benzene sodium disulfonate	62				
Benzene sulfonic acid	142				
Benzidine, base	44, 62, 69, 144				
Benzidine hydrochloride and sulfate	8, 62, 69, 85, 144	1, 540, 628			
Benzidine sulfonic acid	165				
Benzidine disulfonic acid	6, 44, 165, X	7, 822			
Benzoic acid, tech	62, 85, 102, 142, 209, X	222, 483	246, 481	93, 253	.38
Benzoic anhydride	102				
Benzotrichloride	102, 142, X	117, 930	124, 415	16, 500	.13

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Benzoyl acetanilide	X				
1-Benzoylamino-4-chloroanthraquinone	85				
1-Benzoylamino-5-chloroanthraquinone	62, 144				
5-Benzoylamino-1:1-dianthramide	62				
1-Benzoylamino-5-p-toluene sulfonic anthraquinone.	62				
Benzoyl benzoic acid	8, 62, 144				
Benzoyl chloride	102, 142				
Benzoyl J Acid	44				
Benzylamine	102				
Benzyl chloride	25, 102, 142, X				
Benzyl disulfide	102				
Benzylidine aminopyrazolone	X				
Beta gamma picoline	22, 179				
Broenner's acid (See 2-Naphthylamine-6-sulfonic acid).					
Bromamine acid	62, 144				
Bromobenzanthrone	62				
Bromobenzene	60, 69				
p-Bromomethylaminoanthraquinone	85				
p-Bromophenol	X				
Butyl phenol (p-tertiary)	60				
Carbazole, refined	179				
Chicago Acid (See 1-Amino-8-naphthol-2:4-disulfonic acid).					
o-Chloroacetoacetanilide	36				
Chloroacetoacetylnaphthylamide	165				
1-Chloro-5-aminoanthraquinone	144				
1-Chloro-8-aminoanthraquinone	62				
o-Chloroaminobenzoic acid	85, X				
Chloroaminophenol sulfonic acid	44, 62, 85				
5-Chloro-2-aminotoluene hydrochloride	62				
Chloroaniline:					
Ortho	142, 225				
Meta	85, 142				
Para	62, 142				
o-Chloroaniline sulfonic acid	165				
p-Chloroaniline sulfonic acid	6, 44, 62	7, 317			
Chloroanisidine	102				
Chloroanthraquinone	8, 62, 85, 144	430, 361			
o-Chlorobenzaldehyde	62, 85, 144	116, 098			
Chlorobenzanthrone	144				
Chlorobenzene (mono)	60, 62, 71, 102, 142, 199		3, 480, 163	$127, 249	$0.04
o-Chlorobenzoic acid	85, 144, X	23, 135			
Chlorobenzoyl benzoic acid	8, 62, 85, 144	1, 096, 212			
Chlorobenzyl disulfide	102				
1-Chloro-2-carboxy anthraquinone	62				
p-Chloro-m-cresol	22				
2-Chloro-1:4-dihydroxy anthraquinone (chloroquinizarin).	6, 144				
Chlorometanilic acid	62, 144				
Chloromethylanthraquinone	8, 62, 85, 144	114, 187			
Chloronaphthalenes	102, X				
o-Chloro-p-nitroaniline	8, 60, 62, X				
p-Chloronitroaniline	60, 62, 144				
p-Chloro-o-nitroaniline	225				
1-Chloro-5-nitroanthraquinone	144				
4-Chloro-2-nitrotoluene	62				
6-Chloro-2-nitrotoluene	62, 144				
o-Chlorophenol	142, X				
p-Chlorophenol	142				
Chlorophenylhydrazine-p-sulfonic acid	85				
2-Chloro-6-phenylphenol and sodium salt.	60				
Chlorosulfophenylmethylpyrazolone	62				
Chloro symmetrical xylenol	22				
Chlorotoluene	62, 102, 144				
o-Chloro-p-toluene sodium sulfonate	142, X				
Chloro-o-toluidine	144				
4-Chloro-2-toluidine	165				
Chlorotolnidine sulfonic acid	8, 44, 62, X, X	345, 638	72, 672	64, 786	.89
2-Chloro-4-toluidine-5-sulfonic acid	62				
Chlorotolylthioglycollic acid	62, 85, 144	67, 624			
Chloro-4-xylolsulfochloride	85				
p-Chloroxylylthioglycollic acid	85				
Chromotropic acid (See 1:8-Dihydroxy-naphthalene-3:6-disulfonic acid).					
Cleve's acid (See 1-Naphthylamine-6 and 7-sulfonic acid).					

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Cresidine	62				
Cresols:					
Ortho	22, 179, X	1,320,543	1,259,872	$132,491	$0.11
Meta	22, X				
Para	22, 209				
Meta-para	22, 179				
Ortho-meta-para	8, 22, 122, 180, 209, X	13,177,035	14,593,732	1,077,318	.07
o-Cresotinic acid	60				
Cresylic acid (refined)	8, 22, 122, 179, 180, X	14,179,392	14,475,446	892,023	.06
o-Cresyl-p-toluene sulfonate	142				
Cumidine	23, 144				
Cyanoacetylcoumarone	X				
Cyclohexylamine	142				
Decyl benzene	142				
Dehydrothio-p-toluidine	62				
Dehydrothio-p-toluidine sulfonic acid	44, 62, 144	37,173			
m-Diaminoanisole	225				
Diaminoanthraquinone	6, 62, 85	124,587			
2:6-Diaminoanthraquinone	62, 85, 144	59,099			
Diaminoanthrarufin	62				
Diaminodibenzanthronyl	62				
4:4-Diamino-2:2-dimethyldiphenylmethane.	62, 144				
1:8-Diamino-4:5-dinitro anthraquinone	62				
Diaminodiphenylamine sulfonic acid	6, 44				
Diaminophenetol	8				
2:6-Diaminopyridine	176				
Diaminostilbene disulfonic acid	62, 85, 144				
1:5-Dianilidoanthraquinone-o-o-dicarboxylic acid(dicarboxylic-anthraquinone).	62				
Dianisidine	44, 62				
1:1-Dianthraquinone imine	62, 144				
1:1-Dianthraquinone lmine diamino	62, 85, 144				
1:1-Dianthraquinone imine-4:4-dibenzoyl diamino.	62, 144				
1:1-Dianthraquinone imine-4:5-dibenzoyl diamino.	62, 144				
1:1-Dianthraquinone imine dinitro	62				
1:1-Dianthraquinylamine	85				
1-Diazo-2-naphthol-4-sulfonic acid	44, 144				
Diazosalicylic acid	62, 144				
Dibenzanthrone	8, 62				
2:2-Dibenzanthronyl	62				
13:13-Dibenzanthronyl	62				
4:5-Dibenzoylamino-1:1-dianthraquinonylamine.	85				
Dibenzyl	209				
Dibenzyl aniline	62				
Dibromoaminoanthraquinone	62, 85				
p-Dibromobenzene	60				
Dibromodihydroxynaphthalene	X				
Dibromopyranthrone	62				
Dichloroacetoacetanilide	36				
Dichloroaniline	44, 62, 102, 142, 144, 225	140,455			
Dichloroaniline sulfonic acid	62, 85, 144, 165	47,749			
1:5-Dichloroanthraquinone	62				
1:8-Dichloroanthraquinone	62, 85				
1:8-Dichloroanthraquinone - 4:5 - disulfonic acid.	85				
2:6-Dichlorobenzal chloride	62				
o-Dichlorobenzene	60, 62, 71, 102, 142	4,998,203	4,411,109	234,267	.05
p-Dichlorobenzene	60, 62, 71, 102, 142, 199	15,796,756	15,577,113	1,452,198	.09
Dichlorobenzidine	44, 62, 144				
1:8-Dichloro-4:5-dinitroanthraquinone	62				
2:4-Dichlorophenol	142				
Dichlorophenylhydrazine sulfonic acid	165				
Dichlorophenylpyrazolone carboxylic acid.	165				
Dichlorosulfophenylpyrazolone	44				
Dichlorosulfophenylmethylpyrazolone	62, 165				
Di-o-cresol	X				
Dicyclohexylamine	142				
2:5-Diethoxy aniline	62				
Diethylaminobenzaldehyde	85, 144				
Diethyl-m-aminophenol	62, X				
Diethylaniline	62, 144				
Diethylaniline-m-sulfonic acid	62, X				
Diethyl-m-toluidine	X				

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Dihydroaminoanthraquinone	85				
1:4-Dihydroxy anthraquinone (quinizarin).	6, 8, 16, 62, 85, 144, 236	351, 312			
1:5-Dihydroxy anthraquinone (anthrarufin).	62, 85, 144, X	245, 376			
1:8-Dihydroxy anthraquinone (chrysazin).	85				
p-p-Dihydroxydiphenyldimethylmethane (bis-phenol).	60				
5:5-Dihydroxy-7:7-disulfonic-2:2-dinaphthylamine (Rhoduline acid).	62, 165				
5:5-Dihydroxy-7:7-disulfonic-2:2-dinaphthylurea (J acid urea).	44, 62, 85, 144	187, 695			
Dihydroxyethylaniline	6, 85, 144				
Dihydroxyethyl-m-chloroaniline	6				
Dihydroxyethyl-m-toluidine	6				
Dihydroxyethyl-3-toluidine	85				
1:5-Dihydroxynaphthalene	62, 85				
1:8-Dihydroxynaphthalene-3:6-disulfonic acid (chromotropic acid).	6, 44, 62, 144	133, 025			
5:5-Dihydroxy-di-b-naphthylamine-7:7-disulfonic acid (I acid imide).	144				
2:5-Dimethoxy aniline	62				
Dimethylaniline	8, 62, 65, 144	4, 159, 348			
Dimethyldianthraquinonyl	8, 62, 85, 144	99, 019			
Dinitroaniline	6, 8, 62, 142	148, 787			
Dinitroanthraquinone	62				
4:8-Dinitroanthrarufin	62				
Dinitroanthrarufin disodium sulfonate	62, 85				
Dinitrobenzene	8, 62, 85, 144	1, 831, 502			
Dinitrobenzene sulfonic acid	44				
Dinitrochlorobenzene	8, 62, 85, 142, 144	7, 403, 225			
Dinitro-o-cresol	203				
Dinitro-o-cyclohexyl phenol	60				
Dinitrodibenzanthronyl	62				
4:8-Dinitro-1:5-dinitrophenyl ether anthraquinone.	62				
Dinitrohydroxydiphenylamine	44, 85				
Dinitrophenol, tech	62, 85, 144				
Dinitrostilbene disulfonic acid	62, 85, 144				
Dinitrotetramethyldiaminodiphenylmethane.	85, 165				
Dinitrotoluene	62, 144				
Dioxamic acid	85				
Dioxy dibenzanthrone	62				
Dioxy S acid	6, 62				
Diphenoxy anthraquinone	6				
1:5-Diphenoxy anthraquinone	62				
Diphenyl	60, 142				
Diphenyl derivatives:					
p-Amino	142				
p-Nitro	142				
Polychloro	142				
Sodium chloro-o-phenylphenate	60				
Diphenylamine	60, 62				
Diphenyl epsilon acid	62, 144, X	42, 881			
Dipyrazol dianthrone	62				
Distilbenediphenol	144				
Disulfo dicarboxy benzidine	165				
1:3-Di-p-toluidine anthraquinone	62				
1:4-Di-p-tolylaminoanthraquinone	62				
Dodecyl benzene	142				
6-Ethoxy-3-hydroxy thionaphthalene	62				
Ethylaminobenzoate	X				
Ethyl-o-amino-p-cresol	62, X				
Ethylaniline (mono)	62, 144				
Ethylbenzene	60				
Ethylbenzoyl acetate	X				
Ethylbenzoyl benzoate	X				
Ethylbenzoyl cyclohexylamine	142				
Ethylbenzylaniline	62, 144				
Ethylbenzylaniline sulfonic acid	44, 62, 85, 144	457, 587			
Ethylbenzyl-m-toluidine	62, 144				
Ethylbenzyl-m-toluidine sulfonic acid	62, 85, 144				
Ethyl salicyl carbonate	60				
Ethyl-o-toluidine	62				
Ethyl-o-toluidine-p-sulfonic acid	62				

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Ethyl-m-toluidine	62, 144				
Fluorescein	99, 148				
Fumaric acid	144				
Gamma acid. (See 2-Amino-8-naphthol-6-sulfonic acid.)					
H acid. (See 1-Amino-8-naphthol-3:6-disulfonic acid.)					
Hexachlorobenzene	102				
Hexachlorodiphenyl oxide	60				
Hexamethylenediamine	X				
2:1-2:1-Hydrazine dibromoanthraquinone.	62				
Hydroquinone, tech	X, X				
Hydroquinone diethyl ether	85				
Hydroquinone dimethyl ether	85				
a-Hydroxyanthraquinone	6, 144				
Hydroxy ethylethylaniline	62				
b-Hydroxy naphthoic acid	62, 85, 144, X	982, 426	704, 488	$687, 451	$0.98
1-Hydroxy-4-nitroanthraquinone	62				
p-Hydroxyphenyl arsonic acid	1				
Indophenol (blue and green)	62, 144				
Isatin	144				
Isopropyl ester of p-toluidine sulfonic acid.	62				
Iso resinduline	62				
Iso violanthrone	6, 62				
Laurent's acid (See1-Naphthylamine-5-sulfonic acid).					
Lead trinitroresorcinate (lead styphnate).	X				
Leuco-1:4-dimethyldiaminoanthraquinone.	62				
Leuco indophenol BCFN	62				
Leuco quinizarin	6, 62, 144	38, 878			
Maleic acid and anhydride	7, 142, 144	2, 227, 613	2, 410, 738	586, 656	.24
Malic acid	144				
Metanilic acid	8, 44, 62, 144, X				
Methoxy omega sulfonic acid	62				
Methylaminoanthraquinone	85				
4-Methyl-4-aminodiphenylamine-2-sulfonic acid.	144				
b-Methylanthraquinone	8, 62, 144				
2-Methylbenzanthrone	144				
Methylcyclohexylamine	142				
o-Methylcyclohexylamine	X				
2-Methyl quinoline (quinaldine)	22, 144, X				
Methylene bismethyl	X				
Michler's hydrol. (See Tetramethyldiaminobenz hydrol.)					
Michler's ketone. (See Tetramethyldiaminobenzophenone.)					
Naphthalene, solidifying 79° C. or above (refined, flake).	8, 22, 62, 179, 194, 232, X, X.	59, 465, 247	35, 499, 488	1, 899, 254	.05
From domestic crude naphthalene		31, 704, 522			
From imported crude naphthalene		27, 760, 725			
1:5-Naphthalene disulfonic acid	44, 62, 85, 144	363, 997			
1:6-Naphthalene disulfonic acid	85				
2:6-Naphthalene disulfonic acid	85				
2:7-Naphthalene disulfonic acid	62, 141, X				
Naphthalene sodium sulfonate	85				
b-Naphthalene sulfonic acid	144				
Naphthalene-b-thioglycollic acid	62, 85				
Naphthalene-1:3:6-trisulfonic acid	85				
Naphthionic acid. (See 1-Naphthylamine-4-sulfonic acid.)					
a-Naphthol	44, 62, 85, 144	757, 747	426, 356	218, 353	.51
a-Naphthol-3:6-disulfonic acid	44, 144				
b-Naphthol, tech	8, 144, X				
1-Naphthol-8-chloro-3:6-disulfonic acid (chloro H acid).	144				
1-Naphthol-4-sulfonic acid (Nevile & Winther's acid).	44, 62, 144	219, 310			
1-Naphthol-5-sulfonic acid	44, 62, 85, 144	166, 704			
2-Naphthol sulfonic acid	62				
2-Naphthol-6-sulfonic acid (Schaeffer's acid).	8, 44, 62, 85, 144	185, 004	42, 913	20, 157	.47
2-Naphthol-7-sulfonic acid	44, 62, X	66, 807	27, 237	30, 793	1.13
2-Naphthol-8-sulfonic acid	44				

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
2-Naphthol-3:6-disulfonic acid	44, 62, 85, 144, X	601, 098	184, 765	$92, 535	$0. 50
2-Naphthol-6:8-disulfonic acid	44, 62, 85, 144	1, 102, 116			
Naphthsulton disulfonic acid 1:8:3:6	44				
a-Naphthylamine	62, 85, 144				
a-Naphthylamine disulfonic acid	62				
b-Naphthylamine	8, 62, 144				
1-Naphthylamine-2-sulfonic acid (o-naphthionic acid).	62, X				
1-Naphthylamine-4-sulfonic acid (naphthionic acid).	6, 44, 62, 144				
1-Naphthylamine-5-sulfonic acid (Laurent's acid).	8, 44, 62, 85, 144	133, 709			
1-Naphthylamine-6-sulfonic acid	62, 144				
1-Naphthylamine-6 and 7-sulfonic acid (Cleve's acid).	8, 44, 62, 85	245, 577			
1-Naphthylamine-7-sulfonic acid	44, 62, 144				
1-Naphthylamine-8-sulfonic acid	8, 44, 62, 85, 144	303, 811			
1-Naphthylamine-3:8-disulfonic acid	44, 62, 144	67, 882			
1-Naphthylamine-4:8-disulfonic acid	44, 62, 144	398, 827			
1-Naphthylamine-3:6:8-trisulfonic acid	62, 85, 144	4, 738, 923			
2-Naphthylamine-1-sulfonic acid (Tobias acid).	8, 44, 62, 99, X, X	1, 354, 206	699, 631	386, 963	.55
2-Naphthylamine 6-sulfonic acid (Broenner's acid).	44, 144, X				
2-Naphthylamine-3:6-disulfonic acid	44, 144				
2-Naphthylamine-4:8-disulfonic acid	44, 62, 85, 144	169, 794			
2-Naphthylamine-5:7-disulfonic acid	44, 62, 85, 144	1, 125, 887			
2-Naphthylamine-6:8-disulfonic acid	44, 62, 144	1, 450, 950			
2-Naphthylamine-2:3:6-trisulfonic acid	144				
1-Naphthylamino-2-carboxylic acid anthraquinone.	62, 144				
p-Nitroacetanilide	44, 85				
3-Nitro-4-aminoanisole	144				
4-Nitro-2-aminoanisole	62, 144				
5-Nitro-2-aminoanisole	62				
Nitroaminophenol	8, 44, 144				
p-Nitro-o-aminophenol	62, 85				
4-Nitro-4-amino-2-sulfodiphenylamine	144				
o-Nitroaniline	142				
m-Nitroaniline	8, 44, 62, 144, 225	129, 442	94, 844	59, 876	.63
p-Nitroaniline	6, 142, 228				
p-Nitroaniline sulfonic acid	8, 44, 62	58, 801			
m-Nitro-p-anisidine	62, 144				
p-Nitro-o-anisidine	6, 62, 85, 144	62, 461			
3-Nitro-4-anisidine	85				
5-Nitro-2-anisidine	85				
o-Nitroanisole	62, 142				
p-Nitroanisole	62, 144				
Nitrobenzene	8, 62, 85, 144, 165, X	57, 256, 976			
Nitrobenzene sulfonic acid	44, 62, 85, 144	273, 150			
Nitrobenzene-2:5-disulfonic acid	44				
6-Nitrobenzimidazole	X				
m-Nitrobenzoic acid	62				
p-Nitrobenzoic acid	62				
m-Nitrobenzoyl chloride	62, 102				
p-Nitrobenzoyl chloride	62, 102, X				
p-Nitrobenzoyl J acid	62, 85				
3-Nitrobenzoyl-3-nitroaniline	85				
m-Nitrobenzoyl sulfonic acid	6				
Nitrobutyrylaminodiethyl hydroquinone.	165				
o-Nitrochlorobenzene	62, 142				
o-Nitrochlorobenzene sulfonic acid	44				
o-Nitrochlorobenzene-p-sulfonic acid	144				
m-Nitrochlorobenzene	62, 142				
p-Nitrochlorobenzene	62, 142				
p-Nitrochlorobenzene-o-sulfonic acid	6, 44, 62, 144	201, 292			
2-Nitro-4-chlorotoluene	144				
m-Nitrocresol	1, 62				
m-Nitro-p-cresol	44				
8-Nitro-1-diazo-2-naphthol-4-sulfonic acid.	85, 144				
Nitro-p-dichlorobenzene	44, 142, 144, 225				
Nitrodiphenyl ether	165				
3-Nitro-4-hydroxy-1-phenyl arsonic acid	1				
Nitronaphthalene	62, 85, 144				

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
1-Nitronaphthalene-8-sulfonic acid	85				
2-Nitronaphthalene-4:8-disulfonic acid	44, 85, 144	94, 799			
1-Nitronaphthalene trisulfonic acid	85				
o-Nitrophenetol	62				
o-Nitrophenol	62, 225, X				
p-Nitrophenol	62, 142, 225				
Nitrophenyl hydrazine	165				
Nitrophenyl pyrazolone carboxylic acid	165				
Nitrosodiethylaniline	85				
Nitrosodimethylaniline	6, 85, 144				
Nitrosoethylbenzylaniline	85				
Nitroso-b-naphthol	X				
Nitrosophenol	8, 20, 44, 62, 85, 144, 234	386, 173			
Nitrotoluene	62, 144				
o-Nitrotoluene	62, 85, 144				
o-Nitrotoluene sulfonic acid	6, 44				
m-Nitrotoluene	62, 144				
p-Nitrotoluene	62, 144				
p-Nitrotoluene-o-sulfonic acid	44, 62, 85, 144	967, 747			
Nitrotoluidine	1				
m-Nitro-p-toluidine	8, 62, 99, X, X, X	785, 535	722, 026	$872, 904	$1. 21
p-Nitro-o-toluidine	8, 62				
5-Nitro-2-toluidine	165				
Nitroxylene	44, 62, 144				
Oxalyl-p-nitroaniline	62, 85, 144				
Oxalyl-m-phenylenediamine	62, 144				
Oxalyl-p-phenylenediamine	62, 85, 144				
Oxydichlorobenzoyl benzoic acid	144				
Penta anthramide	62, 85, 144				
Pentachlorobenzene	102				
Pentachlorophenol and sodium salt	60, 142				
o-Phenetidine	62, 142				
p-Phenetidine	62, 142, X				
Phenol	8, 22, 60, 122, 142, 179, 180, X.	68, 577, 421	59, 857, 139	6, 111, 442	.10
Phenyl-2-amino-5-naphthol-7-sulfonic acid (phenyl J acid).	6, 44, 62, 85, 144, 165, X.	88, 509			
Phenyl-2-amino-8-naphthol-6-sulfonic acid (phenyl gamma acid).	6, 44, 62, 85, 144, 165, X.	20, 701			
Phenylammonium naphtholate	X				
Phenyl ethanolamine	36				
Phenyl diethanolamine	36				
Phenylethyl malonic ester	25, X				
Phenylethyl malonic diethyl ester	1, 25, X				
m-Phenylenediamine	6, 8, 44, 62, 144, 172	783, 004			
m-Phenylenediamine sulfonic acid	44, 62, 85, 144	81, 090			
p-Phenylenediamine	8, 228				
p-Phenylenediamine sulfonic acid	44, 85				
Phenylene nerol acid	62				
Phenylglycine, sodium salt	60, 62, 144	5, 420, 072			
Phenylhydrazine and hydrochloride	60, 69, 182				
Phenylhydrazine-o-sulfonic acid	85				
Phenylhydrazine-p-sulfonic acid	85, 165, 206				
Phenyl malonic diethyl ester	1				
Phenylmethylpyrazolone	6, 8, 60, 62, 85, 165, X				
1-Phenyl-3-methyl-5-pyrazolone (developer Z).	62, 165				
Phenyl-l-naphthylamine-8-sulfonic acid	8, 62, 85, 144	299, 978			
o-Phenylphenol	60				
p-Phenylphenol	60				
Phthalamide	62, X				
Phthalic acid and anhydride	7, 22, 62, 142, 144	44, 274, 430	20, 380, 004	2, 785, 372	.14
Phthalonitrile	62				
Phthalyl chloride	142				
a-Picoline	22, 179				
Picramic acid and salt	8, 62, 144	140, 132	81, 986	53, 868	.66
Piperidine	62, 102, 142				
Primuline, base	44, 85, 144				
Primuline sulfonic acid	85, 161				
Propiophenone	X				
Pyrazol anthrone	62				
Pyrazolone	6				
Pyridine, refined	179				
Quinaldine (See 2-Methyl quinoline).					
Quinaldine yellow, base	144				
Quinoline	22				
Quinoline derivatives	X				
Red KB, base	85				
Resorcinol, tech	62, X				
Rhoduline acid (See 5,5-Dihydroxy-7,7-disulfonic-2,2-dinaphthylamine).					

TABLE 7.—*Coal-tar intermediates: United States production and sales, 1939*—Con.

Name of intermediate	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
		Pounds	*Pounds*		
Salicylic acid, tech	60, 62				
Salicylic anilide (Shirlan)	62				
Schaeffer's acid (see 2-Naphthol-6-sulfonic acid).					
Silver salt (see Anthraquinone-2-sodium sulfonate).					
Sodium 2-bromo-4-phenylphenate	60				
Sodium naphthionate	62				
Sodium pentachlorophenate	60				
Sodium tetrachlorophenate	60				
Sodium trichlorophenate	60				
Succinic acid and anhydride	144, X				
Sulfanilic acid and salt	6, 8, 44, 62, 144	1,878,982			
o-Sulfobenzaldehyde	62, 144				
p-Sulfo-o-benzoyl benzoic acid (sulfo BB acid.)	62				
Sulfophenylmethylpyrazolone	62				
Sulfophenylmethylpyrazolone carboxylic acid.	165				
Tetraaminoditolylmethane	144				
1:8:4:5-Tetrachloroanthraquinone	62, 85, 144				
Tetrachlorobenzene	102				
Tetraethyldiaminobenzophenone (ethyl ketone).	62, 144				
Tetramethyldiaminobenzhydrol (Michler's hydrol).	62, 85				
Tetramethyldiaminobenzophenone (Michler's ketone).	62, 85, 144				
Tetramethyldiaminodiphenylmethane	8, 62, 85, 144, X	856,956			
Tetramethyldiaminodiphenylmethane sulfonate.	144				
Thioaniline	8, 62, 144				
Thioaniline disulfonic acid	144				
Tolazine, base	144				
Tolidine and salts	44, 62, 69, 144	248,119			
Tolidine disulfonic acid	6, 165				
o-Toluene sulfamide	142				
p-Toluene sulfamide	142				
p-Toluene sulfochloride	142				
p-Toluene sulfonic acid	142, X				
p-Toluene sulfonic acid ethyl ester	225				
Toluidine	8				
Toluidine disulfonic acid	44				
o-Toluidine	8, 62, 85, 144				
o-Toluidine omega sulfonic acid	6, 144				
o-Toluidine sulfonic acid	8, 62, 85, 144	118,355			
o-Toluidine-m-sulfonic acid	165				
m-Toluidine	62				
p-Toluidine	62, 85, 144				
p-Toluidine sulfonic acid	44, 62, 85, 144	67,227			
p-Tolyl-o-benzoic acid	8, 62, 85, 144	308,108			
m-Tolylenediamine	8, 44, 62, 85, 144	1,089,446	323,817	$211,418	$0.65
m-Tolylenediamine sulfonic acid	144				
p-Tolylenediamine	8				
p-Tolylenediamine sulfate	8				
Tolyl-1-naphthylamine-8-sulfonic acid (tolyl peri acid).	8, 62, 85, 144	58,558			
Tribromophenol	60				
Trichlorobenzene	60, 102, 142	1,153,723	1,225,691	89,264	.07
Trichlorophenoxy ethoxy ethyl chloride	60				
Trinitrophenol	62, 144				
2:4:6-Trinitroresorcin (styphnic acid)	X				
1:2:4-Trioxyanthraquinone	85				
Vinyl benzene (styrene)	60				
m-Xylene	X				
Xylenols	8, 22, 179, 180				
Xylidine and salt	44, 62, 144				
m-Xylidine	62, 144				
m-Xylidine acetate	144				
m-Xylidine sulfonic acid	62, 144				
Xylidine, ortho and para	8, 144				
Xylyl disulfide	102				
Other intermediates	1, 62, X				
Total intermediates:					
For which individual statistics are shown.		383,889,962	190,957,265	20,149,628	.11
For which individual statistics cannot be shown.		223,285,331	78,126,386	18,339,722	.23
Grand total		607,175,293	269,083,651	38,489,350	.14

COAL-TAR DYES

The production of 120,191,000 pounds of coal-tar dyes in 1939 was 47 percent more than in the preceding year. Sales were 30 percent by quantity and 32 percent by value above those in 1938. Since sales in 1938 were in considerable part from inventories, the increase shown for production in 1939 is much greater than that for sales. A decided betterment in export trade, particularly during the last quarter, contributed to the improvement in sales. After satisfying the American market, dye producers had a considerable surplus for export. The quantity exported was limited largely by plant capacity.

Unclassified[1] dyes constituted 17 percent of sales quantity and 32 percent of sales value of all dyes in 1939, as compared with 16 percent and 32 percent, respectively, in 1938. Sales of the bulk color, synthetic indigo, decreased somewhat in value, but increased slightly in quantity, from 11,738,000 pounds in 1938 to 11,950,000 pounds in 1939. The average value per pound of all dyes sold was $0.60 in 1938 and $0.61 in 1939. A continuation of the steady trend toward a greater production of the higher priced dyes, especially vats and azoics, more than offset a reduction of 1 cent per pound on synthetic indigo and decreased unit values in the groups of acetate silk dyes and azoic dyes. Research resulted in the development of a number of new dyes in 1939.

Production and sales of dyes by classes of application are shown in table 8; and of individual dyes, grouped, as far as practicable by chemical classes, in table 9. Totals of chemical classes that can be shown without revealing confidential information are given.

TABLE 8.—*Comparison of United States production and sales of dyes, by classes of application, average 1925–30, annual 1938 and 1939*

Class of application	Production					
	Quantity			Percent of total		
	Average 1925–30	1938	1939	Average 1925–30	1938	1939
	Pounds	*Pounds*	*Pounds*			
Acetate silk	(1)	2,072,375	2,584,873		2.5	2.2
Acid	11,813,941	11,699,020	17,700,432	12.6	14.3	14.7
Azoic	(1)	2,687,725	3,317,761		3.3	2.8
Basic	4,833,382	4,473,033	6,415,693	5.1	5.5	5.3
Direct	17,983,751	21,060,655	31,438,399	19.1	25.8	26.2
Lake and spirit-soluble	1,947,124	2,284,620	3,304,687	2.1	2.8	2.7
Mordant and chrome	3,611,608	3,058,926	5,236,683	3.8	3.7	4.4
Sulfur	20,004,635	11,459,927	18,650,898	21.3	14.0	15.5
Vat, total	33,221,072	22,346,618	30,034,981			
(*a*) Indigo	27,128,311	11,000,829	12,474,777	28.9	13.5	10.4
(*b*) Other	6,092,761	11,345,789	17,560,204	6.5	13.9	14.6
Unclassified	587,657	615,949	1,506,281	.6	.7	1.2
Total	94,003,170	81,758,848	120,190,688	100.0	100.0	100.0

[1] Not shown separately during 1925-30.

[1] Not classified according to Colour Index numbers.

TABLE 8.—*Comparison of United States production and sales of dyes, by classes of application, average 1925–30, annual 1938 and 1939*—Continued

Class of application	Sales					
	Quantity			Percent of total		
	Pounds	*Pounds*	*Pounds*			
Acetate silk	(1)	2,029,625	2,402,148		2.3	2.1
Acid	11,699,667	12,416,001	17,062,522	12.7	14.1	14.9
Azoic	(1)	2,591,306	3,144,736		3.0	2.7
Basic	4,709,926	4,417,627	5,975,859	5.1	5.0	5.2
Direct	17,580,927	21,967,120	30,421,361	19.1	25.0	26.6
Lake and spirit-soluble	1,896,821	2,339,341	3,278,102	2.1	2.7	2.9
Mordant and chrome	3,558,732	3,452,169	5,325,074	3.8	3.9	4.7
Sulfur	19,810,565	12,855,450	17,310,556	21.5	14.7	15.1
Vat, total	32,429,018	25,031,204	28,135,476			
(*a*) Indigo	27,111,575	11,738,149	11,949,582	29.4	13.4	10.4
(*b*) Other	5,317,443	13,293,055	16,185,894	5.8	15.1	14.1
Unclassified	521,625	702,991	1,438,131	.5	.8	1.3
Total	92,207,281	87,802,834	114,493,968	100.0	100.0	100.0

Class of application	Sales					
	Value			Percent of total		
	Average 1925–30	1938	1939	Average 1925–30	1938	1939
Acetate silk	(1)	$2,001,844	$2,210,758		3.8	3.2
Acid	$8,651,526	9,841,787	13,295,598	21.9	18.5	18.9
Azoic	(1)	4,151,107	4,707,546		7.8	6.7
Basic	3,977,258	4,152,496	5,593,109	10.1	7.8	8.0
Direct	9,076,783	11,968,976	16,649,109	23.0	22.5	23.7
Lake and spirit-soluble	1,681,736	1,766,708	2,298,367	4.3	3.3	3.3
Mordant and chrome	2,212,390	1,727,669	2,664,749	5.6	3.3	3.8
Sulfur	3,928,982	3,215,621	4,656,536	10.0	6.1	6.6
Vat, total	9,114,973	13,578,125	16,789,372			
(*a*) Indigo	3,741,314	1,849,621	1,842,718	9.5	3.5	2.6
(*b*) Other	5,373,659	11,728,504	14,946,654	13.6	22.1	21.3
Unclassified	784,604	691,230	1,358,457	2.0	1.3	1.9
Total	39,428,252	53,095,563	70,223,601	100.0	100.0	100.0

[1] Not shown separately during 1925–30.

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*

[The numbers in the third column refer to the numbered alphabetical list of manufacturers printed on page 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the fourth, fifth, and sixth columns indicate that the statistics of production or sales cannot be published without revealing information with regard to individual firms. The figures thus concealed, however, are included in the total]

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes					
	NITROSO DYES		*Pounds*	*Pounds*		
2	Fast printing green	85				
5	Naphthol green	8				
	NITRO DYES					
10	Naphthol yellow S	8, 44, 144				
	AZO DYES					
	Monoazo dyes					
16	Acid yellow G	6, 85				
17	Spirit yellow R	6, 8, 54, 79, 85, 144	53,733	49,616	$39,954	$0.81
19	Butter yellow	6, 8, 54, 79, 85, 144	31,748	34,215	22,587	.66
20	Chrysoidine Y	8, 54, 85, 144				
21	Chrysoidine R	8, 85, 144	179,925	121,616	40,810	.34
23	Oil orange	54				
24	Sudan I	6, 8, 54, 62, 85, 144	332,713	338,368	158,649	.47

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	AZO DYES—continued					
	Monoazo dyes—Continued		*Pounds*	*Pounds*		
26	Croceine orange	44, 144				
27	Orange G	8, 41, 62, 85, 144	184, 500	179, 517	$84, 377	$0.47
29	Chromotrope 2R	144				
30	Fast acid fuchsine B	6, 144				
31	Amido naphthol red G	6, 8, 44, 62, 85, 144	475, 277	462, 995	152, 695	.33
36	Chrome yellow 2G	6, 8, 44, 85	86, 460	116, 348	50, 889	.44
40	Chrome yellow R	6, 8, 44, 85	84, 246	72, 463	39, 915	.55
52	Mordant yellow 4G	6, 44, 85	24, 012	21, 493	9, 080	.42
53	Victoria violet	8, 44, 62, 85, 144	90, 767	93, 554	58, 755	.63
54	Lanafuchsine	X				
56	Chromotrope 6B	44, 144				
57	Amido naphthol red 6B	6, 8, 44, 62, 85, 144	447, 108	436, 384	172, 238	.39
69	Toluidine red RL	197				
73	Sudan II	6, 8, 54, 79, 85, 144				
79	Ponceau 2R	8, 44, 62, 85, 144, 148	380, 964	373, 656	151, 172	.40
84	Double ponceau R	62, 85				
88	Bordeaux B	8, 44, 85, 144	152, 250	137, 049	62, 853	.46
90	Chromotrope 10B	62				
98	Chrome brown R	8, 44, 85				
99	Palatine chrome green G	85				
101	Chromate brown B	8, 172, X				
105	Acid chrome brown R	62				
110	Chrome flavine G	85				
113	Oil scarlet	79				
114	Azo eosine G	62, 85				
119	Eosamine G	62				
122	Chrome yellow 5G	44				
126	Direct pink E2GN	62				
128	Direct pink	85, 144				
130	Direct pink EBN	62				
138	Metanil yellow	6, 44, 62, 85, 144	423, 976	445, 307	237, 465	.53
142	Methyl orange	62				
145	Azo flavine 2R	85				
146	Azo yellow	6, 85, 144	62, 000	70, 971	41, 676	.59
148	Resorcin yellow	8, 85, 144				
151	Orange II	8, 44, 85, 99, 144, 148	1, 446, 763	1, 398, 618	379, 106	.27
161	Orange R	8, 44, 62, 144	233, 028	251, 071	72, 744	.29
163	Lake red 4B	44, 62, 144				
165	Lake red C (100 percent)	8, 62				
167	Acid chrome brown B	144				
168	Acid chrome garnet R	44, 144				
169	Chrome violet R	44, 85, 144	13, 431	15, 600	11, 560	.74
170	Chrome black PV	85, 144				
172	Acid alizarin black R	85				
175	Acid brown R	85				
176	Fast red A	8, 44, 62, 85, 144	169, 804	145, 372	69, 340	.48
179	Azo rubine	6, 44, 62, 85, 144	169, 698	172, 338	87, 971	.51
180	Fast red VR	8, 44, 85, 144	194, 355	176, 061	91, 836	.52
183	Croceine scarlet 3BX	44				
184	Amaranth	6, 44, 144	48, 341	40, 250	19, 581	.49
185	Cochineal red	8, 44, 85, 144		73, 974	33, 481	.45
189	Lake red R (100 percent)	197				
195	Mordant yellow	44, 85, 144		22, 796	10, 212	.45
197	Chrome yellow RN	6, 44, 144				
201	Chrome blue black B	44, 85, 144				
202	Chrome blue black U	44, 62, 85, 144	1, 700, 360	1, 729, 643	483, 275	.28
203	Chrome black T	44, 62, 85, 144	660, 724			
204	Chrome black A	44, 85, 144, 172	144, 243	160, 246	67, 508	.42
208	Fast acid blue R	8, 62, 144	127, 533	118, 314	60, 130	.51
209	Fast acid blue B	62, 85, 144	47, 980	37, 849	24, 346	.64
214	Lake red D (100 percent)	197				
216	Chrome red B	8, 44, 62, 85, 144	93, 758	78, 230	39, 195	.50
219	Eriochrome flavine A	62, 85, X				
225	Direct pink R	62				
	Disazo dyes					
234	Resorcin brown B	6, 8, 44, 62, 85, 144, 235	404, 828	346, 870	175, 737	.51
235	Resorcin dark brown	6, 8, 44, 54, 85, 144, 235	125, 756	125, 602	85, 540	.68
238	Acid chrome brown G	62				
246	Acid black 10B	6, 8, 44, 62, 85, 144, 235	2, 190, 688	1, 992, 899	751, 530	.38
247	Acid dark green A	44, 54, 62				
249	Cloth red R	44				
252	Brilliant croceine	8, 44, 62, 85, 144	371, 270	404, 898	306, 797	.76
256	Cloth red 3G	8, 62				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	AZO DYES—continued					
	Disazo dyes—Continued		*Pounds*	*Pounds*		
258	Sudan IV	44, 54, 62, 79, 85, 144				
262	Cloth red 2B	6, 44, 85, 144	81,616	79,411	$45,288	$0.57
267	Neutral gray G	62, X				
274	Milling orange G	6, 8, 44, 85	28,168	30,811	15,095	.49
275	Cloth scarlet G	6, 8, 44, 62, 235		4,811	4,551	.95
278	Direct fast red 8BL	6, 8, 27, 62, 85, 144, 165, 235, X.	170,032	188,690	388,559	2.06
280	Scarlet EC	6, 85, 144	31,402	27,084	27,057	1.00
288	Fast cyanine G	8, 85, 144, X	76,595	72,906	45,279	.62
289	Fast cyanine 5R	8, 62, 85, 144, X	539,032	481,226	272,157	.57
290	Naphthalene acid black 4B	85				
294	Acid black B	144				
299	Chrome black F	44, 62, 85, 144		175,763	81,375	.46
302	Chrome blue green B	8, 62				
304	Fast acid black N2B	44, 62, 85				
306	Fast acid black F	85				
307	Fast cyanine black B	8, 62, 85, 144, X	165,025	170,982	111,106	.65
308	Naphthylamine black D	85				
316	Developed blue NA	44, 62, 85, 144	234,738			
317	Developed blue B	44, 62, 85, 144				
319	Direct fast heliotrope 2B	62, 85				
324	Developed brilliant orange GR	62, 85, 165, X				
325	Diamine brilliant violet B	6, 85				
326	Direct fast scarlet	44, 62, 85, 144, X	543,425	590,429	626,559	1.06
327	Direct fast scarlet 4BS	44, 85				
331	Bismarck brown	8, 62, 85, 144	114,030	86,305	30,094	.35
332	Bismarck brown 2R	8, 44, 62, 85, 144	846,785	824,511	307,644	.37
336	Acid chrome black F	85				
343	Chrome fast yellow C	8				
346	Direct fast yellow 5GL	8, 62, 85				
349	Benzo fast yellow 4GL	X				
353	Direct fast pink 2BL	8, 62, 85, 144	53,937	32,767	58,970	1.80
364	Paper yellow	8, 62, 85, 144	236,229	226,641	170,071	.75
365	Chrysophenine G	62, 85, 144				
370	Congo red	62, 144				
374	Direct orange TA	144				
375	Congo corinth G	6, 8, 44, 62, 85, 144, 235.	405,599	361,123	234,779	.65
376	Direct rubine	44, X				
382	Direct scarlet B	6, 8, 44, 85, 144, 235, X.	179,385	195,864	174,367	.89
385	Direct violet	44				
387	Direct violet B	44, 62, 144				
394	Direct violet N	6, 8, 44, 62, 85, 144	118,910	108,342	98,200	.91
395	Developed black RO	6				
401	Developed black BHN	6, 8, 44, 62, 85, 144, 235.	2,308,990	2,367,172	768,918	.32
405	Direct cyanine R	144				
406	Direct blue 2B	6, 8, 44, 54, 62, 85, 144, 235.	1,035,526	1,172,418	236,579	.20
409	Direct orange DB	62				
410	Chrysamine G	62				
411	Cresotine yellow G	44, 144, 235				
415	Direct orange R	44, 62, 85				
419	Direct fast red F	6, 8, 27, 44, 62, 85, 144, 235.	444,089	398,342	254,722	.64
420	Direct brown M	6, 8, 44, 62, 85, 144, 235.	566,046	501,936	236,469	.47
423	Direct brown B	8, 235				
430	Polar red C	44, 62, 85, 144, X, X				
431	Acid chrome red	62				
436	Direct brilliant red 8B	44				
441	Chrome fast yellow RD	85				
443	Milling red 2G	6, 44				
446	Direct orange RT	6, 144				
448	Benzopurpurine 4B	44, 62, 144	732,410	733,664	371,925	.51
464	Direct blue R	62				
468	Direct mauve B	144				
471	Direct blue 3R	44, 144				
472	Direct blue BX	44, 62, 144	20,663	18,930	6,698	.35
477	Direct blue 3B	44, 54, 62, 144		145,144	37,507	.26
478	Direct orange G	6, 44, 144				
487	Acid milling red B	6, 8, 44, 85, 165, X	60,292	57,038	47,527	.83
495	Benzopurpurine 10B	44, 62, 144	43,806	33,592	28,877	.86
502	Direct azurine G	6, 44, 62, 85, 144, 235	175,701	170,333	94,729	.56

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	AZO DYES—continued					
	Disazo dyes—Continued		*Pounds*	*Pounds*		
508	Direct brilliant blue G	62				
512	Direct blue RW	6, 44, 62, 85, 144	136, 555	143, 037	$110, 217	$0.77
515	Direct blue B	144				
516	Chicago blue B	85				
518	Direct pure blue 6B	6, 44, 62, 85, 144	648, 750	600, 294	472, 278	.79
	Trisazo dyes					
520	Direct pure blue	8, 44, 62, 85, 144	109, 269	94, 103	46, 091	.49
533	Direct fast blue FR	6, 44, 62				
534	Naphthogene blue 4R	85				
539	Direct fast black FF	8, 44, 62, 85, 144	419, 496	356, 926	171, 395	.48
544	Pluto black 5BS	85				
552	Diazo black RS	62, 144				
561	Direct brown BT	6, 27, 62, 85, 144, 165, 235, X.	155, 089	192, 361	232, 208	1.21
567	Direct fast blue R	44				
576	Direct fast blue B	44, 62, 144				
577	Direct brown T2G	8				
581	Direct black EW	8, 44, 62, 85, 144, 235	8, 750, 343	8, 465, 150	2, 031, 443	.24
582	Direct black RX	8, 44, 62, 85, 144, 235	857, 953	741, 087	202, 947	.27
583	Direct green ET	6, 8, 44, 62, 85, 144, 235.	222, 011	186, 350	66, 587	.36
589	Chloramine green B	8, 44, 62, 85, 144, 235	157, 493	175, 489	51, 397	.29
590	Direct steel blue G	62				
593	Direct green B	6, 8, 44, 62, 85, 144, 172, 235.	819, 676	756, 163	260, 452	.34
594	Direct green G	8, 44, 62, 144, 235	102, 794	107, 553	43, 512	.40
595	Direct olive G	85				
596	Direct brown 3GO	6, 8, 44, 62, 85, 144, 235.	1, 013, 873	928, 208	302, 332	.33
598	Congo brown G	6, 44, 62, 85, 144	143, 779	146, 252	68, 743	.47
601	Congo brown R	62				
	Tetrakisazo dyes					
606	Direct brown G	8, 85, 235				
	Total classified azo dyes		39, 493, 294	38, 300, 354	16, 650, 980	.43
	Total unclassified azo dyes		13, 820, 165	13, 167, 898	14, 096, 081	1.07
	Total azo dyes		53, 313, 459	51, 468, 252	30, 747, 061	.60
	STILBENE DYES					
620	Direct yellow R	8, 44, 55, 62, 85, 144	345, 036	367, 698	184, 618	.50
621	Chloramine orange G	8, 44, 62, 85, 144	143, 176	145, 437	96, 165	.66
622	Stilbene yellow	8, 62, 85				
628	Diphenyl catechine G	144				
631	Direct chrysoine G	44				
	PYRAZOLONE DYES					
636	Fast light yellow 2G	6, 62, 85, 144, 165				
639	Fast light yellow	6, 27, 44, 62, 85, 144, 165, X.	298, 105	315, 004	269, 445	.86
640	Tartrazine	6, 8, 85, 99, 144, 165	616, 841	647, 298	433, 486	.67
651	Pigment fast yellow G	85				
652	Chrome red B	8, 44, 62, 85, 144, X	205, 784	210, 257	179, 876	.86
653	Pyrazol orange G	6, 144, 165				
654	Developed fast yellow 2G	62				
	Total pyrazolone dyes [1]		1, 259, 721	1, 304, 386	1, 064, 570	.82
	KETONIMINE DYES					
655	Auramine	8, 62, 144, X	1, 008, 364	931, 634	814, 074	.87

[1] Includes unclassified dyes of this group.

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	TRIPHENYLMETHANE AND DIPHENYLNAPHTHYLMETHANE DYES		*Pounds*	*Pounds*		
657	Malachite green	8, 65, 144, X	357,355	358,435	$405,729	$1.13
658	Rhoduline blue 6G	85, 144				
662	Brilliant green	8, 65, X	38,068	41,719	58,802	1.41
663	Setocyanine	85				
666	Acid green B	8, 44, 62, 85, 144	105,311	114,374	83,409	.73
667	Fast acid green B	8, 85, 144	39,135	36,558	81,951	2.24
670	Acid light green	62, 85				
671	Acid glaucine blue	62, 85, 144				
676	Para fuchsine	8, 148, X	19,686	18,564	34,254	1.85
677	Magenta	8, 148, X		40,369	74,305	1.84
680	Methyl violet and base	8, 62, 65, 85, 101, 144, X.	1,012,828	1,010,353	639,112	.63
681	Crystal violet	62, 65, 85, 144				
682	Ethyl violet	62, 85				
689	Spirit blue 2B	85				
691	Fast green bluish	6				
696	Fast acid violet 10B	62, X				
698	Acid violet	8, 44, 62, 85, 144, X	256,158	270,121	250,470	.93
699	Acid fast violet BG	144				
703	Alkali blue 6B	85				
705	Methyl blue	148				
706	Methyl cotton blue	148				
707	Soluble blue	8, 85, X	81,571	73,303	118,611	1.62
712	Patent blue	85, 144				
714	Patent blue A	85, 144				
720	Eriochrome azurol B	62, 85, 144, X	117,650	124,683	205,809	1.65
722	Eriochrome cyanine R	85, 144, X				
724	Aurine	62				
728	Victoria blue R	62, 85				
729	Victoria blue B	62, 85, 144				
735	Naphthalene green V	62, 144, X				
737	Wool green S	8, 62, 85	222,735	194,091	100,173	.52
	Total triphenylmethane and diphenylnaphthylmethane dyes.[1]		4,316,386	4,075,911	4,433,808	1.09
	XANTHENE DYES					
749	Rhodamine B	62				
749	Rhodamine B conc	62, X				
752	Rhodamine 6G conc	62, X				
758	Fast acid violet A2R	X				
766	Uranine	8, 99, 148				
768	Eosine	8, 99, 144, 148	47,867	46,937	68,920	1.47
768	Tetrabromofluorescein (bromo acid).	8, 99, 111, 148	380,395	306,979	368,788	1.20
772	Erythrosine	148				
773	Erythrosine B	8				
774	Phloxine B	148				
777	Rose bengale	148				
779	Rose bengale B	8				
	Total xanthene dyes		609,786	557,507	992,086	1.78
	ACRIDINE DYES					
788	Acridine orange A	85, 165				
793	Phosphine	8, 44, 62, 85, 144, 165	163,756	141,040	101,173	.72
794	Phosphine 2G	165				
797	Euchrysine	85, 165				
	QUINOLINE DYES					
801	Quinoline yellow	62, 144, X	103,471	118,454	155,405	1.31
802	Quinoline yellow KT	X				
	THIAZOLE DYES					
812	Primuline	44, 62, 144				
813	Direct pure yellow M	62				
814	Direct fast yellow	44, 62, 85, 144, 161	380,374	331,676	300,351	.91
815	Thioflavine T	62				
816	Direct brilliant flavine S	161				

[1] Includes unclassified dyes of this group.

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	AZINE DYES		*Pounds*	*Pounds*		
833	Wool fast blue GL	85, 144, X	130, 564	133, 190	$203, 379	$1.53
841	Safranine	8, 62, 85, 144	272, 839			
853	Acid cyanine BF	62				
860	Induline (spirit-soluble)	8, 85, 144	52, 875	54, 679	20, 780	.38
861	Induline (water-soluble)	8, 85, 144	42, 760	49, 732	33, 131	.67
864	Nigrosine (spirit-soluble)	8, 85, 144	1, 284, 394	1, 272, 311	356, 010	.28
865	Nigrosine (water-soluble)	8, 85, 144	1, 364, 325	1, 328, 458	469, 220	.35
	ANILINE BLACK AND ALLIED DYES					
871	Diphenyl black base	85				
873	New fast gray	8, 62, 165				
875	Fur black	8, 85				
	OXAZINE DYES					
883	Gallocyanine	8, 144, 236				
909	Cotton blue	6, 8, 144	88, 783	74, 206	92, 267	1.24
913	Nile blue BX	85				
	THIAZINE DYES					
922	Methylene blue	8, 62, 65, 85, 144	539, 396	521, 877	468, 175	.90
924	Methylene green B	8, 144				
927	New methylene blue	8				
931	Brilliant chrome blue	85				
	SULFIDE DYES					
969	Carbazole vat blue R	62, 85	(2)	(2)	(2)	
971	Carbazole vat blue G	62, 85	(2)	(2)	(2)	
	Sulfur black	8, 20, 62, 85, 144, 200	11, 975, 466	10, 797, 002	1, 814, 402	.17
	Sulfur blue	8, 20, 44, 62, 85, 106, 144, 200.	2, 562, 489	2, 481, 508	1, 164, 397	.47
	Sulfur brown	8, 20, 44, 55, 62, 85, 106, 144, 200.	1, 793, 126	1, 793, 805	496, 940	.28
	Sulfur green	8, 20, 62, 85, 106, 144	958, 615	931, 498	652, 219	.70
	Sulfur maroon	8, 62, 85, 144	629, 615	625, 106	285, 920	.46
	Sulfur olive	8, 20, 55, 62, 85, 106, 144, 200.	176, 820	158, 431	46, 834	.30
	Sulfur orange	44, 62, 85, 144	48, 090	36, 967	14, 061	.38
	Sulfur tan	8, 20, 44, 55, 62, 85, 106.	171, 302	187, 020	54, 216	.29
	Sulfur yellow	8, 20, 44, 62, 85, 106, 144, 200.	335, 375	299, 219	127, 547	.43
	Total sulfide dyes		18, 650, 898	17, 310, 556	4, 656, 536	.27
	ANTHRAQUINONE DYES					
1027	Alizarin	8, 85, 144				
1034	Alizarin red S	6, 8, 144	46, 113	49, 889	84, 069	1.69
1035	Alizarin brown	144, 236				
1040	Alizarin SX	144				
1043	Pseudopurpurine	85				
1053	Acid alizarin blue SE	62, 85, 144, X	44, 695	61, 825	122, 652	1.98
1054	Acid alizarin blue B	8, 16, 62, 85, 144, 236, X, X.	747, 675	715, 601	1, 097, 863	1.53
1060	Anthracene blue SWGG	16, X				
1062	Anthracene blue WR	85, 144, X				
1063	Anthracene blue WRS	16				
1073	Alizarin irisol R	16, 62				
1075	Alizarin astrol B	62, 85				
1076	Cyananthrol R	62				
1078	Alizarin cyanine green E	6, 8, 16, 62, 85, 144, 236, X.	357, 586	330, 008	574, 761	1.74
1080	Acid anthraquinone violet B	16, 62				
1085	Anthraquinone blue black B	6, 85, 144, 236, X	151, 830	157, 109	233, 694	1.49
1088	Acid anthraquinone blue B	62, 85, 144	80, 793	59, 846	185, 433	3.10
1091	Acid alizarin rubine	85				
	Total anthraquinone dyes [1]		2, 417, 229	2, 394, 534	3, 726, 580	1.56

[1] Includes unclassified dyes of this group.
[2] Totals not included under sulfide dyes. In dyes classified by method of application, this dye is included with the vat dyes.

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	ANTHRAQUINONE VAT DYES (SINGLE STRENGTH)					
			Pounds	*Pounds*		
1095	Anthraquinone vat yellow GC (12½ percent).	8, 62, 85	635,438	662,833	$616,506	$0.93
1096	Anthraquinone vat golden orange G (12½ percent).	8, 62, 85, 144	272,528	241,072	322,210	1.34
1097	Anthraquinone vat golden orange R (12½ percent).	62, 144				
1098	Anthraquinone vat scarlet GS (16⅔ percent).	8, 85, 144				
1099	Anthraquinone vat dark blue BO, (25 percent).	6, 8, 62, 85, 144, 161	300,321	274,949	313,713	1.14
1101	Anthraquinone vat jade green (6 percent).	62				
1102	Anthraquinone vat green B and black B (12½ percent).	8, 62, 85, 144, 161	342,939	360,782	147,737	.41
1103	Anthraquinone vat violet R (25 percent).	85				
1104	Anthraquinone vat violet RR (12½ percent).	6, 62, 85, 144	183,532	185,680	306,768	1.65
1105	Anthraquinone vat violet B (25 percent).	85				
1106	Anthraquinone vat blue RS (10 percent).	8, 62, 85				
1109	Anthraquinone vat blue 3G (10 percent).	62				
1113	Anthraquinone vat blue GCD (8⅓ percent).	60, 62, 85, 144	1,011,299	917,234	544,407	.59
1114	Anthraquinone vat blue BCS (20 percent.	6, 8, 62, 85, 144		1,110,127	1,234,766	1.11
1118	Anthraquinone vat yellow G (12½ percent).	62, 85, 144				
1120	Anthraquinone vat brown B (22 percent).	62				
1128	Anthraquinone vat pink R (12½ percent).	85				
1132	Anthraquinone vat yellow R (12½ percent).	6, 62				
1133	Anthraquinone vat red FF, extra (12½ percent).	62				
1134	Anthraquinone vat brilliant violet 2B (12½ percent).	62				
1135	Anthraquinone vat brilliant violet R (12½ percent).	62				
1150	Anthraquinone vat olive R (12½ percent).	62, 85, 144				
1151	Anthraquinone vat brown R (12½ percent).	62, 85, 144				
1152	Anthraquinone vat brown G (12½ percent).	62, 144				
1161	Anthraquinone vat red violet RRN (12½ percent).	62, 85				
1162	Anthraquinone vat red BN, extra (12½ percent).	62, 144				
1163	Anthraquinone vat violet BN (25 percent).	62				
1170	Anthraquinone vat yellow R (12½ percent).	62				
1173	Anthraquinone vat blue green B (12½ percent).	161				
	INDIGOID AND THIOINDIGOID DYES					
1177	Indigo, synthetic (20 percent)	60, 62, 144	12,474,777	11,949,582	1,842,718	.15
1178	Indigo white (20 percent)	144				
1180	Indigo extract	62, 144				
1183	Tribromindigo RB (20 percent)	60, 144				
1184	Bromindigo blue 2BD (16 percent)	60, 85, 144				
1186	Vat blue 5B (20 percent)	60				
1207	Ciba pink B (20 percent)	60				
1210	Vat red B (12½ percent)	85				
1212	Vat red 3B (20 percent)	60, 62, 85, 144	192,605	184,115	237,176	1.29
1217	Vat orange R (10 percent)	8, 62, 85, 137, 144	469,268	416,754	395,600	.95
1228	Vat fast scarlet G (20 percent)	60				
1229	Vat red R (10 percent)	60				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Colour Index No.	Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
				Quantity	Value	Unit value
	Classified Dyes—Continued					
	FOOD DYES		*Pounds*	*Pounds*		
22	Yellow AB	66, 144				
61	Yellow OB	66, 144				
80	Ponceau 3R	23, 121, 144				
150	Orange I	23, 121, 144, 206, 229	85, 121	88, 495	$199, 370	$2. 25
184	Amaranth	23, 121, 144, 206, 229	118, 988	114, 738	275, 757	2. 40
640	Tartrazine	23, 121, 144, 206, 229	106, 542	100, 095	250, 029	2. 50
666	Guinea green B	23, 144, 229				
670	Light green SF (yellowish)	23, 144, 229				
773	Erythrosine	23, 121, 144, 206	8, 876	7, 644	97, 829	12. 80
1180	Indigo disulfonic acid	23, 121, 206				
	Brilliant blue FCF	23, 144, 229	3, 656	5, 946	58, 851	9. 90
	Fast green FCF	229				
	Ponceau SX	144, 229				
	Sunset yellow FCF	23, 121, 144, 206, 229	58, 369	57, 860	138, 150	2. 39
	Total, food dyes		483, 227	478, 386	1, 375, 792	2. 88
	Total, classified dyes		99, 563, 360	95, 074, 041	48, 018, 116	. 50
	Unclassified Dyes					
	Acetate silk dyes, total		2, 584, 873	2, 402, 148	2, 210, 758	. 92
	Amacel brilliant blue B	6				
	Amacel orange GR	6				
	Amacel turquoise	6				
	Black, AD, AS, AZ, B, BAM, BBN, BDN, BG, BGD, BNF, BNS, BZA, DY, GFS, 3G, 3GNF, GY, J, JN, LNB, NAZ, NBZ, NS, NSJ, RB, SS, III, IV, IV dbl.[3]	6, 8, 62, 79, 85, 144, 167, 235, X, X.	1, 369, 927	1, 292, 982	785, 345	. 61
	Blue B, BB, G, R, 5RB, III, IV, XIII.	6, 62, 85, 137				
	Bordeaux	8				
	Brilliant blue, B, D, 2G, R	8, 62, 167, 236	94, 889	78, 657	125, 750	1. 60
	Brilliant red	62				
	Brown BR, Y	62				
	Developed orange GR	62				
	Direct blue S	8				
	Direct orange R	X				
	Direct red 3B	X				
	Direct sapphire blue G	X				
	Direct sky blue GA	X				
	Direct yellow GA	X				
	Fast black B, BTN	85				
	Fast blue AF, B, 3BFU, FFR, GG, GR.	6, 85				
	Fast brown 3R, 5R	85				
	Fast light yellow	62				
	Fast navy blue B, BR	85				
	Fast pink B	85				
	Fast red GG	85				
	Fast red violet RN	85				
	Fast rubine B	85				
	Fast yellow G, GL, GR, RR	62, 85				
	Green BS	62				
	Green blue II	6				
	Heliotrope I	6				
	Light orange FSI	6				
	Navy blue B, BN conc., BP conc., BX, R.	6, 62				
	Orange, BL, GR, R, RR, 3R, 4R, I, II, III, ex.	6, 8, 62, 79, 85, 137, 167, 235.	64, 473	70, 640	67, 738	. 96
	Pink II	6				
	Pure blue BR, BR conc	62				
	Pure yellow 1, II	6				
	Red, BR, 3B, 6B, FSI, GG, R, RP, 2Y, 1, III, V, VI–X, VII, VIII	6, 8, 62, 85, 167	70, 296	69, 009	76, 988	1. 12
	Red violet R, Y	62				
	Rubine B, G, 1X	6, 62, 79, 235				
	Scarlet, B, BN, III	6, 8, 62, 79, 85	27, 105	20, 022	21, 885	1. 09
	Sky blue B	62				
	Turquoise MG	85				

[3] Includes black, developed black, and cellitazole black.

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued					
Acetate silk dyes—Continued.		*Pounds*	*Pounds*		
Violet, B, BR, 6B, CB, RL, RR, II.	6, 62, 85, 167, 236	34,851	35,061	$63,089	$1.80
Violet blue FSI	6				
Yellow, FSI, G, GG, 5G, VIII, IX, XI, XII, XIII.	6, 8, 62, 79, 85, 167	72,603	87,831	84,635	.96
Other	X				
Acid alizarin green B	236				
Acid anthracene brown PG	85				
Acid anthracene yellow GR ex	X				
Acid black, AR, BR supra., 8B, 8BN, 3G, GRF, GRF conc., J, RB, TL, WA, 640, 773.	6, 8, 54, 62, 85, 144, X				
Acid blue, BL, 2G	165, 172, X				
Acid blue black RC	62				
Acid Bordeaux R	X				
Acid brilliant blue 3B, RR	6, 62				
Acid brilliant green 10G	62				
Acid brilliant red 2BA, 4BL, 5B, G.	6, 62, 144, X				
Acid brown, FN, MF, N, R conc.	8, 165				
Acid ceresine	8				
Acid chromal brown AEB	44				
Acid chrome blue 2R, 2RA	44, 85				
Acid fast black BBN	62				
Acid fast blue B, G, IB, NB	62, 144				
Acid fast brown CGS	62				
Acid fast light red BL conc., 4BL	62, X				
Acid fast orange LW	6				
Acid fast red BL, CY	8, 62				
Acid fast yellow JY, RS	6, 8				
Acid flavine conc	172				
Acid garnet GR conc	172				
Acid green BL, GR, S	165, 172				
Acid light rubine BL	85				
Acid milling brown R supra	6				
Acid milling yellow G, 2GX, R	8, 44, 165		6,633	6,464	.97
Acid naphthol blue black	44				
Acid navy blue conc., B, B conc., M4B.	6, 8, 62, 235		18,466	10,462	.57
Acid neutral red 3G ex. conc	6				
Acid neutral yellow GNS	6				
Acid olive G	8				
Acid orange G, GS, R, 2R, 4R, SGS, YF.	6, 8, 62, 85, 144, 165, X.	69,417	56,311	61,616	1.09
Acid red, 3B, OA	44, 165				
Acid sapphire G	X				
Acid scarlet G conc., Y	165				
Acid spirit black	8				
Acid spirit orange R	8				
Acid spirit yellow 2R	8				
Acid violet B, BS, RNL, RL, 2R, 2RX.	8, 44, 165, 172, 235	50,367	45,225	29,019	.64
Acid wool blue BL	62				
Acid yellow, conc., G, 2G, 5G, R	8, 44, 165				
Alizarin L	6				
Alizarin blue AR, A2G, GS	85, 144				
Alizarin fast blue RB	144				
Alkali fast green 10G	85				
Anthracene blue SWN	144				
Anthracene chrome brown RL	236				
Anthraquinone blue BGA, 3G, SBF, SWB, WSA.	62				
Anthraquinone vat black 2G, J, R	8, 144				
Anthraquinone vat black brown V.	85				
Anthraquinone vat blue CLX, GCL, GR, R, RCX.	60, 62, 144				
Anthraquinone vat blue green B, FFB, Y.	62, 85, 144	110,215	122,842	140,257	1.14
Anthraquinone vat brilliant orange GR, RK.	85				
Anthraquinone vat brilliant red B	62				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued		*Pounds*	*Pounds*		
Anthraquinone vat brilliant scarlet BGN.	85				
Anthraquinone vat brilliant yellow 4G.	62				
Anthraquinone vat brown BR, NR, RR, VR.	62, 85, 144				
Anthraquinone vat dark brown R	62				
Anthraquinone vat deep black	85				
Anthraquinone vat direct black 3G	62				
Anthraquinone vat flavine GC	144				
Anthraquinone vat golden orange 3G.	85				
Anthraquinone vat golden yellow GK, GO.	85				
Anthraquinone vat gray GD, M3G, R, RL.	8, 62, 85				
Anthraquinone vat green IBW	85				
Anthraquinone vat khaki, GG	62, 85, 144				
Anthraquinone vat navy blue, BN, BR, G, 3G.	6, 8, 62, 85	316, 793	268, 156	$249, 252	$0.93
Anthraquinone vat olive G, GGL	62				
Anthraquinone vat olive green B	85				
Anthraquinone vat pink B	62				
Anthraquinone vat printing black B suprafix, TL suprafix.	85				
Anthraquinone vat printing brown TM suprafix.	85				
Anthraquinone vat printing green BG suprafix.	85				
Anthraquinone vat red G2B	62				
Anthraquinone vat red brown R	144				
Anthraquinone vat scarlet 3B, GGN.	85				
Anthraquinone vat violet FFBN	85				
Anthraquinone vat yellow 8G	62				
Artificial silk black, G, R, 2R	44, 85, 235	136, 824			
Azo Bordeaux 2BL, 7B	165				
Azo brown	165				
Azo eosine 2B	62				
Azo fast blue 2R	144				
Azo fast orange G	85				
Azo fast violet	144				
Azo fast yellow GN, GR	85				
Azo green 3G	165				
Azo oil black	144				
Azo oil blue black B	144				
Azo orange GN, GR, GXA, RS, 3RP.	165				
Azo red 7BL	165				
Azo scarlet G, RB, RP	165				
Azoanthrene dyes:					
Black N	X				
Blue G, L, S	X				
Blue green B	X				
Green G	X				
Navy BR, CW	X				
Orange R	X				
Red 7B	X				
Rubine B, S	X				
Scarlet G, Y	X				
Violet B	X				
Yellow R, S	X				
Azoic dyes and their components, total.		3, 317, 761	3, 144, 736	4, 707, 546	1.50
Dyes:					
Rapid fast:					
Orange, RH	8, 62, 85				
Red RH	62, 85				
Scarlet HLH	62				
Rapidogene:					
Black DM, MG	62, 85				
Black brown IT	85				
Blue, BN, D, GN, N, R.	62, 85, 165				
Bordeaux, MR, RN	62, 85, 165				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued					
Azoic dyes and their components—Continued.					
Dyes—Continued.					
Rapidogene—Continued.		*Pounds*	*Pounds*		
Brown, GN, IB, IPT	85, 165				
Calconyl red G	8				
Calconyl scarlet R	8				
Dark brown AR	62				
G, double	85				
Golden yellow MRS, R.	62, 85				
Orange G, R	62, 85				
Red, BB, FFG, FFR, G, GB, GS, M2B, R.	62, 85, 165				
Scarlet, FFR, R, RBY, RS.	62, 85, 165				
Yellow, FF2G, G, 2G, GS.	62, 85, 165				
Components:					
Fast color bases:					
Fast garnet GBC	X				
Fast red B, GL, KB, TR.	X				
Fast scarlet GG, R	X				
Fast color salts:					
Black B	85, 144				
Blue B, BB	85, 165, X				
Blue BN	85, 137, 144		170,380	$168,698	$0.99
Bordeaux, BD, GP	85, 137, 144, X	176,074	191,668	179,617	.94
Garnet GBC, GC	X				
Orange, GC	85, 144, 165				
Red, AL, R, G, 3G, GL, 3GL, KB, RC, TR.	85, 144, X				
Scarlet GG	85, 144, 165, X				
Scarlet R	85, 144, X	270,025	239,828	174,871	.73
Variamine blue BD	85				
Naphthols:					
Naphthol AS	6, 8, 85, 144	759,814	707,897	745,650	1.05
Naphthol AS, BO	6, 85, 144				
Naphthol AS, BR	6, 85				
Naphthol AS, BS	6, 62, 85, 144				
Naphthol AS, D	6, 85, 144, 165				
Naphthol AS, OL	85, 165				
Naphthol AS, OP	165				
Naphthol AS, PH	85				
Naphthol AS, RL	85				
Naphthol AS, SW	6, 85, 144				
Other	6, 85				
Basic orange 3RN	62				
Benzoform red 7B, G	85				
Benzoform violet BB	85				
Brilliant benzo violet B	62				
Brilliant blue 5B	144				
Brilliant milling blue B	62, 85				
Brilliant milling green B conc	62				
Brilliant milling yellow 5G	6				
Brilliant wool blue BN, FFR, G ex	85, 144				
Chromate blue black B	44				
Chromate brilliant brown RL	X				
Chromate brown, EB, EBR, EBS conc	8, 62, 235, 236, X	93,940	104,878	82,051	.78
Chromate red 2G	236				
Chrome black 3G, NSE, P2B, PV, SW	62, 144, X	36,000	28,058	15,688	.56
Chrome blue ATX, ECR	62				
Chrome brilliant orange 2R	6				
Chrome brown B, BC, 3B, EB, EBL, G, O.PG, RH conc., 4RC	6, 8, 44, 62, 85, 144	206,043	197,938	181,991	.92
Chrome garnet R	X				
Chrome green B, CB, G	44, 144				
Chrome leveling brown B	6				
Chrome orange 3R	144				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued					
		Pounds	*Pounds*		
Chrome yellow, 2G, 3G, DS, OD, R-105, SW	8, 44, 62, 85, 144, 165	60,343	57,061	$24,842	$0.44
Ciba black	60				
Cloth fast blue R	44				
Cloth red 2R, Y	44, 144				
Cotton black 3G	8				
Croceine scarlet FP conc	144				
Developed black G, GA, NSB, OB, OB ex., OT, ZV conc	6, 44, 62, 85, 144, X	326,739	316,941	201,278	.63
Developed blue B, BR, BR conc., BR ex., BRG, 5GL, 6G	6, 44, 62, 144, X				
Developed Bordeaux 7B, 7B conc., 2BL, BGL, RB	6, 62, 85, 144, X	205,658	209,901	282,158	1.34
Developed brilliant green 3B, 3G	85, 144				
Developed brilliant orange G, GG, GN	85				
Developed brilliant scarlet 2BL, 2BL ex. conc., 5BL, RO	62, 85, X	82,040	77,881	161,117	2.07
Developed brown 6G, NR, R, 3RB	62, 85				
Developed dark brown B	X				
Developed fast blue B	44				
Developed fast brown RK	62				
Developed fast red 7BL	62, X				
Developed fast violet BL, 2RL	62, X				
Developed fast yellow 2G	85, 144				
Developed garnet RD	6				
Developed green BL, 2GL, GW	62				
Developed indigo blue 4GL	62, 85				
Developed orange, GR, R, 2R, 3R, RFW, WD	6, 62, 144				
Developed red BFW, 7BL, 7BL conc	6, 62, 144	9,450			
Developed rubine B, B special	85, X				
Developed scarlet A, 2BL, DIS, FW, GFW, R	62, 144, X				
Developed sky blue B, 3GL	85				
Developed violet BRD, 2R	6, 62				
Developed yellow 4G	62				
Diamond green SS	85				
Diazophen red	8				
Diazophen yellow	8				
Direct black 3G, 3GR, 5G, NCW	44, 85, 144, 235	118,425	123,463	55,134	.45
Direct blue BB, FF, 3G, 5G, NR	6, 62, 144	84,966	70,012	74,738	1.07
Direct blue green CW	144				
Direct Bordeaux B, 6B	6, 85, 144	224,489	213,935	169,941	.79
Direct brilliant blue BFL	144				
Direct brilliant cerise	8				
Direct brilliant red 12B conc	144				
Direct brilliant violet B, 4B, R	6, 44				
Direct brown CWR, CSW, FW, GB, G2R, G3R, K, R, RB, RY, S	6, 8, 44, 54, 144, 235, X	118,910	100,468	69,472	.69
Direct catechine, GS, 3G, G conc	6, 62, 144				
Direct chrome black blue B	X				
Direct chrome blue black B	85, 144				
Direct chrome brown BS	8				
Direct copper blue BR, RR, RRX	62, 85				
Direct dark blue SR	X				
Direct fast black B, FA, FOR ex. dbl., FRG, FOR, FTC, G, L, L conc., PG ex. PGR, VE	6, 44, 62, 85, 144, 235, X	655,634	545,465	328,892	.60
Direct fast blue FF, 3GL, 4GL, 8GL, LB, RR, LG, R, RL, SRL	62, 85, 144, X	287,110	315,787	404,969	1.28
Direct fast brown BRL, BRLN, 4GL, LBR, LG, L3R, R, 2RL, 4R, 3YL	62, 85, 144, X	150,376	143,784	210,002	1.46
Direct fast gray BL, GL, 2GL, R	62, 85, 144	37,847	29,552	52,304	1.77
Direct fast green 2Y	62				
Direct fast light blue FF	44				
Direct fast olive brown RL	6				
Direct fast orange EG, E3G, ER, G, 2G conc., 4G conc., 2GL, GL ex., L5G, L7G, L3R, RE, 6R, S	8, 62, 85, 106, 144, X	205,407	241,093	294,494	1.22

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued		*Pounds*	*Pounds*		
Direct fast red 5BL, 8BLN, 8BLSW.	6, 44, 144, X				
Direct fast rubine 2B, B conc	6, 144				
Direct fast turquoise 8GL	62				
Direct fast violet BB, F	8, 85				
Direct fast yellow 4GL, 5GL, LR, L5G, RL.	44, 62, 85, 144	159,034	159,952	$263,931	$1.65
Direct gray BBC, G, Z	54, X				
Direct green GB, 5GSC	6, 8				
Direct green black	44				
Direct light yellow RL	44				
Direct navy 4B, G, R	6, X				
Direct navy blue B, BF, BW, DB, R, RY.	8, 44, 62, 144, 235	143,305	127,588	90,163	.71
Direct orange B, R	6, 44, 85				
Direct red G	6				
Direct reseda green	6				
Direct rhoduline red B	62				
Direct rubine B, G	6				
Direct sapphire B	X				
Direct scarlet G	6				
Direct silk blue NR	85				
Direct sky blue B	44				
Direct speck dye red SW	144				
Direct violet BB, BRL, 2R	6, 8, 144				
Direct violet black	44				
Direct viscose blue RS	85				
Direct yellow R	6				
Discharge brown RB	62				
Drug and cosmetic colors	144				
Fast acid black BR	85				
Fast acid blue R, WF	85, 144				
Fast acid Bordeaux B	85				
Fast acid brown RG	144				
Fast acid light red B	44				
Fast acid orange RW	44				
Fast acid red 3B, 2G	85				
Fast acid violet ERR ex	62				
Fast acid yellow R	85				
Fast black V	62				
Fast crimson R	144				
Fast light red B, 4B, BL, GL	85, 144				
Fast light rubine BL	144				
Fast light violet	236				
Fast wool violet B	144				
Fast wool yellow GS	144				
Fluorol 5GR	85				
Fluoroleum supra	62				
Formal fast black G	44				
Formaldehyde black GR ex	27				
Formaldehyde red B	44				
Formaldehyde scarlet Y	44				
Formanol black RW	X				
Formyl black G	8				
Formyl blue B	8				
Formyl brown	8				
Gas yellow	8				
Hansa yellow G	62, 85				
Helio red RMT	85				
Heliogen blue B, G	85				
Heliogen green G	85				
Hydroform navy blue	161				
Hydroform yellow 3G	161				
Indigo vat brown, G	8, 62, 144, X	313,015	298,948	329,641	1.10
Indigo vat pink FB, FF	8, 62, 137, 144	372,297	399,889	423,435	1.06
Indigo vat scarlet 2GN	144				
Indocyanine B	85				
Indophenal tan R	X				
Indophenol black	X				
Indophenol blue	X				
Jet black APX	62				
Lake blue G, 6G	62				
Lake fast blue BL conc	62				
Lake fast orange G	62				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued		*Pounds*	*Pounds*		
Lake fast yellow 10G	62				
Lake orange OTP	62				
Lake pink RL	144				
Lake red 2B	62				
Lake scarlet 2YL	62				
Lake yellow G, PL	62, 144				
Leather brown RR	62				
Metalized azo gray G	8				
Milling fast garnet R	X				
Milling fast red B conc., FF	X				
Milling fast yellow 5GL conc	X				
Milling navy blue 4B	144				
Milling red B, B conc., R	144, 165				
Milling yellow GN, 2GCW, 3G, O conc., R, XN	62, 144, 165	20,030			
Monastral fast blue BS-N, GS	62				
Monastral fast green GS	62				
Mordant green SN	8				
Naphthol navy blue M	44				
Naphthylamine black V	62				
Neutral blue G	165				
Neutral brown RD, 2RS, RX	8, 62, 144, X	31,563	25,697	$37,825	$1.47
Neutral silk brown RA, RWA	X				
Neutral silk yellow CGA	X				
Neutral yellow RX	X				
Nigrosine base B, N, R, 2R	144				
Oil blue	236				
Oil bronze	62				
Oil brown D, G, M, #79, #102	79, 144				
Oil fast black	144				
Oil fast blue B, R	6, 144				
Oil fast orange A conc	144				
Oil fast red M, Y	144				
Oil fast yellow EG, 3G	62, 144				
Oil green	236				
Oil orange, O, 2R, soluble, #30, #67	8, 54, 79, 144, 233	28,280	28,059	23,152	.83
Oil pink B	144				
Oil red, EG, EGN, G, O, OB, RO, soluble, #322	6, 8, 54, 79, 144, 233	153,906	144,486	142,182	.98
Oil violet	236				
Oil yellow, N, PHW	8, 62, 236				
Orange Y	54				
Paper red AP	85				
Patent blue B conc	144				
Phenamine violet B	85				
Phenanthrene brown CR	165				
Phosphine R	85				
Pigment rubine G, 3G	85				
Plutoform black AM	85				
Polyform dyes:					
Blue BRF	62				
Dark brown 3BF	62				
Dark maroon GF	62				
Orange RF	62				
Scarlet 2GF, RF	62				
Yellow GF	62				
Pyrazoline black	165				
Pyrazoline blue 4GL, 8GL	165				
Pyrazoline red BLW	165				
Pyrazoline yellow 4GL, R	165				
Rayon colors:					
Black B	62				
Bordeaux B	62				
Brown G, M	62				
Navy blue N	62				
Violet 3B	62				
Resin brilliant orange RR	144				
Resin brilliant red R	144				
Resin brown Z	144				
Resorcin brown YX	54				
Rosanthrene A, R	62				
Rosanthrene orange	62				
Rubber colors	62				
Safranine 8B	144				

TABLE 9.—*Coal-tar dyes: United States production and sales, by types, 1939*—Con.

Name of dye	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
Unclassified Dyes—Continued		*Pounds*	*Pounds*		
Silk black 4BF, G, R	27, 44				
Silk blue 10G	62				
Silk brown G, R	X				
Silk fast blue 3G	62				
Silk fast brown R	27				
Silk fast yellow G	27				
Silk red 2B, 4B, 3BX, 10B	27, 44, X		7,677	$11,484	$1.50
Stilbene brown 3GXL	8				
Stilbene orange EG	8				
Sudan corinth B	85				
Sudan orange FL, RT	85				
Sudan red 4B	85				
Sulfon yellow RS	85				
Supranol red PB	85				
Supranol yellow GG	85				
Wool blue CGG	144				
Wool navy blue B	144				
Wool red special	165				
Zambesi black BG, D, PC, V	44, 85, 144	409,056	440,334	242,336	.55
All other	62, X, X				
Total unclassified dyes		20,627,328	19,419,927	22,205,485	1.14
Total dyes:					
Those for which individual statistics are shown		88,122,738	84,926,053	40,696,744	.48
Those for which individual statistics cannot be shown		32,067,950	29,567,915	29,526,857	1.00
Grand total		120,190,688	114,493,968	70,223,601	.61

COLOR LAKES AND TONERS

Improvement in the surface-coatings and decorating trades in 1939 accelerated trade in color lakes and toners. Production was 18,154,000 pounds, and sales were 15,577,000 pounds, valued at $11,785,000. In 1938 the output was 14,407,000 pounds, of which 12,658,000 pounds were sold for $9,403,000. In both 1938 and 1939 toners, or full-strength colors, constituted 67 percent of the value of total sales of the group, lakes and extended colors were 29 percent, and reduced toners 4 percent.

Statistics of production and sales of color lakes and toners in 1939 are shown in table 10.

TABLE 10.—*Color lakes and toners: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information with regard to individual firms. The figures thus concealed are, however, included in the total]

Name of product	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
LAKES AND EXTENDED COLORS		*Pounds*	*Pounds*		
Alizarin	12, 62, 99, 112, 118, 121, 134, 139, 169, 197, 216, 217, 236, X, X, X, X, X, X.	153,981	100,538	$128,126	$1.27
Azo Bordeaux	3, 12, 29, 62, 67, 99, 101, 121, 139, 169, 216, 217, X, X, X.	373,498	333,293	105,295	.32
Black	51, 94, 121, 134, 216, 217, 236, X, X	126,021	105,897	48,041	.45
Blue	12, 29, 51, 62, 67, 74, 77, 94, 112, 118, 121, 134, 208, 216, 217, 233, X, X, X, X, X, X, X, X, X.	478,362	323,772	182,748	.56
Brown	12, 51, 77, 101, 121, 134, 216, 217, 233, 236, X.	48,464	24,442	6,204	.25
Eosine and phloxine	12, 29, 35, 67, 74, 77, 94, 111, 121, 134, 197, 208, 217, X, X, X, X, X, X, X, X.	197,317	190,320	135,539	.71
Fast light yellow	12, 77, 99, 101, 121, 134, 208, 217, X, X, X, X, X.	215,946	46,285	32,323	.70
Green	12, 29, 51, 62, 67, 74, 77, 94, 112, 116, 118, 121, 134, 208, 216, 217, X, X, X, X, X, X, X, X, X.	325,264	250,966	143,909	.57
Helio fast rubine	12, 29, 51, 62, 101, 116, 118, 208, X, X, X, X, X.	54,546	41,173	66,669	1.62
Lithol rubine	12, 29, 51, 62, 74, 77, 112, 121, 197, 208, X, X, X, X, X.	325,714	330,613	95,749	.29
Maroon	12, 35, 62, 67, 94, 101, 121, 134, 139, 233, X, X, X.	655,937	644,566	148,342	.23
Methyl violet	12, 29, 51, 62, 67, 77, 94, 101, 121, 134, 197, 208, 216, 217, 236, X, X, X, X, X, X, X, X.	177,263	174,134	86,541	.50
Naphthol yellow	12, 74, 77, 121, 217, 236, X, X	22,250	18,125	13,895	.77
Orange	29, 35, 51, 62, 67, 94, 101, 118, 134, 217, X, X, X, X, X.	198,531	169,237	50,262	.30
Peacock blue	12, 29, 35, 51, 62, 74, 77, 99, 101, 111, 121, 134, 197, 208, 216, 217, 236, X, X, X, X, X, X, X, X, X, X.	1,353,943	1,080,108	614,959	.57
Persian orange	12, 35, 62, 74, 77, 99, 111, 121, 134, 197, 208, 216, 217, X, X, X, X, X, X, X, X, X, X.	436,108	315,861	129,582	.41
Phosphomolybdic acid lakes, total:		69,040	56,957	31,263	.55
Blue	35, 77, 116, 208, X, X, X				
Brown	118				
Green	51, 62, 77, 118, X, X				
Purple	29, 51, 67, 77				
Red	29, 51, X				
Violet	35				
Phosphotungstic acid lakes:					
Blue	8, 12, 29, 51, 62, 74, 77, 94, 101, 112, 118, 121, 134, 197, 208, 217, 236, X, X, X, X.	398,185	394,147	336,431	.85
Green	8, 29, 51, 62, 67, 94, 101, 112, 134, 217, X, X, X, X.	202,547	169,649	89,821	.53
Purple	29, 51, 94, 101, 134, 197, 208, 217, X, X, X	41,510	36,504	28,616	.78
Red	8, 12, 28, 29, 35, 51, 62, 74, 77, 94, 101, 112, 118, 134, 197, 217, X, X, X.	228,904	194,836	114,252	.59
Pigment scarlet	12, 29, 62, 77, 101, 121, 134, 169, 197, 216, 217, 236, X, X, X, X.	333,486	258,720	127,895	.49
Quinoline yellow	12, 99, 111, 121, 197, 208, X, X, X.	28,586	23,906	18,886	.79
Red	29, 35, 51, 62, 67, 74, 77, 101, 118, 121, 134, 197, 208, 217, 233, X, X, X, X, X, X, X.	439,880	395,070	209,980	.53
Scarlet 2R	3, 12, 29, 35, 62, 94, 116, 121, 169, 197, 216, 217, 233, X, X, X, X, X, X, X, X.	909,822	843,445	234,039	.28
Tartrazine	35, 77, 99, 101, 111, 121, 134, 197, 208, 217, X, X, X, X, X, X.	191,688	178,364	99,931	.56
Violet	12, 51, 62, 77, 94, 101, 118, 233	16,133	16,826	12,130	.72
Yellow	12, 35, 51, 62, 77, 118, 134, 217, X, X	148,419	132,577	41,039	.31
All other	28, 51, 74, 99, 134, 236, X, X, X	104,200	44,643	49,245	1.10
Total lakes and extended colors		8,255,545	6,894,974	3,381,712	.49

TABLE 10.—*Color lakes and toners: United States production and sales, 1939*—Con.

Name of product	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
TONERS OR FULL-STRENGTH COLORS		*Pounds*	*Pounds*		
Eosine and phloxine	12, 74, 77, 99, 197, 208, 217, 236, X, X, X, X.	270,877	153,041	$224,399	$1.47
Green	12, 62, X, X	47,183	32,170	39,082	1.21
Hansa yellow	12, 35, 62, 99, 101, 111, 112, 121, 236, X, X, X, X, X.	244,750	205,997	276,031	1.34
Lake red C	8, 12, 35, 51, 62, 74, 77, 99, 101, 111, 121, 134, 197, 208, 216, 217, 236, X, X, X, X, X, X.	533,742	414,417	414,074	1.00
Lake red D	35, 121, 197, 236, X	11,503	7,398	6,938	.94
Lithol	12, 35, 51, 62, 74, 77, 99, 101, 121, 197, 216, 217, 233, 236, X, X, X, X, X, X, X.	2,843,295	2,551,064	1,448,926	.57
Lithol rubine	12, 29, 51, 62, 74, 77, 99, 101, 116, 121, 197, X, X, X, X, X, X.	160,259	151,415	175,943	1.16
Maroon	12, 62, 74, 101, 116, 121, 169, 216, 233, 236, X, X, X, X, X.	519,152	506,723	1,136,340	2.24
Methyl violet	8, 12, 29, 65, 74, 77, 94, 99, 111, 121, 208, 216, 217, X, X, X.	241,385	219,179	240,040	1.10
Orange	12, 74, 77, 99, 112, X, X, X	28,756	26,997	27,180	1.01
Para red	3, 12, 29, 35, 51, 62, 74, 99, 101, 116, 121, 169 197, 216, 217, 233, X, X, X, X, X, X, X, X, X, X.	1,162,691	991,996	725,685	.73
Permanent orange	8, 77, 99, 101, 116, 236, X	125,405	114,853	98,045	.85
Phosphomolybdic acid toners:					
Blue	29, 35, 62, 77, 99, 101, 121, 216, X, X, X	17,148	9,475	30,371	3.21
Green	35, 99, 101, 121, 216, X	16,455	(1)	(1)	
Purple	29, 51, 62, 65, 101, 208, 216, X, X	26,120	23,659	21,679	.92
All other	29, 35, 51, 99, 101, 121, 134, 208	30,095	30,013	73,683	2.46
Phosphotungstic acid toners:					
Blue	12, 29, 51, 62, 74, 77, 101, 116, 121, 134, 197, 208, 217, 236, X, X, X, X, X, X, X, X.	113,664	100,116	298,572	2.98
Green	29, 51, 62, 67, 74, 77, 101, 121, 134, 169, 197, 208, 217, 236, X, X, X, X, X, X, X, X, X.	91,154	76,601	226,646	2.96
Purple	12, 29, 51, 62, 101, 134, 197, 208, 217, 236, X, X, X, X, X, X.	85,291	68,605	138,356	2.02
Red	12, 29, 51, 62, 74, 77, 101, 121, 134, 197, 217, 236, X, X, X, X, X.	52,336	44,699	162,279	3.63
Red	8, 29, 51, 62, 77, 99, 101, 121, 233, 236, X, X, X, X, X, X.	383,041	360,244	360,171	1.00
Toluidine red	3, 12, 35, 51, 62, 67, 74, 99, 101, 116, 121, 169, 197, 216, 217, 233, 236, X, X, X, X, X, X, X, X, X, X, X.	950,291	846,626	1,030,223	1.22
Yellow	12, 51, X, X	75,917	74,028	111,075	1.50
All other	8, 29, 74, 99, 101, 121, 208, X, X, X	589,896	543,405	680,013	1.25
Total toners or full-strength colors.		8,620,406	7,552,721	7,945,751	1.05
REDUCED TONERS					
Lake red C and D	12, 35, 62, 74, 94, 101, 121, 134, 197, 208, 217, X, X.	56,419	54,671	30,174	.55
Lithol	12, 29, 51, 62, 74, 77, 94, 101, 121, 197, 208, 217, 236, X, X, X, X.	307,460	286,875	107,732	.38
Para red	3, 12, 29, 35, 62, 74, 101, 116, 121, 169, 216, 217, 233, X, X, X, X, X, X.	407,924	400,195	61,613	.15
Toluidine red	3, 12, 28, 29, 35, 62, 67, 74, 94, 101, 112, 116, 121, 169, 208, 216, 217, X, X, X, X, X, X, X.	214,904	165,820	46,094	.28
All other	3, 12, 28, 51, 62, 94, 101, 134, X, X, X	291,149	222,090	211,972	.95
Total reduced toners.		1,277,856	1,129,651	457,585	.40
Total color lakes and toners.		18,153,807	15,577,346	11,785,048	.76

[1] Included in all other.

MEDICINALS

Synthetic medicinals, both coal-tar and non-coal-tar, increased in production and sales in 1939.

In the coal-tar group the output in 1939 was 15,188,000 pounds, and sales were 12,932,000 pounds, valued at $13,711,000, compared with production of 11,097,000 pounds and sales of 8,885,000 pounds, valued at $9,509,000 in 1938. The 5,372,000 pounds of aspirin manufactured in 1939 represents an increase of 38 percent over 1938. Production and sales of sulfanilamide about doubled. The average sales value dropped from $1.79 a pound in 1938 to $1.28 a pound in 1939. Sulfapyridine, used in the treatment of certain types of pneumonia, and synthetic ephedrine, were reported for the first time. Prior to 1939 the entire domestic supply of ephedrine had been extracted from medicinal plants imported from the Orient.

The production of non-coal-tar synthetic medicinals in 1939 was 1,668,000 pounds. Sales were 1,483,000 pounds, valued at $6,120,000. In 1938 the output was 1,379,000 pounds, and sales were 1,137,000 pounds, valued at $2,278,000. The much larger increase in sales value than in sales quantity in 1939 was due to a greater increase in sales of certain high-priced products than in the lower-priced commodities of the group and to the inclusion for the first time of figures for the very high-priced synthetic hormones in the group total.

Statistics of production and sales of synthetic medicinals in 1939 are shown in table 11.

TABLE 11.—*Synthetic medicinals: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information in regard to individual firms. The figures thus concealed, however, are included in the total]

Name of medicinal	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR		*Pounds*	*Pounds*		
Acetanilide	46, 60, 138, 142	427,983	496,482	$116,412	$0.23
Acetphenetidin	60, 142, 209, X				
Acetylamino-hydroxy-phenyl arsonic acid and salts (Acetarsone) (Stovarsol).	1, 140, X				
Acetylsalicylic acid (Aspirin)	60, 142, X, X, X	5,371,682	5,343,234	2,520,282	.47
p-Aminobenzosulfonamide (Sulfanilamide)	8, 32, 83, 140, 142, X.	709,148	711,099	911,938	1.28
p-Aminobenzoyl di-n-butylamino propanol (Butyn base).	1				
p-Aminobenzoyl di-n-butylamino propanol sulfate (Butyn sulfate).	1				
p-Aminobenzoyldiethylaminoethanol (Procaine).	1, 25, 83, 155, 209, X, X.	9,218	10,588	293,478	27.72
p-Aminobenzoyldimethylaminomethyl butanol hydrochloride (Tutocain).	X				
m-Amino-p-hydroxyphenylarsine oxide hydrochloride (Mapharsen).	X				
Ammonium mandelate	201				
Amyl-m-cresol	X				
Antipyrine	60				
Arsanilic acid	1, 140				
Arsphenamine	1, 59, 132, 140, 201, X.	328	233	27,782	119.24
Barbituric acid derivatives:					
Cyclohexenylmethylmethyl barbituric acid and salt.	X, X				
Phenobarbital	1, 25, 83, 132, 140, 209, X.	109,825	131,182	514,262	3.92
Phenobarbital calcium	25				

TABLE 11.—*Synthetic medicinals: United States production and sales, 1939*—Con.

Name of medicinal	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued					
Barbituric acid derivatives—Continued.		*Pounds*	*Pounds*		
Phenobarbital sodium	1, 25, 83, 132, 140, 209.	12,780	13,539	$49,219	$3.64
Phenylethylmethyl barbituric acid	X				
Phenylethylmethyl urea sodium	X				
Benzaldehyde	X, X.				
Benzidine hydrochloride	X				
Benzochrome	187				
Benzoic acid	62, 142, 209				
Benzoyl - tetramethyldiamino - ethyl - isopropanol hydrochloride.	X				
Benzylmethyl ketone	X				
Bismethyl benzylidine	X				
Bismuth betanaphthol	140				
Bismuth tribromophenol	140				
m-Bromoaceto phenyl benzoate (Neoxyn)	60				
n-Butyl-p-aminobenzoate (Butesin)	1				
p-Butylaminobenzoyl dimethylamino ethanol	X				
a-Butyloxycinchoninic acid diethylethylene diamide and hydrochloride.	X				
Caffeine sodinm benzoate	132, 140, 149, X				
Caffeine sodium salicylate	140				
Calcium cresol sulfonate	X				
Calcium iodoxybenzoate	X				
Calcium mandelate	1, 132, 140	10,914	9,721	17,668	1.82
Colchicine salicylate	140				
m-Cresyl acetate (Cresatin)	190				
2:5-Diaminetoluene sulfate	69				
Dibenzyl ketone	X				
Di-n-butyl-p-aminobenzoate trinitrophenol (Butesin picrate).	1				
n-Diethylaminoisopentyl-8-amino-6-methoxy quinoline.	X				
3:4 - Dihydroxy phenyl ethylmethylamine (Epinine).	32				
4-Dimethylamino antipyrine (Aminopyrine)	144, X				
Dinitrophenol	62				
Dioxy anthranol (Anthralin)	1				
Disodiumhydroxymercurisalicyloxy acetate (Mercurosal).	X				
Disodium-4-sulfaminophenyl-2-azo-7-acetyl-amino-1-hydroxynaphthalene-3:6-disulfonate.	X				
Dyes, medicinal, total		46,688	46,234	1,130,004	24.44
Acriviolet	144				
Brilliant green	144				
3:6-Diamino acridine sulfate (Proflavine)	1, 144				
3:6-Diamino-10-methyl acridine chloride (Acriflavine).	1, 144				
Dibromohydroxymercurifluorescein sodium salt (Mercurochrome).	104				
Gentian violet	144				
Hexalet	140				
Methylene blue	8, 144				
Methyl violet	144				
Parafuchsine	144				
Phenolsulfonphthalein	25, 104				
Phenylazo-diamino pyridine hydrochloride (Pyridium).	176				
Scarlet red	144				
Sulfosalicylic acid	140				
Tryparsamide	140				
Ephedrine, synthetic	140, X				
Eserine salicylate	140				
Ethocaine borate (Borocaine)	190, X				
Ethyl-p-amino benzoate (Benzocaine) (Anesthesine).	1, 25, 83, 140, 155, 209, X, X.	11,899	15,295	49,205	3.22
Ethylenediamine mandelate	X				
Gamma-diethylaminopropylcinnamate hydrochloride (Apothesine).	X				
Guaiacol (liquid)	142, X				
Hexamethyleneamine acetamino salicylic acid (Salihexin).	1				
Hexylresorcinol	190				
Homatropine and salts	140				
Homatropine methyl bromide	X				
Hydroxymercury-4-nitro-o-cresol anhydride	1				
8-Hydroxyquinoline (Oxyquinoline base)	25, 140				

TABLE 11.—*Synthetic medicinals: United States production and sales, 1939*—Con.

Name of medicinal	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued		*Pounds*	*Pounds*		
8-Hydroxyquinoline-5-sulfonic acid	25, 140, X				
o-Iodobenzoic acid	69, X				
o-Iodosobenzoic acid	X				
Iodoxyquinoline sulfonic acid (Yatren acid)	X, X				
Laevo-methylaminoethanol catechol (Epinephrine).	X				
Lithium benzoate	X				
Lithium salicylate	X				
Magnesium benzoate	X				
Magnesium salicylate	60, 132, X	3,791	4,656	$4,691	$1.01
Mandelic acid	1, 132, 140	42,423	37,274	68,509	1.84
Menthyl salicylate	209, X				
2-Methyl-6-chloro-9-diethylaminopentylamino anisidine.	X				
Methyl-m-amino-p-hydroxy benzoate (Orthoform).	X				
Methylene-citrylsalicylic acid (Novaspirin)	X				
Methylene disalicylic acid derivative (Formidine).	X				
p-Methylphenyl cinchoninic ethyl ester (Neocinchophen).	1, 8, 25	5,560	4,747	47,152	9.93
Mono n-amylaminoethyl p-aminobenzoate (Amylcaine).	155				
Monoisobutylaminoethyl p-aminobenzoate (Monocaine).	155				
Neoarsphenamine	1, 59, 132, 140, 201, X.	9,686	9,609	903,685	94.05
Neo-silver arsphenamine	1				
Neo-synephrin hydrochloride	X				
Nicotinic acid	83, 86, 140, 149				
Nicotinic acid amide	86				
Oxyquinoline benzoate	25, 140				
Oxyquinoline citrate	140				
Oxyquinoline sulfate	25, 140				
Oxyquinoline tannate	25				
Phenolphthalein	142, 164, X				
Phenolsulfonates (calcium, sodium, zinc, etc.)	132, 140				
Phenyl isocyanate	69				
b-Phenylisopropyl amine and sulfate	X				
Phenyl mercuric acetate	70, 93				
Phenyl mercuric benzoate	93				
Phenyl mercuric chloride	93				
Phenyl mercuric hydroxide	70, 93				
Phenyl mercuric nitrate	70, 93				
Phenyl-propanolamine hydrochloride (Propadrin hydrochloride).	190				
2-Phenylquinoline-4-carboxylic acid (Cinchophen) (Phenyl cinchoninic acid).	8, 25				
Potassium oxyquinoline sulfate	25				
Propyl p-aminobenzoate	X				
Pyramidon and trichloroethyl alcohol urethane compounds.	X				
Pyridine-b-carboxylic acid diethylamide	X				
Resorcinol	62, X				
Resorcinol monoacetate	69, 140, X	4,299	3,575	9,057	2.53
Salicylic acid	60, 142, X	4,259,675	2,307,174	562,437	.24
Salicylic acid acetyl-p-amino phenolate	X				
Salol	60				
Silver arsphenamine	1, X				
Sodium diphenyl hydantoinate (Dilantin)	X, X				
Sodium o-iodohippurate	132				
Sodium methylene sulfonamino-hydroxyphenyl arsonate (Aldarsone).	1				
Sodium salicylate	60, 142, X	497,234	519,266	215,028	.41
Sodium p-toluene sulfochloramide (Chloramine T).	142				
Sodium succinate	140				
Strontium salicylate	60, 132, X				
2-Sulfanilamido pyridine (Sulfapyridine)	8, 140				
Sulfanilamide (See p-Aminobenzosulfonamide).					
Sulfoarsphenamine	1, 59, 132, 140, X	169	135	20,987	155.46
Tetrachlorophenol	60				
Tetraiodophenolphthalein and sodium salt (Iodeikon) (Antinosin).	25, 32, 69, 132, 140, 144.	11,192	6,250	101,643	16.26
Theobromine and sodium salicylate	132, 140, 149				
Theocalcin	140				
Theophylline calcium salicylate	140				

TABLE 11.—*Synthetic medicinals: United States production and sales, 1939*—Con.

Name of medicinal	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued		*Pounds*	*Pounds*		
Theophylline sodium salicylate	132, 140				
p-Toluene sulfodichloramide (Dichloramine T)	142				
Trichlorophenol	60				
Zinc sulfanilate	32				
Total coal-tar medicinals:					
Those for which individual statistics are shown.		11,497,806	9,624,059	$6,433,435	$0.67
Those for which individual statistics cannot be shown.		3,690,472	3,307,652	7,277,462	2.20
Grand total		15,188,278	12,931,711	13,710,897	1.06
(B) NON-COAL-TAR					
Acetannin (Tannigen) (Tannyl acetate)	X				
Adenine sulfate	69				
Aminoacetic acid (Glycocol) (Glycine)	5, 25, 60, 62, 83, 163, 209.				
p-Amino di-n-butylaminopropanol hydrochloride (Butyn hydrocloride).	1				
Amyl nitrite (Isoamyl nitrite)	69, 132, X				
Ascorbic acid	100, 140, 164	15,654	16,405	707,844	43.15
Barbituric acid	1				
Barbituric acid derivatives, total		167,393	87,607	600,975	6.86
Butyl ethyl barbituric acid and salts	1				
Cyclohexenyl ethyl barbituric acid and salts.	X				
Diallylbarbituric acid and salts	X, X				
Dibromobarbituric acid and salts (Dibromin).	X				
Diethylbarbituric acid and salts (Barbital).	1, 83, 100, X				
Ethyl-l-methyl butyl barbituric acid and salts.	1, 126				
Ethyl-l-methyl butyl thiobarbituric acid and salts.	1				
Ethyl secondary butyl barbituric acid and salts.	X				
Hexylethyl barbiturate sodium (Ortal sodium).	X				
Isoamyl ethyl barbituric acid and salts	126				
Isopropyl ethyl barbituric acid and salts	X				
Isopropyl ethyl malonic ester	X				
Monoethyl-ethyl malonic acid	1				
Pentobarbital sodium	X				
Propyl-methyl-carbinyl-allyl-barbiturate sodium.	126				
Benzoic acid ester of a-estradiol (Progynon-B)	186				
Bromocamphor	60, 132				
Bromodiethylacetyl carbamide	X				
Butyl ethyl malonic ester (n and sec.)	1				
Calcium gluconate	164				
Calcium iodobehenate	X, X				
Camphor (synthetic). (See table 15 (B).)					
Chaulmoogric ester	X				
Chloral hydrate	140, 142				
Chloroform. (See table 15 (B).)					
Chlorothymol	140				
Desoxycorticosterone acetate (Cortate)	186				
Diethyl malonic ester	1				
Disodium of 3:5-diiodo-n-methylchelidamic-2:6-dicarboxylic acid (Neo-iopax).	186				
Diuricide of glyoxylic acid	1				
Ethyl chloride. (See table 15 (B).)					
Ethyl ether. (See table 15 (B).)					
a-Estradiol (Progynon DH)	186				
Ethinyl testosterone (Pranone)	186				
Ethyl glycollic acid ester of menthol	X				
Ethyl iodide	69, 70, 132, 140				
Ethyl malonate (Malonic ester)	1, 100				
Ethyl-1-methyl butyl malonic ester	1				
Ethyl nitrite	80, 132, 140	13,940	15,305	10,673	.70
Ethylenediamine di hydrochloride	X				
Ethylenediamine di iodide	X				
Gallic acid	69, 132				
Glycerophosphoric acid and salts	142, X				
Hexamethylenetetramine	62, X				

TABLE 11.—*Synthetic medicinals: United States production and sales, 1939*—Con.

Name of medicinal	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Hexamethylenetetramineanhydromethylene citrate.	X				
Hexamethylenetetramine tetra iodide	X				
Iodoform	132, 140, 149	12,498	11,479	$42,224	$3.68
Iodomethane sulfate sodium	X				
Lithium lactate	108				
Menthol (synthetic)	209, X, X				
Menthol ester of valeric acid (Validol)	155, X				
Methyl iodide	69, 70, 132, 140	1,513	1,215	4,725	3.89
Methylene citric acid	X				
Methylene iodide	69, 140, X				
Progesterone (Proluton)	186				
Sodium bismuth-thioglycollate (Thiobismol)	X				
Sodium formaldehyde sulfoxylate	X				
Sulfonethylmethane	132				
Sulfonmethane	132				
Terpin hydrate	62, 97, 140, X	75,081	66,236	22,355	.34
Testosterone (Oreton-F)	186				
Testosterone propionate (Oreton)	186				
Theobromine sodium acetate	132, 149				
Theophylline and derivatives:					
Base	25, 132, X				
Ethylenediamine (Aminophylline)	10, 25, 61, 83, 140, 173, X, X, X, X.	16,294	6,958	91,880	13.20
Methylglucamine (Glucaphylline)	1				
Sodium acetate	83, 132, X				
Thiamin chloride (Vitamin B)	100, 140				
Thioethamyl sodium	X				
Thymol	X, X				
Thymol iodide	132, 140, 149	5,829	7,155	24,575	3.43
Tribromomethane (Bromoform)	60, X				
Tribromotertiarybutyl alcohol (Brometone)	X				
Trichloroacetic acid	60				
Trichlorotertiarybutyl alcohol (Chloretone) (Chlorobutanol).	25, 140, X, X, X, X	18,068	7,799	23,111	2.96
Uric acid and potassium acid salt	70				
Total non-coal-tar medicinals:					
Those for which individual statistics are shown.		158,877	132,552	927,387	7.00
Those for which individual statistics cannot be shown.		1,509,349	1,350,040	5,192,326	3.85
Grand total		1,668,226	1,482,592	6,119,713	4.13

FLAVORS AND PERFUME MATERIALS

Synthetic flavors and perfume materials, both those derived from coal tar and those obtained from non-coal-tar raw materials, advanced in production and sales in 1939. Of the output in 1939 of 5,349,000 pounds of those of coal-tar origin, 4,938,000 pounds were sold for $4,447,000, representing increases of 39 percent in production, 35 percent in sales quantity, and 32 percent in sales value over 1938. Sales of coumarin advanced 45 percent with a decline in value from $2.51 a pound in 1938 to $2.34 a pound in 1939. Sales of vanillin increased 33 percent by quantity and 19 percent by value.

The output of non-coal-tar flavors and perfume materials in 1939 was 2,137,000 pounds. Sales were 2,233,000 pounds valued at $1,588,000. Production was 45 percent more than in 1938, while sales were up 72 percent by quantity and 101 percent by value. Among the products that advanced in production and sales were anisic aldehyde, citral, geraniol, geranyl acetate, ionone, and terpineol. The production of heliotropin was less in 1939 than in 1938.

Statistics of production and sales of synthetic organic flavors and perfume materials in 1939 are shown in table 12.

TABLE 12.—*Synthetic flavors and perfume materials: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information in regard to individual firms. The figures thus concealed, however, are included in the total]

Name of flavor or perfume material	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR		*Pounds*	*Pounds*		
Acetophenone	82, 115, X, X				
Amyl benzoate	76, 78, 220	178			
Amyl cinnamic aldehyde	76, 78, 115, 220, 224, X, X, X.	67,932	66,815	$96,047	$1.44
Amyl salicylate	60, 78, 115, 196, X, X, X, X.	83,165	80,818	37,884	.47
Belzal chloride	102				
Benzal glycerin	X				
Benzophenone	82, 115, X, X, X	47,032	40,154	30,825	.77
Benzyl acetate	78, 115, 196, X, X, X				
Benzyl alcohol	102, 115, 196, X, X, X, X.	149,217	130,174	66,041	.51
Benzyl benzoate	78, 115, 196, 209, X, X, X.	54,554	56,118	37,243	.66
Benzyl butyrate	76, 78, X, X	189	335	557	1.66
Benzyl cinnamate	78, 82, X, X				
Benzyl eugenol	224				
Benzyl formate	78, 220, X	89	97	292	3.01
Benzyl isoeugenol	78, 224, X				
Benzyl propionate	76, 78, 224, X, X, X, X	2,381	2,144	3,256	1.52
Benzyl salicylate	78, 82, 220, 224, X, X, X	18,830	20,451	29,736	1.45
Benzyl valerate	76, 78				
Benzylidine acetone	220, X, X				
Bromstyrol	25, X, X				
Butylphenyl acetate	76				
Carvacrol (isopropyl-o-cresol)	209				
Cinnamic acid	82, X, X				
Cinnamic alcohol	82, X, X				
Cinnamic aldehyde	196, X, X				
Cinnamyl acetate	76, 78, 224, X, X, X	353	307	1,649	5.37
Cinnamyl anthranilate	76				
Cinnamyl isobutyrate	76, X, X	36			
Cinnamyl isovalerianate	76, X, X	63			
Cinnamyl propionate	224				
Cinnamyl valerianate	78				
Coumarin (synthetic)	60, 62, 138, 142	235,633	225,068	525,695	2.34
p-Cresyl acetate	78, X				
p-Cresylmethyl ether	X, X				
p-Cresylphenyl acetate	78, 224, X				
Diethyl succinate	X				
Dimethyl acetal of phenylacetaldehyde	82, X				
Dimethyl anthranilate	76, X				
Dimethylbenzyl carbinol	78, 220				
Dimethylbenzyl carbinol acetate	220, 224				
Dimethyl hydroquinone	62, X				
Diphenylmethane	X				
Diphenyl oxide	60, 78, X				
Ethyl anthranilate	76, 78, X	218	159	510	3.21
Ethyl benzoate	78, 154, 220, X, X	1,173	1,145	1,352	1.18
Ethyl cinnamate	78, 220				
Ethylmethylphenyl glycidate	76, X				
Ethylphenyl acetate	25, X				
Ethyl salicylate	78, X, X		231	209	.90
Ethyl vanillin (Vanaldol)	138, 142, X				
Geranyl benzoate	224				
Guaiacol acetate	76				
p-Hydroxy benzoic acid esters (Aseptoform).	X				
Isobutyl p-aminobenzoate	117				
Isobutyl anthranilate	78				
Isobutyl benzoate	76, X				
Isobutylphenyl acetate	76, 78, 220, X				
Isobutyl salicylate	78, 224				
Linalyl anthranilate	78, 224				
Linalyl benzoate	224				
Linalyl cinnamate	224				
Menthyl benzoate	102				
Methyl acetophenone	78, 82, 115, X, X	7,253	11,147	10,928	.98
Methyl anthranilate	60, 62, X	26,940	25,416	42,806	1.68
Methyl benzoate	78, 154, 209, 220, X, X, X.				

TABLE 12.—*Synthetic flavors and perfume materials: United States production and sales, 1939*—Continued

Name of flavor or perfume material	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued					
Methyl cinnamate	25, 220, X, X, X, X, X, X.	*Pounds* 22,249	*Pounds* 21,731	$25,707	$1.18
Methyl p-cresol	76, 78, X	111			
Methylnaphthyl ketone	78, 82, X, X		3,636	6,458	1.78
Methylphenyl acetate	25, 82, X, X, X				
Methylphenyl carbinol	82, X				
Methylphenyl carbinyl acetate	82, X				
Methyl salicylate	60, 142, 209, X, X	1,684,619	1,664,740	489,102	.29
Musk ambrette	62, X, X				
Musk ketone	62, X, X				
Musk xylol	62, X, X	90,891	81,404	70,699	.87
b-Naphthyl ethyl ether (Nerolin)	82, 115				
b-Naphthyl methyl ether (Yara yara)	82, 115				
Phenylacet acetal	76				
Phenylacetic acid	25, 82, 115, 220, X	5,629	5,295	6,155	1.16
Phenylacetic aldehyde	78, 82, X				
Phenylethyl acetate	1, 78, 115, 220, X	22,589			
Phenylethyl alcohol	60, 115, 220, 225, X	147,522	153,983	267,373	1.74
Phenylethyl butyrate	78				
Phenylethyl formate	224, X				
Phenylethylphenyl acetate	78, X				
Phenylethyl propionate	220, X				
Phenylethyl salicylate	62, 76				
Phenylethyl valerate	76, X, X	97	100	696	6.96
Phenylpropyl acetate	224, X				
Phenylpropyl propionate	76				
Propyl cinnamate	76				
Saccharin	142				
Salicyl aldehyde	60, 62				
Tolyl acetate	X				
Tolyl aldehyde	X				
Trichloromethylphenyl carbinol acetate (Rosetone).	X				
Vanillidine	X				
Vanillin	138, 142, 185, X, X, X	608,614	604,972	1,198,153	1.98
Total coal-tar flavors and perfume materials:					
Those for which individual statistics are shown.		3,277,557	3,196,440	2,949,373	.92
Those for which individual statistics cannot be shown		2,071,565	1,741,572	1,497,754	.86
Grand total		5,349,122	4,938,012	4,447,127	.90
(B) NON-COAL-TAR					
Aldehyde:					
C 7 (Heptyl)	76, X				
C 10 (Decyl)	220				
Allyl caproate	76, 78, X, X				
Allyl propionate	76				
Amyl butyrate	33, 76, X				
Amyl caproate	X				
Amyl formate	X				
Amyl laurate	X				
Anethol	97, 147				
Anisic aldehyde (Aubepine)	62, X, X, X, X	32,852	30,834	70,535	2.29
Anisyl formate	76				
Butyl anthranilate	76				
n-Butyl butyrate	76, 78, 80, 154				
n-Butyl formate	76				
Capryl butyric acid	78				
Capryl butyric ether	78				
Cedryl acetate	224				
Cedryl butyrate	224				
Cedryl formate	224				
Cetyl alcohol	224				
Citral	33, 62, 76, 128, 220, X, X, X, X, X, X, X, X.	33,384	29,976	43,719	1.46
Citronellal	76, 224, X, X				
Citronellol	62, 82, 115, 209, 220, 224, X, X, X, X.	43,176	44,144	59,842	1.36
Citronellyl acetate	78, X				
Citronellyl formate	224				
Citronellyl propionate	76				
Cyclo-geraniol	224				
Diacetyl	25, X				
Dibutyl carbinol	X				
Dihydrovanillone	78				

TABLE 12.—*Synthetic flavors and perfume materials: United States production and sales, 1939*—Continued

Name of flavor or perfume material	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Dihydroxy citronellic ketone	78				
Dimethyl octanol	209, X				
Ethyl butyrate	76, 80, 154, X, X	44,930	47,231	$29,712	$0.63
Ethyl caproate	154, X				
Ethyl isovalerate	154, X, X				
Ethyl laurate	76				
Ethyl myristate	X				
Ethyl oenanthate	76, 78, 154, X, X	7,218	4,851	3,581	.74
Ethyl oxyhydrate	76, 78, 128, 220	10,767	11,346	7,033	.62
Ethyl sebacate	76, X				
Ethyl n-valerate	78, 80				
Eugenyl acetate	224				
Eugenyl formate	224				
Formate:					
C–10	76				
C–12	76				
Geraniol	62, 76, 82, 115, 209, 214, 220, 224, X, X, X, X, X, X.	348,324	355,739	236,596	.66
Geranyl acetate	62, 76, 78, 82, 115, 209, 220, 224, X, X, X.	26,712	27,622	24,970	.90
Geranyl butyrate	78, 224, X				
Geranyl formate	78, 224, X				
Geranyl propionate	76				
Heliotropin	X, X, X	28,035			
Hydroxy citronellal	62, X, X				
Hydroxy citronellal diethyl acetal	X				
Hydroxy citronellal dimethyl acetal	76, X, X				
Ionone	62, 138, 220, 225, X, X, X, X, X, X.	78,366	91,642	169,790	1.85
Isoamyl butyrate	78, 80, 154, X	7,023	6,125	4,493	.73
Isoamyl formate	78, 154, X		277	224	.81
Isoamyl isovalerate	76, 80, 154, X, X	1,284	1,200	1,665	1.39
Isoamyl propionate	80, X, X				
Iso borneol	62				
Isobornyl acetate	62, 76				
Isobutyl acetate	76, 78, 154	341			
Isobutyl butyrate	78				
Isobutyl caproate	76				
Isoeugenol	76, 224, X, X, X				
Iso-eugenyl acetate	224				
Isopropyl caproate	76				
Isopulegol	62, 82, 209, X				
Lavadin acetate	224				
Linalyl acetate	76, 78, 220, X, X				
Linalyl formate	76, 78				
Menthene	209				
Menthone	78, 209, X				
Menthyl acetate	209				
Methyl eugenol	76, 224, X, X				
Methyl ionone	62, 138, 220, 225, X, X, X.	70,508	73,491	161,977	2.20
Methyl isoeugenol	76, 224, X				
Neryl acetate	224				
Nonyl acetate	224				
Octyl acetate	224				
Octyl alcohol (sec) (Capryl alcohol)	X, X				
Octyl butyrate	76				
Peppermint oil (synthetic)	209				
Rhodinol	62, 76, 78, 82, 128, 214, 220, 224, X, X, X, X, X, X.	10,274	6,661	75,748	11.37
Rhodinol formate	76, 224, X	31			
Rhodinyl acetate	76, 224				
Rhodinyl propionate	224				
Santalyl acetate	224				
Shiu oil acetate	224				
Terpineol	62, 76, 147, X	694,242	872,115	190,068	.22
Terpinolene	62				
Terpinyl acetate	62, 76, 224, X				
Undecalactone	76, X				
Vertiverol acetate	76, 224, X, X				
Total non-coal-tar flavors and perfume materials:					
Those for which individual statistics are shown.		1,437,467	1,603,254	1,079,953	.67
Those for which individual statistics cannot be shown.		699,677	629,666	507,986	.81
Grand total		2,137,144	2,232,920	1,587,939	.71

SYNTHETIC RESINS

The total production of 213,028,000 pounds of synthetic resins (coal-tar and non-coal-tar) in 1939 was the highest on record, exceeding by 82,669,000 pounds the output in 1938, and by 49,997,000 pounds the previous peak in 1937. The 1939 production, by principal uses, was 54,807,000 pounds for molding and casting, 18,411,000 pounds for laminating, 100,180,000 pounds for paints and varnishes, and 39,630,000 pounds for other uses. Corresponding figures for 1938 are 33,538,000 pounds for molding and casting, 10,189,000 pounds for laminating, 56,528,000 pounds for paints and varnishes, and 30,104,000 pounds for other uses.

The 179,338,000 pounds of resins of coal-tar origin in 1939 exceeded by 68 percent the output in 1938. Alkyd resins were up 87 percent and tar acid resins 58 percent.

The production of non-coal-tar synthetic resins in 1939 was 33,690,000 pounds, or 44 percent more than in 1938. The rapid expansion in the use of urea resins for surface coatings resulted in an increase in their production of more than 100 percent. An increase of several fold in sales of the vinyl acetyl resins, higher in price than other non-coal-tar resins, resulted in a change in the average unit value of sales of all non-coal-tar resins from $0.41 in 1938 to $0.46 in 1939. The average value per pound of sales of urea resins decreased from $0.44 to $0.36 during the year.

Statistics of production and sales of synthetic resins in 1939 are shown in table 13.

TABLE 13.—*Synthetic resins: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information in regard to individual firms. The figures thus concealed, however, are included in the total]

Name of resin	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR					
Alkyd:		*Pounds*	*Pounds*		
Maleic anhydride	7, 34, 97, 113, 125, 207, X, X, X, X, X, X.	6,263,542	4,929,403	$925,048	$0.19
Phthalic anhydride	2, 7, 31, 62, 88, 98, 113, 131, 169, 178, 181, 207, 219, X, X, X, X, X, X, X, X, X, X, X, X, X, X, X, X, X.	70,208,098	33,161,064	6,925,898	.21
Coumarone and indene	22, 146				
Hydrocarbon	62				
Polystyrene	X				
Sulfonamides	142				
Tar acids:					
Cresols or cresylic acid	18, 64, 88, 159, 179, 213, X, X, X, X, X, X, X.	10,515,557	7,893,863	1,063,772	.13
Phenol:					
For casting	38, 110, 133, 142, X, X	8,517,368	8,252,263	3,152,444	.38
For molding	18, 48, 52, 64, 88, 179, X, X, X, X, X.	19,421,778	17,396,556	2,571,930	.15
For other uses	7, 18, 34, 38, 64, 88, 98, 125, 178, 181, 207, X, X, X, X, X, X, X.	27,785,891	25,766,207	3,738,052	.14
Phenols and cresols	88, 131, 181, X, X, X, X, X				
Xylenols	88, X, X, X, X	442,899			
Xylenols and cresols	88, X, X, X				
Total coal-tar resins		179,337,857	128,419,871	23,028,083	.18

TABLE 13.—*Synthetic resins: United States production and sales, 1939*—Continued

Name of resin	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR		*Pounds*	*Pounds*		
Abietic acid	97, X				
Acrylic acid esters	62, 181, X				
Ketone	X				
Petroleum	X, X				
Polyamide	62				
Terpenes	X				
Urea	7, 62, 178, 181, X, X, X, X	16,569,343	14,556,232	$5,288,767	$0.36
Urea and thiourea	X				
Vinyl acetal	62, X				
Vinyl acetate and chloride	36, 60, 89, X				
Total non-coal-tar resins		33,689,691	34,876,766	15,983,405	.46

RUBBER CHEMICALS

With the increase in the manufacture of rubber products, particularly tires, synthetic organic chemicals for use in compounding rubber increased greatly in production and sales in 1939. Coal-tar rubber chemicals were up 60 percent in production. The increase in those used as accelerators was 47 percent, and in those used as antioxidants 69 percent.

Statistics of total production and sales of non-coal-tar rubber chemicals are shown separately for the first time. Heretofore these data have been included under the miscellaneous non-coal-tar chemicals group to avoid revealing confidential information. These non-coal-tar rubber chemicals increased considerably in production and sales, but less than did those of coal-tar origin.

Statistics of production and sales of synthetic rubber chemicals are shown in table 14.

TABLE 14.—*Synthetic rubber chemicals: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information in regard to individual firms. The figures thus concealed, however, are included in the total]

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR		*Pounds*	*Pounds*		
Accelerators, total		12,090,444	7,772,922	$3,543,376	$0.46
Aldehyde-amines:					
Acetaldehyde aniline	62, 142, X				
Butyraldehyde aniline	62, 89, 142, X	524,422	235,018	154,380	.66
Crotilidine aniline	X				
Ethyl b-propylacryl aniline	41				
Heptaldehyde aniline	X				
Methylene aniline (anhydroformaldehyde aniline)	62, 142				
Other:					
Alkyl mercaptothiazoles	89				
Aminobenzothiazole	89				
Benzol dimethyl dithiocarbamate	X				

TABLE 14.—*Synthetic rubber chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR					
Accelerators—Continued.					
Other—Continued.		*Pounds*	*Pounds*		
Benzothiazole thiobenzoate	142				
Benzothiazyl disulfide	X, X				
Benzothiazyl-ethyl-thiocarbonate	X				
Benzothiazyl-2-sulphenethylamide.	X				
Carbon disulfide on methylene dimethylcyclohexylamine.	142				
Carbon disulfide on methylene dipiperidine.	142				
p-p'Diaminodiphenylmethane	X				
Dibenzothiazyldimethylthiolurea.	142				
Dibenzothiazyldimethylthiolurea, diphenylguanidine phthalate and anhydroformaldehyde aniline.	142				
Dibenzylamine	X				
Dimethylethylenediphenyldithiocarbamate lead salt.	41				
Dinitrophenylbenzothiazyl sulfide plus diphenylguanidine acetate.	142				
Dinitrophenyldimethyldithiocarbamate.	X				
Dinitrophenyl ester of mercaptobenzothiazole.	142				
Diphenylcarbamyl dimethyldithiocarbamate.	X				
Diphenylguanidine	7, 60, 62, 142	1, 852, 136	1, 234, 817	$412. 183	$0. 33
Diphenylguanidine acetate	142				
Diphenylguanidine oxalate	X				
Diphenylguanidine phthalate	142, X				
Diphenylguanidine and dinitrophenyl ester of mercaptobenzothiazole.	142				
Diphenylguanidine phthalate, diphenylguanidine and dinitrophenyl ester of mercaptobenzothiazole.	142				
Di-o-tolyguanidine	62, X				
Di-o-tolylthiourea	62				
Hexamethylenetetramine ester of mercaptobenzothiazole.	142				
Mercaptobenzothiazole	142, X				
Mercaptobenzothiazole on benzyl chloride addition of hexamethylenetetramine.	62				
Mercaptobenzothiazole-cyclohexylamine.	142				
Mercaptobenzothiazole methylene aniline.	X				
Mercaptobenzothiazole methylene-o-toluidine.	X				
Mercaptobenzothiazole lead salt	62				
Mercaptobenzothiazole sodium salt.	142, X				
Mercaptobenzothiazole zinc salt	62, 142, X, X				
Methylene mercaptobenzothiazole.	142				
Methylene-p-toluidine (anhydroformaldehyde p-toluidine).	62				
Piperidine penta methylene dithiocarbamate and potassium salt.	62, X, X				
Reaction product, mercaptobenzothiazole-formaldehyde-cresylic acid-hexamethylenetetramine.	X				
Thiocarbanilide	62, 144				
Thiocarbtoluide	142, 144				
Triphenylguanidine	144				
Other accelerators	X				

TABLE 14.—*Synthetic rubber chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued					
		Pounds	*Pounds*		
Antioxidants, total		17,875,981	13,191,775	$6,537,726	$0.50
Acetaldehyde aniline	X				
p-Aminodiphenyl acetone compound	142				
Aniline-acetone	142				
Aniline-acetone, acid derivatives	142				
Aniline-b-naphthol	62				
Antox	62				
Crotonylidine-a-naphthylamine	89				
2:4-Diaminodiphenylamine	142				
b-Di-p-hydroxy phenylpropane	X				
Dimethoxy diphenylamine	62				
Diphenylamine acetone	X				
Diphenylamine acetone formaldehyde	X				
Diphenyl ethylenediamine	41				
s-Di (b-naphthol) p-phenylenediamine	89				
Diphenyl-p-phenylenediamine	62, 89, X	1,101,640			
Diphenyl-p-phenylenediamine and p-aminodiphenyl acetone compound	142				
Diphenyl-p-phenylenediamine and aniline acetone, acid derivatives	142				
Ditolylamines	89				
Di-o-tolylethylenediamine	41				
Di-o-tolylguanidine salt of dicatechol borate	62				
Hydrogenated phenyl-b-naphthylamine	X				
p-Hydroxy diphenylamine	62				
Hydroxyphenyl morpholine	62				
Isopropoxy diphenylamine	89				
Methylene-b-naphthol	X				
p-Methyl-p-(p-tolylsulfonylamino) diphenylamine	X				
Mono benzyl ether of hydroquinone	89				
Phenol-cyclohexanone compound	142				
Phenyl-a-naphthylamine	62, 144				
Phenyl-b-naphthylamine	62, 85, 89				
Phenyl-b-naphthylnitrosamine	X				
Polyethylene polynamine plus b-naphthol	X				
Thiophenyl-b-naphthylamine	X				
2:2:4-Trimethyldihydroquinoline and polymers	89				
Other antioxidants	41, X				
Total coal-tar rubber chemicals		29,966,425	20,964,697	10,081,102	.48
(B) NON-COAL-TAR					
Accelerators:					
Aldehyde ammonia	62, 142				
Dimethylaminodimethyldithiocarbamic acid zinc salt	142				
Dipentamethylene thiouramtetrasulfide	62				
Dithiocarbamates:					
Amyl-ammonium-zinc dimethyl	X				
Diethyl ammonium-diethyl	X				
Lead dimethyl	234				
Selenium diethyl	234				
Selenium tetra diethyl	X				
Tellurium diethyl	234				
Zinc dibutyl	234, X				
Zinc diethyl	234, X				
Zinc dimethyl	X, X				
p-Nitrosodimethylamine	62				
Tetraamylthiouram monosulfide	X				
Tetramethylthiouram sulfide and disulfide	62, 142, X, X	471,699	369,984	851,518	2.30
Triethyltrimethylenetriamine	X				

TABLE 14. *Synthetic rubber chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued					
Accelerators—Continued.					
Xanthates:		*Pounds*	*Pounds*		
Chloronaphtha	142				
Di-n-butylxantho disulfide	X				
Potassium amyl	60, 142				
Potassium butyl	60, X				
Potassium ethyl	60, 142				
Potassium isopropyl	60, X				
Potassium pentasol	60				
Sodium butyl	X				
Sodium ethyl	60				
Zinc butyl	X, X				
Zinc isopropyl	X				
Total non-coal-tar rubber chemicals.		13, 122, 206	11, 896, 450	$3, 086. 119	$0. 26

MISCELLANEOUS CHEMICALS

The miscellaneous coal-tar chemicals group includes all unrelated commodities and groups of commodities not properly classifiable under any of the specified groups. Although the groups are comparable for 1938 and 1939 as to classifications of individual commodities, a comparison of group totals is of little significance because of the heterogeneous nature of the products making up these totals. The production of coal-tar textile chemicals increased from 5,791,000 pounds in 1938 to 9,452,000 pounds in 1939. Sales advanced proportionately. Hydroquinone, shown under photographic chemicals, is the photographic grade only. The technical grade is included under coal-tar intermediates. Plasticizers of coal-tar origin are shown separately as a subgroup for the first time.

The miscellaneous non-coal-tar group includes the bulk of the non-coal-tar synthetic products and consists of industrial chemicals that cannot be grouped as medicinals, aromatic chemicals, rubber chemicals, or resins. The output of miscellaneous non-coal-tar synthetic organic chemicals in 1939 was 2,984,038,000 pounds as compared with 2,383,168,000 pounds in 1938. In this group some of the important products that advanced in production were acetic acid 23 percent, acetic anhydride 58 percent, butyl alcohol 56 percent, carbon tetrachloride 16 percent, and isopropyl alcohol 27 percent. Sales of acetone were up 50 percent, and of synthetic methanol 39 percent. Commodities representing a large part of the total production of miscellaneous non-coal-tar products cannot be shown separately without revealing confidential information. Among such products in 1939 were: Synthetic camphor, crotonaldehyde, synthetic ethyl alcohol, ethyl chloride, ethylene dibromide, ethylene dichloride, ethylene glycol, synthetic methanol, and tetraethyl lead. Non-coal-tar plasticizers are shown as a subgroup for the first time.

Statistics of production and sales of miscellaneous synthetic organic chemicals are shown in table 15.

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 58. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. Blanks in the third, fourth, and fifth columns indicate that the statistics of production or sales cannot be published without revealing information in regard to individual firms. The figures thus concealed, however, are included in the total]

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR		*Pounds*	*Pounds*		
Amino diethyl hydroquinone	X				
Benzoate of ammonia	102, 142				
Benzoate of soda	62, 102, 142, 209, X.				
Benzoyl peroxide	X				
Benzylated phenol (Santophens)	142				
Biological stains and chemical indicators	96, 123, 144, 211, X, X.				
Butyl catechol	142				
Cyclanol	62				
Cyclohexane	22				
Cyclohexanone	22, X				
Cyclohexanyl acetate	224				
Decahydronaphthalene (Decalin)	62				
Diamylhydroquinone	142				
Diphenylethane polymer	X				
a-a-Dipyridyl	70				
Gases (poisonous, tear, etc.):					
Chloroacetophenone	75				
Chloropicrin	X, X				
Diphenylamine chlorarsine	X				
Gasoline antioxidants	62				
Hexalin (Cyclohexanol)	22, 102, X				
Insecticides (synthetic):					
Aromatic thiocyanates	102, 117				
Other	203				
Lauryl pyridinium chloride	102				
Methyl cyclohexane	22				
Methyl cyclohexanone	22, 62, 102				
Methyl hexalin (Methyl cyclohexanol)	22, 62, 102				
Naphthanil red for printing	62				
Naphthanil scarlet for printing	62				
o-Phenyl mercaptobenzothiazole	142				
Phenylmercurie acetate	93				
Phenylmercuric chloride	93				
Phloroglucinol	70				
Photographic chemicals, total		2,121,041	1,716,241	$1,847,694	$1.08
p-Aminophenol sulfate	70				
Benztriazol	70				
Catechol (Pyrocatechin)	142, X				
Chloro hydroquinone	70, 236				
Diaminophenol hydrochloride (Amidol).	70, 225				
Hydroquinone [1]	62, 225, 236, X, X.	1,441,329	1,389,022	1,139,880	.82
p-Hydroxy phenylglycine	69, 70, X, X				
Methyl p-aminophenol sulfate (Metol) (Rhodol).	62, 69, 225, 236, X, X.	275,186	290,537	636,319	2.19
N-N'-N''tri (2-methylcyclohexyl) diethylenetriamine.	X				
o-Phenylenedlamine	225				
Phthalide	62				
Plasticizers, total		23,839,211	19,299,337	4,089,378	.21
Ethyl ortho-para-toluene sulfonamide (Santicizer 8).	142				
Phthalates, total		15,753,079	11,334,218	2,227,078	.20
Carbitol	157				
Diamyl	115, 218				
Dibutoxy ethyl	62, 157				
Dibutyl	7, 53, 62, 115, 142, 218.	7,923,771	5,661,733	942,134	.17
Dicyclohexyl	62				
Diethoxy ethyl	157				
Diethyl	7, 53, 115, 142, 218, X.	1,812,925	1,373,457	240,072	.17
Dimethoxy ethyl	62, 157				
Dimethyl	7, 53, 115, 142, 218, X.				

[1] Photographic grade only.

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(A) COAL-TAR—continued					
Plasticizers—Continued.					
Phthalates, total—Continued.		*Pounds*	*Pounds*		
Dimethyl cyclohexyl	62				
Diphenyl	142				
2-Ethylhexyl	157				
High boiling alcohols	62				
Isobutyl	62				
Phthalyl glycollate	142				
Toluene sulfonamide ortho-para mixture (Santicizer 9).	142				
Tricresylphosphate	39, 142, 157, X				
Triphenylphosphate	69, 142, X				
Potassium butyl phthalate	62				
Printsol colors: Bordeaux R	144				
Quinhydrone	69, 140				
Quinone	236, X				
Research chemicals	32, 69, 189				
Sodium butyl phthalate	62				
Sodium dicresyldithiophosphate	X				
Sodium ethyl butyl phthalate	62				
Tanning materials (synthetic)	7, 22, 44, 85, 142, 144, X, X.				
Tetrahydronaphthalene (Tetralin)	X				
Textile chemicals, total	6, 7, 62, 85, 142, 144, 203, X, X.	9, 452, 163	9, 045, 103	$1, 969. 284	$0. 22
o-Tolyl biguanide	142				
Other products	141, 142, X				
Total miscellaneous coal-tar chemicals:					
Those for which individual statistics are shown.		20, 905, 374	7, 759, 852	4, 927, 689	.64
Those for which individual statistics cannot be shown.		48, 775, 089	48, 518, 690	7, 952, 138	.16
Grand total		69, 680, 463	56, 278, 542	12. 879, 827	.23
(B) NON-COAL-TAR					
Abietic acid esters	97				
Acetaldehyde	36, 150, X, X				
Acetaldol (Aldol)	150				
Acetamide	60, 150, X				
Acetic acid (100 percent)	36, 53, 150, 218, X.	119, 652, 650			
Acetic anhydride (from all sources) (100 percent).	36, X, X, X	181, 156, 152			
Acetin (mono, di, tri)	85, 99, 117				
Acetone	36, 53, 17x, 194, 218, X.		100, 935, 422	4, 384, 757	.04
Acetonitrile	69, 140				
Acetonyl acetone	36				
Acetyl chloride	87, 102, X				
Allyl alcohol	70, 194				
Allyl bromide	60, 93, 70				
Allyl chloride	194				
Allyl isothiocyanate (synthetic mustard oil).	70, X				
Aluminum formate	226				
Amines, total		1, 487, 643	1, 399, 353	753, 710	.54
Amyl (mono, di, tri)	191				
Butyl:					
Mono	191				
Di	62, 191				
Tri	62, 191				
Iso	62				
Ethyl:					
Mono	191				
Di	191, 234				
Methyl:					
Mono	5, 53, 62, X				
Di	53, 62, X				
Tri	62, X				
Ammonium oxalate	87				
Ammonium succinate	X				
Ammonium stearate	X				

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued					
Amyl acetate:		*Pounds*	*Pounds*		
Normal (90 percent)	53, 62, 171, 191, 218.				
Secondary (90 percent)	X				
Iso (90 percent)	80, 117, 154, X, X.				
Amyl alcohol:					
Normal (100 percent)	191, 218				
Secondary (100 percent)	X				
Iso (100 percent)	62, 80, 117, X, X				
Amyl chloride	191				
Amyl ether	191				
Amyl mercaptan	191				
Amyl propionate	218				
Butadiene	60				
Butyl acetate, total		77,734,214	68,158,368	$4,690,362	$0.07
Normal (90 percent)	36, 53, 142, 154, 174, 218.				
Secondary (90 percent)	194, X				
Iso (90 percent)	62, 80				
Butylacetyl ricinoleate	53				
Butyl alcohol, total		127,010,364	52,590,016	3,548,824	.07
Normal (100 percent)	36, 53, 174, 218	72,736,886	45,836,362	3,182,229	.07
Secondary (100 percent)	194, X				
Tertiary (100 percent)	194				
Iso (100 percent)	36, 62				
Butyl aldehyde	36, 53, X				
n-Butyl bromide	1, 69, 70, 189				
Butyl bromide, sec	X				
Butyl chloride	191				
Butyl lactate	53				
Butyl oleate	53				
Butyl propionate (100 percent)	80, 218				
n-Butyric acid	36, 154, X				
Butyric anhydride	36, X				
Butyryl chloride	102				
Caffeine (from Theobromine)	138, 142				
Calcium lactate	9, 193				
Calcium propionate	62				
Campho carboxylic acid	1				
Camphoric anhydride	132				
n-Caproic acid	36, 132, 154				
Carbon tetrachloride	60, 152, 212, 231, X.	90,535,580	84,023,750	3,284,664	.04
Carbonyl chloride (Phosgene)	102, 151				
Chlorinated solvents	24				
Chloroacetic acid (mono)	60				
Chloroacetone	X				
Chloroacetyl chloride	60				
Chloroform (tech and USP)	24, 30, 60, 62	2,933,322			
Citric acid, refined (fermentation)	46, 140, X	13,440,323	11,652,711	2,420,986	.21
Copper lactate	193				
Crotonaldehyde	36, 150				
Crotonic acid	150				
Cyanoacetamide	25				
Diacetin caprate	117				
Diacetin stearate	117				
Diacetone alcohol	36, 53, 142, 194	3,220,729	2,393,125	187,616	.08
Dibutyl ether (n-Butyl ether)	36, 53				
Dichloroethyl ether	36				
Dichloroisopropyl ether	36				
Dichloromonofluoromethane	119				
Dichlorodifluoromethane	119				
Dichlorotetrafluoroethane	119				
Dicyandiamid	X				
Dicyclopentadiene	36				
Diethanolamine	36				
Diethyl acetic acid	36				
Diethyl carbonate (Diatol)	218				
Diethyl sulfate	36				
Diethylaminoethanol	36, 69				
Diethylene glycol	36, 60				
Diethylene glycol diethyl ether	36				
Diethylene glycol dipropionate	157				
Diethylene glycol monobutyl ether	36				

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Diethylene glycol monobutyl ether acetate.	36				
Diethylene glycol monoethyl ether	36				
Diethylene glycol monoethyl ether acetate.	36				
Diethylene glycol monoethyl ether maleate.	36				
Diethylene glycol monomethyl ether	36				
Diethylene oxide (Dioxan)	36				
Diglycol laurate	X				
Diglycol oleate	X, X				
Diisobutylene	X				
Diisobutyl ketone	36				
Dimethoxy ethyl adipate	62				
Dimethyl ether	62				
Dimethyl formamide	62				
Dimethyl glyoxime	69, 182				
Dimethyl sulfate	62				
Dioctylamine	36				
Dipropyl ketone	36				
Dipropylene glycol	36				
Dulcitol	19				
Epichlorohydrin	62				
Ethyl acetate (85 percent)	36, 53, 62, 80, 142, 174, 218, X, X.	67, 897, 408	51, 622, 492	$2, 706, 497	$0. 05
Ethyl acetoacetate	36, 218				
Ethyl alcohol (synthetic)	36, 62				
Ethyl benzoyl acetate	218				
Ethyl bromide	1, 60				
Ethyl bromo acetate	60				
Ethyl butyl acetate	36				
Ethyl butyl alcohol	36				
Ethyl butyraldehyde	36				
Ethyl chloride (tech and USP)	60, 62, 73, 84				
Ethyl chlorocarbonate	218				
Ethyl cyanoacetate	25				
Ethyl ether (tech and USP)	36, 132, 140, 201				
Ethyl formate	53, 78, 80, 132, 154, 218, X, X.				
a-Ethyl hexanal	36				
a-Ethyl hexanol	36				
Ethyl hexoic acid	36				
a-Ethylhexyl acetate	36				
Ethyl lactate	X				
Ethyl malonate	25				
Ethyl mercaptan	132				
Ethyl monochloro acetate	76				
Ethyl oleate	117				
Ethyl oxalate (Diethyl oxalate)	25, 80				
Ethyl propionate	62, 76, 80, 218, X X.				
Ethyl silicate	36				
Ethylene chlorohydrin	36				
Ethylenediamine (med and tech)	26, 36				
Ethylene dibromide	60, 72, 231				
Ethylene dichloride	36, 60				
Ethylene glycol	36, 60, 218, X				
Ethylene glycol diacetate	36				
Ethylene glycol diethyl ether	36				
Ethylene glycol monobutyl ether	36				
Ethylene glycol monobutyl ether stearate (Butoxy ethyl stearate).	157				
Ethylene glycol monoethyl ether	36				
Ethylene glycol monethyl ether acetate	36				
Ethylene glycol monomethyl ether	36				
Ethylene glycol monomethyl ether acetate.	36, 80				
Ethylene glycol monomethyl ether oleate (Methoxy ethyl oleate).	157				
Ethylene glycol monophenyl ether	36				
Ethylene oxide	36, 60				
Ethylidene diacetate	X				
Fatty alcohols (containing more than 8 carbon atoms).	62				
Fenchone	147				

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Ferrous lactate	132, 193				
Formaldehyde (40 percent)	45, 62, X, X	134, 478, 827	91, 159, 551	$4, 060, 666	$0.04
Formamide	62				
Formic acid (90 percent)	62, 226				
Furfural	177				
Furfural derivatives:					
Furfuryl alcohol	177, X				
Furoic acid	177				
Hydrofuramide	177				
Tetrahydrofurfuryl alcohol	177, X				
Gallic acid, tech	69, 132, 236	145, 338			
Glyceryl monostearate	50, 117, X, X				
Glyceryl distearate	117				
Glyceryl monooleate	50				
Glyceryl trihydroxy stearate	62				
Glycol bori-borate	X				
Glycol stearate	50, 117, X				
Guanyl-nitrosamine-guanyl-tetrazene	X				
Heptadecanol	36				
Heptane	36				
Hexachloroethane	60				
Hexaldehyde	36				
Hexamethylenetetramine, tech	62, X				
Hexyl acetate (sec)	62				
Hexyl alcohol (n and sec)	36, 62, X				
Higher acetates (above hexyl)	X				
Higher alcohols (containing more than 5 carbon atoms).	62, X				
Higher ketones	62				
Higher methacrylates (above methyl)	62				
Hydrazine sulfate	182				
Hydrocarbons (high boiling)	62				
Hydroxyethyl ethylenediamine	36				
Hydroxylamine hydrochloride	182, X				
Hydroxylamine sulfate	182				
Insecticides	115, 203, 218, X				
Isobutyl propionate	62				
Isobutyraldehyde	62				
Isobutyric acid	62				
Isophorone	36				
Isopropanolamines	36				
Isopropyl acetate	36, 194, X				
Isopropyl alcohol (Isopropanol)	36, 194, X	179, 062, 266	18, 407, 564	816, 373	.04
Isopropyl bromide	60, X				
Isopropyl chloride	102				
Isopropyl ether	36, 194, X				
Lactic acid:					
Edible (100 percent)	9, 14, 47, 62, 193	1, 609, 094	1, 280, 235	270, 327	.21
Medicinal (100 percent)	14, 62				
Technical (100 percent)	9, 14, 47, 62, 193	1, 530, 456	1, 439, 401	168, 572	.12
Laurylamine and hydrochloride	62				
Levulinic acid	X				
Malonic acid	60, X				
Mannitan laurate	19				
Mannitol	19				
Melamine	X				
Mesityl oxide	36, 53, 194				
Methacrylic acid	62				
Methanol (synthetic)	36, 45, 53, 62		136, 407, 086	4, 836, 639	.04
Methyl acetate	62, 150				
Methyl acetoacetate	36				
Methyl borate	62				
Methyl bromide	60				
1-Methyl butyl bromide	1				
Methyl chloride (Chloromethane) (100 percent).	62, 168, 227, X	3, 021, 078	2, 947, 513	981, 926	.33
Methyl dichlorostearate	X				
Methyl formate	53, 62, 115				
Methyl isobutyl carbinol	36				
Methyl isobutyl carbinol acetate	36				
Methyl isobutyl ketone	36, 194				
Methyl lactate	53				
Methyl methacrylate	62				
Methyl propyl ketone	X				
Methyl stearate	102, X				
Methyl succinate	X				

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Methylamyl ketone	36				
Methylethyl ketone	36, 194, X				
Methylene chloride (Dichloromethane)	24, 60, 62, 227				
Monoethanolamine and hydrochloride	36				
Morpholine	36				
Mucochloric acid	X				
Nickel formate	226				
Organic mercury compound (Seed disinfectant).	X				
Oxalic acid	87, 143, 158, 226, X.	10, 416, 269	11, 854, 176	$1, 168, 369	$0.10
Paracetaldehyde	150				
Paraformaldehyde	62, X				
Pelviren acid	X				
Pentachloroethane	62				
Pentaerythritol	150				
Phorone	36				
Plasticizers, total		6, 031, 548	5, 069, 738	1, 674, 049	.33
Butyl stearate	53, 117				
Camphor (synthetic)	62, 147				
Dibutyl oxalate	53, 218				
Dibutyl sebacate	53, 62, 181				
Dibutyl tartrate	53, 62, 117	23, 354	23, 197	10, 197	.44
Diethylene glycol monostearate	50, 117				
Diethylene glycol distearate	50, 117				
Glyceryl tripropionate	X				
Tributyl borate	53				
Tributyl citrate	53				
Tributyl phosphate	142				
Triethyl citrate	164				
Triethyl phosphate	53, 142				
Triethylene glycol dihexoate	36				
Triglycol dioctoate	36				
Polyethyleneamines	26, 36				
Polyethylene glycol	36				
Polyglycerol	142				
Polyglycerol-abietic acid compound	142				
Polypropylene glycol	36				
Propionic acid	62, X				
Propionic anhydride	36, X				
Propionyl chloride	102				
n-Propyl acetate	62				
n-Propyl alcohol (Propanol)	62				
Propylene chlorohydrin	36				
Propylene diamine	26, 36				
Propylene dichloride	36, 60				
Propylene glycol	36, 62				
Propylene glycol monolaurate	117				
Propylene glycol monostearate	117				
Propylene oxide	36				
Pyrogallic acid (Pyrogallol)	69, 132, 236	49, 770	60, 807	84, 955	1.40
Research chemicals	32, 69, 189				
Rubber, synthetic	60, 62				
Sodium formate	132, 226, X				
Sodium lactate	132, 193				
Sodium methylate	136				
Sodium oxal acetate	218				
Sodium oxalate	87, 132, 226				
Sodium propionate	62				
Sorbitol	19				
Sorbitan monolaurate	19				
Soybean fatty acids monoglyceride	117				
Sucrose octa acetate	150				
Sulfated fatty alcohols, acids, etc. (Gardinols, Igepons, Intramines, Mapros, Xynomines).	36, 44, 62, 85, 144, X, X.	12, 527, 302	10, 660, 181	3, 037, 975	.28
Sulfoacetic acid	X				
Sulfonated thiocarbanilide acetaldehyde ammonia compound.	142				
Tetrabromoethane (Acetylene tetrabromide).	60				
Tetrachloroethane (Acetylene tetrachloride).	62, 231				
Tetrachloroethylene(Perchloroethylene)	60, 62				
Tetradecanol	36				
Tetraethyl lead	73				

TABLE 15.—*Miscellaneous synthetic organic chemicals: United States production and sales, 1939*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 58)	Production	Sales		
			Quantity	Value	Unit value
(B) NON-COAL-TAR—continued		*Pounds*	*Pounds*		
Tetraethylene glycol dimethyl ether	36				
Tributyl phosphite	62				
Trichloroethylene	62, 231				
Trichloromonofluoromethane	119				
Triethanolamine	36				
Triethylene glycol	36				
Triglycol dichloride	36				
Triisobutylene	X				
Triisopropanolamine	36				
Trimethylene bromide	60				
Undecanol	36				
Undecylenic acid	X				
Urea (solid)	62				
Urea in urea-ammonia solution	62				
Urea in solid fertilizer	62				
Vanillin (*See* table 12 (A) p. 40).					
Vinyl acetate	150, X				
Vinyl chloride	36				
Waxes (synthetic)	62				
Xanthates (*See* table 14 (B) p. 46).					
Other miscellaneous non-coal-tar chemicals.	62, X, X, X, X				
Total miscellaneous non-coal-tar chemicals:					
Those for which individual statistics are shown.		894, 436, 804	570, 703, 573	$31, 602, 748	$0.06
Those for which individual statistics cannot be shown.		2, 089, 601, 004	911, 170, 222	141, 317, 907	.16
Grand total		2, 984, 037, 808	1, 481, 873, 795	172, 920, 655	.12

APPENDIXES

A. Research expenditures.

B. Imports.

C. Directory of manufacturers of synthetic organic chemicals, 1939.

APPENDIX A.—RESEARCH EXPENDITURES

Producers of synthetic organic chemicals employed 2,197 technically trained research workers in 1939, according to figures reported by the industry. The average annual salary was $3,113 as compared with $3,328 in 1938. This lower average salary figure indicates increased placement of younger men rather than a lowering of technical salary levels. The gross cost of research was $14,077,000, and the net cost $13,064,000.[1] This net cost of research was 3.5 percent of sales of all synthetic organic chemicals in 1939, as compared with 4.3 percent in 1938. Although research expenditures increased considerably in 1939, sales increased much more.

APPENDIX B.—IMPORTS

The Tariff Commission cooperated with the Department of Commerce in 1939 as in previous years, in compiling from original customs documents import data on coal-tar intermediates and finished coal-tar products. These statistics are released to subscribers semiannually by the Department of Commerce in Import Statement No. 2865, and are shown in greater detail than in the annual publication "Foreign Commerce and Navigation of the United States." Table 16 is a summary of the issues of Import Statement No. 2865 for 1938 and 1939, and shows imports of dutiable coal-tar products for those years, classified according to use.

TABLE 16.—*Imports of finished coal-tar products, classified by uses, and of coal-tar intermediates into the United States, 1939 and 1938*

Product	1939		1938	
	Quantity	Foreign invoice value	Quantity	Foreign invoice value
Coal-tar dyes:	*Pounds*		*Pounds*	
Acid	1,092,569	$1,489,200	603,145	$764,629
Vat	1,683,367	1,912,022	1,128,146	1,497,712
Mordant and chrome	458,596	543,119	255,601	300,144
Direct [1]	1,488,748	1,992,930	824,921	1,053,088
Artificial silk	190,667	267,284	129,357	177,444
Basic	158,431	172,384	119,295	138,082
Sulfur	67,461	62,637	44,792	33,427
Color-lake and spirit-soluble	59,656	111,273	39,816	75,858
Other	12,962	4,091	4,444	8,744
Total coal-tar dyes	5,212,457	6,554,940	3,149,520	4,049,128
Finished coal-tar products other than dyes:				
Aromatic chemicals	69,893	105,538	48,570	71,271
Medicinals and pharmaceuticals	29,786	215,643	36,721	170,806
Color lakes	7,824	6,465	5,096	3,554
Other products	302,551	354,770	153,595	342,008
Intermediates	3,096,354	2,827,470	2,387,003	1,862,344

[1] Includes Rapid Fast Dyes.

Source: United States Imports for Consumption of Dyes, Aromatic Chemicals, Medicinals, Intermediates, and Other Coal-Tar Products in Paragraphs 27 and 28 of the Tariff Act of 1930. Semiannual Statement No. 2865.

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

APPENDIX C.—DIRECTORY OF MANUFACTURERS OF SYNTHETIC ORGANIC CHEMICALS, 1939 (ALL COMPANIES WHICH HAVE GIVEN PERMISSION TO BE IDENTIFIED AS PRODUCERS)

Number	Name of company	Office address (location of plant given in parentheses if not in same city as office)
1	Abbott Laboratories	14th St. and Sheridan Rd., North Chicago, Ill.
2	Advance Paint Co	545 West Abbott St., Indianapolis, Ind.
3	Alston-Lucas Paint Co	1031 North Throop St., Chicago, Ill.
4	Althouse Chemical Co	540 Pear St., Reading, Pa.
5	Amecco Chemicals, Inc	75 Rockwood St., Rochester, N. Y.
6	American Aniline Products, Inc	50 Union Square, New York, N. Y. (Lock Haven, Pa.)
7	American Cyanamid Co	30 Rockefeller Plaza, New York, N. Y. (Bound Brook and Warners, N. J., Bridgeville, Pa.)
8	American Cyanamid Co., Calco Chemical Division.	Bound Brook, N. J.
9	American Maize-Products Co	100 East 42d St., New York, N. Y. (Roby, Ind.)
10	American Pharmaceutical Co., Inc	525 West 43d St., New York, N. Y.
11	American Tar & Chemical Co	5910 Freemont St., Duluth, Minn.
12	Ansbacher-Siegle Corporation	92 Chestnut Ave., Rosebank, S. I., New York, N. Y.
13	Ansul Chemical Co	P. O. Box 231, Marinette, Wis.
14	Apex Chemical Co., Inc	225 West 34th St., New York, N. Y. (Elizabethport, N. J.)
15	Areo Co	7301 Bessemer Ave., Cleveland, Ohio.
16	Arnold, Hoffman & Co., Inc	55 Canal St., Providence, R. I. (Dighton, Mass.)
17	Aromatic Products, Inc	15 East 30th St., New York, N. Y. (Springdale, Conn.)
18	Artifex Products Co	Delaware Ave. and Elm St., Camden, N. J.
19	Atlas Powder Co	Wilmington, Del. (Atlas Point, Del., Stamford, Conn.)
20	Augusta Chemical Co	P. O. Box 660, Augusta, Ga.
21	Bakelite Corporation	247 Park Ave., New York, N. Y. (Bloomfield and Bound Brook, N. J.)
22	Barrett Co	40 Rector St., New York, N. Y. (plants throughout United States)
23	Bates Chemical Co	Scottdale Rd., Lansdowne, Pa.
24	Belle Alkali Co	Belle, W. Va.
25	Benzol Products Co	237 South St., Newark, N. J. (Piscataway, N. J.)
26	Bersworth, F. C., Laboratories	609 Waverly St., Framingham, Mass.
27	Bick & Co., Inc	12th and Bern Sts., Reading, Pa.
28	Birge Co., Inc	390 Niagara St., Buffalo, N. Y.
29	Brooklyn Color Works, Inc	Morgan and Norman Aves., Brooklyn, N. Y.
30	Brown Co	404 Commercial St., Portland, Maine (Berlin, N. H.)
31	Brown, Andrew, Co	5431 South Riverside Drive, Los Angeles, Calif.
32	Burroughs Wellcome & Co., Inc	9 East 41st St., New York, N. Y. (Tuckahoe, N. Y.)
33	Bush, W. J., & Co., Inc	11 East 38th St., New York, N. Y. (Linden, N. J.)
34	California Flaxseed Products Co	3135 East 26th St., Los Angeles, Calif.
35	California Ink Co., Inc	545 Sansome St., San Francisco, Calif. (Berkeley, Calif.)
36	Carbide & Carbon Chemicals Corporation	30 East 42d St., New York, N. Y. (South Charleston, W. Va., Niagara Falls, N. Y., Whiting, Ind.)
37	Carus Chemical Co., Inc	1377 Eighth St., La Salle, Ill.
38	Catalin Corporation of America	1 Park Ave., New York, N. Y. (Fords, N. J.)
39	Celluloid Corporation	290 Ferry St., Newark, N. J.
40	Chemical Manufacturing Co., Inc	Ashland, Mass.
41	Chemico, Inc	475 Dorchester Rd., Akron, Ohio.
42	Childs Pulp Colors, Inc	43 Summit St., Brooklyn, N. Y.
43	Ciba Pharmaceutical Products, Inc	Lafayette Park, Summit, N. J.
44	Cincinnati Chemical Works, Inc	P. O. Box 20, Evanston Station, Cincinnati, Ohio (Norwood and St. Bernard, Ohio)
45	Cities Service Oil Co	Bartlesville, Okla. (Tallant, Okla.)
46	Citro Chemical Co	Maywood, N. J.
47	Clinton Co	Clinton, Iowa.
48	Colasta Co., Inc	Mechanic St., Hoosick Falls, N. Y.
49	Coleman & Bell Co	Main and Waverly Aves., Norwood, Ohio.
50	Colloid Chemical Laboratories, Inc	21 West St., New York, N. Y. (Guttenberg, N. J.)
51	Collway Colors, Inc	15 Market St., Paterson, N. J.
52	Colt's Patent Fire Arms Manufacturing Co	17 Van Dyke Ave., Hartford, Conn.
53	Commercial Solvents Corporation	17 East 42d St., New York, N. Y. (Terre Haute, Ind., Peoria, Ill., Agnew, Calif.)
54	Commonwealth Color & Chemical Co	Nevins, Butler & Baltic Sts., Brooklyn, N. Y.
55	Cooks Falls Dye Works, Inc	70 Pine St., New York, N. Y. (Cooks Falls, N. Y.)
56	Coopers Creek Chemical Corporation	West Conshohocken, Pa.
57	Crown Tar Works—Division of Public Service Co. of Colorado.	900 15th St., Denver, Colo.
58	Devoe & Raynolds Co., Inc	P. O. Box 328, Louisville, Ky.
59	Diarsenol Co., Inc	72 Kingsley St., Buffalo, N. Y.
60	Dow Chemical Co	Midland, Mich. (Pittsburg, Calif.)
61	Dubin, H. E., Laboratories, Inc	250 East 43d St., New York, N. Y.

APPENDIX C.—DIRECTORY OF MANUFACTURERS OF SYNTHETIC ORGANIC CHEMICALS, 1939 (ALL COMPANIES WHICH HAVE GIVEN PERMISSION TO BE IDENTIFIED AS PRODUCERS)—Continued

Number	Name of company	Office address (location of plant given in parentheses if not in same city as office)
62	du Pont de Nemours, E. I., & Co., Inc	Wilmington, Del. (Carney's Point, New Brunswick, Perth Amboy, Arlington, and Newark, N. J., Belle, W. Va., Waynesboro, Va., Niagara Falls, N. Y., El Monte, Calif.)
63	Durez Plastics & Chemicals, Inc	Walck Road, North Tonawanda, N. Y.
64	Durite Plastics, Inc	5000 Summerdale Ave., Philadelphia, Pa.
65	Dye Specialties Corporation	924 Bergen Ave., Jersey City, N. J.
66	Dyestuffs & Chemicals, Inc	11th and Monroe Sts., St. Louis, Mo.
67	Eakins, J. S. & W. R., Inc	55 Berry St., Brooklyn, N. Y.
68	Eastern Tar Products Corporation	Lexington Building, Baltimore, Md. (Norfolk, Va.)
69	Eastman Kodak Co	343 State St., Rochester, N. Y. (Kingsport, Tenn.)
70	Edwal Laboratories, Inc	732 Federal St., Chicago, Ill.
71	Elko Chemical Works, Inc	66 Lister Ave., Newark, N. J.
72	Ethyl Dow Chemical Co	Wilmington, N. C. (Kure Beach, N. C.)
73	Ethyl Gasoline Corporation	405 Lexington Ave., New York, N. Y.
74	Federal Color Laboratories, Inc	4633 Forest Ave., Norwood, Ohio
75	Federal Laboratories, Inc	185 41st St., Pittsburgh, Pa. (Tunnelton, Pa.)
76	Felton Chemical Co., Inc	599 Johnson Ave., Brooklyn, N. Y.
77	Fine Colors Co	21-29 McBride Ave., Paterson, N. J.
78	Florasynth Laboratories, Inc	1513-33 Olmstead Ave., New York, N. Y.
79	Foster-Heaton Co	833-39 Magnolia Ave., Elizabeth, N. J.
80	Franco-American Chemical Works	Berry Ave., Carlstadt, N. J.
81	Fries Bros	92 Reade St., New York, N. Y. (Bloomfield, N. J.)
82	Fries, George G., & Co., Inc	68 Beekman St., New York, N. Y. (Long Island City, N. Y.)
83	Gane's Chemical Works, Inc	43 West 16th St., New York, N. Y. (Carlstadt, N. J.)
84	Gebauer Chemical Co	9410 St. Catherine Ave., Cleveland, Ohio.
85	General Aniline & Film Corporation, General Aniline Works Division.	435 Hudson St., New York, N. Y. (Rensselaer, N. Y., Grasselli, N. J.)
86	General Biochemicals, Inc	Chagrin Falls, Ohio.
87	General Chemical Co	40 Rector St., New York, N. Y. (Claymont, Del., Buffalo, N. Y.)
88	General Electric Co	1 River Road, Schenectady, N.Y. (Pittsfield, Mass.)
89	Goodrich, B. F., Co	500 South Main St., Akron, Ohio.
90	Goodyear Tire & Rubber Co	1144 East Market St., Akron, Ohio.
91	Guyan Color & Chemical Works	P. O. Box 1088, Huntington, W. Va.
92	Halowax Corporation	247 Park Ave., New York, N. Y. (Wyandotte, Mich.)
93	Hamilton Laboratories, Inc	Hamilton, Ohio.
94	Hampden Color & Chemical Co	161 Armory St., Springfield, Mass.
95	Harmon Color Works, Inc	P. O. Box 1158, Paterson, N. J. (Haledon, N. J.)
96	Hartman Leddon Co	6010 Haverford Ave., Philadelphia, Pa.
97	Hercules Powder Co	Delaware Trust Bldg., Wilmington, Del.
98	Heresite & Chemical Co	822 South 14th St., Manitowoc, Wis.
99	Hilton-Davis Chemical Co	Langdon Farm Rd., Cincinnati, Ohio.
100	Hoffmann-La Roche, Inc	Kingsland Rd. and Bloomfield Ave., Nutley, N. J.
101	Holland Aniline Dye Co	Holland, Mich.
102	Hooker Electrochemical Co	Buffalo Ave. and 47th St., Niagara Falls, N. Y.
103	Huggins, James & Son	239 Medford St., Malden, Mass.
104	Hynson, Westcott & Dunning, Inc	1030 North Charles St., Baltimore, Md.
105	Imperial Paper & Color Corporation, Pigment Color Division.	Glens Falls, N. Y. (Queensbury, N. Y.)
106	Industrial Dyestuff Co., Inc	Massasoit Ave., East Providence, R. I.
107	Inland Steel Co	38 South Dearborn St., Chicago, Ill. (Indiana Harbor, Ind.)
108	Jamieson, C. E. & Co	1962-80 Trombly Ave., Detroit, Mich.
109	Jennison-Wright Co	2463 Broadway, Toledo, Ohio.
110	Joanite Corp	10-02 44th Drive, Long Island City, N. Y.
111	Johnson, Charles Eneu, & Co	10th St. at Lombard St., Philadelphia, Pa.
112	Joliet Wall Paper Mills	Logan Ave., Joliet, Ill.
113	Jones-Dabney Co	1481 South 11th St., Louisville, Ky.
114	Kay & Ess Co	820 Kiser St., Dayton, Ohio.
115	Kay-Fries Chemicals, Inc	180 Madison Ave., New York, N. Y. (West Haverstraw, N. Y.)
116	Kentucky Color & Chemical Co	34th St. South of Bank St., Louisville, Ky.
117	Kessler Chemical Corporation	Delaware Ave. & Mifflin St., Philadelphia, Pa.
118	Keystone Color Works, Inc	151 West Gay Ave., York, Pa.
119	Kinetic Chemicals, Inc	duPont Bldg., Wilmington, Del. (Pennsgrove, N. J.)
120	Knoedler, A., Co	717 North Prince St., Lancaster, Pa.
121	Kohnstamm, H., & Co., Inc	87 Park Place, New York, N. Y. (Brooklyn, N. Y.)
122	Koppers Co., Tar & Chemical Division	Koppers Bldg., Pittsburgh, Pa. (Plants throughout the United States.)
123	LaMotte Chemical Products Co	McCormick Bldg., Baltimore, Md. (Towson, Md.)
124	Lehigh Briquetting Co	Universal Bldg., Fargo, N. Dak. (Dickinson, N. Dak.)

APPENDIX C.—DIRECTORY OF MANUFACTURERS OF SYNTHETIC ORGANIC CHEMICALS, 1939 (ALL COMPANIES WHICH HAVE GIVEN PERMISSION TO BE IDENTIFIED AS PRODUCERS)—Continued

Number	Name of company	Office address (location of plant given in parentheses if not in same city as office)
125	Lewis, John D., Inc	68 Traverse St., Providence, R. I. (Mansfield, Mass.)
126	Lilly, Eli, & Co	Indianapolis, Ind.
127	Lucidol Corporation	293 Larkin St., Buffalo, N. Y.
128	Lueders, George, & Co	427 Washington St., New York, N. Y.
129	Macher, William & Son	1533 West Clearfield St., Philadelphia, Pa.
130	Magruder Color Co., Inc	2385 Richmond Terrace, Port Richmond, S. I., N.Y.
131	Makalot Corporation	262 Washington St., Boston, Mass. (Waltham, Mass.)
132	Mallinckrodt Chemical Works	3600 North 2d St., St. Louis, Mo.
133	Marblette Corporation	37–21 Thirtieth St., Long Island City, N. Y.
134	Marx, Max, Color & Chemical Co	192–4 Coit St., Irvington, N. J.
135	Maschmeijer, A., Jr., Inc	43 West 16th St., New York, N. Y. (Newark, N. J.)
136	Mathieson Alkali Works, Inc	60 East 42d St., New York, N. Y. (Niagara Falls, N. Y.)
137	May, Otto B., Inc	198–214 Niagara St., Newark, N. J.
138	Maywood Chemical Works	100 West Hunter Ave., Maywood, N. J.
139	Mepham, Geo. S., Corporation	2001 Lynch Ave., East St. Louis, Ill.
140	Merck & Co., Inc	Rahway, N. J. (Philadelphia, Pa.)
141	Mineree Corporation	120 Broadway, New York, N. Y. (Baltimore, Md.)
142	Monsanto Chemical Co	1700 South 2d St., St. Louis, Mo. (St. Louis, Mo., Nitro, W. Va., Springfield and Everett, Mass., Edgewater, N. J., Monsanto, Ill., Anniston, Ala.)
143	Mutual Chemical Co. of America	270 Madison Ave., New York, N. Y. (Jersey City, N. J.)
144	National Aniline & Chemical Co., Inc	40 Rector St., New York, N. Y. (Buffalo, N. Y.)
145	Nangatuck Chemical, Division of United States Rubber Co.	1790 Broadway, New York, N. Y. (Naugatuck, Conn.)
146	Neville Co	Neville Island, Pittsburgh, Pa.
147	Newport Industries, Inc	P. O. box 911, Pensacola, Fla.
148	New York Color & Chemical Co., Inc., Division of American Dyewood Co..	Main & Joralemon Sts., Belleville, N. J.
149	New York Quinine & Chemical Works, Inc	99 North 11th St., Brooklyn, N. Y.
150	Niacet Chemicals Corporation	4700 Pine Ave., Niagara Falls, N. Y.
151	Niagara Chlorine Products Corporation	Mill St., Lockport, N. Y.
152	Niagara Smelting Corporation	420 Lexington Ave., New York, N. Y. (Niagara Falls, N. Y.)
153	Nord & Schulich, Inc	Foot of Blanchard St., Newark, N. J.
154	Northwestern Chemical Co	1263 North 70th St., Wauwatosa, Wis.
155	Novocol Chemical Mfg. Co., Inc	2923 Atlantic Ave., Brooklyn, N. Y.
156	Nubian Paint & Varnish Co	1856 North LeClaire Ave., Chicago, Ill.
157	Ohio-Apex, Inc	Nitro, W. Va.
158	Oldbury Electro Chemical Co	P. O. Box 346, Niagara Falls, N. Y.
159	Panelyte Corporation	230 Park Ave., New York, N. Y. (Trenton, N. J.)
160	Patent Chemicals, Inc	57 Wilkinson Ave., Jersey City, N. J.
161	Peerless Color Co	521–35 North Ave., Plainfield, N. J.
162	Pennsylvania Coal Products Co	Petrolia, Pa.
163	Pfanstiehl Chemical Co	104 Lakeview Ave., Waukegan, Ill.
164	Pfizer, Chas., & Co., Inc	81 Maiden Lane, New York, N. Y. (Brooklyn, N. Y.).
165	Pharma Chemical Corporation	949 Broadway, New York, N. Y. (Bayonne, N. J.)
166	Philadelphia Gas Works Co	1800 North 9th St., Philadelphia, Pa.
167	Phoenix Color & Chemical Co	24½ Van Houten St., Paterson, N. J.
168	Pittsberg Chemical Co	Central Tower, San Francisco, Calif. (Vernon, Calif.)
169	Pittsburgh Plate Glass Co	235 East Pittsburgh Ave., Milwaukee, Wis.
170	Plaskon Co., Inc	2112 Sylvan Ave., Toledo, Ohio.
171	Portland Gas & Coke Co	Public Service Bldg., Portland, Oreg.
172	Poughkeepsie Dyestuff Corporation	77 North Water St., Poughkeepsie, N. Y.
173	Premo Pharmaceutical Laboratories, Inc	443 Broadway, New York, N. Y.
174	Publicker, Inc	1800 West Lehigh Ave., Philadelphia, Pa.
175	Pylam Products Co., Inc	799 Greenwich St., New York, N. Y.
176	Pyridium Corporation	21 Grey Oaks Ave., Nepera Park, N. Y.
177	Quaker Oats Co	141 W. Jackson Blvd., Chicago, Ill. (Cedar Rapids, Iowa.)
178	Reichhold Chemicals, Inc	601 Woodward Heights Blvd., Detroit, Mich. (Elizabeth, N. J.)
179	Reilly Tar & Chemical Corporation	1615 Merchants Bank Bldg., Indianapolis, Ind. (Plants throughout the United States.)
180	Republic Creosoting Co	1615 Merchants Bank Bldg., Indianapolis, Ind. (Plants throughout the United States.)
181	Resinous Products & Chemical Co	222 West Washington Square, Philadelphia, Pa.
182	Rogers, Allen E., Laboratories, Inc	72 Grand Ave., Brooklyn, N. Y.
183	Rohm & Haas Co	222 West Washington Square, Philadelphia, Pa. (Bridesburg and Bristol, Pa.)
184	Ruberoid Co	500 Fifth Ave., New York, N. Y. (Erie, Pa., Joliet, Ill.)
185	Salvo Chemical Co	Rothschild, Wis.
186	Schering Corporation	86 Orange St., Bloomfield, N. J.

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Number	Name of company	Office address (location of plant given in parentheses if not in same city as office)
187	Schering & Glatz, Inc	113 West 18th St., New York, N. Y.
188	Seeley & Co., Inc	22 Albany St., New York, N. Y. (Farmingdale, N. Y.)
189	Sepin Laboratories	P. O. box 185, station A, San Diego, Calif. (Santee, Calif.)
190	Sharp & Dohme, Inc	640 North Broad St., Philadelphia, Pa.
191	Sharples Solvents Corporation	23d & Westmoreland Sts., Philadelphia, Pa. (Wyandotte, Mich.)
192	Shawinigan Resins Corporation	Springfield, Mass. (Indian Orchard, Mass.)
193	Sheffield By-Products Co	524 West 57th St., New York, N. Y. (Hobart, N. Y.)
194	Shell Chemical Co	100 Bush St., San Francisco, Calif. (Martinez and Dominguez, Calif.)
195	Sherwin-Williams Co	101 Prospect Ave., NW., Cleveland, Ohio (Chicago, Ill.)
196	Simons, Harold L., Inc	11-25 Forty-fourth Rd., Long Island City, N. Y.
197	Sinclair & Valentine Co	611 West 129th St., New York, N. Y.
198	Smith, Kline & French Laboratories	105 North 5th St., Philadelphia, Pa.
199	Solvay Process Co	Syracuse, N. Y. (Geddes, N. Y.)
200	Southern Dyestuff Corporation	P. O. box 1045, Charlotte, N. C. (Sodyeco, N. C.)
201	Squibb, E. R., & Sons	745 Fifth Ave., New York, N. Y. (New Brunswick, N. J., Brooklyn, N. Y.)
202	Standard Alcohol Co	P. O. box 243, Elizabeth, N. J. (Linden, N. J.)
203	Standard Chemical Products, Inc	1301 Jefferson St., Hoboken, N. J.
204	Standard Oil Co. of California	225 Bush St., San Francisco, Calif. (Richmond, Calif.)
205	Standard Ultramarine Co	Huntington, W. Va.
206	Stange, Wm. J., Co	2536 West Monroe St., Chicago, Ill.
207	Stroock & Wittenberg Corporation	60 East 42d St., New York, N. Y. (Newark, N. J.)
208	Sun Chemical & Color Co. Div. General Printing Ink Corporation.	309–21 Sussex St., Harrison, N. J. (East Rutherford, N. J.)
209	Swann & Co	205 South 32d St., Birmingham, Ala.
210	Synthetic Chemicals, Inc	57 Wilkinson Ave., Jersey City, N. J.
211	Synthetical Laboratories	5558 Ardmore Ave., Chicago, Ill.
212	Taylor Chemical Corporation	Phillipsburg, N. J. (Wyandotte, Mich.; Penn Yan, N. Y.)
213	Taylor Fibre Co	Norristown, Pa. (Betzwood, Pa.)
214	Todd, A. M., Co	1717 Douglas Ave., Kalamazoo, Mich.
215	Trubek Laboratories, Inc	State Highway No. 2, East Rutherford, N. J.
216	Uhlich, Paul, & Co., Inc	157 Chambers St., New York, N. Y. (Brooklyn, N. Y.)
217	United Color & Pigment Co	McClellan St., Newark, N. J.
218	U. S. Industrial Chemicals, Inc	60 East 42d St., New York, N. Y. (Baltimore, Md.)
219	Valentine & Company, Inc	11 East 36th St., New York, N. Y. (Brooklyn, N. Y.)
220	van Ameringen-Haebler, Inc	315 Fourth Ave., New York, N. Y. (Elizabeth, N. J.)
221	Van Dyk & Co., Inc	57 Wilkinson Ave., Jersey City, N. J.
222	Varcum Chemical Corporation	P. O. box 433, Niagara Falls, N. Y.
223	Velsicol Corporation	3542 North Kimball Ave., Chicago, Ill. (Marshall, Ill.)
224	Verley Chemical Co	1621 West Carroll Ave., Chicago, Ill.
225	Verona Chemical Co	26 Verona Ave., Newark, N. J.
226	Victor Chemical Works	141 West Jackson Blvd., Chicago, Ill. (Chicago Heights, Ill.)
227	Virginia Smelting Co	West Norfolk, Va.
228	Wannamaker Chemical Co	Orangeburg, S. C.
229	Warner-Jenkinson Mfg. Co	2526 Baldwin St., St. Louis, Mo.
230	Watertown Mfg. Co	127 Echo Lake Rd., Watertown, Conn.
231	Westvaco Chlorine Products Corporation	405 Lexington Ave., New York, N. Y. (South Charleston, W. Va.; Newark, Calif.)
232	White Tar Co. of N. J., Inc	1201 Koppers Bldg., Pittsburgh, Pa. (Kearny, N. J.)
233	Wilhelm, A., Co. Division of the Glidden Co.	Third and Bern Sts., Reading, Pa.
234	Wolff-Alport Chemical Corporation	1127 Irving Ave., Brooklyn, N. Y.
235	Young Aniline Works, Inc	2731 Boston St., Baltimore, Md.
236	Zinsser & Co., Inc	Hastings-on-Hudson, N. Y.