

OUTLINE OF MAJOR POINTS

1. Lead pigments account for less than 12 percent of total usage of lead during the relevant time period. Much of the lead in other uses is still in the environment and may have contributed to the exposure of the plaintiff, and the plaintiff may have been directly exposed to lead in automotive emissions, water pipes, industrial emissions, and hazardous wastes from abandoned lead-processing facilities.
2. A number of companies in addition to the defendants were involved in manufacturing, selling, and using lead pigments.
3. The time period during which the lead pigments present in the plaintiff's house were manufactured is unknown, and the identities and shares of lead pigment manufacturers changed drastically over time.
4. Most of the lead pigments that may have been in the plaintiff's house probably were applied very early in the relevant time period. Information on producers of lead pigments is more sketchy during these years than during later years.
5. A number of different lead pigments produced by a number of different companies is likely to be present in the house. White lead carbonate used in house paints accounted for only about 66% percent of home use of lead pigments during the relevant time period.
6. A number of non-defendants produced white lead pigments during the relevant period. This may have been particularly true in the 1916-1917 period, when the pigments used for the initial painting of the house were probably manufactured. Other non-defendants entered the business in later years and also could have been sources of lead pigments used in the house.
7. A substantial number of non-defendants produced red lead, litharge, leaded zinc oxide, and a variety of other lead pigments during the relevant time period.
8. Any market share analysis must take into account the effects of exports and imports.

10. Other uses of lead pigments exist

11. Imports/Exports (prob. only 1 significant if all lead coming to Boston).

CPA

1917-76
Most use
in early time
period. The numbers
weighted over
time.

9. The FTC findings do not support the contention that "defendants or their predecessors in interest marketed all or virtually all of the lead used in lead-based paints sold in the United States."
- a. The FTC findings covered a small number of years centered around 1938-1941. These years are not representative of market conditions during the years when most of the lead pigments used in the house were probably manufactured.
 - b. The data presented on market shares by the FTC generally add to considerably less than 100 percent.
 - c. Although a large number of lead pigments were contained in products sold for house use during the relevant period, the FTC report focuses on white lead carbonate. Incomplete information is provided on red lead and litharge, and very little information is provided on other lead pigments.
 - d. The FTC report focuses on sales of lead. As the FTC states, many paint companies may have manufactured lead pigments for their own use.



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SUMMARY OF POINTS

I. To apply the "market share" theory, the plaintiff must show that:

A. Lead pigment is a generic or "fungible" product.

However, the various types of lead pigments are not fungible. They vary by manufacturing process, chemical composition, lead compound, physical properties, and particle size and shape, among other factors. All these characteristics influence the toxicity of lead pigments and the pathways leading to human exposure. Lead pigments and lead-based paints varied significantly in these and other characteristics among the relevant firms and over time. It is not known what types of lead pigments were applied to the Liston Street house.

B. The period of time in which the ingested pigments were manufactured is known.

However, it is unknown (and unknowable?) when the lead pigments were manufactured, sold, mixed into paint, and applied to Liston Street. (In fact, there may be more than one lead-based paint source depending on how many times the house was painted with lead-based paint and when.) Thus, the "relevant time period" may be as broad 1917-1973 or even broader. For example, pigments in paint applied in 1917 may have been manufactured one to two years earlier; alternatively, lead pigments (if any) in products used after 1973 may have caused injury.

C. The effect of lead pigments on the Plaintiff's health is unique and identical.

In fact, plaintiff's condition may be attributable to many other factors, including exposure to lead in other forms than pigments and other non-lead related factors.

D. A substantial share of the parties potentially responsible for Plaintiff's injuries are before the Court.

Yet, many actors involved in the manufacture, distribution, sale, and use of lead pigments and lead-based paints are not named as defendants.

Even if it were determined that the injury was caused entirely by exposure to lead pigments and that only the lead pigment producers (and not, for example, the paint producers and other such actors) are liable, a number of producers of lead pigments

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used in house paints and other products used in the house are not before the Court. The plaintiff relies on findings of the FTC for the 1938-1941 time period (approximately) to support her assertion that the defendants accounted for all or virtually all of the lead used in lead-based paints during the relevant time period. However, the shares of white lead shipments or sales reported by the FTC for the defendants add up to less than 100 percent; the FTC findings did not report market share data for all defendants for red lead and litharge and present no data for other lead-containing pigments; and the time period covered by the FTC is of little relevance to the case at hand, as it is likely that most of the lead pigments used in paints for the house were manufactured several decades before the FTC study was prepared.

- E. Each defendant's liability must "approximate its responsibility for the injuries caused by its own products," or that "a particular defendant's potential liability is proportional to the probability that it caused plaintiff's injury."

A number of issues related to these points are addressed in more detail below.

- II. As shown in Exhibits _____ through _____, lead pigments account for only a fraction of the lead in the environment and of human exposure to lead, whether this is measured on a national, regional, or site-specific basis.
- A. Lead enters the environment in a large number of ways; exposure to lead in house paints represents only one of the many pathways for human ingestion of lead.
- B. Examining the United States as a whole, each of the following stages in the lead materials cycle leads to emission of lead into the atmosphere, the soil, and the water systems.
1. Mining.
 2. Smelting.
 3. Refining.
 4. Manufacturing and fabrication.

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5. Use.
 6. Recycling.
 7. Disposal
 8. Incineration of garbage and waste.
- C. Over the relevant time period the production and use of lead pigments represents only a small fraction of total production and use of lead and lead-containing products.
1. Present annual production of lead pigments (Exhibit ____).
 2. Lead pigments accounted for about 12 percent of total lead usage during the period 1921-1976. (See Exhibit ____)
- D. Other important lead producing and using activities include....
1. Present data on:
 - a. Mining, smelting, and refining of lead.
 - b. Use of lead by application (Exhibit ____).
 2. Present calculations of cumulative shares (Exhibit ____).
- E. If lead production and use patterns are analyzed on a regional basis, the shares of particular activities change. However, in the relevant region, the use of lead pigments in paints still represents well under half of total introduction of lead into the environment.
1. Present data for the relevant regions (which would include the Northeast, New England, Massachusetts, and/or Boston).
 - a. Primary Lead mining, smelting, and refining (minimal in the relevant region).
 - b. Lead recycling.
 - c. Production of lead-containing products.
 - d. Consumption of lead-containing products (by use).(The latter two categories could be developed using data by region on industrial composition, demographics, housing stock, automobile registrations, gasoline sales, etc.) (Exhibit ____).

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2. Identify firms in Boston, Massachusetts, New England, and the Northeast that produce or use lead-containing products, or recycle lead (Exhibit ____).

F. The level of risk to human health is not proportional to throughput of lead by type of activity. For example, production of ballast may cause more exposure and emissions of lead than production of lead pipe. Similarly, usage of lead in ballast or ammunition is not as environmentally hazardous as usage of lead in gasoline. Similarly, the degree of hazard posed by different lead pigment production processes or usage patterns differs by type of pigment.

III. Even if lead pigments could be shown to have accounted for all the adverse health effects, however, the plaintiff's theory and its application would not be valid.

A. A number of actors were involved in the sale, distribution, and use of lead pigments and of lead-based paints during the relevant time period. These include:

1. Companies that mined, smelted, and/or refined lead.
2. Secondary lead refineries.
3. Paint companies using lead pigments to manufacture residential paint. They decide whether to use lead in paint, how much, for what type of paint, and what, if any, label to put on a product.
4. Stores and distributors selling lead pigments and paints.
5. Professional painters who bought lead pigments and mixed their own lead based paint.
6. Property owners who bought lead pigments and mixed their own lead based paint.
7. Importers of lead pigment and lead-based paint. (Possible exhibit: lists of actors in each category)

B. Another named defendant is Lead Industries Association, Inc. (LIA). Yet, membership in the LIA changed significantly over time.

provide detail



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C. Even if the potentially responsible parties are limited to lead pigment suppliers, a number of companies in addition to the Defendants supplied lead pigments during the relevant time period. The identities of these firms and the shares of individual firms changed over the time period.

1. It is likely that most of the lead pigments used in the house were manufactured in the early years of the relevant time period, when information about relative market shares of individual companies is more scanty and when more independent producers may have existed than in later years.
 - a. Exhibit _____ shows that white lead pigment production peaked in 1922. Production fell sharply during the Depression years of 1930-1932, increased modestly but to levels far below 1920's levels, during the 1933-1937 period, and declined steadily thereafter.
 - (1) Exhibit _____ shows that over half of the lead pigments produced in the 1916-1976 period were produced before 1930, nearly a decade before the period examined by the FTC. About two-thirds of the total production during the relevant period occurred before 1938.
 - b. It is impossible to know exactly how much lead contained in lead pigments was applied to the house or when it was applied. However, on a probabilistic basis, most of the lead was probably applied to the house in the early years of its existence.
 - (1) As Exhibit _____ shows, the average white lead content of all paints declined rapidly throughout most of the period 1917-1976, computed from data on white lead production and shipments of paint, varnish, and lacquer.¹ As the amount of paint used per painting of the house can be expected to be fairly constant over time, this implies that the lead content per painting declined rapidly over time.
 - (2) It is unknown how often the house was painted. Exhibit _____ shows one possible time profile of lead usage, assuming that the house was painted every eight years and that the quantity of paint used each time

¹This series to be replaced by a series on paint only.



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was constant. As this exhibit shows, under these assumptions about 40 percent of the lead pigments used on or in the house during the 1917-1976 period were applied in 1917. Additional amounts of about 30 percent and 15 percent were used in 1925 and 1933. The conclusion that a very high percentage of the lead pigments present in the house was applied in the very early years of the relevant time period is not affected if other reasonable assumptions about painting frequency are used.

- (3) It is likely that more paint was used the first time the house was painted than during later times (a good primer coat needs to be applied the first time; later paintings can to some extent be applied using remaining earlier coats as a base). As Exhibit _____ shows, if the first painting used twice the amount of paint as later paintings, nearly 60 percent of the lead was applied in 1917, over 20 percent was applied in 1925, and about 10 percent in 1933.
 - (4) The latter estimate overstates the percentage of lead still remaining in 1973 that was applied in 1917, as weathering, sanding, and stripping would have removed some of the original lead. Nevertheless, it appears likely that a very substantial portion of the lead present in the house in 1973 was applied in the year of construction, 1917.
2. A variety of lead pigments produced by a large number of companies at different times during the relevant period were in products sold for home use. White lead carbonate represents only one category of lead pigments used in paints, varnishes, and other products commonly present in houses during the relevant time period. For example:
- a. Litharge was used as a drier for paint, and varnishes and as a raw material in the manufacture of linoleum. Litharge was also used as a raw material for red lead and for lead acetate, which was in turn the raw material for a number of lead pigments.
 - b. Red lead was used to provide protection for metal surfaces; in home use, red lead-based paint may have been used on the prime coating for radiators, gutters and down spouts, railings, and other metal surfaces.



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- c. Basic lead sulphate (manufactured from ore) was used directly in paints or as an intermediate product in the manufacture of leaded zinc oxide.
- d. Blue basic lead sulphate (manufactured from ore) was used as a primer for iron and steel.
- e. Various lead chromates (yellow, red and green) were manufactured from lead acetate, lead nitrate, or white lead. Orange mineral (orange lead) was manufactured from white lead.
- f. Leaded zinc oxide was made from basic lead sulfate ore in combination with zinc oxide, and was a substitute for white lead.

As Exhibit _____ illustrates, available but incomplete data on these other products show that they accounted for a significant percentage of total use of lead in lead pigments in products primarily sold for home use. During the period 1929-1976 these products accounted for about _____ percent of total lead pigment use in the home. These data do not include litharge used as driers for paints other than white lead carbonate paints and certain pigments not made from litharge.

- 3. A number of known producers of white lead pigments during the 1916-1976 period were not owned or later acquired by defendants or any of their predecessor entities.
 - a. Exhibit showing production plants, capacity, and ownership by year.
 - b. Identify all "independents" and "unknowns."
 - c. The identities of operating plants owned by defendants and by independents changed greatly during the 1916-1976 period. For example:²
 - (1) A number of independent plants were operating in the 1907-1911 period and may have still been operating in the 1916-1917 period, including the Rowley plant (Detroit, MI), Graves Lead Company (Camden, NJ), Nevin Lead Company (Pittsburgh, PA), Lewis Lead Works (San Francisco, CA), and Pioneer Lead Works (San Francisco, CA).
 - (2) Two other independent plants were operating in 1916-1917: Harrison Brothers of Philadelphia (acquired by DuPont in 1919) was operating in

²Note: all dates identified for production of individual plants and companies are approximate.



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the 1916-1917 period but was closed in 1926; W.P. Fuller and Co. (San Francisco, CA) was also operating in the 1916-1917 period, and substantially increased capacity in 1923. It operated at least until the late 1950s.

- (3) Another independent, John R. MacGregor Lead Co., entered about or before 1940. MacGregor is known to have bid on military contracts during World War II and was still in production in the late 1950s.
- (4) Euston Lead (acquired by Glidden in 1924) and International Smelting and Refining are known to have been in production in 1919, but it is not known if they were producing in the 1916-1917 period.
- (5) National Lead closed or consolidated a number of plants during the early years of the relevant time period, including Chadwick Lead Co. (Boston, MA) in 1921, Anchor White Lead Co. (Cincinnati, OH) in 1932, Penn White Lead Works (Pittsburgh, PA) in 1931, and Sterling Lead Works (Pittsburgh, PA) in 1934.
- (6) The defendants exited the business at different times. National Lead continued to close plants in the 1940s and into the 1950s. Sherwin Williams exited in 1947, Eagle Picher in 1950 (after closing two plants in 1932 and 1946), and Glidden in 1958.

Thus, the shares of total white lead capacity -- and by inference production -- of the defendants as a whole, and of each separately, changed significantly over time. In particular, in the early years of the relevant time period a number of independent firms may have been producing white lead.

- 4. A number of known producers of red lead, litharge, leaded zinc oxide, and other lead pigments other than white lead were not owned, or later acquired by, defendants or any of their predecessor entities.
 - a. As shown in Exhibit ____, a total of ____ plants have been identified as producing red lead, orange lead, or litharge during the 1919-1970 period. Data are not available for years prior to 1919.
 - (1) A total of at least ____ plants that produced during this period were never owned by any of the defendants. In particular, DuPont, Lead Products



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Co., Pennsylvania Smelting Co., and W.P. Fuller and Co. were all in production in 1919. Other companies that produced these pigments in the 1920s and 1930s included Franklin Lead Oxide Co.; Gould Battery (probably for internal use); Grasselli Chemical Co.; Harshaw, Fuller and Goodwin Co.; Andrews Lead Co.; Hammond Lead Products Co.; and United Color and Pigment Co. In 1938, one of the years examined by the FTC, non-defendant producers of red lead, litharge, and orange mineral included Andrews Lead Co., Dupont, Hammond Lead Products, Inc., possibly John R. MacGregor Co., United Color and Pigment Co., and W.P. Fuller and Co.

- (2) Of the defendants, International Smelting and Refining never produced litharge, red lead, or orange mineral. Glidden did not begin production until 1927. National Lead and Sherwin Williams both had plants in operation in 1919.
 - b. Base lead sulfate production is reported for four plants controlled by Eagle Picher and National Lead. In addition, a number of other non-defendant producers, including New Jersey Zinc and St. Joseph Lead, produced basic lead sulphate as an intermediate product (in the production of leaded zinc oxide) and possibly for sale.
 - c. As Exhibit ____ shows, all the defendants probably produced leaded zinc oxide in portions of the relevant period. In addition, a large number of non-defendants probably produced leaded zinc oxide, including American Chemet, American Smelting and Refining Co., Empire Zinc Co., Federated Metals, Mineral Point Zinc Co., Missouri Oxide and Chemical Co., New Jersey Zinc Co., Ohio Zinc Co., River Smelting and Refining Co., St. Joseph Lead Co., U.S. Zinc Co., Utah Zinc Co., and Western Zinc Oxide Co. A number of other companies may have also produced leaded zinc oxide.
5. The Bureau of Mines reports more lead pigments production than does the Lead Industries Association during the years 1932-1949 (Exhibits). Furthermore, the Bureau of Mines data represent a lower bound estimate of actual production, as companies are not required to report data to the Bureau of Mines. As the defendants' production of lead pigments (for most years? is Anaconda included?)



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is included in the LIA data, these facts support the conclusion that defendants did not produce -- all or virtually all -- of the lead pigments during the relevant time period.

6. During the relevant time period, U.S. imports of lead pigments and lead-containing paints varied from _____ to _____ percent of total lead pigments consumption (Exhibit _____). Imports into the port of Boston accounted for a larger share of consumption of lead pigments in the (Boston, Massachusetts, New England, Northeast) region (Exhibit _____).
7. Exports of lead pigments fluctuated greatly during the relevant period, varying between _____ and _____ percent of total shipments (see Exhibit _____). As different pigment producers may have accounted for different shares of exports at different times, using shares based on capacity or the FTC shares based on total sales or shipments would be a very inaccurate method for determining share of liability in the case at hand.
8. The composition of production by type of pigment of each defendant was different.
 - a. As the distribution of use of each type of pigment is different, the health effects of different lead products differ from one another. Therefore, using shares of total pigment production, shipments, or capacity to determine liability would be inaccurate.
 - b. Furthermore, the FTC report excludes market shares for some lead pigment types [give examples].
9. The percentage composition of production and shipments of different types of lead pigments changed over time during the relevant period (Exhibit _____). As the shares of each Defendant in different types of pigments varied, using aggregate measures of market share would yield inaccurate estimates of liability.
10. The FTC data relied on by Plaintiff are for the United States as a whole. Although data on market shares for individual regions are unavailable, it is



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extremely unlikely that each defendant's share of lead pigment use in Boston (or other local markets) was equal to its share of national pigment shipments.

- C. The FTC findings do not support the contention that "defendants or their predecessors in interest marketed all or virtually all of the lead used in lead-based paints sold in the United States."
1. The FTC findings covered a small number of years during the late 1930s and early 1940s. These years are not representative of lead pigments production during the relevant time period.
 - a. Over 50 percent of total lead pigments were produced before 1930, well before the time period addressed by the FTC.
 - b. Well over half -- and possible as much as 90 percent -- of the lead pigments used in the house were probably applied in 1917, about two decades before the paint examined by the FTC.
 - c. The identities of lead pigment producers and their respective market shares changed radically over the relevant time period. This was particularly true for the early years, when most of the lead pigments were applied.
 2. The data on shares presented in the FTC report are ranges for a span of years that differs for each company, but which are centered about the 1938-1941 period. The shares generally add to considerably less than 100 percent. For example, the total of the shares reported for the five companies are 88-101% for white lead in oil, 59-83% for dry white lead, and 55-59% for red lead and litharge (see Exhibit _____).
 3. The FTC report focuses on white lead carbonate. Incomplete information is provided on red lead and litharge. Very little information is provided on other lead pigments.
 4. The FTC report focuses on sales of lead. As the FTC states, many paint companies may have manufactured lead pigments for their own use.
 5. The FTC data are for the United States as a whole, and there is no reason to believe that they are representative of market shares in Boston.



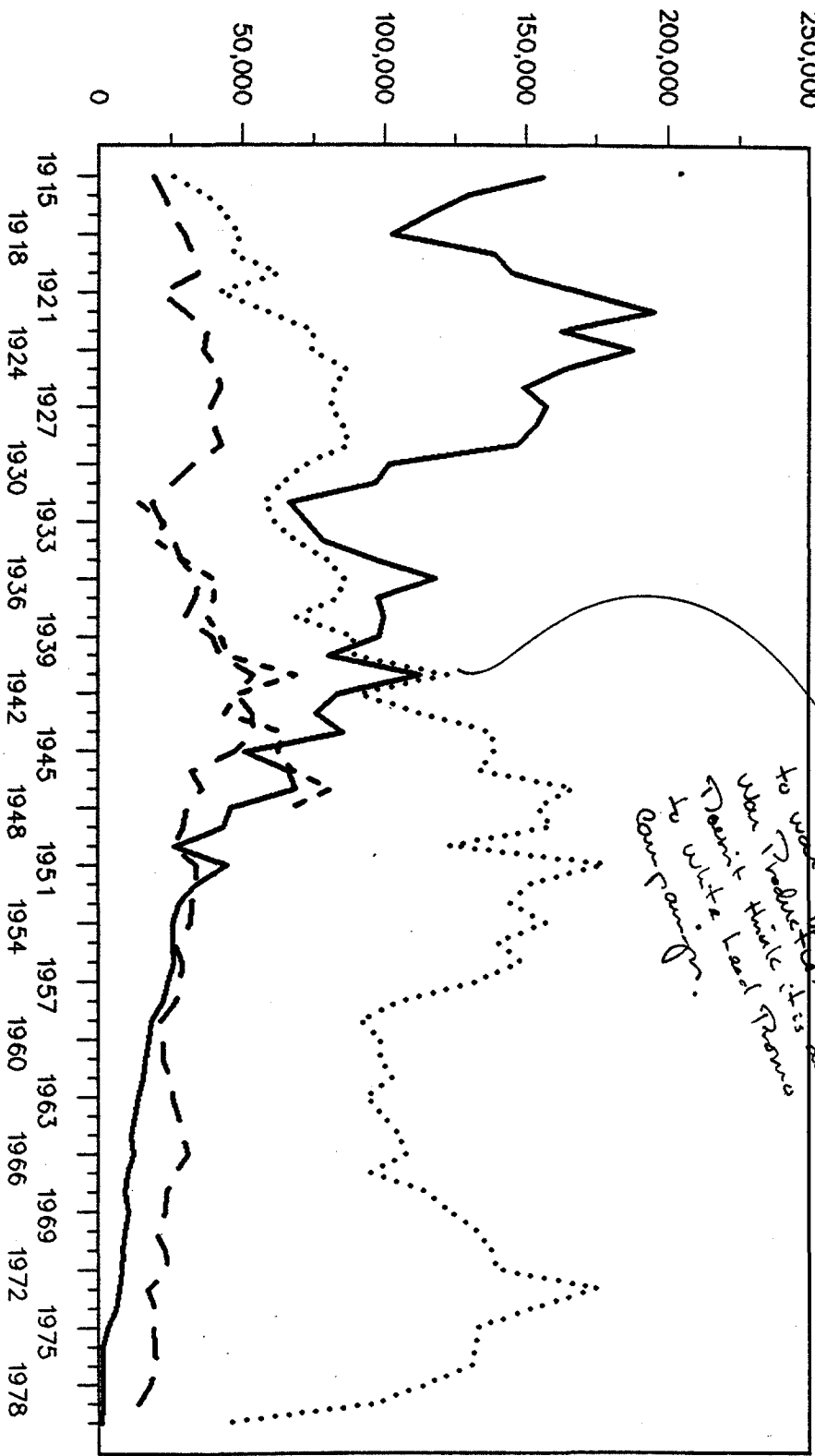
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PRODUCTION OF LEAD PIGMENTS BY TYPE

1915-1980

SHORT TONS



*Runners states
that this is due
to the effect of 1930s
to produce it is
now think it is
coming to units
coming.*

NOTE: PRIOR TO 1931 THE PRODUCTION NUMBER WAS
RELATED TO SALES.
SOURCE: BOM MINERALS RESOURCES AND MINERALS YRBK

WHITE LEAD LEADED ZINC OXIDE LITHARGE RED LEAD

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Add Tables

*Numbers of one unit of pigment,
not at lead in pigment.*

BUREAU OF MINES LEAD CONTENT OF LEAD PIGMENTS
(SHORT TONS)

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	WHITE LEAD	RED LEAD	LITHARGE	ORANGE MINERAL	BASIC LEAD SULPHATE	BLACK OXIDE	LEADED ZINC OXIDE	ZINC OXIDE
1929	120046	39375	82670	702	11759		5823	138
1930	87329	30493	67510	222	7217		4746	40
1931	78374	23005	60446	256	6717		3962	0
1932	53784	17569	52877	147	4936		3199	0
1933	60469	20060	56469	136	7801		5023	0
1934	63593	24972	66690	142	4686		5128	0
1935	83079	25173	74724	296	6503		7628	1
1936	89779	31517	81883	249	6268		10400	0
1937	90791	32986	79704	237	6532		12201	
1938	75115	26608	60509	91	3569		9948	
1939	78593	35977	83935	120	3847		13089	
1940	69535	38905	85005	180	6141		13338	
1941	86750	47615	112099	172	7648		19031	
1942	73757	45228	86667	81	5587		14254	
1943	49056	48499	103993	3	5172		11584	
1944	61143	48411	136353	254	3419		17392	
1945	39742	43685	131116	196	3134		16419	
1946	49825	27084	123698	113	NA		19016	
1947	57791	32675	161823	0	NA		21024	
1948	35011	26924	148038				17900	
1949	21504	23900	114314				9390	
1950	35897	30884	165428				14667	
1951	27409	30880	141215				12818	
1952	22287	29570	134445				9633	
1953	20634	29016	145890				9553	
1954	20670	24390	131016				7969	
1955	20888	26304	133511			109023	6546	
1956	19560	25937	123373			102494	6395	
1957	18219	24561	98870			124109	4484	
1958	14646	19883	85625			115499	3402	
1959	15114	19974	98288			147066	3905	
1960	14019	20491	96810			133638	3022	
1961	12997	20664	91900			140973	3788	
1962	12457	22570	95704			153819	2487	
1963	11198	23370	87381			175005	2424	
1964	10077	25212	93214			170394	1991	
1965	9232	27027	98240			184774	1906	
1966	9839	28174	100531			190931	1775	
1967	8098	24357	88890			194909	1310	
1968	7549	21589	106857			208067	1474	
1969	8396	21378	114757			233312	571	
1970	7500	18416	123252			236514	515	
1971	7042	21346	128592			270097	W	
1972	6492	21908	130014			292492	W	
1973	5682	15718	162905			326580	W	
1974	4724	18021	142813			392421	W	
1975	2705	17629	124181			351171	W	
1976	1312	17775	122920			374761	W	

SOURCE: MINERALS YEARBOOK, BOM, 1930-1976, LEAD CHAPTER AND LEAD AND ZINC PIGMENTS AND SALTS C

W=WITHHELD

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OF COUNSELCUMULATIVE LEAD USE IN PIGMENTS (1921-1976) VS
CUMULATIVE USE OF LEAD (1921-1976)

	SUM OF LEAD USE (SHORT TONS)	CUMULATIVE LEAD USE (SHORT TONS)	SUM OF LEAD USE IN PIGMENTS (SHORT TONS)	CUMULATIVE LEAD USE IN PIGMENTS (SHORT TONS)
1921	520,550	520,550	159,500	159,500
1922	683,150	1,203,700	188,000	345,500
1923	768,000	1,971,700	176,000	521,500
1924	812,150	2,783,850	184,000	705,500
1925	856,000	3,639,850	173,000	878,500
1926	901,000	4,540,850	156,000	1,034,500
1927	841,000	5,381,850	184,000	1,198,500
1928	931,000	6,312,850	154,000	1,352,500
1929	972,000	7,284,850	150,000	1,502,500
1930	769,000	8,053,850	116,000	1,618,500
1931	568,000	8,621,850	95,000	1,713,500
1932	417,000	9,038,850	86,000	1,799,500
1933	450,000	9,488,850	97,000	1,896,500
1934	488,000	9,976,850	106,000	2,002,500
1935	539,000	10,515,850	127,000	2,129,500
1936	634,000	11,149,850	139,000	2,268,500
1937	679,000	11,828,850	143,000	2,411,500
1938	546,000	12,374,850	114,000	2,525,500
1939	667,000	13,041,850	132,000	2,657,500
1940	782,000	13,823,850	125,000	2,782,500
1941	1,050,000	14,873,850	174,000	2,956,500
1942	1,043,000	15,916,850	143,000	3,099,500
1943	1,113,000	17,029,850	129,000	3,228,500
1944	1,119,000	18,148,850	140,000	3,368,500
1945	1,052,000	19,200,850	109,000	3,477,500
1946	956,000	20,156,850	109,000	3,586,500
1947	1,172,000	21,328,850	121,000	3,707,500
1948	1,134,000	22,462,850	142,000	3,849,500
1949	958,000	23,420,850	107,000	3,956,500
1950	1,238,000	24,658,850	166,000	4,122,500
1951	1,185,000	25,843,850	140,000	4,262,500
1952	1,131,000	26,974,850	122,000	4,384,500
1953	1,202,000	28,176,850	130,000	4,514,500
1954	1,095,000	29,271,850	116,000	4,630,500
1955	1,213,000	30,484,850	131,000	4,761,500
1956	1,210,000	31,694,850	120,000	4,881,500
1957	1,138,115	32,832,965	115,361	4,996,861
1958	986,387	33,819,352	95,901	5,092,762
1959	1,091,149	34,910,501	103,671	5,196,433
1960	1,021,172	35,931,673	98,541	5,294,974
1961	1,027,216	36,958,889	95,293	5,390,267
1962	1,109,635	38,068,524	102,968	5,493,235
1963	1,163,358	39,231,882	99,075	5,592,310
1964	1,202,138	40,434,020	103,636	5,695,946
1965	1,241,482	41,675,502	106,883	5,804,829
1966	1,323,877	42,999,379	119,888	5,924,717
1967	1,260,516	44,259,895	103,190	6,027,907
1968	1,328,790	45,588,685	109,734	6,137,641
1969	1,389,358	46,978,043	102,386	6,240,027
1970	1,360,552	48,338,595	98,736	6,338,763
1971	1,431,514	49,770,109	81,258	6,420,021
1972	1,485,254	51,255,363	89,214	6,509,235
1973	1,541,209	52,796,572	108,766	6,618,001
1974	1,599,427	54,395,999	116,213	6,734,214
1975	1,297,098	55,693,097	79,072	6,813,286
1976	1,490,072	57,183,169	105,591	6,918,877

CUMULATIVE PIGMENT USE (1921-1976)/CUMULATIVE LEAD USE (1921-1976) 12.10%

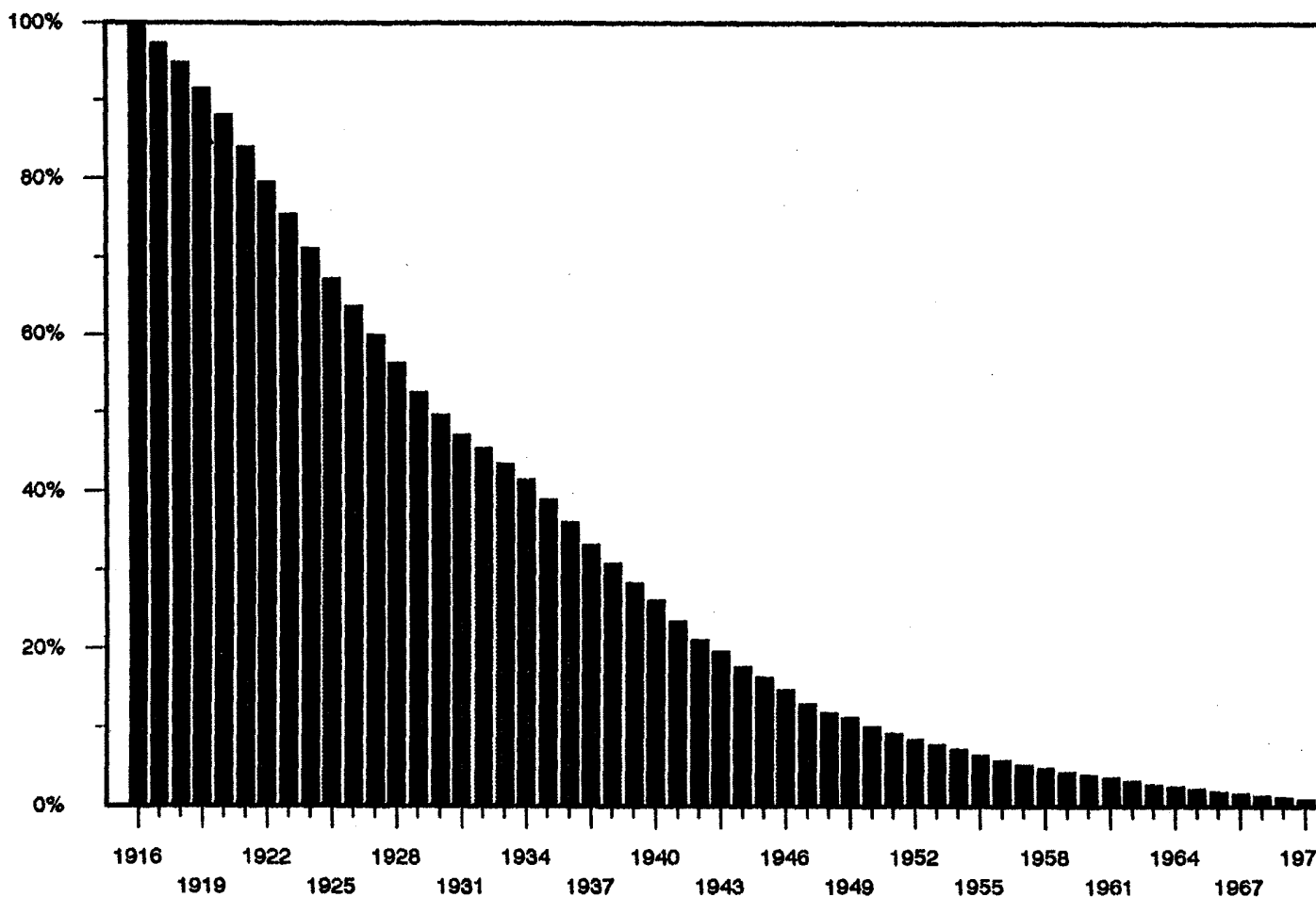
N39082.04

Longer back?

DRAFT

PREPARED
OF

**PERCENT OF THE TOTAL WHITE LEAD PRODUCED DURING
THE 1916-1976 PERIOD, AFTER EACH YEAR
1916-1976**



NOTE: 1916-1928 LEAD CONTENT IS ESTIMATED USING
PIGMENT PRODUCTION VALUES AND CONVERTING, ALL
OTHER FIGURES ARE ACTUAL LEAD CONTENT.

N39082.05

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PREPARED AT REQUEST
OF COUNSELBUREAU OF MINES LEAD CONTENT OF LEAD PIGMENTS
(SHORT TONS)PERCENT OF THE
TOTAL WHITE
LEAD PRODUCED
DURING 1916-1976
AFTER EACH
YEAR

	WHITE LEAD	RED LEAD	LITHARGE	ORANGE MINERAL	BASIC LEAD SULPHATE	BLACK OXIDE	LEADED ZINC OXIDE	ZINC OXIDE	CUMULATIVE WHITE LEAD	
1913										
1914	119,808		27,345							
1915	117,078	14,578	19,588							
1916	98,734	17,278	28,304						88,400	100.0%
1917	88,400	19,109	33,077			6,173			183,588	97.3%
1918	77,168	22,552	38,858			5,552			267,884	94.8%
1919	104,318	24,272	35,054			6,801			377,155	91.5%
1920	109,271	25,823	48,747			9,309			504,867	88.1%
1921	127,712	16,354	31,432	288		8,676			651,110	84.0%
1922	148,243	22,882	43,898	278		10,324			773,295	79.4%
1923	122,155	28,528	58,330	485		8,982			913,888	75.5%
1924	140,821	27,810	58,043	248		10,929			1,036,814	71.1%
1925	122,929	31,252	64,810	630		11,247			1,148,174	67.2%
1926	112,360	31,913	61,805	610		9,203			1,287,445	63.7%
1927	118,271	29,305	61,241	532		10,112			1,382,924	59.9%
1928	115,478	30,373	64,178	344		12,002			1,502,970	56.3%
1929	120,048	38,375	82,870	702		11,759	5,823	138	1,590,299	52.5%
1930	87,329	30,493	67,510	222		7,217	4,748	40	1,688,673	49.7%
1931	78,374	23,005	60,446	256		6,717	3,982	0	1,722,457	47.2%
1932	53,784	17,569	52,677	147		4,936	3,199	0	1,782,926	45.5%
1933	60,468	20,080	58,489	138		7,801	5,023	0	1,846,519	43.8%
1934	63,593	24,972	66,890	142		4,686	5,128	0	1,929,598	41.6%
1935	83,079	25,173	74,724	298		8,503	7,828	1	2,019,377	39.0%
1936	89,779	31,517	81,883	249		6,268	10,400	0	2,110,168	38.1%
1937	90,791	32,986	79,704	237		6,532	12,201	0	2,185,283	33.3%
1938	75,115	28,608	60,509	91		3,569	9,948		2,283,876	30.9%
1939	78,593	35,977	83,835	120		3,847	13,089		2,333,411	28.4%
1940	69,535	38,905	85,005	180		6,141	13,338		2,420,161	26.2%
1941	88,750	47,615	112,099	172		7,648	19,031		2,483,918	23.5%
1942	73,757	45,228	86,687	81		5,587	14,254		2,542,974	21.1%
1943	48,056	48,499	103,983	3		5,172	11,584		2,604,117	19.6%
1944	61,143	48,411	136,353	254		3,419	17,392		2,643,859	17.7%
1945	39,742	43,685	131,116	198		3,134	16,419		2,693,684	16.4%
1946	48,825	27,084	123,696	113		NA	19,016		2,751,475	14.8%
1947	57,791	32,673	161,823	0		NA	21,024		2,786,486	13.0%
1948	35,011	26,924	148,038				17,800		2,807,990	11.9%
1949	21,504	23,900	114,314				9,390		2,843,887	11.2%
1950	35,897	30,884	165,426				14,667		2,871,296	10.1%
1951	27,409	30,880	141,215				12,818		2,893,563	9.2%
1952	22,267	29,570	134,445				9,633		2,914,217	8.5%
1953	20,834	29,016	145,690				9,553		2,934,887	7.9%
1954	20,870	24,390	131,016				7,999		2,955,775	7.2%
1955	20,888	26,304	133,511			109,023	6,546		2,975,335	6.5%
1956	19,590	25,837	123,373			102,494	6,395		2,983,554	5.9%
1957	18,219	24,561	98,670			124,109	4,484		3,006,200	5.3%
1958	14,846	19,883	85,625			115,499	3,402		3,023,314	4.9%
1959	15,114	19,974	98,298			147,088	3,905		3,037,333	4.4%
1960	14,019	20,491	96,810			133,638	3,022		3,050,330	4.0%
1961	12,997	20,864	91,800			140,973	3,788		3,082,787	3.6%
1962	12,457	22,570	96,704			153,819	2,487		3,073,965	3.2%
1963	11,196	23,370	87,381			175,005	2,424		3,084,082	2.8%
1964	10,077	25,212	83,214			170,394	1,991		3,083,294	2.5%
1965	9,232	27,027	96,240			184,774	1,908		3,103,133	2.2%
1966	9,839	28,174	100,531			190,931	1,775		3,111,231	1.9%
1967	8,068	24,357	88,890			194,909	1,310		3,118,780	1.6%
1968	7,549	21,589	106,857			208,087	1,474		3,127,176	1.4%
1969	8,398	21,376	114,757			233,312	571		3,134,676	1.1%
1970	7,500	18,416	123,252			236,514	515		3,141,718	0.9%
1971	7,042	21,346	128,582			270,087	W		3,146,210	0.7%
1972	6,492	21,908	130,014			292,492	W		3,153,982	0.5%
1973	5,682	15,718	162,905			326,580	W		3,158,616	0.3%
1974	4,724	18,021	142,813			392,421	W		3,161,321	0.1%
1975	2,705	17,629	124,181			351,171	W		3,162,833	0.0%
1976	1,312	17,775	122,920			374,761	W			0.0%

NOTE: 1915-1928 ARE PIGMENT PRODUCTION FIGURES CONVERTED TO LEAD CONTENT BY A RATIO OF .75
DATA IS IN SPREADSHEET LEADGRPH.WK1
THE TABLE THAT THESE DATA ARE TAKEN FROM ARE CALLED "CHEMICALLY MANUFACTURED LEAD PIGMENTS MARKETED IN _____", FOR THE YEARS 1914-11
OR "MANUFACTURED LEAD PIGMENTS MARKETED IN _____" FOR THE YEARS 1915-1917
OR "MANUFACTURED LEAD PIGMENTS MARKETED IN THE UNITED STATES, _____" FOR THE YEARS 1918-1919.
OR "LEAD PIGMENTS AND SALTS MARKETED IN _____" FOR THE YEARS 1919-1922.
OR "LEAD PIGMENTS AND SALTS SOLD BY DOMESTIC MANUFACTURERS IN THE UNITED STATES IN _____" FOR THE YEARS 1922-1928
IN THE YEARS WHERE THE DATA OVERLAPS THE NUMBERS ARE THE SAME, ONLY THE TITLE OF THE TABLE IS CHANGING.

IT IS ALSO NOTED THAT THE PIGMENTS AND SALTS SOLD ARE TAKEN TO REPRESENT THE PRODUCTION.
THERE IS NO ACCOUNT OF THE STOCKS ON HAND AT THE BEGINNING OR END OF THE YEAR,
AND AMOUNTS USED BY PRODUCERS AT THEIR OWN PLANTS ARE INCLUDED IN SALES. (MINERALS RESOURCES OF THE UNITED STATES 1924 PG. 142)

SOURCE: MINERALS YEARBOOK, BOM, 1930-1976, LEAD CHAPTER AND LEAD AND ZINC PIGMENTS AND SALTS CHAPTERS.

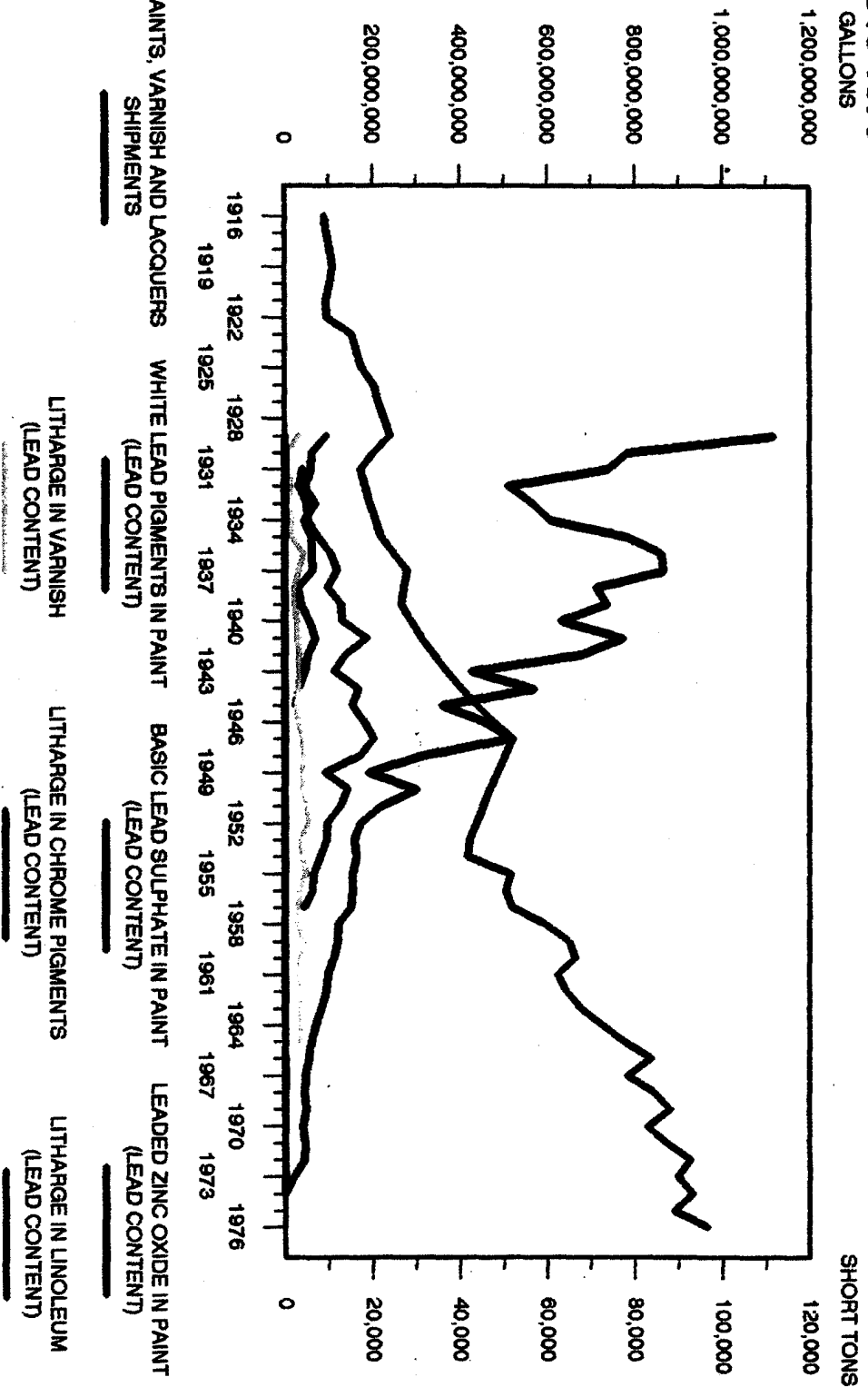
W=WITHHELD

N39082.06

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PREPARED AT REQUEST
OF COUNSEL

U.S. SHIPMENTS OF LEAD PIGMENT FOR USE IN PAINTS AND TOTAL U.S. PAINT, VARNISH AND LACQUER SHIPMENTS 1916-1976



SOURCE: BOM MINERALS YEARBOOK IS THE SOURCE OF
WHITE LEAD PIGMENT DATA AND DEPARTMENT OF
COMMERCE CENSUS AND CIR ARE SOURCES FOR PAINTS.

N39082.07

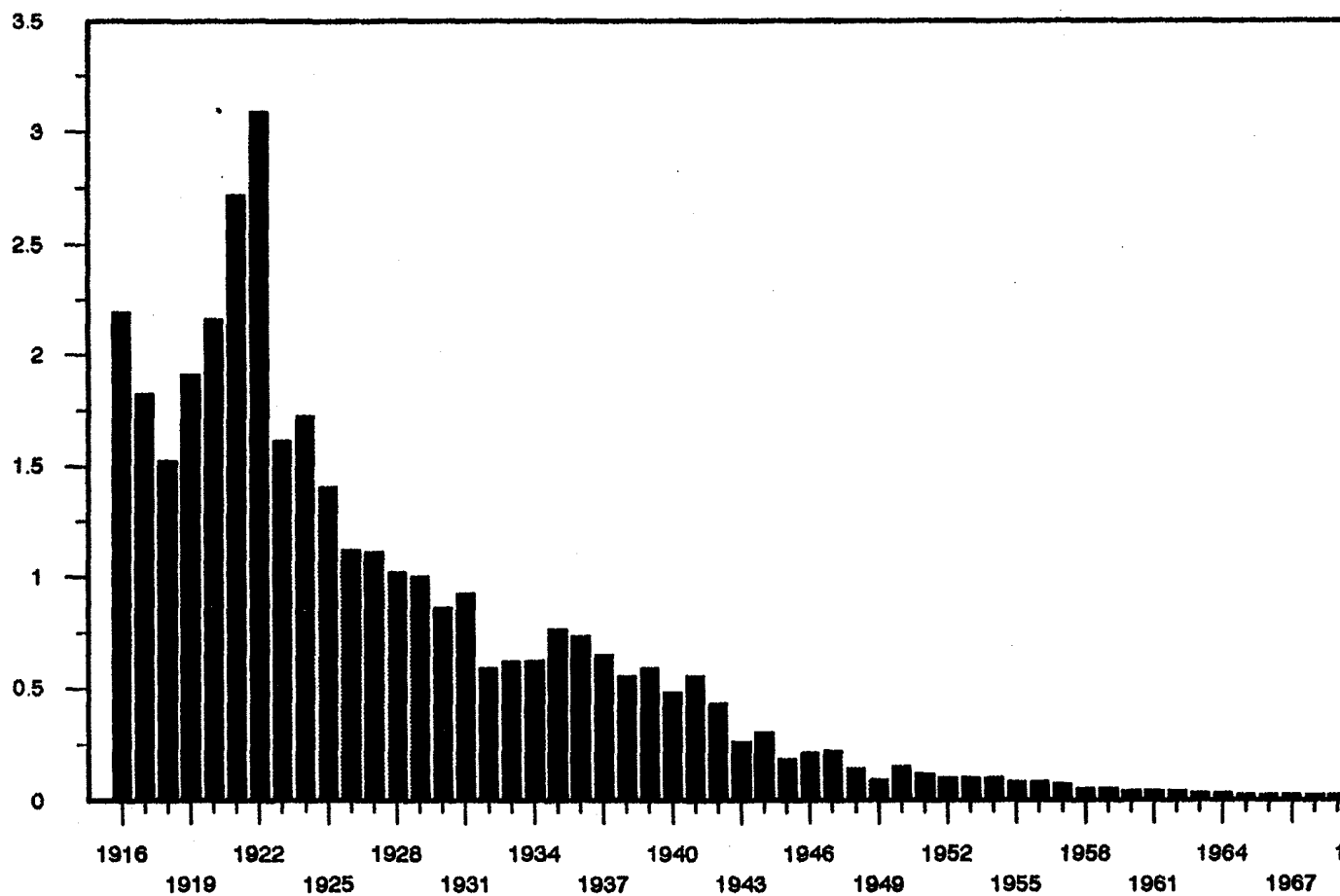
DRAFT

PREPARED
ON

**U.S. PRODUCTION OF WHITE LEAD PIGMENTS DIVIDED BY
TOTAL U.S. PAINT, VARNISH AND LACQUER SHIPMENTS**

1916-1976

POUNDS/GALLON



SOURCE: CRA CALCULATIONS BASED ON DEPARTMENT OF
COMMERCE DATA AND BUREAU OF MINES MINERAL
YEARBOOK.

DRAFT

PREPARED AT REQUEST
OF COUNSEL

ASSUMPTIONS FOR SCENARIO #1:

1) THE HOUSE IS PAINTED EVERY 8 YEARS BEGINNING IN 1917.

2) EACH TIME THE HOUSE IS PAINTED, IT REQUIRES 50 GALLONS OF PAINT.

3) Both interior and exterior are painted.

- Doesn't really have info on distinction between interior and exterior paint

- Wd make a drastic change in chart due to phase-out of ~~exterior~~ white lead use for interior paints

→ Will continue to look for interior/exterior paint

N39082.09

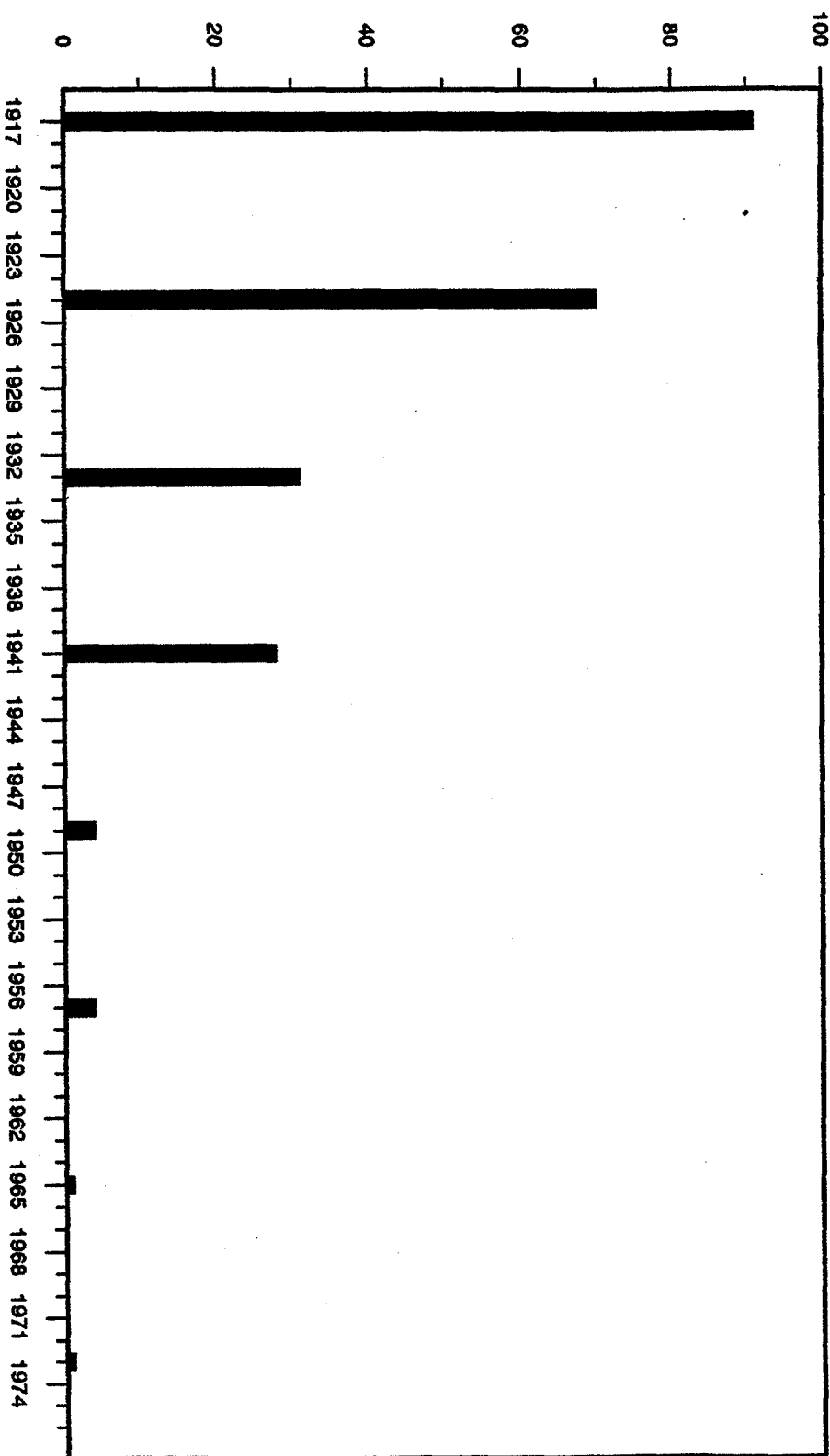
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PREPARED AT REQUEST
OF COUNSEL

**TOTAL WHITE LEAD APPLIED TO THE LESTON ST. HOUSE
BASED ON SCENARIO 1 ASSUMPTIONS**

1917-1976

POUNDS OF LEAD



SOURCE: CRA CALCULATIONS BASED ON DEPARTMENT
OF COMMERCE DATA AND BUREAU OF MINES MINERALS
YEARBOOK.

DRAFT

**PREPARED AT REQUEST
OF COUNSEL**

ASSUMPTIONS FOR SCENARIO #2

- 1) THE HOUSE IS PAINTED EVERY 8 YEARS BEGINNING IN 1917.**
- 2) THE FIRST TIME THE HOUSE IS PAINTED IT REQUIRES 50 GALLONS OF PAINT
EACH SUBSEQUENT TIME, 25 GALLONS ARE REQUIRED.**

N39082.11

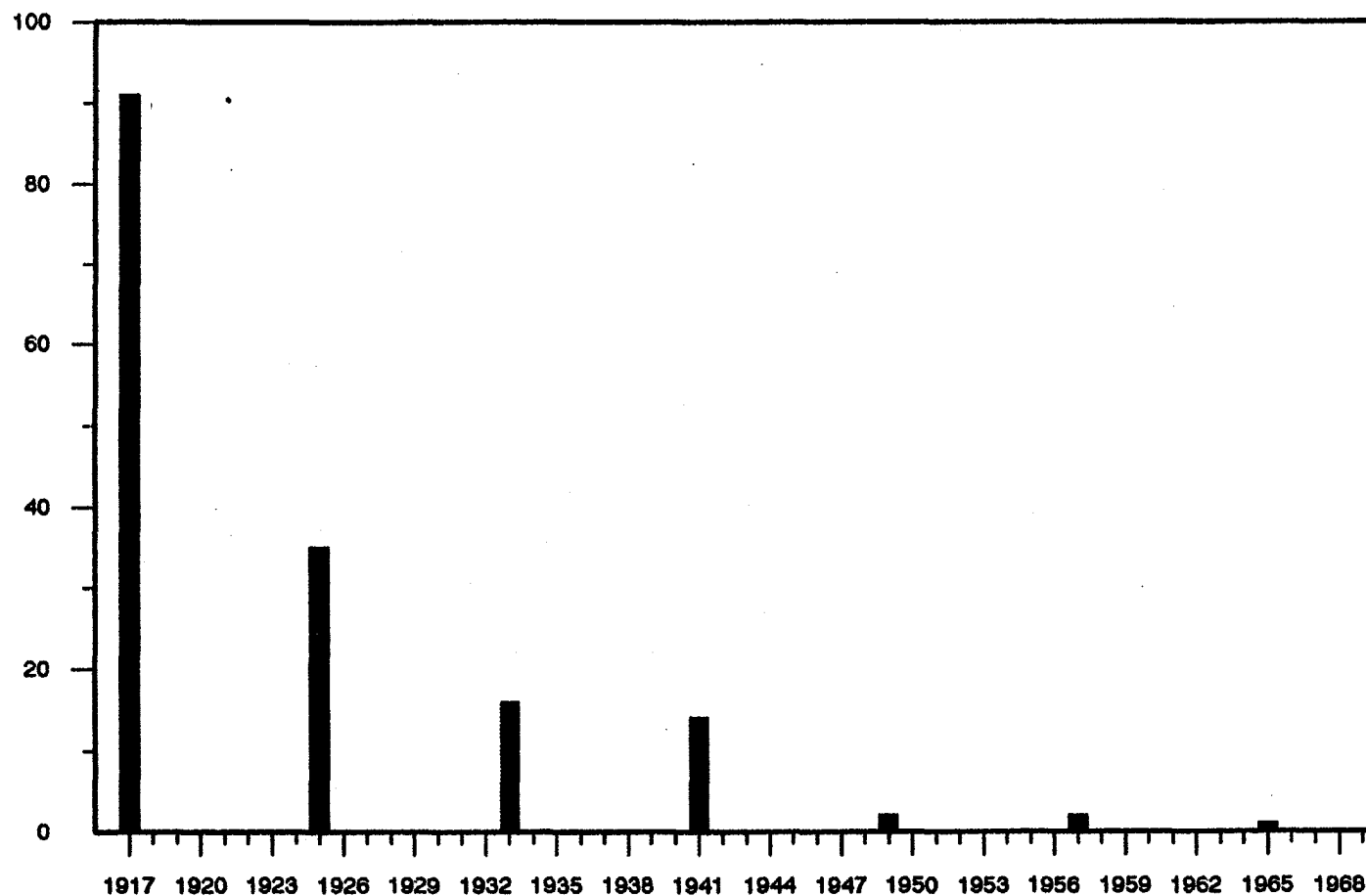
DRAFT

PREPARED
OF

**TOTAL WHITE LEAD APPLIED TO THE LESTON ST. HOUSE
BASED ON SCENARIO 2 ASSUMPTIONS**

1917-1976

POUNDS OF LEAD

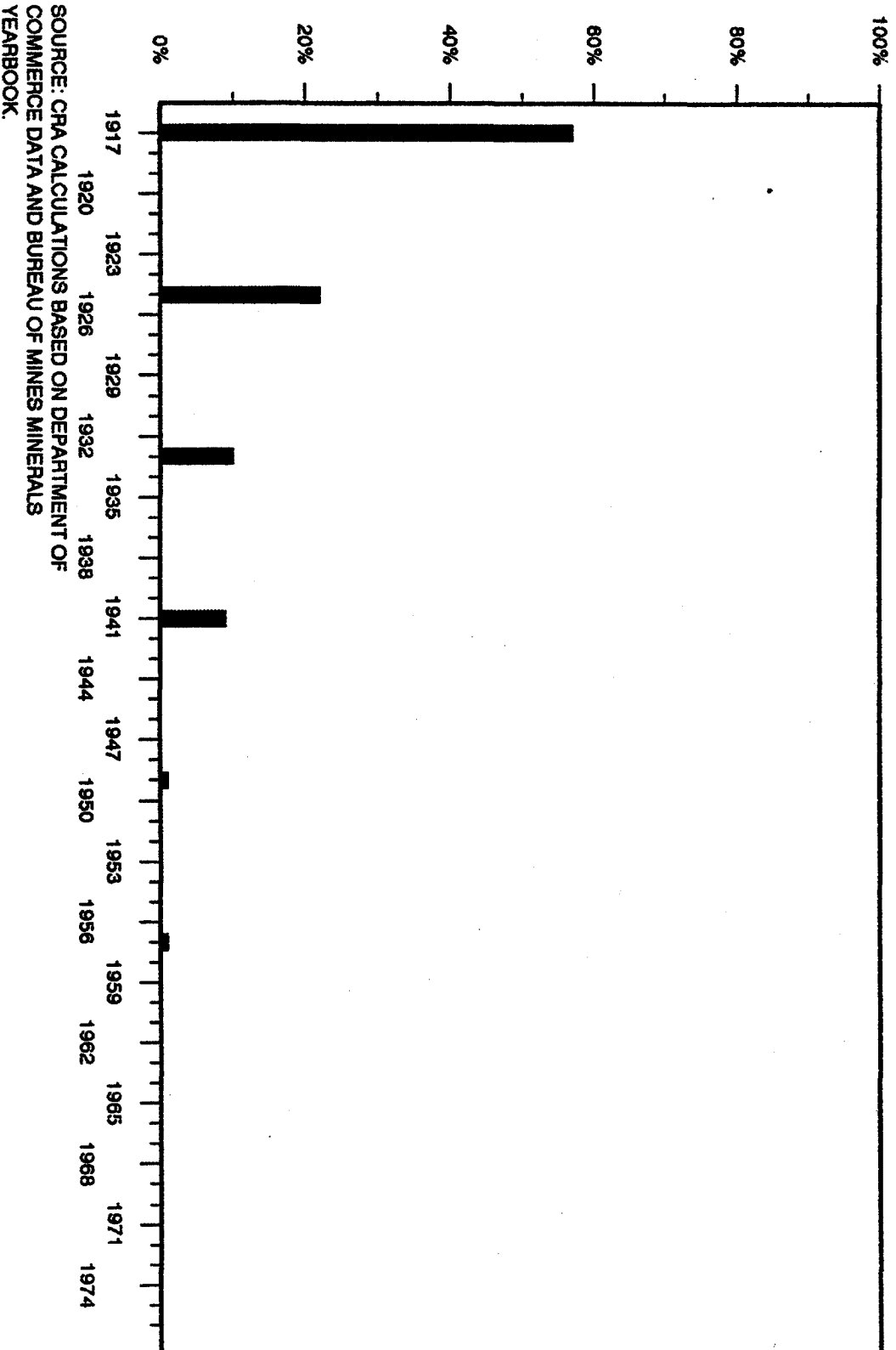


SOURCE: CRA CALCULATIONS BASED ON DEPARTMENT OF
COMMERCE DATA AND BUREAU OF MINES MINERALS
YEARBOOK.

DRAFT

**PREPARED AT REQUEST
OF COUNSEL**

**PERCENT OF TOTAL WHITE LEAD APPLIED TO THE LESTON ST. HOUSE
BASED ON SCENARIO 2 ASSUMPTIONS
1917-1976**



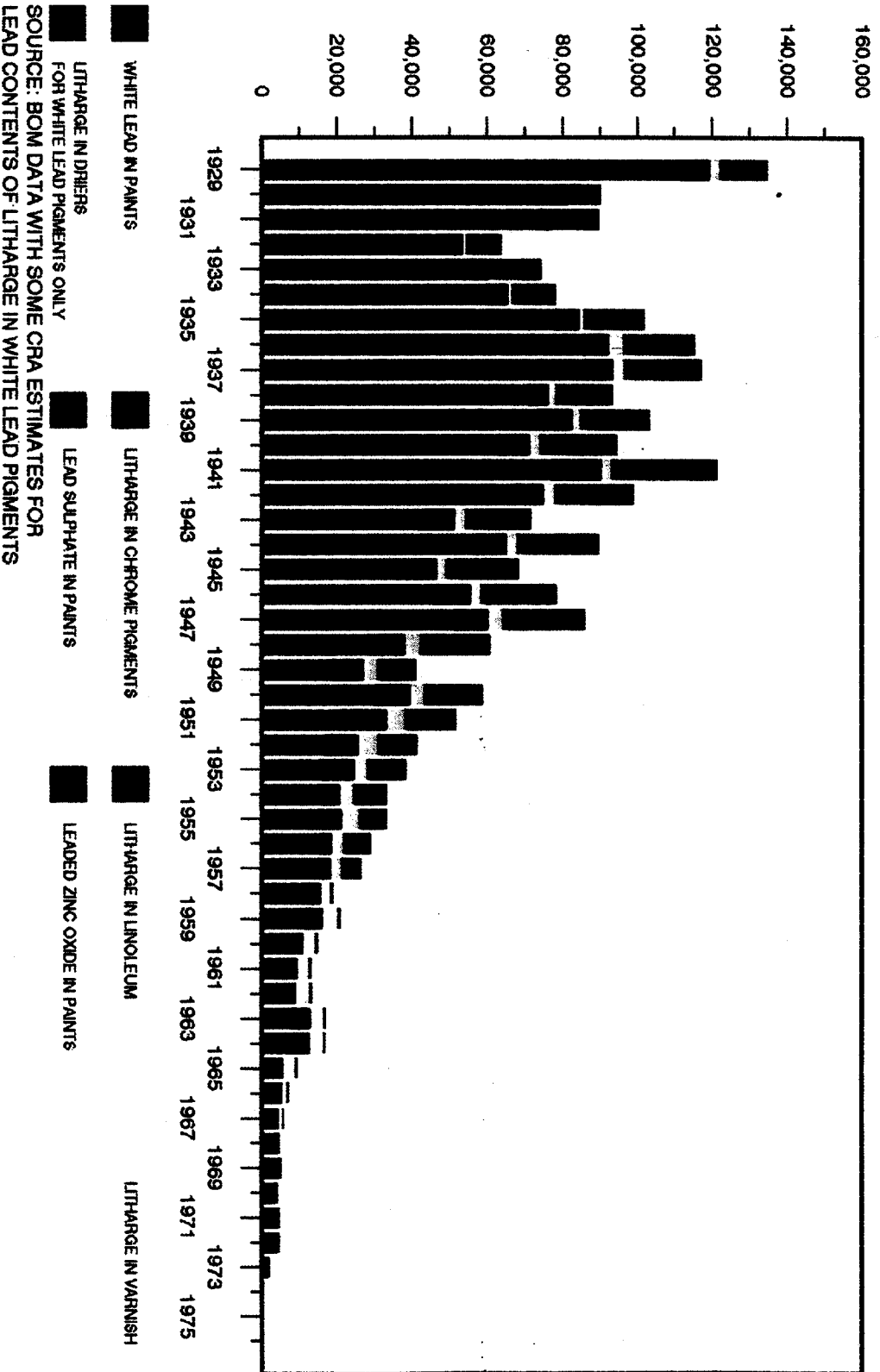
N39082.13

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OF COUNSEL

U.S. SHIPMENTS OF LEAD BASED PIGMENTS POTENTIALLY USED IN THE HOME 1929-1976

SHORT TONS CONTAINED LEAD



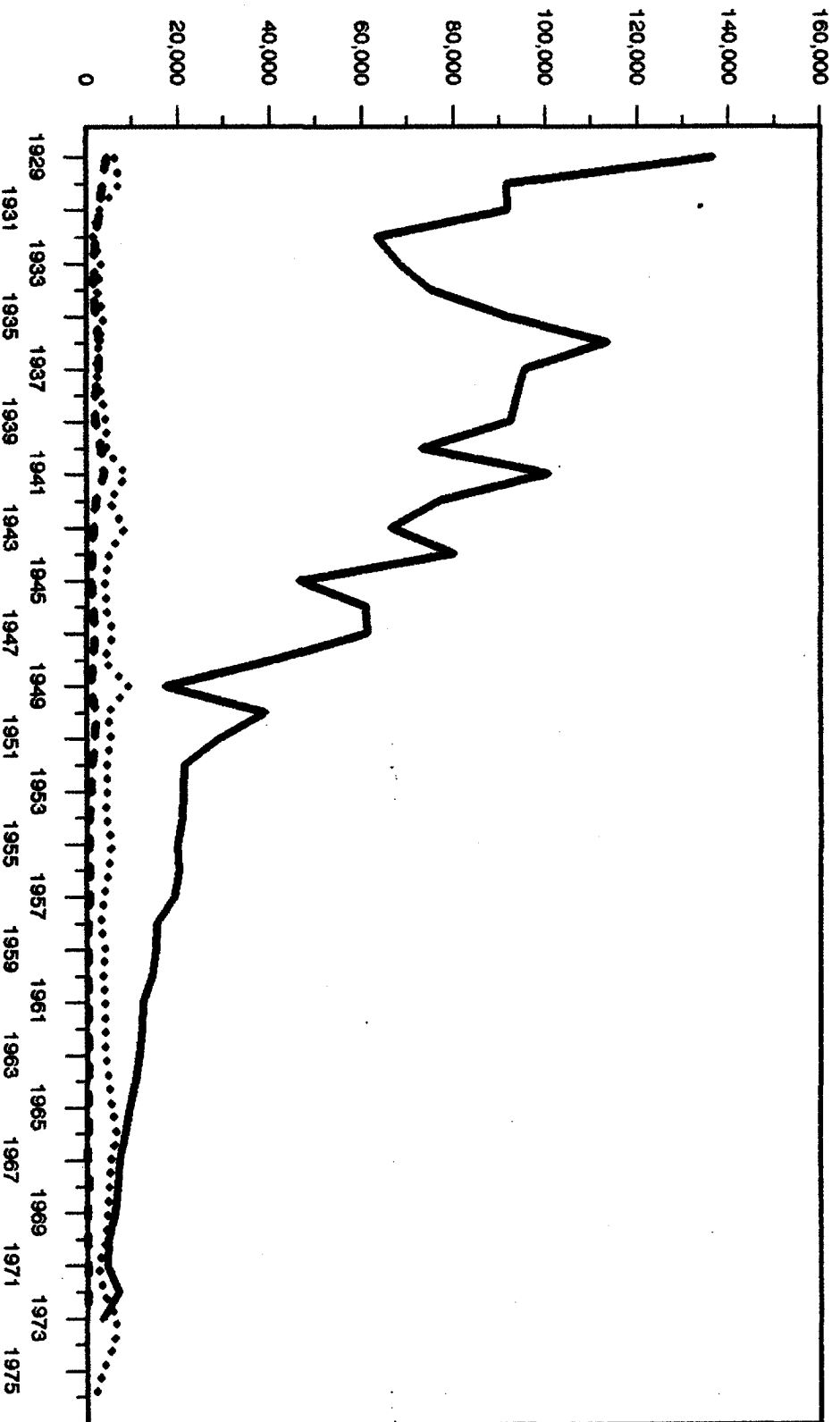
N39082.14

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OF COUNSEL

U.S. SHIPMENTS OF WHITE LEAD BY SELECTED END USE 1929-1976

SHORT TONS



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-

Correct false exports into account
Correct false non-resident paint into account.

N39082.15

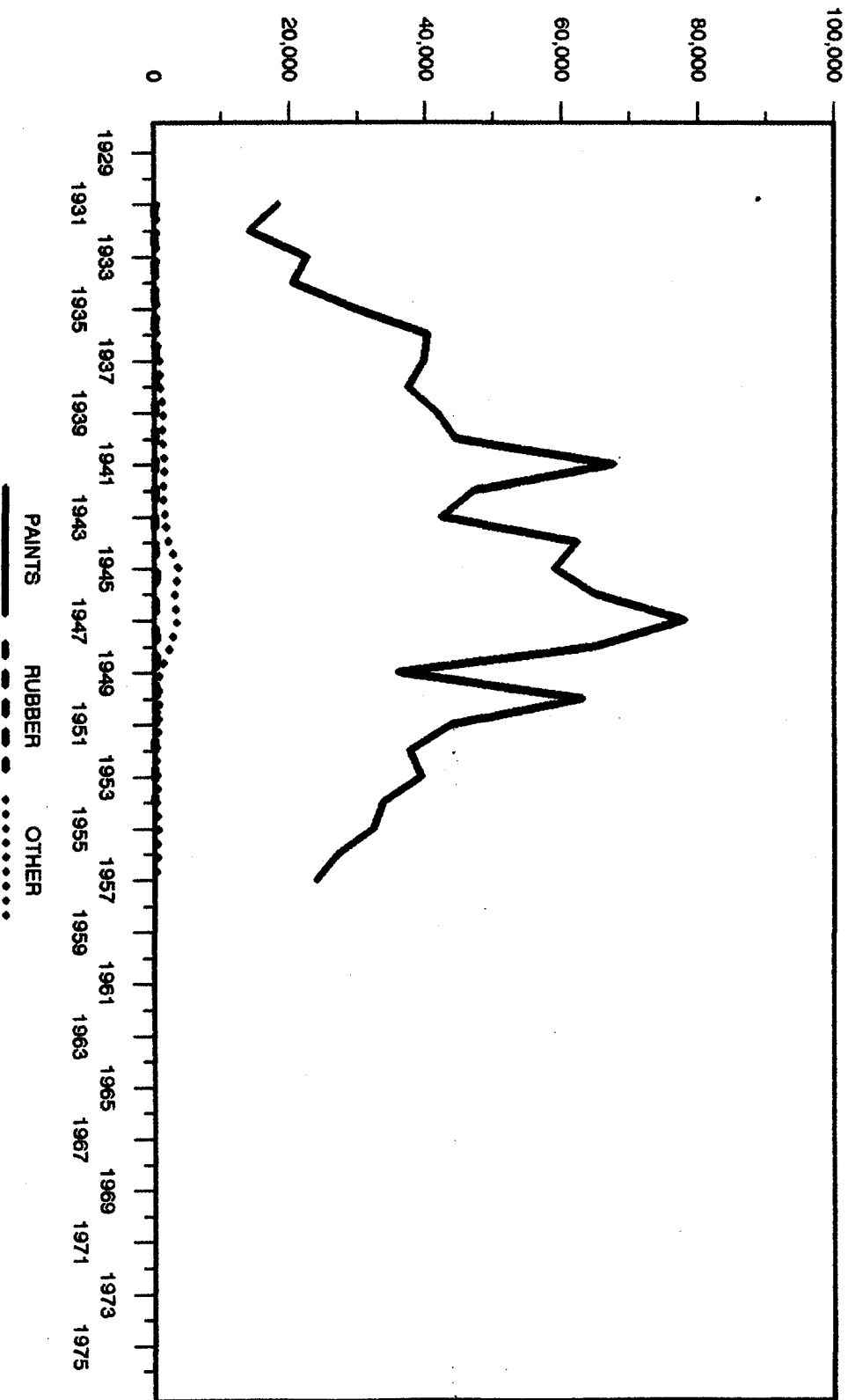
DRAFT

PREPARED AT REQUEST
OF COUNSEL

U.S. SHIPMENTS OF LEADED ZINC OXIDE BY SELECTED END USE

1929-1976

SHORT TONS



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-

N39082.16

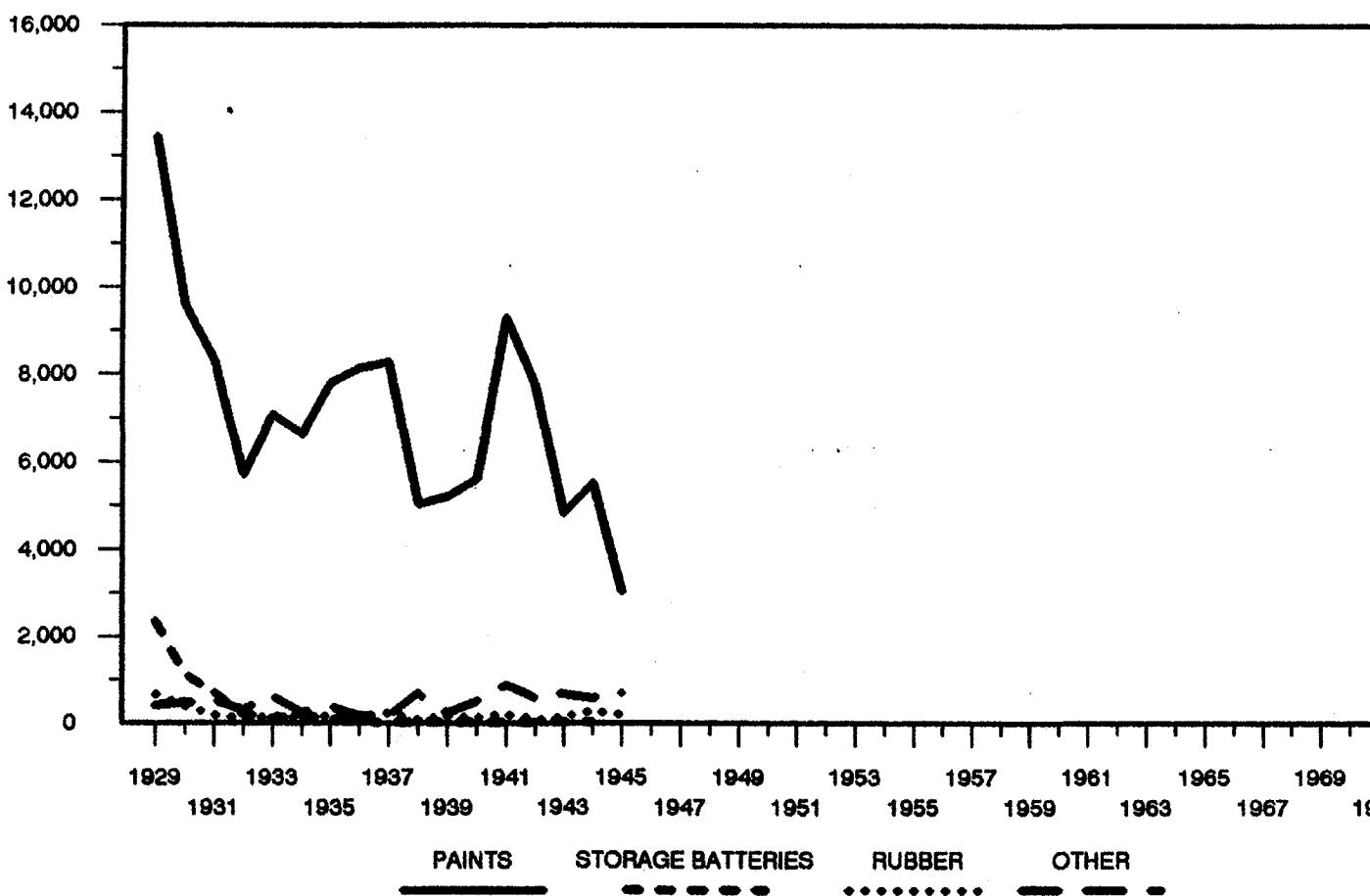
DRAFT

PREPARED /
OF CO

U.S. SHIPMENTS OF BASIC LEAD SULFATE BY SELECTED END USE

1929-1976

SHORT TONS



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-
BASIC LEAD SULFATE IS LATER COMBINED WITH WHITE
LEAD SO AS NOT TO DISCLOSE COMPANY DATA.

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PREPARED
OF

U.S. SHIPMENTS OF RED LEAD BY SELECTED END USE

1929-1976

SHORT TONS

35,000

30,000

25,000

20,000

15,000

10,000

5,000

0

1929

1931

1933

1935

1937

1939

1941

1943

1945

1947

1949

1951

1953

1955

1957

1959

1961

1963

1965

1967

1969

1971

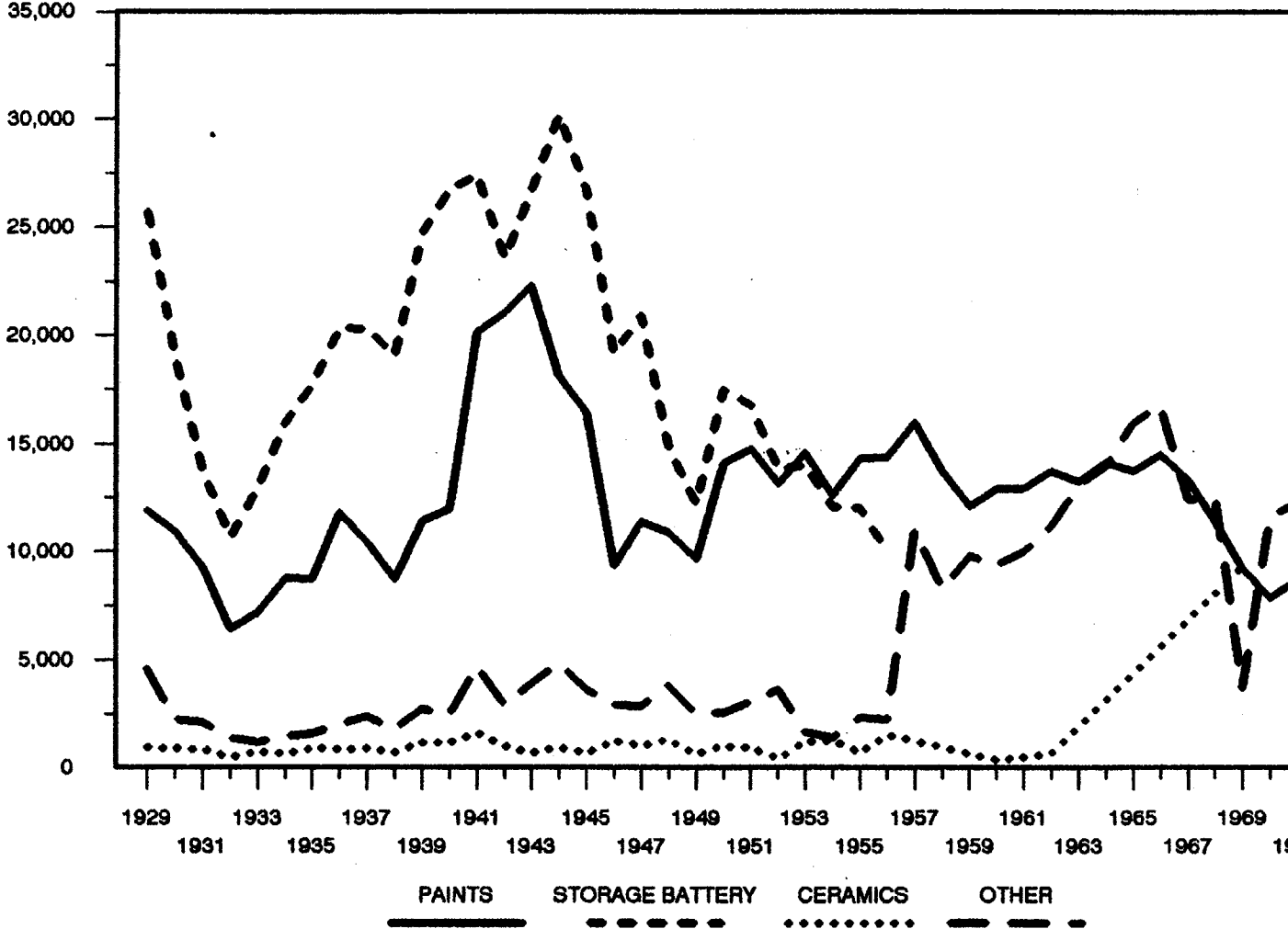
PAINTS

STORAGE BATTERY

CERAMICS

OTHER

NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-



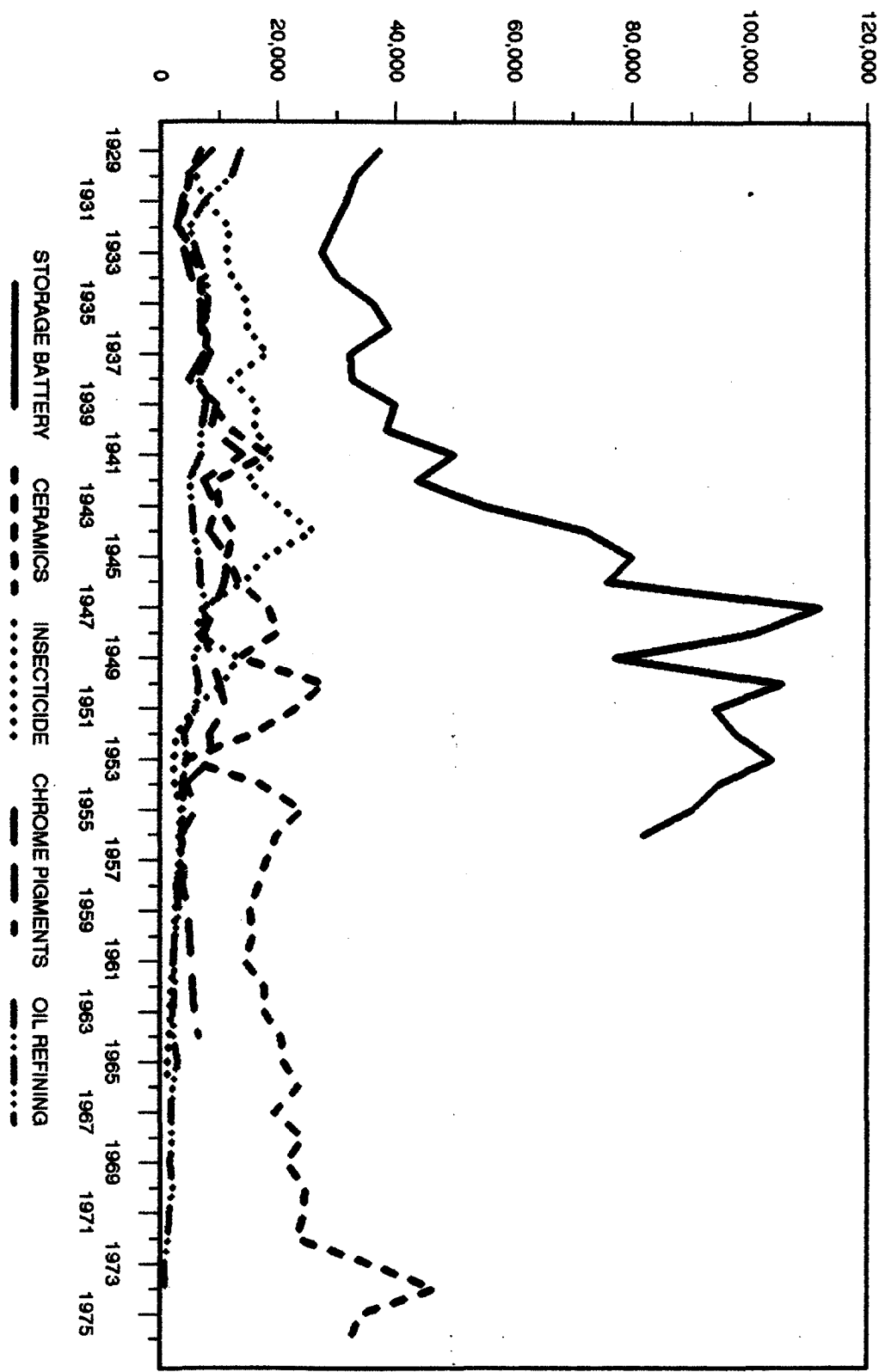
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PREPARED AT REQUEST
OF COUNSEL

U.S. SHIPMENTS OF LITHARGE BY SELECTED END USE

1929-1976

SHORT TONS



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-

N39082.19

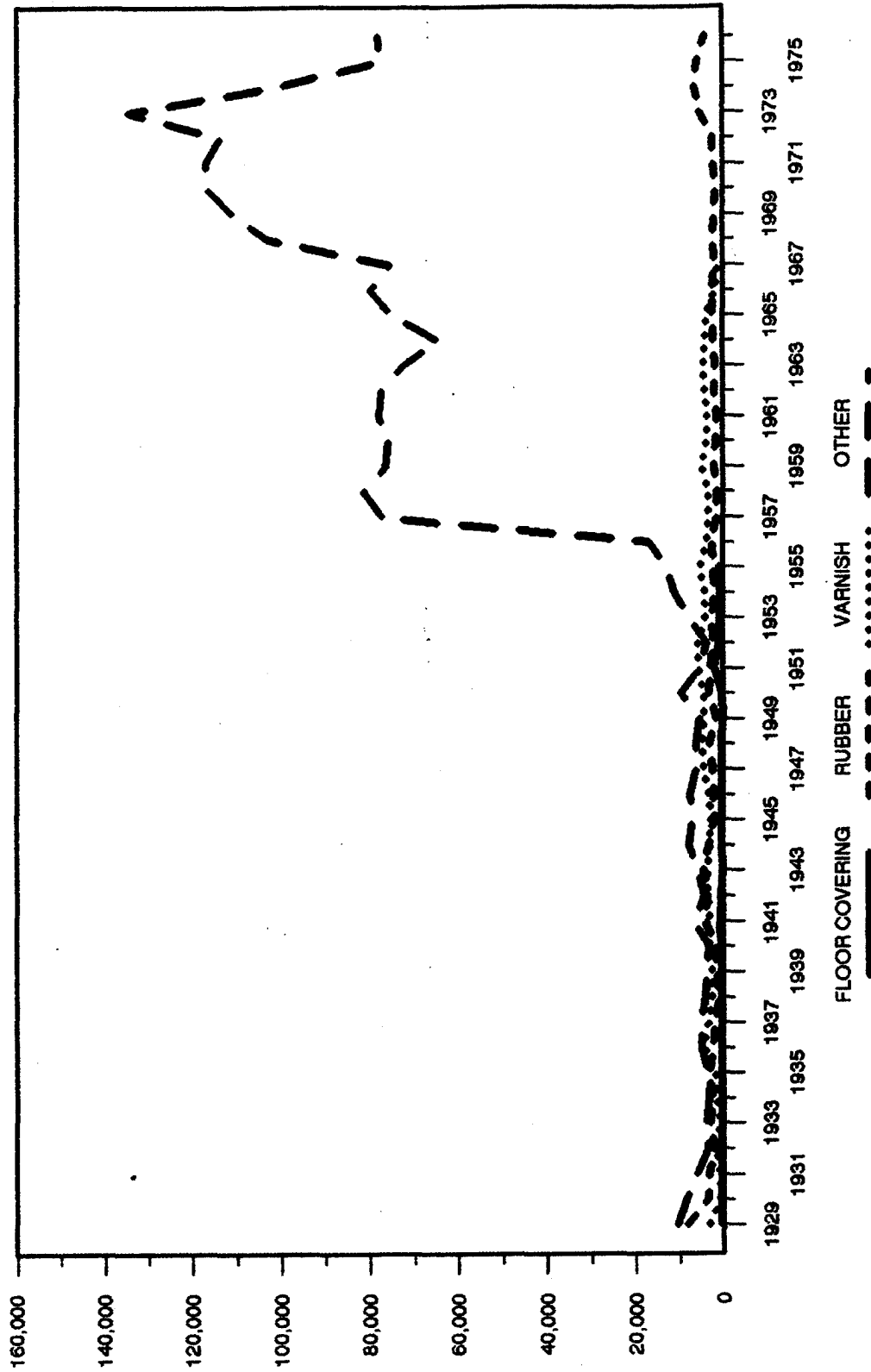
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PREPARED AT REQUEST
OF COUNSEL

U.S. SHIPMENTS OF LITHARGE BY SELECTED END USE

1929-1976

SHORT TONS



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-

N39082.20

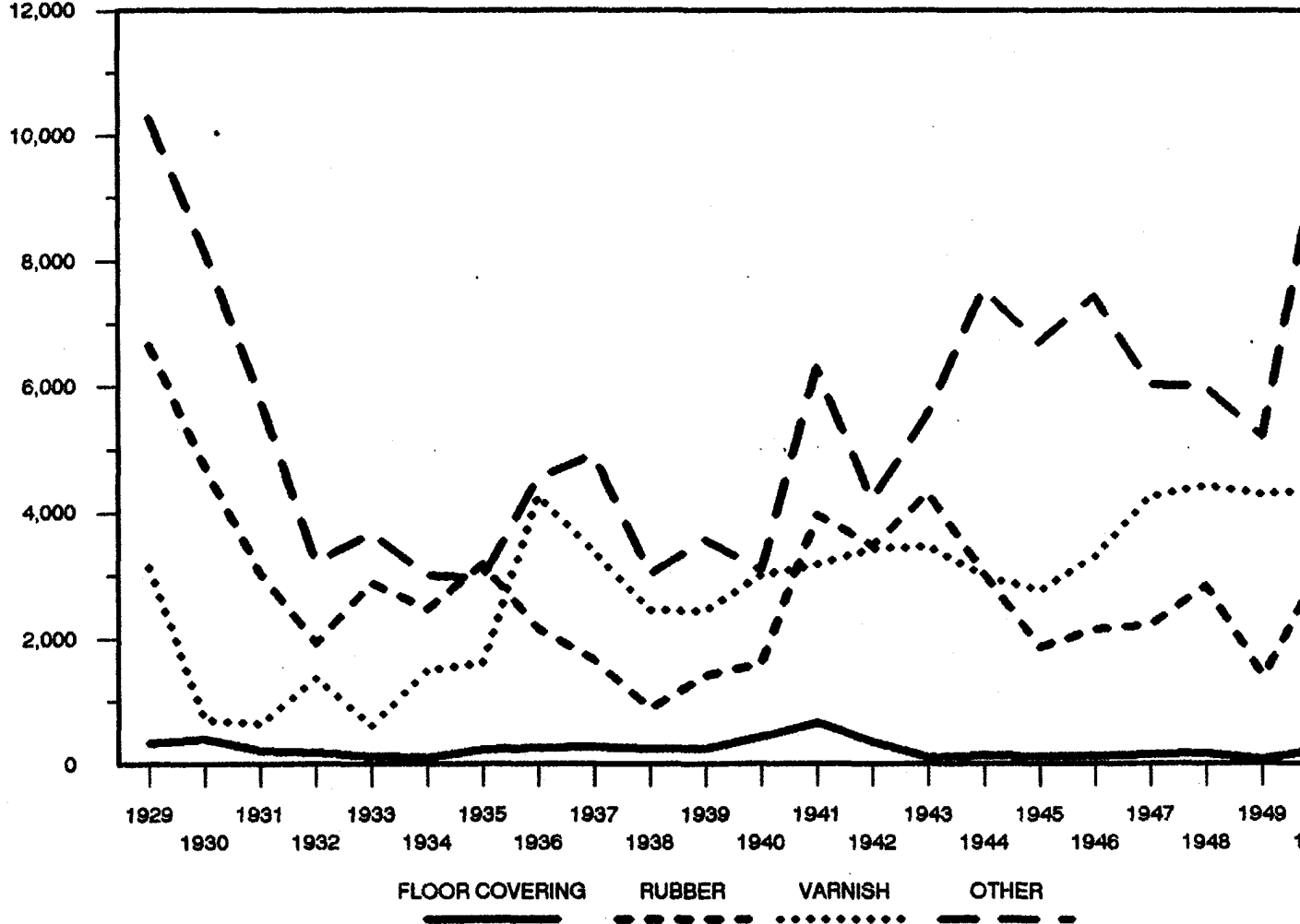
DRAFT

PREPARED A
OF CO

U.S. SHIPMENTS OF LITHARGE BY SELECTED END USE 1929-1952

SHORT TONS

12,000



NOTE: BASED ON SALES 1929-1945, SHIPMENTS 1946-

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MEANING OF STATUS CODES:

DNL	OWNED BY NATIONAL LEAD 1907
DNLF	OWNED BY NATIONAL LEAD SOMETIME AFTER 1907
DNLU	OWNED BY NATIONAL LEAD TIME UNCERTAIN
DO	OTHER DEFENDANTS OWNERSHIP IN 1907
DOF	OTHER DEFENDANTS OWNERSHIP SOMETIME AFTER 1907
I	INDEPENDENT
INF	INDEPENDENT SOMETIME AFTER 1907
NSD	OTHER DEFENDANTS IN PRODUCTION AFTER 1907

MEANING OF TABLE CODES:

I	INDEPENDENT
SW	SHERWIN WILLIAMS
NL	NATIONAL LEAD
DU	E I DUPONT NEMOURS
EP	EAGLE PICHER
GL	GLIDDEN
AN	ANACONDA
C	CLOSED
LT	NATIONAL LEAD LIMITED TRUST
UL	UNITED LEAD
IN	PLANT PARTIALLY OWNED BY NATIONAL LEAD
IE	HAMMAR BROTHERS/EAGLE PICHER NOT FULLY CONSOLIDATED
X	DOES NOT APPEAR IN THE BUREAU OF MINES LISTING OF PIGMENT PRODUCE
S	SOLD
U	UNCERTAIN AS TO START-UP DATE

FOOTNOTES:

*1 MERGERED WITH CHADWICK LEAD

N39082.21

PREPARED AT REQUEST
OF COUNSEL

1810 1820 1830 1840 1850 1860 1870 1880 1887 1890 1891 1892 1893 1894 1895 1896 1897 1898

[illegible]

1907 1908 1909 1910 1911 1912 1913

[illegible]

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[illegible]

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OF COUNSEL

YEAR	VALUE OF IMPORTS				QUANTITY IMPORTED (SHORT TONS)				SUBTOTAL			
	WHITE LEAD	RED LEAD	UTLAGE	ORANGE MINERAL	OTHER LEAD PIGMENTS	LEAD INSENAITE COMPOUND	WHITE LEAD	RED LEAD	UTLAGE	ORANGE MINERAL	LEAD COMPOUND	OTHER LEAD PIGMENTS
1911	\$46,213	\$42,471	\$1,186	\$26,515	NA	NA	371	532	12	252	NA	NA
1912	\$46,484	\$33,854	\$1,550	\$20,814	NA	NA	344	378	16	167	NA	NA
1913	\$45,268	\$41,803	\$1,750	\$22,205	NA	NA	336	50	17	185	NA	NA
1914	\$40,203	\$2,834	\$1,905	\$16,386	NA	NA	286	6	17	120	NA	NA
1915	\$24,608	\$132	\$1,422	\$14,081	NA	NA	170	1	10	66	NA	NA
1916	\$9,050	\$5,302	\$150	\$8,281	NA	NA	44	10	1	35	NA	NA
1917	\$1,985	\$13	\$0	\$4,882	NA	NA	10	0	0	17	NA	NA
1918	\$202	\$1	\$12	\$0	NA	NA	0	0	0	0	NA	NA
1919	\$2,480	\$1,136	\$0	\$5,082	NA	NA	11	4	0	20	NA	NA
1920	\$18,448	\$1,789	\$2,847	\$5,332	NA	NA	60	12	11	28	NA	NA
1921	\$12,598	\$689	\$7	\$7,830	NA	NA	62	6	0	39	NA	NA
1922	\$21,335	\$94	\$162	\$9,729	NA	NA	111	1	1	58	NA	NA
1923	\$31,386	\$220	\$1,314	\$9,031	NA	NA	169	2	11	56	NA	NA
1924	\$13,478	\$155	\$183	\$6,047	NA	NA	71	1	1	50	NA	NA
1925	\$21,535	\$268	\$330	\$6,278	NA	NA	107	2	1	29	NA	NA
1926	\$31,680	\$817	\$13	\$5,143	NA	NA	148	5	0	29	NA	NA
1927	\$29,801	\$4,403	\$133	\$3,818	NA	NA	165	26	1	22	NA	NA
1928	\$15,889	\$1,510	\$153	\$3,227	NA	NA	83	12	1	31	NA	NA
1929	\$18,086	\$745	\$270	\$3,669	NA	NA	86	5	2	28	NA	NA
1930	\$13,486	\$1,334	\$80	\$1,955	NA	NA	74	10	0	13	NA	NA
1931	\$12,114	\$44	\$48	\$1,937	NA	NA	66	0	0	12	NA	NA
1932	\$5,073	\$734	\$0	\$530	NA	NA	26	4	0	4	NA	NA
1933	\$460	\$109	\$0	\$1,586	NA	NA	3	1	0	10	NA	NA
1934	\$2,780	\$0	\$6	\$882	NA	NA	15	1	0	5	NA	NA
1935	\$1,153	\$201	\$51	\$368	NA	NA	6	2	1	2	NA	NA
1936	\$5,443	\$285	\$31	\$928	NA	NA	32	1	0	5	NA	NA
1937	\$6,677	\$285	\$21	\$828	NA	NA	34	1	1	5	NA	NA
1938	\$3,978	\$78	\$123	\$271	NA	NA	20	2	1	2	NA	NA
1939	\$2,106	\$300	\$0	\$143	NA	NA	11	2	0	1	NA	NA
1940	\$248	\$0	\$9	\$140	NA	NA	2	3	0	0	NA	NA
1941	\$389	\$250	\$0	\$11,684	NA	NA	2	0	0	0	NA	NA
1942	\$0	\$182	\$432	\$3,221	NA	NA	0	2	2	0	NA	NA
1943	\$0	\$482	\$374	\$3,283	NA	NA	0	4	0	0	NA	NA
1944	\$4	\$0	\$400	\$5,556	NA	NA	0	0	1	1	NA	NA
1945	\$34	\$0	\$1,586	\$5,987	NA	NA	1	0	8	0	NA	NA
1946	\$338	\$3,808	\$4,576	\$4,312	NA	NA	1	54	15	NA	NA	NA
1947	\$238	\$127,375	\$127,375	\$15,080	20700	446	203	22	416	NA	0	0
1948	\$82,536	\$98,508	\$421,565	\$17,446	0	1053	161	247	1,094	NA	0	0
1949	\$73,485	\$27,114	\$4,570	\$40,781	0	1053	844	70	12	NA	0	0
1950	\$271,035	\$27,114	\$4,570	\$40,781	0	1053	844	70	12	NA	0	0
1951	\$886,873	\$68,351	\$786,084	\$32,373	2864	68608	2,575	215	1,855	NA	53	180
1952	\$139,629	\$623	\$273,719	\$36,386	38879	12550	390	2	621	NA	81	32
1953	\$44	\$47	\$15,281	\$678	0	6457	0	0	0	NA	0	0
1954	\$0	\$208	\$134,413	\$14,218	0	20337	0	2	586	NA	28	88
1955	\$0	\$823	\$174,885	\$18,706	0	72066	0	3	751	NA	34	332
1956	\$3,980	\$30,706	\$1,386,733	\$38,241	0	65910	20	113	5,371	NA	0	6
1957	\$25,506	\$60,040	\$1,784,078	\$16,861	0	15003	82	236	6,116	NA	76	63
1958	\$235,725	\$13,243	\$1,509,185	\$694	0	10770	734	64	7,712	NA	55	5
1959	\$322,712	\$94,861	\$2,218,008	\$4,820	0	33533	1,073	488	11,382	NA	0	2
1960	\$461,000	\$111,000	\$2,561,000	\$8,000	0	62000	1,487	537	13,371	NA	0	0
1961	\$535,000	\$68,000	\$2,781,000	\$0	0	64000	1,872	457	15,380	NA	0	0
1962	\$578,000	\$83,000	\$2,228,000	\$13,000	0	124000	2,381	535	15,597	NA	34	438
1963	\$548,000	\$188,000	\$3,582,000	\$9,000	0	52000	2,434	1,171	22,440	NA	12	238
1964	\$748,000	\$351,000	\$4,001,000	\$13,000	0	61000	2,674	1,613	18,763	NA	195	185
1965	\$581,000	\$145,000	\$3,375,000	\$15,000	0	67000	1,631	524	22,208	NA	203	5
1966	\$668,000	\$591,000	\$5,685,000	\$18,000	0	380000	1,915	2,130	25,638	NA	78	78
1967	\$672,000	\$761,000	\$4,986,000	\$22,000	0	158000	2,283	3,236	24,632	NA	76	372
1968	\$672,000	\$977,000	\$5,131,000	\$54,000	0	118000	2,156	4,412	24,828	NA	386	207
1969	\$661,000	\$1,365,000	\$5,542,000	\$107,000	0	308000	1,731	5,517	23,882	NA	801	342
1970	\$431,000	\$1,827,000	\$3,278,000	\$54,000	0	255000	1,105	6,908	13,703	NA	655	218
1971	\$379,000	\$1,134,000	\$2,240,000	\$56,000	0	225000	1,231	4,888	14,704	NA	633	202
1972	\$376,000	\$377,000	\$4,141,000	\$480,000	0	205000	600	1,288	15,356	NA	425	1346
1973	\$288,000	\$186,000	\$4,640,000	\$139,000	0	195000	401	583	14,318	NA	354	357
1974	\$181,000	\$424,000	\$4,382,000	\$70,000	0	987000	149	709	6,647	NA	420	98
1975	\$160,000	\$180,000	\$4,449,000	\$60,000	0	184000	159	448	12,011	NA	210	38
1976	\$156,000	\$386,000	\$5,082,000	\$93,000	0	230000	134	891	13,694	NA	289	81

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Notes: 'White Lead' is also called 'Corroded White Lead' and 'Basic Carbonate White Lead' in the source tables.
Lead Compounds is also called 'Other Lead Compounds' in the source tables.
Asterisk indicates less than 1 ton.
Where different yearbooks report different values, the value in the most current yearbook is used.
Value of Litharge from 1958 onwards is stated on different basis.

Sources: Mineral Resources of the United States, 1915, p. 200.
Mineral Resources of the United States, 1916, p. 850.
Mineral Resources of the United States, 1917, p. 884.
Mineral Resources of the United States, 1918, p. 967.
Mineral Resources of the United States, 1919, p. 327.
Mineral Resources of the United States, 1920, p. 449.
Mineral Resources of the United States, 1921, p. 56.
Mineral Resources of the United States, 1922, p. 79.
Mineral Resources of the United States, 1923, p. 121.
Mineral Resources of the United States, 1924, p. 144.
Mineral Resources of the United States, 1925, p. 152.
Mineral Resources of the United States, 1926, p. 221.
(1927 is missing pertinent page)
Mineral Resources of the United States, 1928, p. 359.
Mineral Resources of the United States, 1929, p. 520.
Mineral Resources of the United States, 1930, p. 127.
Mineral Resources of the United States, 1931, p. 222.
Minerals Yearbook, 1932-33, p. 97.
Minerals Yearbook, 1934, p. 135.
Minerals Yearbook, 1935, p. 133.
Minerals Yearbook, 1936, pp. 160-1.
Minerals Yearbook, 1937, pp. 221-2.
Minerals Yearbook, 1938, pp. 164-5.
Minerals Yearbook, 1939, pp. 162-3.
Minerals Yearbook, 1940, pp. 159-60.
Minerals Yearbook, 1941, p. 177.
Minerals Yearbook, 1942, pp. 217-8.
Minerals Yearbook, 1943, p. 223.
Minerals Yearbook, 1944, p. 217.
Minerals Yearbook, 1945, pp. 217-8.
Minerals Yearbook, 1946, pp. 707.
Minerals Yearbook, 1947, pp. 703.
Minerals Yearbook, 1948, pp. 735-6.

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U.S. LEAD PIGMENTS EXPORTS

YEAR	VALUE OF EXPORTS				QUANTITY EXPORTED (SHORT TONS)											
	WHITE LEAD	RED LEAD	UTURNAGE LEAD + UT	ORANGE MINERAL	OTHER LEAD PIGMENTS	LEAD ARSENATE	OTHER LEAD COMPOUND	WHITE LEAD	BASIC LEAD SULPHATE	RED LEAD	UTURNAGE LEAD + UT	ORANGE MINERAL	SUBLIMED LEAD	LEAD ARSENATE	OTHER LEAD COMPOUND	SUBOXIDE OF LEAD
1911																
1912	\$805,388							7,531								
1913	\$1,017,378							6,823								
1914	\$1,408,622							12,655								
1915	\$2,137,072							13,718								
1916	\$2,088,658							9,688								
1917	\$1,756,738	\$287,238						7,784								
1918	\$3,037,282	\$735,177						14,017								
1919	\$3,185,101	\$385,575						14,801								
1920	\$883,130	\$115,500						5,161								
1921	\$710,785	\$294,133						4,588								
1922	\$838,281	\$372,828						5,172								
1923	\$853,444	\$210,588						5,055								
1924	\$1,283,188	\$183,581						6,832								
1925	\$1,118,350	\$175,273						6,238								
1926	\$847,228	\$271,376						6,047								
1927	\$852,318	\$384,985						6,478								
1928	\$821,509	\$503,243						5,806								
1929	\$823,281	\$390,285						5,546								
1930	\$562,228	\$394,828						5,008								
1931	\$174,483	\$58,150						1,681								
1932	\$120,433	\$83,638						1,048								
1933	\$202,883	\$5,521						1,561								
1934	\$277,583	\$88,727						2,337								
1935	\$285,885	\$113,887						750								
1936	\$207,381	\$158,823						810								
1937	\$180,745	\$115,348						834								
1938	\$275,311	\$188,388						908								
1939	\$211,148	\$185,048						1,324								
1940	\$418,630	\$437,786						1,380								
1941	\$392,812	\$257,821						2,801								
1942	\$844,982	\$314,771						2,248								
1943	\$572,648	\$411,820						1,535								
1944	\$811,888	\$385,583						3,052								
1945	\$183,887	\$282,451						4,078								
1946	\$334,631	\$288,788						510								
1947	\$294,327	\$380,222						883								
1948	\$278,888	\$408,481						663								
1949	\$243,344	\$194,838						1,042								
1950	\$272,885	\$288,088						948								
1951	\$222,082	\$183,648						565								
1952	\$218,514	\$153,630						435								
1953	\$288,801	\$124,613						417								
1954	\$284,735	\$133,580						335								
1955	\$189,528	\$147,617						325								
1956	\$273,383	\$242,188						382								
1957								622								
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1959																
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Lead White Lead' and 'Basic Carbonate White Lead' in the source tables.

Different values, the value in the most current yearbook is used.

and prior to July 1, 1917. The 1917 red lead numbers are for July 1, 1917 to December 31, 1917.

by the Bureau of Foreign and Domestic Commerce with white lead in exports since 1922; the figures for 1923-1931 may possibly include separate.

not classified separately 1923-24 and 1927-31; the figures for those years may include an unknown quantity of litharge.

include also an unknown quantity of orange mineral. Figures for other years are for red lead only.

values, 1916, p. 851.
values, 1917, p. 863.
values, 1918, p. 868.
values, 1919, p. 328.
values, 1920, p. 450.
values, 1921, p. 87.
values, 1922, p. 79.
values, 1923, p. 122.
values, 1924, p. 144.
values, 1925, p. 153.
values, 1926, p. 222.
values, 1926, p. 359.
values, 1928, p. 520.
values, 1930, p. 128.
values, 1931, p. 223.
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Exhibit __

Summary of FTC Findings

Company	Shares of U.S. States					
	Years	White Lead In Oil	Dry White Lead	Red Lead and Litharge	Leaded Zinc Oxide	Basic Sulphate of Lead
<u>Defendants:</u>						
National Lead ¹	1936-1942	60-63%	30-35%	50%		
Eagle Picher	1930-1946	15-20%	8-12%	Not reported	"substantial"	"substantial"
Glidden	1932-1943	2-9%	8-18%	4-8%		
Sherwin Williams	"For many years" prior to 1945	5%	<1%	<1%		
Anaconda (IS&R) ²	1937-1941	<u>3-4%</u>	<u>10-19%</u>	—		
Total		85-101%	59-83%	55-59%		

Others

MacGregor has produced basic carbonate of white lead.

W.P. Fuller has produced basic carbonate of white lead.

Hammond Lead Company has produced oxides, red lead, and litharge.

Many manufacturers of ready-mixed paints have produced white lead in oil.

¹Total share of U.S. sales of white lead:

1938 58.8%

1941 53%

²Share of total U.S. sales of white lead:

1938 6.6%

1941 8.8%

Source: Charles River Associates, 1991

LIBRARY OF BOOKS AND MATERIALS PERTAINING TO LEAD PIGMENTS

Pigment Library	A History of the Lead and Zinc Industry of the Tri-State District, Arrell Gibson	1954
Pigment Library	Kline Guide to the Paint Industry	1975
Pigment Library	Lead and Zinc Policies of the War Production Board and Predecessor Agencies	5/40-3/44
Pigment Library	The Lead and Zinc Pigments, C D Holley, 1909	1909
Pigment Library	Analysis of Paint and Varnish Products, C D Holley, 1912	1912
Pigment Library	Analysis of Mixed Paints, Color Pigments, and Varnishes, C D Holley, 1908	1908
Pigment Library	Minerals Yearbook, US Geological Survey, and BOM 1883-present	
Pigment Library	American Bureau of Metal Statistics 1923-present	
Pigment Library	Metallgesellschaft 1910-present (older scattered)	
Pigment Library	Handbook of Non-Ferrous Metallurgy (Lead Chapter), Donald M Liddell & Staff Spe-	1945
Pigment Library	Lead in Modern Industry, Lead Industry Association	1952
Pigment Library	Paints and Their Compositions (North Dakota State University)	1908
Pigment Library	Paints and Paint Products (North Dakota State University)	1905
Pigment Library	The Lead Pigments Chapter 13, Protective and Decorative Coatings, Mattiello	1942
Pigment Library	Census of Manufactures Paints and Pigments 1910-present	
Pigment Library	Lead Specs Various, American Society for Testing Materials	
Pigment Library	The Industrial and Artistic Technology of Paint and Varnish, Alvah Sabin	1917
Pigment Library	Lead The Precious Metal, Orlando Harn	1924
Pigment Library	Protective and Decorative Coatings, Joseph Mattiello, 1943	1943
Pigment Library	Sweet's Catalogue File, Various Years	
Pigment Library	Summarized Data of Lead Production, US BOM, Lewis Smith, 1929	1929
Pigment Library	The Industrial Arts Index, Various Years 1914	
Pigment Library	Notes for A History of Lead, William Pulsifer, 1888, (Chapter 18)	1888
Pigment Library	Bibliography on Lead and Lead Products, J. J. Berliner & Staff	1935-1940
Pigment Library	Marketing Guide to the Paint Industry, Kline 1985	1985
Pigment Library	Modern Pigments and Their Vehicles, Frederick Maire, 1908	1908
Pigment Library	Lead and Zinc News, 1901	1901
Pigment Library	Lead Industries Assoc, Annual Statistical Review	1929-1939
Pigment Library	The Industrial and Artistic Technology of Paint and Varnish, A H Sabin, 1904	1904
Pigment Library	Rustless Coatings, M P Wood, 1904	1904
Pigment Library	White-Lead its Use in Paint, A H Sabin, 1920	1920
Pigment Library	Paints, Varnishes, Lacquers, Colors, Henry Gardener, 1940	1940
Pigment Library	Metallurgy of Lead, H O Hofman, 1918	1918
Pigment Library	Annual Reports, Eagle-Picher, Anaconda, National Lead, Sherwin Williams (various) 1900-1974	

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1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931

[illegible]

1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949

[illegible]

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COMPANY	CITY/STATE	STATUS	1917	1810	1820	1830	1840	1850	1860	1870	1880	1887	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
W. H. GREGG WHITE LEAD COMPANY	BOSTON, MA																					
BOSTON LEAD CO	SALEM, MA																					
SALEM LEAD WORKS	CINCINNATI, OH																					
CINCINNATI MANUFACTURING CO	BALTIMORE, MD																					
ADAMS WHITE LEAD CO	BROOKLYN, NY																					
UNIDENTIFIED	PHILADELPHIA, PA																					
JOHN HARRISON	PITTSBURGH, PA																					
BIELIN & STEVENSON	PITTSBURGH, PA																					
TREVOR, PETTIGREW & PROVOST	PITTSBURGH, PA																					
BEYMER, BAUMAN & CO	BOSTON, MA																					
CHADWICK LEAD CO	CHICAGO, IL																					
CARTER-CHICAGO PLANT	CHICAGO, IL (SOUTHERN?)																					
WESTERN WHITE LEAD CO	CINCINNATI, OH																					
ANCHOR WHITE LEAD CO	LOUISVILLE, KY																					
KENTUCKY LEAD & OIL CO	PERTH AMBOY, NJ																					
UNITED LEAD CO	NY																					
MATHESON LEAD CO	NY																					
ATLANTIC WHITE & L.O. CO.	BROOKLYN, NY																					
BRADLEY WHITE LEAD WORKS	PHILADELPHIA, PA																					
SMITH-RICHARDS/LEWIS BROS	PHILADELPHIA, PA																					
WETHERILL & SONS	PITTSBURGH, PA																					
STERLING LEAD WORKS	ST. LOUIS, MO																					
ST. LOUIS LEAD & OIL CO	CA																					
SELBY WHITE LEAD WORKS	PITTSBURGH, PA																					
DAVIS LEAD CO	PITTSBURGH, PA																					
PENN WHITE LEAD WORKS	BALTIMORE, MD																					
MARYLAND WHITE LEAD COMPANY	OMAHA, NE																					
OMAHA WHITE LEAD CO	SALEM, MA																					
SALEM LEAD MANUFACTURING CO	CHICAGO, IL																					
D. B. SHIPMAN WHITE LEAD WORKS	CINCINNATI, OH																					
ECKSTEIN WHITE LEAD CO	CLEVELAND, OH																					
J. H. MORLEY WHITE LEAD WORKS	DAYTON, OH																					
GIEBHARDT CO	SAUGERTIES, NY																					
ULSTER WHITE LEAD WORKS	NY																					
UNION LEAD AND OIL CO	NY																					
ATLANTIC WHITE LEAD CO	NY																					
JEWETT LEAD WORKS	NY																					
UNION CO	NY																					
BROOKLYN WHITE LEAD WORKS	BROOKLYN, NY																					
S. B. CORNELL & SONS	BUFFALO, NY (2 PLANTS)																					
MCDUGALL LEAD CO	BUFFALO, NY																					
FARNESTOCK WHITE LEAD WORKS	PITTSBURGH, PA																					
DAVIS CHAMBERS LEAD CO.	PITTSBURGH, PA																					
ARMSTRONG-MCKELVEY LEAD & OIL	PITTSBURGH, PA																					
MISSOURI LEAD AND OIL CO	ST. LOUIS, MO																					
COLLIER WHITE LEAD & OIL WORKS	ST. LOUIS, MO																					
SOUTHERN WHITE LEAD CO	ST. LOUIS, MO																					
AMERICAN WHITE LEAD	LOUISVILLE, KY																					

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COMPANY	CITY/STATE	STATUS																			
		1917	1910	1820	1830	1840	1850	1860	1870	1880	1887	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
EAGLE WHITE LEAD WORKS	CINCINNATI, OH	EP																			
HAMMER BROS WHITE LEAD CO	EAST ST. LOUIS, IL	EPP																			
EUSTON LEAD CO	SCRANTON, PA	GF																			
HARRISON BROTHERS & CO	PHILADELPHIA, PA																				
JOHN R. MACGREGOR LEAD CO.	CHICAGO, IL	INF																			
ROWLEY (MILD PROCESS LEAD CO)	DETROIT	U																			
GRAVES LEAD COMPANY	CAMDEN, NJ	U																			
NEVIN LEAD CO	PITTSBURGH, PA	U																			
PIONEER LEAD WORKS	SAN FRANCISCO, CA	U																			
W. P. FULLER & CO.	SOUTH SAN FRANCISCO, CA	U																			
LEWIS LEAD WORKS	SAN FRANCISCO, CA	U																			
IS&R	EAST CHICAGO	NSA																			
SHERWIN WILLIAMS	CHICAGO, IL	SWU																			

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COMPANY	CITY/STATE	STAT 1917	1900	1901	1902	1903	1904	1905	1906	CAPACITY 1907	SUM OF CATEGORIES 1907	1908	1909	1910	1911	1912	1913	1914	1915
W. H. GREGG WHITE LEAD COMPANY	BOSTON, MA	I																	
BOSTON LEAD CO	SALEM, MA																		
SALEM LEAD WORKS	CINCINNATI, OH																		
CINCINNATI MANUFACTURING CO	BALTIMORE, MD																		
ADAMS WHITE LEAD CO	BROOKLYN, NY																		
UNIDENTIFIED	PHILADELPHIA, PA																		
JOHN HARRISON	PITTSBURGH, PA																		
BIELIN & STEVENSON	PITTSBURGH, PA																		
TREVOR, PETTIGREW & PROVOST	PITTSBURGH, PA																		
BEYMER, BAUMAN & CO	PITTSBURGH, PA																		
CHADWICK LEAD CO	BOSTON, MA																		
CATER, CHICAGO PLANT	CHICAGO, IL																		
WESTERN WHITE LEAD CO	CHICAGO, IL (SOUTHERN?)																		
ANCHOR WHITE LEAD CO	CINCINNATI, OH																		
KENTUCKY LEAD & OIL CO	LOUISVILLE, KY																		
UNITED LEAD CO	PERTH AMBOY, NJ																		
MATHESON LEAD CO	NY																		
ATLANTIC WHITE & L.O. CO.	NY																		
BRADLEY WHITE LEAD WORKS	BROOKLYN, NY																		
SMITH/RICHARDS/LEWIS BROS	PHILADELPHIA, PA																		
WETHERILL & SONS	PHILADELPHIA, PA																		
STERLING LEAD WORKS	PITTSBURGH, PA																		
ST. LOUIS LEAD & OIL CO	PITTSBURGH, PA																		
SELBY WHITE LEAD WORKS	ST. LOUIS, MO																		
DAVIS LEAD CO	CA																		
PENN WHITE LEAD WORKS	PITTSBURGH, PA																		
MARYLAND WHITE LEAD COMPANY	BALTIMORE, MD																		
OMAHA WHITE LEAD CO	OMAHA, NE																		
SALEM LEAD MANUFACTURING CO	SALEM, MA																		
D. B. SHIPMAN WHITE LEAD WORKS	CHICAGO, IL																		
ECKSTEIN WHITE LEAD CO	CINCINNATI, OH																		
J. H. MORLEY WHITE LEAD WORKS	CLEVELAND, OH																		
GEBHARDT CO	DAYTON, OH																		
ULSTER WHITE LEAD WORKS	SAUGERTIES, NY																		
UNION LEAD AND OIL CO	NY																		
ATLANTIC WHITE LEAD CO	NY																		
JEWETT LEAD WORKS	NY																		
UNION CO	NY																		
BROOKLYN WHITE LEAD WORKS	BROOKLYN, NY																		
S. B. CORNELL & SONS	BUFFALO, NY (2 PLANTS)																		
MCDUGALL LEAD CO	BUFFALO, NY																		
FAHNESTOCK WHITE LEAD WORKS	PITTSBURGH, PA																		
DAVIS CHAMBERS LEAD CO.	PITTSBURGH, PA																		
ARMSTRONG-MCKELVEY LEAD & OIL	CLEVELAND, OH																		
MISSOURI LEAD AND OIL CO	ST. LOUIS, MO																		
COLLIER WHITE LEAD & OIL WORKS	ST. LOUIS, MO																		
SOUTHERN WHITE LEAD CO	ST. LOUIS, MO																		
AMERICAN WHITE LEAD	LOUISVILLE, KY																		

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COMPANY	CITY/STATE	STAT 1917	SUM OF CAPACITY CATEGORIES																
			1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	
EAGLE WHITE LEAD WORKS	CINCINNATI, OH	EP	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
HAMMER BROS WHITE LEAD CO	EAST ST. LOUIS, IL	EPF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
EUSTON LEAD CO	SCRANTON, PA	GF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
HARRISON BROTHERS & CO	PHILADELPHIA, PA	I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
JOHN R. MACGREGOR LEAD CO.	CHICAGO, IL	INF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ROWLEY (MILD PROCESS LEAD CO)	DETROIT	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
GRAVES LEAD COMPANY	CAMDEN, NJ	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
NEVIN LEAD CO	PITTSBURGH, PA	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
PIONEER LEAD WORKS	SAN FRANCISCO, CA	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
W. P. FULLER & CO.	SOUTH SAN FRANCISCO, CA	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
LEWIS LEAD WORKS	SAN FRANCISCO, CA	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
IS&R	EAST CHICAGO	NSA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
SHERWIN WILLIAMS	CHICAGO, IL	SWU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

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COMPANY	CITY/STATE	STAT 1917	SUM OF CAPACITY CATEGORIES										1923	1924	1925	1926	1927	1928	1929	1930
			1917	1916	1917	1917	1917	1918	1919	1920	1921	1922								
W. H. GREGG WHITE LEAD COMPANY	BOSTON, MA								X	X	X									
BOSTON LEAD CO	SALEM, MA																			
CINCINNATI MANUFACTURING CO	CINCINNATI, OH																			
ADAMS WHITE LEAD CO	BALTIMORE, MD																			
UNIDENTIFIED	BROOKLYN, NY																			
JOHN HARRISON	PHILADELPHIA, PA																			
BIELIN & STEVENSON	PITTSBURGH, PA																			
TREVOR, PETTIGREW & PROVOST	PITTSBURGH, PA																			
BEYMER, BAUMAN & CO	BOSTON, MA																			
CHADWICK LEAD CO	CHICAGO, IL																			
CARTER, CHICAGO PLANT	CHICAGO, IL																			
WESTERN WHITE LEAD CO	CHICAGO, IL																			
ANCHOR WHITE LEAD CO	CINCINNATI, OH																			
KENTUCKY LEAD & OIL CO	LOUISVILLE, KY																			
UNITED LEAD CO	PERTH AMBOY, NJ																			
MATHESON LEAD CO	NY																			
ATLANTIC WHITE & L.O. CO.	NY																			
BRADLEY WHITE LEAD WORKS	BROOKLYN, NY																			
SMITH/RICHARDS/LEWIS BROS	PHILADELPHIA, PA																			
WETHERILL & SONS	PHILADELPHIA, PA																			
STERLING LEAD WORKS	PITTSBURGH, PA																			
ST. LOUIS LEAD & OIL CO	ST. LOUIS, MO																			
SELBY WHITE LEAD WORKS	CA																			
DAVIS LEAD CO	PITTSBURGH, PA																			
PENN WHITE LEAD WORKS	PITTSBURGH, PA																			
MARYLAND WHITE LEAD COMPANY	BALTIMORE, MD																			
OMAHA WHITE LEAD CO	OMAHA, NE																			
SALEM LEAD MANUFACTURING CO	SALEM, MA																			
D. B. SHIPMAN WHITE LEAD WORKS	CHICAGO, IL																			
ECKSTEIN WHITE LEAD CO	CINCINNATI, OH																			
J. H. MORLEY WHITE LEAD WORKS	CLEVELAND, OH																			
GERHARDT CO	DAYTON, OH																			
ULSTER WHITE LEAD WORKS	SAUGERTES, NY																			
UNION LEAD AND OIL CO	NY																			
ATLANTIC WHITE LEAD CO	NY																			
JEWETT LEAD WORKS	NY																			
UNION CO	NY																			
BROOKLYN WHITE LEAD WORKS	BROOKLYN, NY																			
S. B. CORNELL & SONS	BUFFALO, NY (2 PLANTS)																			
MCDUGALL LEAD CO	BUFFALO, NY																			
FAHNESTOCK WHITE LEAD WORKS	PITTSBURGH, PA																			
DAVIS CHAMBERS LEAD CO.	PITTSBURGH, PA																			
ARMSTRONG-MCKELVEY LEAD & OIL	PITTSBURGH, PA																			
MISSOURI LEAD AND OIL CO	ST. LOUIS, MO																			
COLLIER WHITE LEAD & OIL WORKS	ST. LOUIS, MO																			
SOUTHERN WHITE LEAD CO	ST. LOUIS, MO																			
AMERICAN WHITE LEAD	LOUISVILLE, KY																			

SOURCE: BOM AND OTHER SELECT SOURCES.

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PREPARED AT REQUEST
OF COUNSEL

COMPANY	CITY/STATE	SUM OF CAPACITY CATEGORIES																			
		STAT.		1917		1916		1917		1917		1918		1919		1920		1921		1922	
		1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916
EAGLE WHITE LEAD WORKS	CINCINNATI, OH	EP	EP	120	120	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP
HAMMER BROS WHITE LEAD CO	EAST ST. LOUIS, IL	EP	I	50	50	I	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
EUSTON LEAD CO	SCRANTON, PA	GF																			
HARRISON BROTHERS & CO	PHILADELPHIA, PA	I	I	20		I	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
JOHN R. MACGREGOR LEAD CO.	CHICAGO, IL	INF																			
ROMLEY (MILD PROCESS LEAD CO)	DETROIT	I																			
GRAVES LEAD COMPANY	CAMDEN, NJ	I	7	50		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NEVIN LEAD CO	PITTSBURGH, PA	I	7	15		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PIONEER LEAD WORKS	SAN FRANCISCO, CA	I	7	10		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
W. P. FULLER & CO.	SOUTH SAN FRANCISCO, CA	I	7	45		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LEWIS LEAD WORKS	SAN FRANCISCO, CA	I	U			U	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
IS&R	EAST CHICAGO	NSA	7	5		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SHERWIN WILLIAMS	CHICAGO, IL	SWU	U			U	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW

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COMPANY	CITY/STATE	1917	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
W. H. GREGG WHITE LEAD COMPANY	BOSTON, MA																				
BOSTON LEAD CO	SALEM, MA																				
SALEM LEAD WORKS	CINCINNATI, OH																				
CINCINNATI MANUFACTURING CO	BALTIMORE, MD																				
ADAMS WHITE LEAD CO	BROOKLYN, NY																				
UNIDENTIFIED	PHILADELPHIA, PA																				
JOHN HARRISON	PITTSBURGH, PA																				
BIELIN & STEVENSON	PITTSBURGH, PA																				
TREVOR, PETTIGREW & PROVOST	PITTSBURGH, PA																				
BEYMER, BAUMAN & CO	BOSTON, MA																				
CHADWICK LEAD CO	CHICAGO, IL																				
CARTER-CHICAGO PLANT	CHICAGO, IL/SOUTHERN(?)																				
WESTERN WHITE LEAD CO	CINCINNATI, OH																				
ANCHOR WHITE LEAD CO	LOUISVILLE, KY																				
KENTUCKY LEAD & OIL CO	PERTH AMBOY, NJ																				
UNITED LEAD CO	NY																				
MATHESON LEAD CO	NY																				
ATLANTIC WHITE & L.O. CO.	BROOKLYN, NY																				
BRADLEY WHITE LEAD WORKS	PHILADELPHIA, PA																				
SMITH-RICHARDS/LEWIS BROS	PHILADELPHIA, PA																				
WETHERILL & SONS	PITTSBURGH, PA																				
STERLING LEAD WORKS	ST. LOUIS, MO																				
ST. LOUIS LEAD & OIL CO	CA																				
SELBY WHITE LEAD WORKS	PITTSBURGH, PA																				
DAVIS LEAD CO	PITTSBURGH, PA																				
PENN WHITE LEAD WORKS	BALTIMORE, MD																				
MARYLAND WHITE LEAD COMPANY	OMAHA, NE																				
OMAHA WHITE LEAD CO	SALEM, MA																				
SALEM LEAD MANUFACTURING CO	CHICAGO, IL																				
D. B. SHIPMAN WHITE LEAD WORKS	CINCINNATI, OH																				
ECKSTEIN WHITE LEAD CO	CLEVELAND, OH																				
J. H. MORLEY WHITE LEAD WORKS	DAYTON, OH																				
GEBHARDT CO	SAUGERTIES, NY																				
ULSTER WHITE LEAD WORKS	NY																				
UNION LEAD AND OIL CO	NY																				
ATLANTIC WHITE LEAD CO	NY																				
JEWETT LEAD WORKS	NY																				
UNION CO	BROOKLYN, NY																				
BROOKLYN WHITE LEAD WORKS	BUFFALO, NY (2 PLANTS)																				
S. B. CORNELL & SONS	BUFFALO, NY																				
MCDUGALL LEAD CO	PITTSBURGH, PA																				
FAHNESTOCK WHITE LEAD WORKS	PITTSBURGH, PA																				
DAVIS CHAMBERS LEAD CO.	PITTSBURGH, PA																				
ARMSTRONG-MCKELVEY LEAD & OIL	PITTSBURGH, PA																				
MISSOURI LEAD AND OIL CO	ST. LOUIS, MO																				
COLLIER WHITE LEAD & OIL WORKS	ST. LOUIS, MO																				
SOUTHERN WHITE LEAD CO	ST. LOUIS, MO																				
AMERICAN WHITE LEAD	LOUISVILLE, KY																				

SOURCE: BOM AND OTHER SELECT SOURCES.

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PREPARED AT REQUEST
OF COUNSEL

COMPANY	CITY/STATE	STAT																											
		1917	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949								
EAGLE WHITE LEAD WORKS	CINCINNATI, OH	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	C											
HAMMER BROS WHITE LEAD CO	EAST ST LOUIS, IL	EPF	EP			X																							
EUSTON LEAD CO	SCANTON, PA	GF	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL	GL								
HARRISON BROTHERS & CO	PHILADELPHIA, PA	I	DJ			X																							
JOHN R. MACGREGOR LEAD CO.	CHICAGO, IL	INF																											
HOWLEY (MILD PROCESS LEAD CO)	DETROIT	U																											
GRAVES LEAD COMPANY	CAMDEN, NJ	U																											
NEVIN LEAD CO	PITTSBURGH, PA	U																											
PIONEER LEAD WORKS	SAN FRANCISCO, CA	U																											
W. P. FULLER & CO.	SOUTH SAN FRANCISCO, CA	U																											
LEWIS LEAD WORKS	SAN FRANCISCO, CA	U																											
IS&R	EAST CHICAGO	NSA																											
SHERWIN WILLIAMS	CHICAGO, IL	SMU	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	

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PREPARED AT REQUEST
OF COUNSEL

COMPANY	CITY/STATE	STAT											
		1917	1950	1951	1952	1953	1954	1955	1956	1957	1958		
W. H. GREGG WHITE LEAD COMPANY	BOSTON,MA												
BOSTON LEAD CO	SALEM,MA												
SALEM LEAD WORKS	CINCINNATI,OH												
CINCINNATI MANUFACTURING CO	BALTIMORE,MD												
ADAMS WHITE LEAD CO	BROOKLYN,NY												
UNIDENTIFIED	PHILADELPHIA,PA												
JOHN HARRISON	PITTSBURGH,PA												
BIELIN & STEVENSON	PITTSBURGH,PA												
TREVOR, PETTIGREW & PROVOST	PITTSBURGH,PA												
BEYMER, BAUMAN & CO	BOSTON, MA												
CHADWICK LEAD CO	CHICAGO, IL												
CARTER-CHICAGO PLANT	CHICAGO, IL (SOUTHERN?)												
WESTERN WHITE LEAD CO	CINCINNATI, OH												
ANCHOR WHITE LEAD CO	LOUISVILLE, KY												
KENTUCKY LEAD & OIL CO	PERTH AMBOY, NJ												
UNITED LEAD CO	NY												
MATHESON LEAD CO	NY												
ATLANTIC WHITE & L.O. CO.	BROOKLYN, NY												
BRADLEY WHITE LEAD WORKS	PHILADELPHIA, PA												
SMITH/RICHARDS/LEWIS BROS	PHILADELPHIA, PA												
WETHERILL & SONS	PITTSBURGH, PA												
STERLING LEAD WORKS	ST. LOUIS, MO												
ST. LOUIS LEAD & OIL CO	CA												
SELBY WHITE LEAD WORKS	PITTSBURGH, PA												
DAVIS LEAD CO	PITTSBURGH, PA												
PENN WHITE LEAD WORKS	BALTIMORE, MD												
MARYLAND WHITE LEAD COMPANY	OMAHA, NE												
OMAHA WHITE LEAD CO	SALEM, MA												
SALEM LEAD MANUFACTURING CO	CHICAGO, IL												
D. B. SHIPMAN WHITE LEAD WORKS	CINCINNATI, OH												
ECKSTEIN WHITE LEAD CO	CLEVELAND, OH												
J. H. MORLEY WHITE LEAD WORKS	DAYTON, OH												
GEBHARDT CO	SAUGERTIES, NY												
ULSTER WHITE LEAD WORKS	NY												
UNION LEAD AND OIL CO	NY												
ATLANTIC WHITE LEAD CO	NY												
JEVETT LEAD WORKS	NY												
UNION CO	NY												
BROOKLYN WHITE LEAD WORKS	BROOKLYN, NY												
S. B. CORNELL & SONS	BUFFALO, NY (2 PLANTS)												
MCDUGALL LEAD CO	BUFFALO, NY												
FAHNESTOCK WHITE LEAD WORKS	PITTSBURGH, PA												
DAVIS CHAMBERS LEAD CO.	PITTSBURGH, PA												
ARMSTRONG-MCKELVEY LEAD & OIL	PITTSBURGH, PA												
MISSOURI LEAD AND OIL CO	ST. LOUIS, MO												
COLLIER WHITE LEAD & OIL WORKS	ST. LOUIS, MO												
SOUTHERN WHITE LEAD CO	ST. LOUIS, MO												
AMERICAN WHITE LEAD	LOUISVILLE, KY												

SOURCE: BOM AND OTHER SELECT SOURCES.

PROGRESSION OF WHITE LEAD PIGMENT PRODUCERS 1810-1958

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COMPANY	CITY/STATE	STATUS	STATL									
			1917	1950	1951	1952	1953	1954	1955	1956	1957	1958
EAGLE WHITE LEAD WORKS	CINCINNATI, OH	EP										
HAMMER BROS WHITE LEAD CO	EAST ST. LOUIS, IL	EPF										
EUSTON LEAD CO	SCRANTON, PA	GF	GL	GL	GL	GL	GL	GL	GL	GL	C	
HARRISON BROTHERS & CO	PHILADELPHIA, PA	I										
JOHN R. MACGREGOR LEAD CO.	CHICAGO, IL	INF										
ROWLEY (MILD PROCESS LEAD CO)	DETROIT	IU										
GRAVES LEAD COMPANY	CAMDEN, NJ	IU										
NEVIN LEAD CO	PITTSBURGH, PA	IU										
PIONEER LEAD WORKS	SAN FRANCISCO, CA	IU										
W. P. FULLER & CO.	SOUTH SAN FRANCISCO, CA	IU										
LEWIS LEAD WORKS	SAN FRANCISCO, CA	IU										
IS&R	EAST CHICAGO	NSA										
SHERWIN WILLIAMS	CHICAGO, IL	SWU										

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MEANING OF STATUS CODES:

DNL	OWNED BY NATIONAL LEAD 1917
DNLF	OWNED BY NATIONAL LEAD SOMETIME AFTER 1917
DNLO	OWNED BY NATIONAL LEAD PRESUMED OPEN
DNLU	OWNED BY NATIONAL LEAD TIME UNCERTAIN
DNLX	OWNED BY NATIONAL LEAD PRESUMED CLOSED
EP	EAGLE PICHER
EPF	EAGLE PICHER SOMETIME AFTER 1917
GF	GLIDDEN AFTER 1917
I	INDEPENDENT
INF	INDEPENDENT SOMETIME AFTER 1917
IU	INDEPENDENT STATUS UNCERTAIN IN 1917
NSA	ANACONDA NOT OPERATING IN 1917
SWU	SHERWIN WILLIAMS UNCERTAIN TIMING

**PREPARED AT REQUEST
OF COUNSEL**

MEANING OF TABLE CODES:

I	INDEPENDENT
SW	SHERWIN WILLIAMS
NL	NATIONAL LEAD
DU	E I DUPONT NEMOURS
EP	EAGLE PICHER
GL	GLIDDEN
AN	ANACONDA
C	CLOSED
LT	NATIONAL LEAD LIMITED TRUST
UL	UNITED LEAD
IN	PLANT PARTIALLY OWNED BY NATIONAL LEAD
IE	HAMMAR BROTHERS/EAGLE PICHER NOT FULLY CONSOLIDATED
X	DOES NOT APPEAR IN THE BUREAU OF MINES LISTING OF PIGMENT PRODUCERS
S	SOLD
U	UNCERTAIN AS TO START-UP DATE

N39082.27

PREPARED AT REQUEST
OF COUNSEL

N39082.28

SOURCE: BOM MINERALS YEARBOOK AND SELECTED OTHER SOURCES

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PREPARED AT REQUEST
OF COUNSEL

TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1928	1929	1930	1931	1933	1934	1938	1945
RED, ORANGE, LITHARGI EAGLE-PICHER CO	RED, ORANGE, LITHARGI EAGLE-PICHER CO	EAST CHICAGO	INDIANA	EP							EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER CO	RED, ORANGE, LITHARGI EAGLE-PICHER CO	GALENA	KANSAS	EP	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	JOPLIN	MISSOURI	EP	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	NEWARK	NEW JERSEY	EP	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	CINCINNATI	OHIO	EP	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO	EAST ST. LOUIS	ILLINOIS	EP	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI ASSOCIATED LEAD & ZINC CO	RED, ORANGE, LITHARGI ASSOCIATED LEAD & ZINC CO	SEATTLE	WASHINGTON	I								
RED, ORANGE, LITHARGI METALS REFINING DIVISION OF GLIDDEN	RED, ORANGE, LITHARGI METALS REFINING DIVISION OF GLIDDEN	HAMMOND	INDIANA	GL							GL	GL
RED, ORANGE, LITHARGI AMERICAN CYANAMID CO	RED, ORANGE, LITHARGI AMERICAN CYANAMID CO	NEWARK	NEW JERSEY									
RED, ORANGE, LITHARGI ANDREWS LEAD CO	RED, ORANGE, LITHARGI ANDREWS LEAD CO	LONG ISLAND CITY	NEW YORK									
RED, ORANGE, LITHARGI BUNKER HILL CO	RED, ORANGE, LITHARGI BUNKER HILL CO	SEATTLE	WASHINGTON									
RED, ORANGE, LITHARGI E I DU PONT DE NEMOURS AND CO	RED, ORANGE, LITHARGI E I DU PONT DE NEMOURS AND CO	PHILADELPHIA	INDIANA									
RED, ORANGE, LITHARGI E I DU PONT DE NEMOURS & CO	RED, ORANGE, LITHARGI E I DU PONT DE NEMOURS & CO	FRANKLIN	PENNSYLVANIA									
RED, ORANGE, LITHARGI FRANKLIN LEAD OXIDE CO	RED, ORANGE, LITHARGI FRANKLIN LEAD OXIDE CO	DEPEN	NEW YORK									
RED, ORANGE, LITHARGI GOULD STORAGE BATTERY CO	RED, ORANGE, LITHARGI GOULD STORAGE BATTERY CO	EAST CHICAGO	PENNSYLVANIA									
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	GRASSELL	NEW YORK									
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	NEWARK	INDIANA									
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO	HAMMOND	NEW JERSEY									
RED, ORANGE, LITHARGI HAMMOND LEAD PRODUCTS INC.	RED, ORANGE, LITHARGI HAMMOND LEAD PRODUCTS INC.	CLEVELAND	OHIO									
RED, ORANGE, LITHARGI HARSHAW, FULLER & GOODWIN CO	RED, ORANGE, LITHARGI HARSHAW, FULLER & GOODWIN CO	CHICAGO	ILLINOIS									
RED, ORANGE, LITHARGI JOHN R. MACGREGOR LEAD CO	RED, ORANGE, LITHARGI JOHN R. MACGREGOR LEAD CO	ST. LOUIS	MISSOURI									
RED, ORANGE, LITHARGI LEAD PRODUCTS CO (OUT OF BUSINESS)	RED, ORANGE, LITHARGI LEAD PRODUCTS CO (OUT OF BUSINESS)	ST. LOUIS	CALIFORNIA									
RED, ORANGE, LITHARGI LINKATER CO	RED, ORANGE, LITHARGI LINKATER CO	MONTICELLO	CALIFORNIA									
RED, ORANGE, LITHARGI PENNSYLVANIA SMELTING CO	RED, ORANGE, LITHARGI PENNSYLVANIA SMELTING CO	CARNEGIE	PENNSYLVANIA									
RED, ORANGE, LITHARGI UNITED COLOR & PIGMENT CO	RED, ORANGE, LITHARGI UNITED COLOR & PIGMENT CO	NEWARK	NEW JERSEY									
RED, ORANGE, LITHARGI WESTERN LEAD PRODUCTS CO	RED, ORANGE, LITHARGI WESTERN LEAD PRODUCTS CO	SOUTH SAN FRANCISCO	CALIFORNIA									
RED, ORANGE, LITHARGI CHADWICK-BOSTON LEAD CO (OUT OF BUSINESS)	RED, ORANGE, LITHARGI CHADWICK-BOSTON LEAD CO (OUT OF BUSINESS)	LOS ANGELES	CALIFORNIA									
RED, ORANGE, LITHARGI JOHN T. LEWIS & BROS CO	RED, ORANGE, LITHARGI JOHN T. LEWIS & BROS CO	PHILADELPHIA	MASSACHUSETTS									
RED, ORANGE, LITHARGI MATHESON LEAD CO	RED, ORANGE, LITHARGI MATHESON LEAD CO	LONG ISLAND CITY	PENNSYLVANIA									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	NEW YORK	NEW YORK									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	ST. LOUIS	MISSOURI									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	CHICAGO	ILLINOIS									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	DALLAS	TEXAS									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	ATLANTA	GEORGIA									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	BROOKLYN	NEW YORK									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	OAKLAND	CALIFORNIA									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	PERTH AMBOY	NEW JERSEY									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	MELROSE	CALIFORNIA									
RED, ORANGE, LITHARGI NATIONAL LEAD CO	RED, ORANGE, LITHARGI NATIONAL LEAD CO	PITTSBURGH	PENNSYLVANIA									
RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA	RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA	NEW KENSINGTON	PENNSYLVANIA									
RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA	RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA	CHARLESTON	WEST VIRGINIA									
RED, ORANGE, LITHARGI EVANS LEAD CO	RED, ORANGE, LITHARGI EVANS LEAD CO	PHILADELPHIA	PENNSYLVANIA									
RED, ORANGE, LITHARGI ITHWELL & BROS	RED, ORANGE, LITHARGI ITHWELL & BROS	CHICAGO	ILLINOIS									
RED, ORANGE, LITHARGI INTERNATIONAL LEAD CO (MORRIS P. KIRK & SONS)	RED, ORANGE, LITHARGI INTERNATIONAL LEAD CO (MORRIS P. KIRK & SONS)	LOS ANGELES	CALIFORNIA									
RED, ORANGE, LITHARGI SHERMAN-WILLIAMS CO	RED, ORANGE, LITHARGI SHERMAN-WILLIAMS CO	CHICAGO	ILLINOIS									
RED, ORANGE, LITHARGI METALS REFINING CO	RED, ORANGE, LITHARGI METALS REFINING CO	HAMMOND	INDIANA									

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PREPARED AT REQUEST
OF COUNSEL

TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1946	1953	1954	1955	1956	1957	1958
RED, ORANGE, LITHARGI EAGLE-PICHER CO		EAST CHICAGO	INDIANA	EP		EP					
RED, ORANGE, LITHARGI EAGLE-PICHER CO		GALENA	KANSAS	EP	EP	EP	EP	EP	EP	EP	
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO		JOPLIN	MISSOURI	EP	EP	EP	EP	EP	EP	EP	EP
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO		NEWARK	NEW JERSEY	EP	EP	EP	EP	EP	EP	EP	
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO		CINCINNATI	OHIO	EP	EP						
RED, ORANGE, LITHARGI EAGLE-PICHER LEAD CO		EAST ST LOUIS	ILLINOIS	EP							
RED, ORANGE, LITHARGI ASSOCIATED LEAD & ZINC CO		SEATTLE	WASHINGTON	EP							
RED, ORANGE, LITHARGI METALS REFINING DIVISION OF GULDFELT HAMMOND		NEWARK	INDIANA	GL	GL						
RED, ORANGE, LITHARGI AMERICAN CYANAMID CO		LONG ISLAND CITY	NEW JERSEY								
RED, ORANGE, LITHARGI ANDREWS LEAD CO		SEATTLE	WASHINGTON								
RED, ORANGE, LITHARGI BUNKER HILL CO			INDIANA								
RED, ORANGE, LITHARGI I DU PONT DE NEMOURS AND CO		PHILADELPHIA	PENNSYLVANIA								
RED, ORANGE, LITHARGI I DU PONT DE NEMOURS & CO		FRANKLIN	PENNSYLVANIA								
RED, ORANGE, LITHARGI GOULD STORAGE BATTERY CO		DEERW	NEW YORK								
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO		EAST CHICAGO	INDIANA								
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO		GRASSELL	INDIANA								
RED, ORANGE, LITHARGI GRASSELL CHEMICAL CO		NEWARK	NEW JERSEY								
RED, ORANGE, LITHARGI HAMMOND LEAD PRODUCTS INC		HAMMOND	INDIANA								
RED, ORANGE, LITHARGI HARSHAW, FULLER & GOODWIN CO		CLEVELAND	OHIO								
RED, ORANGE, LITHARGI JOHN R MACGREGOR LEAD CO		CHICAGO	ILLINOIS								
RED, ORANGE, LITHARGI LEAD PRODUCTS CO (OUT OF BUSINESS)		ST LOUIS	MISSOURI								
RED, ORANGE, LITHARGI LEAD PRODUCTS CO		MONTBELLO	CALIFORNIA								
RED, ORANGE, LITHARGI PENNSYLVANIA SMELTING CO		CARNEGIE	PENNSYLVANIA								
RED, ORANGE, LITHARGI UNITED COLOR & PIGMENT CO		NEWARK	PENNSYLVANIA								
RED, ORANGE, LITHARGI WESTERN LEAD PRODUCTS CO		SOUTH SAN FRANCISCO	NEW JERSEY								
RED, ORANGE, LITHARGI CHADWICK-BOSTON LEAD CO (OUT OF BUSINESS)		LOS ANGELES	CALIFORNIA								
RED, ORANGE, LITHARGI JOHN T LEWIS & BROS CO		PHILADELPHIA	MASSACHUSETTS								
RED, ORANGE, LITHARGI MATHESON LEAD CO		LONG ISLAND CITY	PENNSYLVANIA	NL	NL						
RED, ORANGE, LITHARGI NATIONAL LEAD CO		NEW YORK	NEW YORK	NL							
RED, ORANGE, LITHARGI NATIONAL LEAD CO		ST LOUIS	MISSOURI	NL	NL	NL	NL	NL	NL	NL	NL
RED, ORANGE, LITHARGI NATIONAL LEAD CO		CHICAGO	ILLINOIS	NL	NL	NL	NL	NL	NL	NL	NL
RED, ORANGE, LITHARGI NATIONAL LEAD CO		DALLAS	TEXAS	NL	NL	NL	NL	NL	NL	NL	NL
RED, ORANGE, LITHARGI NATIONAL LEAD CO		ATLANTA	GEORGIA	NL	NL	NL	NL	NL	NL	NL	NL
RED, ORANGE, LITHARGI NATIONAL LEAD CO		BROOKLYN	NEW YORK	NL	NL	NL	NL	NL	NL	NL	1
RED, ORANGE, LITHARGI NATIONAL LEAD CO		OAKLAND	NEW JERSEY	NL	NL	NL	NL	NL	NL	NL	
RED, ORANGE, LITHARGI NATIONAL LEAD CO		PERTH AMBOY	NEW JERSEY	NL	NL	NL	NL	NL	NL	NL	NL
RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA		MELROSE	CALIFORNIA	NL	NL						
RED, ORANGE, LITHARGI NATIONAL LEAD & OIL CO OF PA		PITTSBURGH	PENNSYLVANIA	NL	NL						
RED, ORANGE, LITHARGI EVANS LEAD CO		NEW KENSINGTON	PENNSYLVANIA	NL	NL						
RED, ORANGE, LITHARGI EVANS LEAD CO		CHARLESTON	WEST VIRGINIA	NL	NL						
RED, ORANGE, LITHARGI SHERWIN-WILLIAMS CO		PHILADELPHIA	PENNSYLVANIA	NL	NL						
RED, ORANGE, LITHARGI SHERWIN-WILLIAMS CO		CHICAGO	CALIFORNIA	NL	NL						
RED, ORANGE, LITHARGI METALS REFINING CO		HAMMOND	INDIANA	U	SW						

LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

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TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1919	1920	1921	1922	1923	1924
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		GALENA	KANSAS	EP						
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		JOPLIN	MISSOURI	EP	1	1	1	1	1	1
BASIC LEAD SULPHATE, (NATIONAL LEAD CO		ST LOUIS	MISSOURI	NL						
BASIC LEAD SULPHATE, (ST LOUIS SMELTING & REFINING CO		COLLINSVILLE	ILLINOIS	NL	NL	NL	NL	NL	NL	NL

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LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

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TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1925	1926	1928	1929	1930	1931
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		GALENA	KANSAS	EP			1	1	1	1
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		JOPLIN	MISSOURI	EP	1	1	1	1	1	1
BASIC LEAD SULPHATE, (NATIONAL LEAD CO		ST LOUIS	MISSOURI	NL						
BASIC LEAD SULPHATE, (ST LOUIS SMELTING & REFINING CO		COLLINSVILLE	ILLINOIS	NL	NL	NL	NL	NL	NL	NL

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LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1933	1934	1938	1945	1948	1953
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		GALENA	KANSAS	EP	1	1	1	1	1	
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		JOPLIN	MISSOURI	EP	1	1				
BASIC LEAD SULPHATE, (NATIONAL LEAD CO		ST LOUIS	MISSOURI	NL			1	1	1	
BASIC LEAD SULPHATE, (ST LOUIS SMELTING & REFINING CO		COLLINSVILLE	ILLINOIS	NL	NL	NL				

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LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

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TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1954	1955	1956	1957	1958
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		GALENA	KANSAS	EP					
BASIC LEAD SULPHATE, (EAGLE-PICHER LEAD CO		JOPLIN	MISSOURI	EP					
BASIC LEAD SULPHATE, (NATIONAL LEAD CO		ST LOUIS	MISSOURI	NL					
BASIC LEAD SULPHATE, (ST LOUIS SMELTING & REFINING CO		COLLINSVILLE	ILLINOIS	NL					

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LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

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TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1919	1920	1921	1922	1923	1924	1925	1926
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		AKRON	OHIO	AN								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST CHICAGO	INDIANA	AN								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		HILLSBORO	ILLINOIS	EP								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		GALENA	KANSAS	EP								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		HILLSBORO	ILLINOIS	EP								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST ST LOUIS	ILLINOIS	EP								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST HELENA	MONTANA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		OMAHA	NEBRASKA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		CANON CITY	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		TRENTON	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		MINERAL POINT	WISCONSIN	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		JOPLIN	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		PALMERTON	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		FREEMANSBURG	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		CANON CITY	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		FLORENCE	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		HERCULANEUM	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		JOSEPH TOWN	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		PUERTO	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		MURRAY	UTAH	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		LEADVILLE	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST CHICAGO	INDIANA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		GRASSLELL	INDIANA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		WALDO	NEW MEXICO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		METUCHEN	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		CLEVELAND	OHIO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		BALTIMORE	MARYLAND	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		TORRANCE	CALIFORNIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		BRISTOL	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		CARLTON HILL	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		WINTHROP	CALIFORNIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		BRISTOL	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		TRENTON	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		BAYONNE	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		YORK	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		DONORA	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		HILLSBORO	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		COLUMBUS	OHIO	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		LANGFLOTH	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		BARTLESVILLE	OKLAHOMA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		AUSTINVILLE	VIRGINIA	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		CHICAGO	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		DEPU	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST ST LOUIS	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		ST LOUIS	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		LOS ANGELES	CALIFORNIA	NLP								
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		COFFEYVILLE	KANSAS	SW								

SOURCE: BOM MINERALS YEARBOOK AND SELECTED OTHER SOURCES.

TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1928	1929	1930	1931	1933	1934	1938	1945
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		AKRON	OHIO	AN	AN	AN	AN	AN	AN	AN	AN	AN
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST CHICAGO	INDIANA	AN	AN	AN	AN	AN	AN	AN	AN	AN
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		HILLSBORO	ILLINOIS	EP								EP
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		GALENA	KANSAS	EP								EP
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER LEAD CO		HILLSBORO	ILLINOIS	EP	EP	EP	EP	EP	EP	EP	EP	EP
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER LEAD CO		EAST ST LOUIS	ILLINOIS	EP								
ZINC OXIDE AND LEADED ZINC AMERICAN CHEMET CORP		EAST HELENA	MONTANA	IL								
ZINC OXIDE AND LEADED ZINC AMERICAN SMELTING & REFINING CO		OMAHA	NEBRASKA	IL								
ZINC OXIDE AND LEADED ZINC EMPIRE ZINC CO		CANON CITY	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC FEDERATED METALS CORPORATION		TRENTON	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC MINERAL POINT ZINC CO		MINERAL POINT	WISCONSIN	IL								
ZINC OXIDE AND LEADED ZINC MISSOURI OXIDE & CHEMICAL CO		JOPLIN	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC NEW JERSEY ZINC CO OF PA		PALMERTON	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC NEW JERSEY ZINC CO OF PA		FREEMANSBURG	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC OHIO ZINC CO		CANON CITY	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC RIVER SMELTING AND REFINING CO		FLORENCE	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC ST JOSEPH LEAD CO		HERCULANEUM	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC ST JOSEPH LEAD CO		JOSEPH TOWN	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC US ZINC CO		PUEBLO	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC UTAH ZINC CO		MURRAY	UTAH	IL								
ZINC OXIDE AND LEADED ZINC WESTERN ZINC OXIDE CO		LEADVILLE	COLORADO	IL								
ZINC OXIDE AND LEADED ZINC GRASSLETT CHEMICAL CO		EAST CHICAGO	INDIANA	IL								
ZINC OXIDE AND LEADED ZINC GRASSLETT CHEMICAL CO		GRASSLETT	INDIANA	IL								
ZINC OXIDE AND LEADED ZINC GRUBBAU CHEMICAL CO INC		WALDO	NEW MEXICO	IL								
ZINC OXIDE AND LEADED ZINC GULF TON MANUFACTURING CORP		METUCHEN	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC HARSJAW CHEMICAL CO		CLEVELAND	OHIO	IL								
ZINC OXIDE AND LEADED ZINC METALLURGIC PRODUCTS CORPORATION		BALTIMORE	MARYLAND	IL								
ZINC OXIDE AND LEADED ZINC METALS RECOVERY CO		RICHMOND	CALIFORNIA	IL								
ZINC OXIDE AND LEADED ZINC PACIFIC SMELTING CO		TORRANCE	CALIFORNIA	IL								
ZINC OXIDE AND LEADED ZINC ROHM & HAAS CO INC		BRISTOL	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC ROYCE CHEMICAL CO		CARLTON HILL	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC SHASTA ZINC AND COPPER CO		WINTHROP	CALIFORNIA	IL								
ZINC OXIDE AND LEADED ZINC SUPERIOR ZINC CORPORATION		BRISTOL	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC TRENTON ZINC AND CHEMICAL CO (FORA) TRENTON		BRISTOL	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC UNITED INDUSTRIAL & CHEMICAL CORP		YORK	NEW JERSEY	IL								
ZINC OXIDE AND LEADED ZINC YOKO METALS & ALLOYS CO		YORK	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC AMERICAN STEEL & WIRE CO		DONORA	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC CO OF ILLINOIS		HILLSBORO	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC OXIDE CO		COLUMBUS	OHIO	IL								
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC & CHEMICAL CO		LANGLOTH	PENNSYLVANIA	IL								
ZINC OXIDE AND LEADED ZINC BARTLESVILLE ZINC CO		BARTLESVILLE	OKLAHOMA	IL								
ZINC OXIDE AND LEADED ZINC BERTHA MINERAL CO		AUSTINVILLE	VIRGINIA	IL								
ZINC OXIDE AND LEADED ZINC LOWENTHAL METALS CORPORATION		CHICAGO	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC MINERAL POINT ZINC CO		DEPIE	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC MONSANTO CHEMICAL CO		EAST ST LOUIS	ILLINOIS	IL								
ZINC OXIDE AND LEADED ZINC MONSANTO CHEMICAL CO		ST LOUIS	MISSOURI	IL								
ZINC OXIDE AND LEADED ZINC MORRIS P KIRK & SON		LOS ANGELES	CALIFORNIA	NLP								NLP
ZINC OXIDE AND LEADED ZINC OZARK SMELTING & MINING CO		COFFEYVILLE	KANSAS	SW	SW	SW	SW	SW	SW	SW	SW	SW

LEAD PIGMENT PRODUCERS, BY PLANT, 1919-1958

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TYPE OF PIGMENT	COMPANY	CITY	STATE	OWNER	1946	1953	1954	1955	1956	1957	1958
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		AKRON	OHIO	AN							
ZINC OXIDE AND LEADED ZINC INTERNATIONAL LEAD REFINING CO		EAST CHICAGO	INDIANA	AN							
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		HILLSBORO	ILLINOIS	EP	EP	EP	EP	EP	EP	EP	EP
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		GALENA	KANSAS	EP	EP	EP	EP	EP	EP	EP	EP
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		HILLSBORO	ILLINOIS	EP							
ZINC OXIDE AND LEADED ZINC EAGLE-PICHER CO		EAST ST LOUIS	ILLINOIS	EP							
ZINC OXIDE AND LEADED ZINC AMERICAN CHEMET CORP		EAST HELENA	MONTANA	IL							
ZINC OXIDE AND LEADED ZINC AMERICAN SMELTING & REFINING CO		OMAHA	NEBRASKA	IL							
ZINC OXIDE AND LEADED ZINC EMPIRE ZINC CO		CANON CITY	COLORADO	IL							
ZINC OXIDE AND LEADED ZINC FEDERATED METALS CORPORATION		TRENTON	NEW JERSEY	IL							
ZINC OXIDE AND LEADED ZINC MINERAL POINT ZINC CO		MINERAL POINT	WISCONSIN	IL							
ZINC OXIDE AND LEADED ZINC MISSOURI OXIDE & CHEMICAL CO		JOPLIN	MISSOURI	IL							
ZINC OXIDE AND LEADED ZINC NEW JERSEY ZINC CO OF PA		PALMERTON	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC NEW JERSEY ZINC CO OF PA		FREEMANSBURG	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC OHIO ZINC CO		CANON CITY	COLORADO	IL							
ZINC OXIDE AND LEADED ZINC RIVER SMELTING AND REFINING CO		FLORENCE	COLORADO	IL							
ZINC OXIDE AND LEADED ZINC ST JOSEPH LEAD CO		HERCULANEUM	MISSOURI	IL							
ZINC OXIDE AND LEADED ZINC ST JOSEPH LEAD CO		JOSEPH TOWN	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC US ZINC CO		PUEBLO	COLORADO	IL							
ZINC OXIDE AND LEADED ZINC UTAH ZINC CO		MURRAY	UTAH	IL							
ZINC OXIDE AND LEADED ZINC WESTERN ZINC OXIDE CO		LEADVILLE	COLORADO	IL							
ZINC OXIDE AND LEADED ZINC GRASSLETT CHEMICAL CO		EAST CHICAGO	INDIANA	IL							
ZINC OXIDE AND LEADED ZINC GRASSLETT CHEMICAL CO		GRASSLETT	INDIANA	IL							
ZINC OXIDE AND LEADED ZINC GRUBNAL CHEMICAL CO INC		WALDO	NEW MEXICO	IL							
ZINC OXIDE AND LEADED ZINC GULF TON MANUFACTURING CORP		MELUCHEN	NEW JERSEY	IL							
ZINC OXIDE AND LEADED ZINC HARSHAW CHEMICAL CO		CLEVELAND	OHIO	IL							
ZINC OXIDE AND LEADED ZINC METALLURGIC PRODUCTS CORPORATION		BALTIMORE	MARYLAND	IL							
ZINC OXIDE AND LEADED ZINC METALS RECOVERY CO		TORRANCE	CALIFORNIA	IL							
ZINC OXIDE AND LEADED ZINC PACIFIC SMELTING CO		BRISTOL	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC ROYCE CHEMICAL CO		CARLTON HILL	NEW JERSEY	IL							
ZINC OXIDE AND LEADED ZINC SHASTA ZINC AND COPPER CO		WINTHROP	CALIFORNIA	IL							
ZINC OXIDE AND LEADED ZINC SUPERIOR ZINC CORPORATION		BRISTOL	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC TRENTON ZINC AND CHEMICAL CO (FORMER TRENTON		YORK	NEW JERSEY	IL							
ZINC OXIDE AND LEADED ZINC UNITED INDUSTRIAL & CHEMICAL CORP		BAYONNE	NEW JERSEY	IL							
ZINC OXIDE AND LEADED ZINC YORK METALS & ALLOYS CO		YORK	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC AMERICAN STEEL & WIRE CO		DONORA	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC CO OF ILLINOIS		HILLSBORO	ILLINOIS	IL							
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC OXIDE CO		COLUMBUS	OHIO	IL							
ZINC OXIDE AND LEADED ZINC AMERICAN ZINC & CHEMICAL CO		LANGELOTH	PENNSYLVANIA	IL							
ZINC OXIDE AND LEADED ZINC BARTLESVILLE ZINC CO		BARTLESVILLE	OKLAHOMA	IL							
ZINC OXIDE AND LEADED ZINC BERTHA MINERAL CO		AUSTINVILLE	VIRGINIA	IL							
ZINC OXIDE AND LEADED ZINC LOWENTHAL METALS CORPORATION		CHICAGO	ILLINOIS	IL							
ZINC OXIDE AND LEADED ZINC MINERAL POINT ZINC CO		DEPUÉ	ILLINOIS	IL							
ZINC OXIDE AND LEADED ZINC MONSANTO CHEMICAL CO		EAST ST LOUIS	ILLINOIS	IL							
ZINC OXIDE AND LEADED ZINC MONSANTO CHEMICAL CO		ST LOUIS	MISSOURI	IL							
ZINC OXIDE AND LEADED ZINC MORRIS P KIRK & SON		LOS ANGELES	CALIFORNIA	NLP							
ZINC OXIDE AND LEADED ZINC OZARK SMELTING & MINING CO		COFFEYVILLE	KANSAS	SW	SW						

SOURCE: BOM MINERALS YEARBOOK AND SELECTED OTHER SOURCES.

CODES FOR LEADED ZINC OXIDE, RED LEAD AND LITHARGE, AND BASIC LEAD SULFATE:

AN	ANACONDA
EP	EAGLE PICHER
EPI	EAGLE PICHER SOLD
GL	GLIDDEN
I	INDEPENDENT
IL	INDEPENDENT-BELIEVED TO HAVE SIGNIFICANT LEAD COMPONENT
IU	INDEPENDENT-UNCERTAIN LEAD COMPONENT
IZ	INDEPENDENT-BELIEVED TO BE SUBSTANTIALLY ZINC OXIDE
NL	NATIONAL LEAD
NLI	INDEPENDENT PURCHASED BY NATIONAL LEAD
NLM	NATIONAL LEAD IS A MAJOR SHAREHOLDER
NLP	NATIONAL LEAD PARTIALLY OWNED
SW	SHERWIN WILLIAMS
U	OWNERSHIP UNCERTAIN FOR GIVEN YEAR
(I)	FIRST IDENTIFIED PRODUCTION IN 1940

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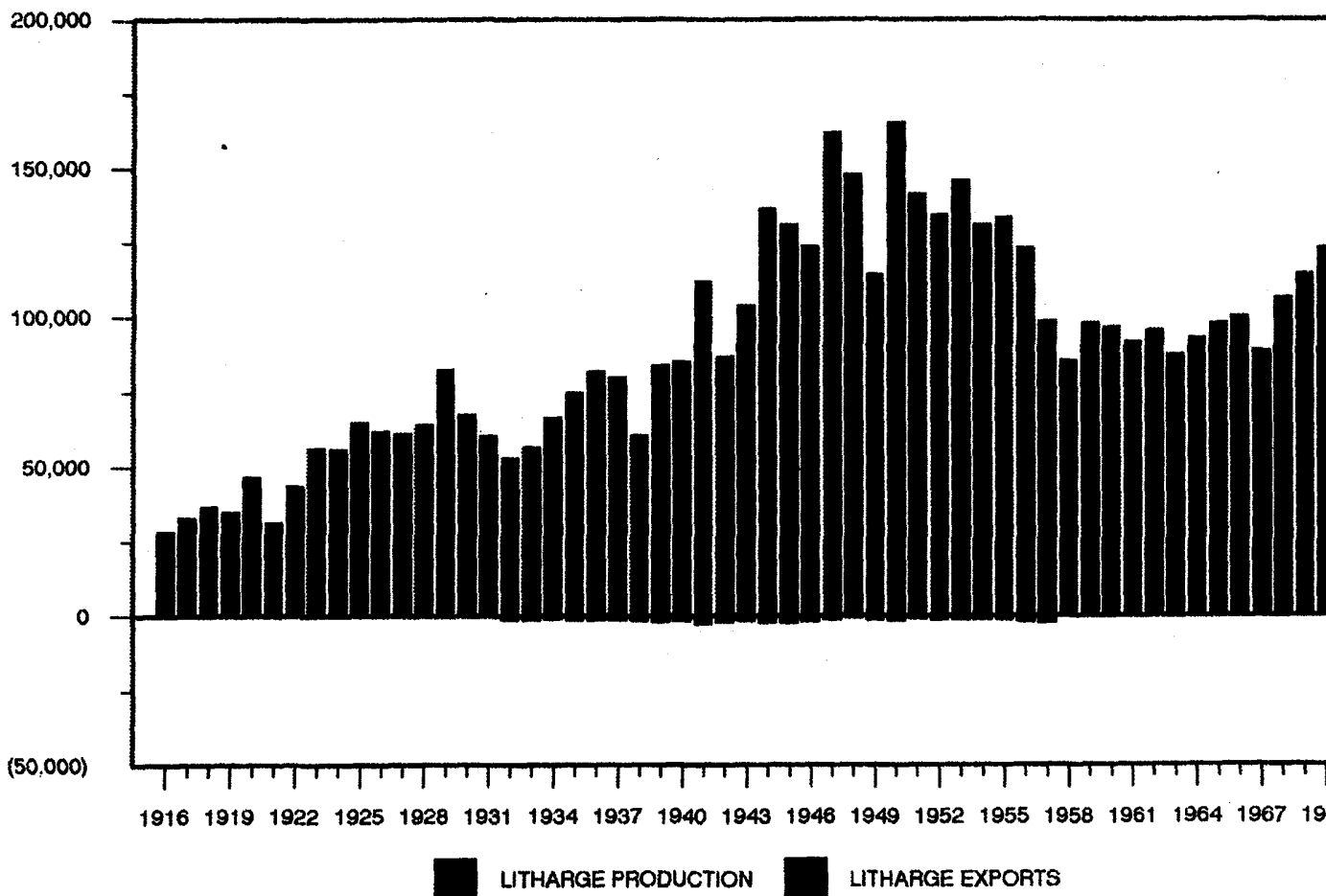
SOURCE: BOM MINERALS YEARBOOK AND SELECTED OTHER SOURCES.

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U.S. PRODUCTION AND EXPORTS OF LITHARGE 1916-1976

SHORT TONS OF CONTAINED LEAD



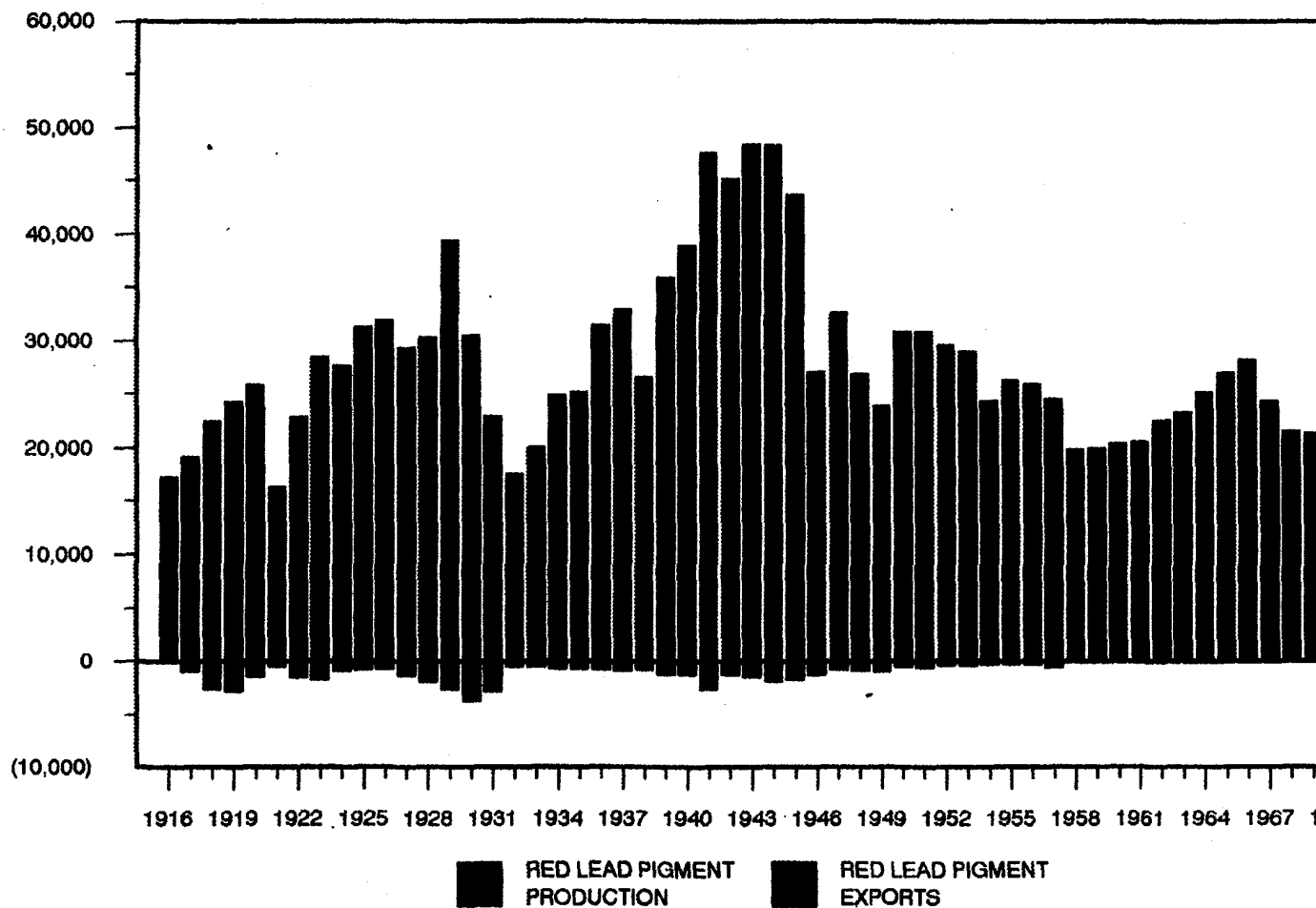
SOURCE: CRA CALCULATIONS BASED ON BUREAU OF
MINES DATA. NOTE THAT EXPORTS ARE SHOWN AS
NEGATIVE FOR THE PURPOSE OF ILLUSTRATION.

DRAFT

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OF CO

U.S. PRODUCTION AND EXPORTS OF RED LEAD PIGMENTS 1916-1976

SHORT TONS OF CONTAINED LEAD



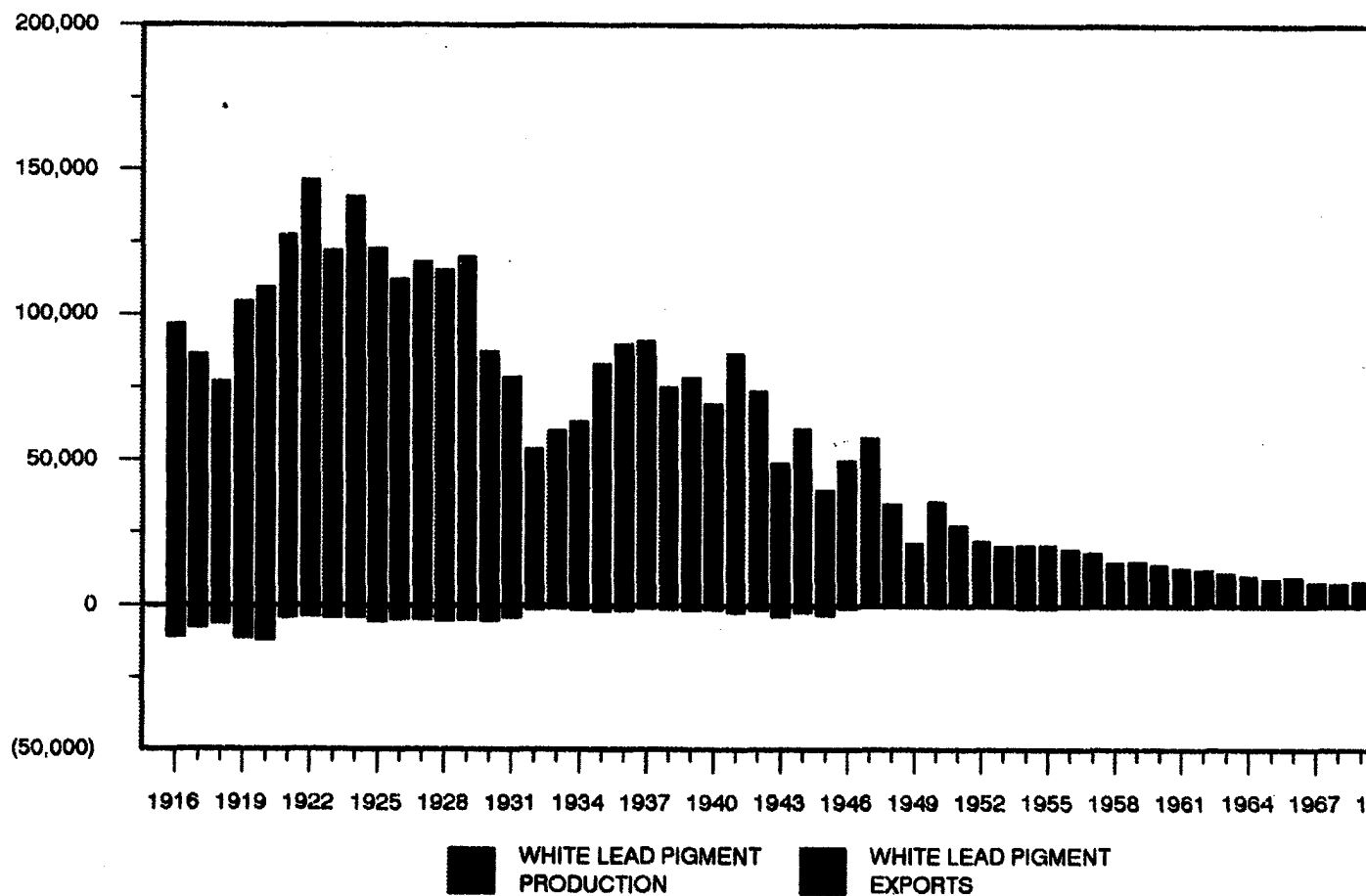
SOURCE: CRA CALCULATIONS BASED ON BUREAU OF
MINES DATA. NOTE EXPORTS ARE SHOWN AS NEGATIVE
FOR THE PURPOSE OF ILLUSTRATION.

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**U.S. PRODUCTION AND EXPORTS OF WHITE LEAD
PIGMENTS
1916-1976**

SHORT TONS OF CONTAINED LEAD



SOURCE: CRA CALCULATIONS BASED ON BUREAU OF
MINES DATA. NOTE EXPORTS ARE SHOWN AS NEGATIVE
FOR THE PURPOSE OF ILLUSTRATION.