

LEAD INDUSTRIES ASSOCIATION

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SUBJECT: REPRINT ON LEAD

To Members of the Lead Industries Associations:

Enclosed is a reprint of the article on lead from the annual review issue of "Engineering and Mining Journal," February, 1961.

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Lead

Robert L. Ziegfeld
Secretary
Lead Industries Association

*Lead situation worsened during 1960
—year-end price was lower, producers'
stocks were higher and primary sales
were substantially lower. Major con-
sumers should use as much or perhaps
more lead in 1961. p. 77*



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Lead R. L. Zeigfeld

Despite Continued world overproduction of lead and increasing producer stocks of the metal both here and abroad, the lead market was remarkably steady throughout the year. In fact, the New York price remained at 12c from Dec. 21, 1959 to Dec. 13, 1960, when it was reduced to 11c per lb. Unfortunately, part of this stability undoubtedly resulted from two prolonged strikes in this country, and the price decrease occurred when settlement of the strikes was imminent. However, the fact that consumption held up amazingly well in the face of prevailing general business conditions, declining only 4- or 5%, was probably also a factor.

Pointing toward a brighter future is the tremendous surge of interest shown by a variety of industries in new applications of lead resulting from the intensified advertising, technical service and research provided by the Lead Industries Association and its expanded research program in the last few years. While most of these have not reached the tonnage consumption stage as yet, there is little question that more people are working with more different lead products in more fields of application than ever before, and more technical information is being made available to them with which to work. More will be said about this later.

Consumption. As previously stated, consumption declined only about 5% in the U.S. compared with 1959 and remained above the 1-million ton mark. This was perhaps better than was to be expected in view of general business activity. There were some particularly bright spots in the overall picture. Consumption of lead in tetraethyl lead countered the general trend by showing a modest increase of some 3%. Likewise, production of red lead and litharge increased slightly, reflecting improvement in the consumption of red lead paint and lead chemicals made from litharge. The use of lead for cable sheathing remained practically constant, which may be significant in that the bottom of the long decline in this use may have been reached.

Storage batteries, the largest users

of lead, are expected to show an appreciable decline in lead consumption in 1960. Because of improvements in batteries, they are more efficient and last longer. This has reduced the number of replacement batteries needed, and replacement batteries account for about 80% of the automotive batteries used. Although new car production increased, the trend to compact cars has affected lead consumption because most of the compacts use batteries weighing several pounds less per unit than standard models. The reduction in consumption of lead for solder probably represents lower industrial activity and for calking lead lower construction activity.

U.S. mine production during 1959 reached the lowest level since the turn of the 20th Century and, in 1960, had the dubious distinction of being even lower at an estimated 240,000 tons lead content. Major contributing factors to this were the seven-month-long strikes at the properties of the Bunker Hill Co. and American Smelting & Refining Co. in Idaho. Both were settled in December 1959—the former with the displacement of the Mine, Mill & Smelter Workers as the official bargaining agent after an NLRB election. Primary smelter production was not materially affected and showed a moderate increase because of ores accumulated at the Asarco smelters during a four-month strike toward the end of 1959.

Imports of lead for U.S. consumption were, of course, controlled by quota and remained the same as in 1959. So far as is known there were no imports for stockpile as there were a year earlier.

Production of secondary lead increased moderately in 1960, which indicates that such metal is attracting a greater share of the lead market.

Manufacturers reduced their stocks of pig lead during the year by some 20,000 tons, and, as a result, inventories in their hands are low. However, producers' stocks increased an estimated 30,000 tons.

In the Free World outside the United States, production of lead continued to increase and to run ahead of deliveries, which were well main-

tained, with a consequent substantial increase in producers' inventories. The natural result was to depress the foreign price, which, despite quotas, had a depressing effect on the U.S. price.

Two meetings of the UN's International Lead & Zinc Study Group were held during the year. At both, insufficient improvement in the world lead statistical picture was found to warrant any change in the voluntary marketing restrictions agreed upon in 1959.

In addition, the report of the re-examination of the lead position by the U.S. Tariff Commission led to no change in the import quotas on lead established by the Administration late in 1958. Efforts by the domestic industry to have these quotas extended to fabricated lead products were fruitless. This permitted foreign manufacturers to continue to take advantage of this loophole by bringing in manufactured products at higher than normal levels outside the quotas. Among the products most affected is litharge, and this undoubtedly results in some understatement of ultimate lead usage in this country in such industries as the ceramic industry, which is importing substantial quantities of lead compounds for use.

Late in the 1960 session, Congress passed legislation that would have provided subsidies for small domestic producers. This was vetoed by President Eisenhower with the statement that he felt legislation of this type would only aggravate the situation by encouraging additional unneeded production. Statements made by President Kennedy during the campaign, however, indicated that some such legislation may be acceptable to the new administration.

Summary of 1960. Despite the relatively good rate of consumption both here and abroad in 1960, the situation worsened to the extent that the year-end price was lower, producers' stocks were substantially higher and producers' sales of primary lead were substantially lower. In fact, the drop in primary sales was considerably greater than the small drop in consumption. Part of this was due to the lowering of inventories by consumers, but a greater amount of softening and use of secondary material is also indicated. The extremely low level of consumers' stocks of pig lead is encouraging in that any improvement

in their business should be promptly reflected in greater purchases from producers. Obviously the only corrective for the situation is less production or more consumption, and not too great a change in either factor would suffice to bring about a balance.

Outlook. With the general business outlook clouded, forecasts for the lead industry are difficult to make. Regardless of general business, however, and barring any drastic recession, it appears that some of lead's major consumers, like storage batteries, tetraethyl lead and cable, should consume as much or a little more lead in 1961 than in 1960. In batteries an increase in replacement of 12-volt batteries in standard size models should compensate for any further trend to compact cars. In 1960 a new, completely redesigned, battery-powered delivery truck came into production and a number were delivered for milk, bakery and similar routes. This may have a major influence on lead consumption for batteries in the years to come. Also, the past year showed a trend toward a higher percentage of battery-powered industrial trucks compared with gasoline- and propane-powered trucks. No doubt the improved efficiency and longer life of lead automobile batteries has largely eliminated the danger of replacement by other kinds of batteries.

Most of the other established uses of lead will depend on the activity of the industries in which it is employed. In this connection two new developments in self-lubricating bearings, one for high temperature duty, involve lead. One is a mixture of lead powder and teflon, and the other a ceramic coating of fused lead oxide. Both are finding commercial applications.

Big break-throughs appear imminent in two important areas. The first is in noise barriers. Late in 1960, the Lead Industries Association issued a research report based on data prepared by the nationally known firm of acoustical consultants, Bolt Beranek & Newman. This report created a deluge of interest in lead as a material for the control of sound. Both in construction and industry generally, control of noise has become a major problem. The report provides basic data which indicates lead to be one of the most efficient and economical noise control materials. Others, working independently, have also in-

Lead Price Changes (Cents per lb N. Y.)	
Dec. 31, 1959.....	12.00
Dec. 13, 1960.....	11.00

corporated lead in their products for such usage, and a number of articles on the subject appeared in the technical press during the year. High hopes are held for a whole new line of lead applications in this area in the near future.

Piezoelectrics is a term that may not be familiar to everyone but, to put it simply in more words, they are materials that have the ability to convert electric to mechanical energy or vice versa without moving parts. Lead zirconate-titanate is the most efficient piezoelectric thus far found, and it already has important commercial applications. Starting as the tiny stereophonic pick-up element several years ago, it is now the active element in ultrasonic industrial cleaning equipment. This has led to its entry into hotel and restaurant dishwashers. Who knows but what your next home dishwasher or washing machine will depend on the peculiar properties of lead zirconate-titanate. The same material is the heart of a new "spark pump" which replaces the ignition systems of power mowers, outboard motors and the like.

Thermoelectric generators, which convert heat to electricity directly, should also be mentioned. Lead telluride is one of the best and is beginning to find commercial employment in control equipment and other devices.

Other more established uses of lead continue to grow. Our burgeoning nuclear Navy will require more and more lead shielding in the next few years. A number of important new buildings, including the huge Pan Am Building adjacent to Grand Central Terminal in New York; the British Empire's largest office structure, the Ville Marie project in Montreal; a new bank in El Paso, Texas, will rest on lead-asbestos pads, specified to prevent transmission of vibration into the building structures. Airconditioning cooling towers of two new New York skyscrapers rest on similar pads as do the big, high-speed printing presses in the new plant of the Miami Herald. Sixty tons of sheet lead will go into the Pan Am Building foundations alone.

U.S. Lead Use (Short tons)

	1960 estimated	1959
White lead.....	11,000	11,000
Red lead and litharge.....	75,000	74,000
Storage batteries.....	360,000	380,700
Cable.....	60,000	61,600
Building.....	50,000	51,000
Tetraethyl lead.....	165,000	160,000
Ammunition.....	43,000	45,300
Foil.....	4,000	3,700
Bearing metal.....	22,000	23,300
Bulder.....	62,000	69,000
Type metal.....	26,000	28,000
Calking lead.....	70,000	80,000
Other uses.....	87,000	101,400
	1,035,000	1,091,000

Based on U. S. Bureau of Mines statistics.

U.S. Lead Supply and Demand (Short tons of lead content)

	1960 estimated	1959
Supply:		
Mine production.....	240,000	255,600
Secondary production.....	445,000	447,600
Quota imports		
Over, recoverable.....	126,000	
Pigs and bars.....	222,000	348,000
Other imports (mainly for stockpile):		
Over, recoverable.....	—	6,200
Pigs and bars.....	—	41,400
Total.....	1,033,000	1,098,800
Changes in stocks at primary smelters and refineries.....	30,000	86,600
	(incr.)	(decr.)
Total.....	1,023,000	1,185,400
Exports.....	2,000	2,800
Total available.....	1,021,000	1,182,600
Demand:		
Industrial consumption.....	1,035,000	1,091,100
Estimated stockpile shipments.....	—	56,000
Consumers and secondary smelter stocks.....	20,000	3,600
	(decr.)	(incr.)
Unaccounted for.....	6,000	31,900
Total.....	1,021,000	1,182,600

American Bureau of Metal Statistics,
U. S. Bureau of Mines, and Lead Industries Association.

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