LEAD INDUSTRIES ASSOCIATION

[redacted] 60 East 42nd Street
NEW YORK 17, N. Y.

March 7, 1957

SUBJECT: LEAD SUPPLY AND DEMAND IN THE UNITED STATES

To Members of the Lead Industries Association:

Enclosed please find a reprint of the article "Lead Supply and Demand in the United States" which appeared in the February, 1957 issue of "Engineering and Mining Journal." This presents members with a statistical picture of the lead industry for 1956 and the outlook for 1957.

Extra copies are available as long as our supply lasts.

Very truly yours,

Robert L Zuckerman

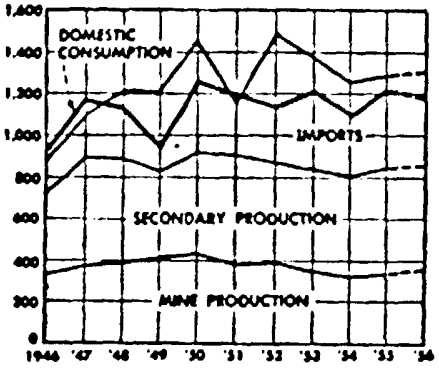
Secretary.

Lead

H. L. Ziegfeld
Secretary
Lead Industries Assn.

"Lead supply and demand were substantially held in balance; the stockpile was the major influence."

Lead Supply and Demand in the United States[1]



(Short tons)

	1956 estimated	1955
Supply:		
Domestic ores	[illegible]	338,025
Foreign ores and base bullion	[illegible]	177,679
Secondary	[illegible]	502,051
Net imports of metal	[illegible]	264,149
Total	[illegible]	1,281,704
Stocks at primary smelters and refineries	[illegible]	51,028[2]
Total supplies	1,323,000	1,332,732
Demand		
Industrial consumption	1,195,000	1,209,330
Consumers' stocks	10,000[2]	3,051[3]
	1,185,000	1,206,279
For stockpile and unaccounted for	90,000	126,453

[1] American Bureau of Metal Statistics, U. S. Bureau of Mines and Lead Industries Associations. [2] Decrease. [3] Increase.

LEAD IN 1956 was featured by an extremely stable market, a good but not exceptional level of consumption, and a continued world oversupply which was taken care of by Government stockpiling. Domestic mine production increased slightly while secondary production remained constant. Imports of lead in ore increased considerably but imports of metal declined. Consumption was off, largely due to the lower rate of automobile production, but was still the fourth largest year of record. Late in the year the Government started bartering surplus agricultural commodities for lead for a supplemental stockpile in addition to its regular stockpile purchases.

Price. Except for a period of a few days in January 1956, the price was 16c per lb New York for the entire year. On Jan. 4 some sales were made at 16.5c and on the following day all sales were at that level. The price dropped back to 16c Jan. 13 and remained there.

Stockpiling. There can be little doubt that Government stockpiling was responsible for this remarkable stability. Purchases for stockpile under the program announced in 19[illegible] which authorized purchases up to 200,000 tons of domestically mined lead, amounted to nearly 60,000 tons in 1956 and must have brought the total bought since 1954 close to the 200,000-ton level. In addition, the Government started bartering surplus agricultural commodities for foreign lead late in the year. The total amount of lead thus purchased for the supplemental stockpile is not definitely known but it is estimated that in excess of 30,000 tons were delivered in 1956 with considerably larger amounts already bought for later delivery. It has been estimated that U.S. Government stockpile holdings of all kinds exceed a year's lead consumption for both military and civilian requirements.

Production of lead in ores mined in the U.S. increased about 4% to about 350,000 tons in 1956, partly the result of freedom from major work stoppages. Secondary lead production remained constant and, at 500,000 tons estimated, was about equal to the preceding year. This again was near the record of 512,000 tons set in 1947.

Imports of foreign lead ores and base bullion were at an all-time high, increasing 15% over 1955 to a little over 200,000 tons. The bulk of imported ores came from Peru, South Africa, Canada and Australia. Imports of lead metal, on the other hand, again recorded a decrease. They amounted to an estimated 240,000 tons, off nearly 10% from the preceding year, and including the rather substantial tonnage already mentioned which was obtained for the supplemental stockpile by barter.

Total supplies, therefore, did not differ much from 1955 at about 1,293,000 tons, an increase of only about 1%. However, in 1955 there was a substantial reduction of producer's stocks which further added to total supplies while in 1956 producer's stocks increased slightly.

Consumption, as previously stated, was good but not a record. At about 1,195,000 tons it was off about 1% from 1955, yet was the fourth largest year on record, exceeded only by 1950, 1953 and 1955. As consumers' stocks fell 10,000 tons during the year, a little less than 100,000 tons of the total supply remained for stockpiling or was unaccounted for (see table). Figures given previously indicate that most of this tonnage went to stockpiles of one kind or another.

Consumption in the early part of the year continued relatively high with the momentum gathered in late 1955, and stockpile offerings were therefore minimal during the first few months.

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However, consumption was off during the summer, with fairly substantial stockpile offerings and the fall business, particularly in storage batteries, never reached the high seasonal expectations.

Uses. The year was disappointing in the largest lead consuming industry, storage batteries, which reflected the substantial set-back in automobile production. This accounted almost entirely for the reduction of about 15,000 tons, or 4%, of lead used for this product, resulting in battery consumption of about 365,000 tons. Normally with more cars on the road, using bigger batteries and being driven farther, one would expect replacement batteries to make up some of this loss. However, although it was estimated early in the year that battery consumption would increase, it never materialized. In fact, for the first 10 months of the year replacement batteries were slightly off at about 19.8-million. The only way to account for this is that batteries are being built to last longer. Practically all new cars are using the larger 12v battery, but the smaller 6v battery still predominates in the replacement field.

On the other hand, the second largest lead use, tetraethyl lead for gasoline anti-knock compounds, gave an exceptional account of itself and much more than offset the loss in battery business. Consumption there is estimated about 195,000 tons, an increase of approximately 30,000 tons or nearly 20%. The figure is more remarkable because of greater production abroad with a new plant going into production in Canada in the fall of 1956. A new plant also started production in California and plans have been announced for two other new plants; another in California and one in Illinois.

Obviously tetraethyl lead manufacturers have great confidence in the future growth of this product. There has been much talk about the gas turbine or free piston engine, neither of which would require high octane fuel, eventually displacing the conventional engine with its need for tetraethyl lead. The general feeling in informed quarters in both the automotive and petroleum industries seems to be (1) that wide commercial use of such engine is a long way off and may never take place, since conventional engines will also be improved, or (2) they will only be satisfactory for limited special applications like the diesel engine, which has been around many years and has never taken over the field.

Recent talk of fuel injection systems has also raised some conjecture as to their effect on tetraethyl lead if generally adopted. Such systems permit equal performance on gasoline of one lower octane number and, on the surface, would appear to reduce the need for tetraethyl lead. However, automotive engineers are anxious to get maximum performance, with the net result that compression ratios will be stepped up further where fuel injection systems are used and the amount of anti-knock ingredient used will be unaffected.

Third largest use of lead is in cable sheathing, which also gave a surprisingly good account of itself in 1956. Lead consumption increased from about 121,000 tons to 134,000 tons, more than 10%, probably the result of the huge utility expansion programs. Large amounts of lead-covered telephone cable were imported into this country in 1956, so the consumption figures for the U.S. do not reflect the total amount of lead-covered cable actually used.

Lead in solder showed a rather substantial drop of about 15,000 tons to 73,000 tons. This can largely be attributed to the lower automobile production which reduced the need for body and radiator solder and the fact that 1955 was an extremely high year for solder. Despite the lower rate of home building, lead used for building construction and calking lead showed little change, probably due to a compensating increase in other types of construction. Most other uses on which statistics are available showed moderate declines.

There are other applications of lead on which statistics are not separately available but which nevertheless are worthy of comment. An example is lead as a radiation shielding material. Growth in the shipping and use of radioisotopes has undoubtedly meant a growth in the use of lead for shipping, storage and handling of these products. The Navy Department's commitment to an atomic navy means substantial use of lead for shielding in the future. For example, a submarine may use several hundred tons of lead shielding and the Navy now has under construction or contract more than a dozen. Likewise larger ships use proportionately larger quantities. In industrial "hot" laboratories all sorts of lead shielded equipment are employed and some of this equipment, such as shielded industrial trucks, may have several tons of lead shielding on each. All in all this looks like a strong growth market for lead.

Lead Use in the U.S.[1]

(Short tons)

	1956	1955
White lead	[illegible]	18,540
Red lead and litharge[2]	[illegible]	87,401
Storage batteries	[illegible]	380,013
Cable	[illegible]	121,165
Building[3]	[illegible]	60,223
Tetraethyl lead	[illegible]	165,113
Ammunition	[illegible]	46,816
Foil	[illegible]	5,185
Bearing metal	[illegible]	34,567
Solder	[illegible]	88,749
Type metal	[illegible]	26,507
Calking	[illegible]	59,406
Other uses	[illegible]	115,694
	[illegible]	1,209,130

[1] Based on U. S. Bureau of Mines statistics. [2] Exclusive of oxides for storage batteries. [3] Chiefly pipe, sheet and extrusions. Excludes lead used in structural construction.

Outlook. The automotive industry expects a better year in 1957, production for that year being recently estimated as up 10% over 1956. So consumption of lead in batteries and solder should increase. On the other hand consumption of lead for tetraethyl can hardly be expected to show another phenomenal increase as it did in 1956. In fact opening of new catalytic reforming plants may temporarily have a reducing effect on the demand for tetraethyl lead. Cable sheathing may be expected to give a good account of itself, but the large increase shown in 1956 is not likely to be repeated. The huge Federal highway aid program should create an expanded market for red lead paint. Many states have already accepted the program.

On the supply side not much change is anticipated. Imports may increase, but this would be largely due to stockpile acquisitions through barter. There is of course uncertainty with respect to the extent of other stockpiling purchases in 1957, although Government officials have been making reassuring statements along this line. It should also be borne in mind that inventories of lead are low—in the hands of both producers and consumers.

For the distant future the outlook is also encouraging. No large new producing areas are in sight which would be likely to upset the supply picture. Recognizing that since World War II, lead production has exceeded industrial requirements with the over-supply being stockpiled, growth industries using lead should tend to close this gap. Further growth in batteries, tetraethyl lead and atomic shielding seems obvious. The trend to lower temperature firing in most branches of the ceramic industries indicates a growing use for lead compounds. Recent word indicates the superiority of litharge as a high temperature lubricant for jet engines and the like.

Against these expanding per capita uses, no major substitution for lead in other important applications appears imminent.

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