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SUBJECT: ANNUAL SURVEY AND OUTLOOK
LEAD-1963

Members of the Lead Industries Association, Inc.:

Enclosed is a reprint of the article on lead from the annual review issue of "Engineering and Mining Journal," February, 1964.

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Executive Vice President

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Look Ahead with Lead

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February 1964

Annual Survey And Outlook

LEAD—1963

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THE ANNUAL TASK of reporting the state of the lead industry has been made more pleasant, if not actually lightened, by the developments which transpired in 1963. Not only was the year one of the best for the lead industry in some time, but the outlook, as it drew to a close, was most encouraging. The improvement



in the statistical position of lead that took place in 1962 continued through 1963 and resulted, as forecast, in better prices, better consumption and better profits.

In 1963, pig lead producers' inventories both here and abroad showed further reductions from the previous year-end, despite somewhat higher production and no significant increase in consumer stocks. Consumption showed a further substantial increase over a year earlier. In fact, the situation was such that no action was taken

by the International Lead Zinc Study Group of the U.N., which met in Geneva last fall to review the lead situation.

Supply. U.S. mine production of lead in 1962 had reached a record low since the turn of the century. Due largely to a prolonged strike at the Missouri mines of St. Joseph Lead Co. The strike, which began in late July, caused a loss of roughly 10,000 tpm of lead production. This strike was settled at the beginning of April 1963; and, as a result, mine production of lead in 1963 was some 20,000 tons higher than in the earlier year. Secondary lead production also showed an increase of about 20,000 tons.

On the other hand, imports declined about 40,000 tons, balancing the increase in domestic production. Imports were equal to the government-established quotas and were down, because of imports for stockpile from Australia and Canada in 1962 which were outside the quota and resulted from a barter arrangement with those countries dating back to 1961.

Therefore, the lead available to U.S. industry in 1963 totaled about 1,075,000 tons or about 40,000 tons more than in 1962, when 64,000 tons had to be drawn from producers' inventories to supply the demand of 1.11-million tons. However, consumers' demands rose to about 1,166,000 tons in 1963, an increase of about 5%; and some 80,000 tons or more had to be taken from producers' stocks. This leaves pig lead inventories in the hands of U.S. smelters and refiners at the end of 1963 at the low level of about 75,000 tons, or less than four weeks' requirements; and it should be noted that inventory reductions continued throughout the year even after settlement of the St. Joe strike.

Outside the U.S., refined lead production increased moderately; and in November the European Lead Development Committee estimated European lead consumption up about 5%, the same as in the U.S. However, the long series of monthly reductions of refiners' stocks outside the U.S. was temporarily reversed at mid-year

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U. S. Lead Supply and Demand*

(short tons of lead content)

	1961**	1962
Supply:		
Mine production	255,000	237,000
Secondary production	466,000	445,200
Quota imports		
One recoverable	142,500	142,500
Pigs and lumps	222,000	222,400
Other imports (mainly for stockpile)		
One recoverable	—	6,600
Pigs and lumps	—	34,800
Total	1,075,700	1,078,500
Changes in stocks at primary smelters and refineries	80,000 (decr.)	61,000 (incr.)
Total	1,155,700	1,142,500
Exports	1,200	5,000
Total available	1,154,500	1,137,500
Demand:		
Industrial consumption	1,165,700	1,109,600
Estimated stockpile shipments	—	41,400
Consumers and secondary smelter stocks	—	6,000 (decr.)
Unaccounted for	-11,200	-7,700
Total	1,154,500	1,137,500

*Based on American Bureau of Metal Statistics, U. S. Bureau of Mines and Lead Refining Statistics, Inc. Statistics.
**Estimated.

World Stock Figures*

Combined U.S. and Outside U.S.

	End of	In short tons
November 1963		220,410
December 1962		309,188
	U.S.A.	
November 1963		76,107
December 1962		151,900
	Outside U.S.A.	
November 1963		144,503
December 1962		156,398

*Based on American Bureau of Metal Statistics, Summary of Lead Refining Statistics in U.S. and Outside U.S.

but by the end of November resumed the downward trend and ended 1963 about 10,000 tons lower than at the beginning of the year, and some 100,000 tons lower than a year before. The net result is that available statistics covering most of the Free World place the decline in stocks during 1963 both here and abroad at about 90,000 tons and in the last two years at nearly 250,000 tons.

Prices. All these positive factors in the statistical picture added up to a series of increases in the New York price for pig lead which had reached

Lead Price Changes

(cents per lb. N.Y.)

Nov. 2, 1962	10.00
Jan. 14, 1963	10.50
June 5, 1963	10.75
July 1, 1963	11.00
July 23, 1963	11.25
Aug. 19, 1963	11.50
Sept. 16, 1963	11.75
Oct. 8, 1963	12.00
Nov. 20, 1963	12.50
Jan. 2, 1964	13.00

Quarterly U. S. Lead Use*

(short tons)

	1961**	1962
1st quarter	292,700	276,700
2nd quarter	291,200	270,500
3rd quarter	277,700	266,700
4th quarter	304,400	295,700
Total	1,165,700	1,109,600

*Adjusted to reflect final year-end figures of U.S. Bureau of Mines.
**Estimated.

U. S. Lead Consumption*

	1961**	1962
Ammunition	50,000	47,800
Bearings	21,500	16,500
Brass and bronze	22,000	20,600
Cable covering	58,000	56,700
Calking lead	80,000	72,600
Castings	8,000	7,400
Collapsible tubes	14,000	12,000
Fuel	4,000	3,700
Pipe, traps & tanks	20,000	19,800
Sheet	30,000	28,500
Solder	71,000	60,900
Terminations	2,000	1,400
Type metal	26,000	26,500
Storage batteries	430,000	419,900
Red lead & litharge	70,000	76,300
White lead	10,500	11,100
Other pigments	19,500	15,600
Artificially produced oxides	190,000	165,900
Misc. chemicals	3,000	2,700
Annealing	5,100	5,300
Galvanizing	1,600	1,100
Weights and ballast	11,500	10,500
Unclassified	17,000	17,500
Total	1,165,700	1,109,600

*Based on U. S. Bureau of Mines statistics.
**Estimated.

a post-war low of 9½¢ a lb in February 1962. On Nov. 2, 1962, with consumption moving ahead and supplies strike-limited, the price advanced to 10¢ and on Jan. 14, 1963, to 10½¢. Then, starting on June 5, 1963, a series of ¼¢ increases brought the price up to 12¢ on Oct. 8. On Nov. 20, it moved to 12½¢, where it remained for the balance of the year. (On Jan. 2, 1964, the price registered another ½¢ increase going to 13¢.) Meanwhile, the LME price for lead more or less moved in the same way, opening the year at around £34 to £35 per ton and closing it in the

vicinity of £38. Year-end prices were the highest since late 1957.

Consumption. All of the foregoing adds up to a pretty encouraging picture of the lead industry today. But the most encouraging thing of all lies in a detailed study of the pattern of lead consumption itself in the U.S. Although lead consumption followed the usual seasonal pattern, being smallest in the third quarter of the year and largest in the last quarter, consumption in each quarter of 1963 exceeded that in the corresponding quarter of 1962, just as did the 1962 quarters compared with 1961. This seems to indicate a bold, solid advance without signs of any weakness or indication of any other trend. Even the consumption of lead each month in 1963, except August, exceeded the consumption in the corresponding 1962 months. In October 1963, the latest month for which reliable statistics are available, lead consumption of over 106,000 tons was the highest for any month since October 1956.

Another reassuring factor is the way lead consumption is being maintained or increased in each application. Only one lead classification shows any significant decline, practically all others showing increased usage, some of them quite substantial. And the one showing a measurable decline, red lead and litharge, is misleading and readily explained. Since quotas on pig lead imports were established in 1958, more and more finished or semi-finished lead products have been entering this country from abroad outside the quota. This is particularly true of lead oxides from Mexico since the quota is bypassed and the Mexican export tax on pig lead is avoided. These imports of red lead and litharge from Mexico have increased from about 7800 tons in 1958 to nearly 16,000 tons in 1962, and a 1963 estimate of over 22,000 tons based on nine months' actual imports. The real amount of red lead and litharge used in the U.S. is the sum of domestically produced oxides and imports. Thus the drop in lead used to make oxides in this country this year is compensated for by the increase in imports and total lead oxide consumption is more of the order of 90,000 tons than the 70,000 tons shown in the table of lead consumption.

This also applies, but in lesser degree, to a number of other lead classifications such as cable, white lead, sheet lead, solder and others. The total of lead products used in the U.S., then, is higher than lead consumption given in our table by the sum of all these imports, or perhaps

35,000 to 45,000 tons.

Most of the rest of the lead consumption table should make fairly pleasant reading for those interested in the lead industry, since consumption increased some 5% in 1963 on top of an increase of 8% in 1962. In 1962, storage batteries had established new all-time records both for lead consumed (420,000 tons) and in replacement batteries shipped (30.6 million). In 1963, both these records were again shattered with lead consumption estimated at 430,000 tons and replacement batteries up about another 1-million. Contributing factors were probably severe winters, high new car production and a trend to bigger cars with bigger batteries. Also batteries for miscellaneous industrial applications such as lift trucks and personnel carriers appear to be growing consumers of lead.

The second biggest use of lead, as an anti-knock compound in gasoline, rebounded from the somewhat lower usage of recent years and closed in on the record 192,000 tons used in 1956. Among probable reasons are the trend to bigger cars and the fact that deterrents to growth in recent years have run their course. These were new cracking plants producing higher octane base stock built a few years ago and now operating at capacity, new foreign plants which took some of the export market from domestic producers and jet aircraft which do not use high octane fuel. In each month in 1963 a larger amount of lead was used per gallon of both regular and premium gasoline than in the corresponding month of the previous year. The outlook for the future can reasonably be expected to be less spectacular but steady growth of this use.

The small increase in lead used for cable sheathing is perhaps even more significant than some of the larger increases in other products because the trend for many years has been downward. This downward trend at first was rapid but had slowed down considerably in the last few years. Reversal of the trend, even by a small amount, may indicate that substitu-

tion of other sheathes for lead has gone about as far as it can safely go, and that the future may find lead cable sheath growing at a normal rate to keep pace with the country's growth.

The very substantial increases in the use of lead for bearings, calking lead and solder can only be explained by the general high level of business and building activity and the difficulty of finding any adequate substitutes. Solder, for example, has had to meet severe competition from other joining methods such as adhesives, welding and brazing. Yet the great flexibility of soldering and the many forms, compositions and methods available have maintained soldering as one of the most useful methods of joining and have kept the use of solder increasing over the years on a per capita basis. For example, automobile body solder or filler metal has been threatened by plastics for years, but nothing has been able to replace it on automobile production lines because of its workability, adherence and speed of solidification.

The growth in the use of lead for ammunition has been quite consistent and results largely from greater interest in sport shooting. Both total tonnage and per capita use have increased even though less and less land is available each year on which sportsmen can shoot. A good word should be said for the Sportsmen's Service Center and the National Shooting Sports Foundation for the good work they are doing in seeing that more opportunities are provided for sports shooting through encouragement of the establishment of more public and private sports centers for skeet, trap and rifle shooting and more game preserves.

The use of lead for collapsible tubes has shown substantial expansion in recent years, largely due to the popularity of fluoridized toothpaste which can only be satisfactorily packaged in lead tubes.

New developments are also beginning to contribute to the improved lead picture. Waterproofing of architectural pools and planters, now so popu-

lar, antivibration pads for building foundations and machinery, and lead for sound-proofing probably all contributed to the increased use of sheet lead, although to varying degrees. New pigments, particularly for metal primers, are adding to lead consumption since they often replace other than lead pigments. Research on organo-lead compounds, which have possible applications in many different fields, show great promise for the future.

It is not possible in a short space to touch on all the developments that contribute to the bright future outlook for lead. The substantial sums of money which the lead industry has devoted in recent years to market and product development are paying off. No better evidence could be found than that the industry will spend more in this direction in 1964 than ever before.

Some new application highlights: A new New York City Health Dept. building will be erected on lead-asbestos pads to protect against vibration from heavy street traffic for the first time, instead of vibration from railroads and subways. A Toronto manufacturer is marketing a removable wall for use in dividing hotel and motel meeting rooms into smaller rooms, using a lead lining to improve its sound attenuation characteristics. Experimental quantities of certain new organo-lead compounds are being made available to industry for application testing. New high-speed continuousterne coating lines at plants of two leading manufacturers will increase industry capacity for this product about a third. A lead-loaded vinyl curtain has been used in back of the stage at New York's new Philharmonic Hall to improve the acoustics, and similar material, already used for sound-proofing in jet aircraft and helicopters, has been applied successfully to the latest hydrofoil boat design. A completely new design of lead roof was developed by Massachusetts Institute of Technology engineers to correct a serious deficiency in the original roof of the M.I.T. auditorium. END

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