LEAD INDUSTRIES ASSOCIATION, INC.
292 MADISON AVENUE
NEW YORK 17, N. Y.

SUBJECT TO REVISION

INDUSTRY DEVELOPMENT COMMITTEE MEETING MINUTES

Chicago, Illinois — April 27, 1963

A meeting of the Industry Development Committee of the Lead Industries Association, Inc. was held on Saturday, April 27, 1963 at the Drake Hotel, Chicago, Ill.

PRESENT	REPRESENTING
J. J. Lennon	American Metal Climax, Inc.
J. S. Smart, Jr.	American Smelting and Refining Co.
F. Burless	Anaconda Sales Co.
R. J. Hopkins	The Broken Hill Associated Smelters Pty. Ltd.
G. A. Larson	The Bunker Hill Co.
L. L. Taylor	Compania Minera Asarco, S.A.
E. H. Gautschi	The Consolidated Mining & Smelting Co. of Canada, Ltd.
C. R. Ince	St. Joseph Lead Co.
G. H. LaFevre	United States Smelting Refining & Mining Co.

OTHER MEMBERS

D. S. Burwood	The Broken Hill Associated Smelters Pty. Ltd. (The Rio Tinto-Zinc Corp. Ltd.)
P. W. Robinson	do
H. W. Halton	(C. Tennant, Sons & Co. of New York)
M. E. Elmore	The Bunker Hill Co.
I. L. Barker	Cerro Sales Corp.
E. Ritchie	The Eagle-Picher Co.
H. E. Hesselberg	The Ethyl Corp.
W. P. Perlstein	do
W. P. Wilke, III	Hammond Lead Products, Inc.
J. R. Englehorn	St. Joseph Lead Co.
L. Riggs	do

GUESTS

J. L. Bliton	Armour Research Foundation
J Perez	do
J. P. Rudy	do
H. Schwartzbart	do
L. Villaseñor S.	Cia. Fresnillo, S.A.

Look Ahead with Lead

GUESTS (Continued)

A. K. Graham	Graham, Savage & Associates, Inc.
W. O. Hiscock	-
J. I. Fisher	Huyck Corp.
M. C. Henry	U.S. Quartermaster Research & Eng. Command
H. O. Iverson	U.S. Bureau of Mines
A. D. McMahon	do
R. W. Spencer	do

L.I.A. STAFF
Robert L. Ziegfeld, Executive Vice President and Treasurer
David M. Borcina, Secretary and Assistant Treasurer
Bruce Fader, Manager, Technical Services
Don G. Fowler, Director, Health and Safety

E.E.P. STAFF
S. F. Radtke, Director of Research
J. G. Bilak
A. R. Cook
S. E. Eck
L. Kettler

The chair was occupied by the president of the Association, Mr. Charles R. Ince, who called the meeting to order at 9:30 A.M.

The secretary reported a quorum was present.

EXPANDED RESEARCH PROGRAM-MORNING SESSION

The chairman requested the research director to report on his activities.

The research director stated that he had invited a number of contractors and others to report on the various programs. The morning session was devoted to a number of these reports. The meeting recessed for luncheon at 12:15 P.M.

BUSINESS SESSION

The meeting reconvened for a short business session at 2:05 P.M.

The minutes of the previous meeting of November 28, 1962 were approved.

ADDITIONAL "ELECTRICAL WORLD" ADVERTISING

The executive vice president recommended that the Association take two pages in "Electrical World" at $810 each for an ad on transformers soundproofed with lead. The copy for the ad would be based on a reprint of a paper entitled, "Transformer Noise Reduction with a Close-Fitting Mass-Law Enclosure," sent to the committee on March 27, 1963.

A motion was thereupon made, seconded and unanimously approved for the executive vice president to expend the necessary funds for two pages in "Electrical World" magazine for ads on transformers soundproofed with lead.

AD IN SPECIAL SUPPLEMENT OF THE "AMERICAN METAL MARKET"

The executive vice president also recommended that the Association take a one-page ad at a cost of $545 per page in the special lead-zinc supplement of the "American Metal Market." The ad would be used to describe L.I.A.'s services available to metal users and help solidify recognition as a service and information center. Reference to the industry's research activities would also be made.

A motion was thereupon made, seconded and unanimously approved for the executive vice president to expend the necessary funds for a one-page ad in the "American Metal Market."

REPORT ON CAULKING LEAD SITUATION

At the request of the chairman, the secretary reported that the research on lead caulked joints for high temperatures, conducted jointly by K.R.P., the Cast Iron Soil Pipe Institute, and the Twisted Jute Packing and Oakum Institute, was disappointing with one exception. The exception is basically the same as a caulked joint with part of the oakum replaced by a wedge-shaped rubber ring placed at the bottom of the joint. It was his thought that this joint could be utilized for further testing at Purdue or some other university and the results publicized as a new type joint for extreme conditions in a cast-iron waste system. In addition, conventional type caulked joints could be tested at lower temperature fluctuations and certainly lower pressures, perhaps at pressures roughly equal to a 10 ft. head of water.

The secretary reported that there are currently on the market two types of joints for cast-iron waste pipe that are in direct competition with us and utilize no lead at all. The first of these is "Ty-Seal," a neoprene gasketed joint, and the second is called "No-Hub," a stainless steel-neoprene hose coupling type of joint. This latter does not use conventional type bell and spigot cast-iron pipe but simply straight lengths of pipe butted together. The secretary then suggested that some research be conducted to determine the effectiveness or weaknesses of these joints.

After some discussion, it was also suggested that an effort be made to develop a joint for cast-iron pipe utilizing lead.

The chairman thereupon requested the secretary to prepare work statements on the above research recommendations for presentation to K.R.P.

EXPANDED RESEARCH PROGRAM-AFTERNOON SESSION

The business session concluded at 2:35 P.M. at which time the research reports were resumed. A synopsis of the research reports presented at both the morning and afternoon sessions, prepared by the K.R.P. staff, is attached.

Meeting adjourned at 5:00 P.M.

David Rowan
Secretary.

SYNOPSIS OF EXPANDED RESEARCH PROGRAM REPORTS PRESENTED AT THE LEAD INDUSTRIES ASSOCIATION, INC. INDUSTRY DEVELOPMENT COMMITTEE MEETING
April 2, 1963 Prepared by Louis Kattler

This meeting contained primarily presentations on the commercial implications of ERP Projects. Contractors and spokesmen of using industries were present to discuss our various programs, and the highlights of the meeting are reported below.

1. Lead Compounds as Lubricant Additives (LC-49), presented by W. L. Perlstein, The Ethyl Corporation - Of 100 lead compounds tested, about 20 were found effective as lubricant additives. The testing was done on a 4-ball wear machine with the compounds suspended in fluid lubricant.

Consumption of motor oil by the automobile industry in the USA is about 7,000 million lbs. per year, and a figure of one weight per cent of lead as additive in lubricants would present a market potential of 35,000 tons of lead.

2. High Speed Lead Plating of Steel (LE-36), presented by A. K. Graham, Graham, Savage & Associates - This work has produced coatings of good adhesion, practical zero porosity, and grain refinement of 4%. Capital costs for either tin or lead plating would be about the same, but the lead plating would require shorter plating tanks.

3. Atmospheric Lead and the Automobile (LC-69), presented by H. E. Besselberg, The Ethyl Corporation - This program is to confirm the fact that most of the lead that enters the atmosphere through automobile exhausts is not in sufficient quantity or form to create a hazard to public health.

4. Lead Pigments (LC-34 and LC-50), presented by E. Ritchie, The Eagle-Picher Company - At this stage of development baking type finishes are much more effective than air drying vehicles. One half pound to one pound of lead per gallon of paint is effective in bringing out the inhibitive properties of lead. The biggest hurdle to the commercial utilization of lead pigments is prejudice.

5. Lead Fiber Metallurgy (LM-9), presented by H. Schwartzbart, Armour Research Foundation - The major bearing markets are in sleeve bearings valued at $65 million in 1960, and in ball and roller bearings valued at $800 million in 1960. Lead is very effective under starved bearing lubrication conditions, and reinforced lead bearings have a good chance of acquiring a fair share of the market.

Consumption of solder was about 73,500 tons in 1961, of which 14,000 tons was used in auto radiators, 11,000 tons in cans, 1,500 tons in coatings, and 47,000 tons in other applications. Estimated consumption for 1962 is 82,300 tons of solder valued at $55 million.

Mr. Rudy, of Armour Research Foundation, discussed the development of reinforced solder tape and its potential for use in automotive body solders, appliances and plumbing. The main advantages of the solder tape are that it can be easily applied and that the lead is retained in the reinforcing mat when melted. The latter property is particularly important for soldering on vertical surfaces.

By way of illustration, Mr. J. Perez of AEP then demonstrated the ease of soldering a butt joint on two short lengths of galvanized pipe, by wrapping reinforced lead solder tape around the joint and heating with a handyman's torch.

Mr. J. I. Fisher of Huyck Corp. reported that his firm was working on producing long strip and impregnating the strip with a lead -5% tin alloy. He noted that at the initial stage, a 25 foot roll of 1/2" x 1/32" tape can be sold at about $1.00, or about $0.75 per lb., but that future processing improvements will lower this figure. Samples of the tape will soon be made available for field evaluation.

6. Flame Spraying of Lead Glazes and Enamels (LC-59), presented by J. L. Bliton, Armour Research Foundation - This research has produced crack-free but not pore-free glazes, and work is continuing on the study of spray gun design, powder feeding systems, and determination of costs. Good market potentials can be expected in the precoating of concrete blocks, coating-in-place of walls, and field repair of damage surfaces.

7. Lead for Sound Attenuation (LM-16), presented by J. R. Engleborn, St. Joseph Lead Company - The market development stage of this research is now in progress, and the EPP will contact manufacturers to discuss the incorporation of lead in structural panels. To encourage cooperation from panel and partition manufacturers, the lead industry will: (1) furnish sheet lead, (2) provide testing facilities, (3) provide acoustical consulting, (4) provide architectural assistance, (5) offer the services of EPP and LIA talents.

Mr. R. J. Hopkins of Broken Hill Associated Smelters Pty. Ltd., discussed case histories and marketing methods for lead in sound attenuation as used in Australia. His company agreed that distribution through normal channels would increase costs and prejudice immediate recognition by the building industry. To obtain a share of the ceiling and partition markets, a decision was made to market directly to the consumer at the cost of pig lead plus a small on-cost, embracing the cost of D. M. converting and cutting to size. The resulting benefits were that the product could be furnished to the consumer at low cost, and the consumer could be persuaded of the need for leaded materials. As a result, 200 tons of D. M. lead have been sold to date and, with increasing demand, attention is being given to setting up distribution arrangements in other cities.

Mr. E. E. Gautschi of the Consolidated Mining & Smelting Company of Canada Limited, reported that Canada was following the procedure outlined by Mr. Engleborn. In Canada it is difficult to obtain thin lead sheet, and the price of one pound lead sheet is as high as that of two pound lead sheet. The work in Canada is being done in cooperation with partition manufacturers, and Cominco is prepared to supply - at no cost - lead, transportation, installation, screening and testing, to further the commercialization of lead for sound attenuation.

Mr. Smart observed that the program was directed to movable partitions because this area offered the most practical ready market. However, Asarco will also try dry wall construction to obtain a greater market potential and better attenuation. At a price as low as $1.35 per sq.ft. for standard dry wall panels, it should be possible to introduce lead and still maintain a relatively low price.

Mr. Robinson of The Rio Tinto - Zinc Corp. remarked that sheet lead provides the most efficient attenuation and is being field tested in government low cost housing. The market for thin lead sheet in England is approximately 30,000 tons per year.

Dr. Radtke noted that other trade associations have used information developed by Goodfriend and have re-edited it in part for promotional documents in other countries.

8. Continuous Casting of Lead Sheet (LM-67), presented by R. J. Hopkins, Broken Hill Associated Smelters Pty. Ltd. - A new 36" width machine has been constructed, and lead sheet has been produced on this machine with a gage variation of plus or minus 5% on a .032" thickness. It is estimated that the machine can be built commercially for about $25,000. Drawings required for the construction of the machine can be made available to interested firms at $250.00. The direct cost of converting pig lead to sheet by the D. M. Casting Process is 1¢ to 1½¢ per lb.

Mr. Hopkins also showed the Committee a sample of self-supporting thin lead sheet with built-in reinforcing wire which was cast on the D.M. Machine.

Dr. Radtke then showed a film of the 36" D. M. Machine in operation.

9. Organolead Chemistry (LC-28), presented by M. C. Henry, Quartermaster Research & Engineering Command - Dr. Henry discussed the work being done on hexaphenyldilead, organolead mercaptides and other newly synthesized lead compounds. A number of new organolead-sulfur compounds have been sent to THO for antifungal screening tests, and a report recently received from the U. S. Dept. of the Interior indicates that these compounds also have excellent rodent repellent properties.

10. Lead Particulate Metallurgy (LM-8 and LM-45), American Smelting & Refining Company - Dr. Radtke discussed the program and reported that Associated Electrical Industries (AEI) in England have picked up the work and are investigating new applications in their own laboratories. Mr. Burwood added that powders of controlled oxide content have been prepared and extrusions of these powders have produced some very interesting products, such as lead springs, tubes, and fabricated cable sheathing. The PbO dispersion hardened powders show distinct advantages over conventional lead materials and their corrosion resistance is very good. Green powders processed in conventional extrusion equipment show mechanical strength properties similar to antimonial lead, while retaining the high corrosion resistance of pure lead. Applicability to battery grids may offer a very significant market potential.

11. Abstracting Service - Dr. Radtke reported on the excellent work being done by the ZDA/LDA on the abstracting of lead and zinc literature. Over 9,000 copies of Lead and Zinc abstracts are being distributed monthly to readers throughout the world.