

LEAD INDUSTRIES ASSOCIATION

60 EAST 42ND STREET

NEW YORK 17, N. Y.

March 17, 1958

SUBJECT: RESEARCH
BUDGET RECOMMENDATIONS

TO: Industry Development Committee

FROM: Technical Steering Committee

Under date of February 21, 1958, the Technical Steering Committee submitted for the information of the Industry Development Committee a memorandum containing its evaluation of the Battelle report in general and of specific Battelle proposals contained in that report. The T.S.C. is now submitting for consideration specific research budget recommendations based both on that report and other subjects that it has had under consideration.

In so doing, it would like to point out that careful consideration has been given to a proper balance between applied and basic research. It feels that this ratio must be flexible because basic research must necessarily feed applied research. Obviously therefore at the outset, greater emphasis will have to be on basic research until it develops more areas for applied research. The T.S.C. expects to watch this relationship continuously to be sure that the balance is properly maintained in accordance with conditions prevailing at any time.

The T.S.C. expects to submit additional recommendations from time to time as further data are developed on the many Battelle proposals which require further study. These may include but would not be limited to the fourteen proposals contained in B-1, B-2 and B-3 of the February 21 memorandum and other projects which L.I.A. has under study.

In the following budget tabulation, the nine ceramic fellowships already approved at \$27,000 for 1958 are included. All cost figures listed are estimated and subject to negotiation with various qualified research organizations. They are also considered to be maxima for the work immediately contemplated. The contingency fund is provided to take care of situations which might require prompt action as the result of information developed during the course of the projects approved.

The T.S.C. recommends that the I.D.C. approve the appropriation of funds for one year for the projects in the following tabulation not already approved. Approval would be with the understanding that the costs shown for individual projects would not exceed those listed without further authorization and that no research contracts would be consummated without the approval of the T.S.C. or



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its duly authorized representatives. In the latter connection it should be pointed out that the T.S.C. has appointed competent subcommittees to supervise the planning, contracting and conduct of each project or group of projects.

RESEARCH BUDGET, 1956

ALREADY APPROVED

1. Ceramics

a. Ceramic bodies	
Two fellowships at Rutgers	\$6,000
b. Porcelain enamels	
Two fellowships at Illinois	6,000
c. Glazes	
One fellowship at Ohio State	3,000
d. Phase Diagrams	
One fellowship at Penn State	3,500
e. Glass	
One fellowship at Alfred	3,000
f. Glazed brick	
One fellowship at Clemson	2,500
g. Ferroelectrics	
One fellowship at California	<u>3,000</u>
Total Already Approved	\$27,000

(The foregoing are under the supervision of the Ceramics Technical Committee.)

RECOMMENDED FOR APPROVAL

1. Applied Research

a. Reinforced lead and lead alloys. (February 21 memo A-1-a).
Owens-Corning Fiberglas Corp. has already spent some \$10,000 to \$20,000 in developing a method of reinforcing lead with glass fibers, the product indicating certain improved physical properties. Upon our offer of cooperation, they have suggested that tests be run in our member laboratories on samples supplied by them. The cost to determine whether additional research would be ad-

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visable should be moderate; therefore it is recommended that this procedure be followed at a cost which will undoubtedly be only a fraction of the total mentioned in the Battelle report. This should not exceed the figure shown on the right to develop sufficient information to determine the future course of the work, if any

\$5,000

(The foregoing would be under the supervision of a subcommittee composed of A.J. Phillips, American Smelting and Refining Co. and Richard P. Hermsdorf, American Metal Clinax, Inc.)

- b. Heat emissive properties of lead compounds. (Not included in February 21 memo.) This was not covered by the Battelle report but has been developed through other L.I.A. contacts. There is good evidence that lead compounds have properties that might be extremely useful in commercial heating and cooling applications, and these properties have been exploited only to a very limited extent. However, a program study is needed to determine its wider applicability.

\$10,000

(The foregoing would be under supervision of the L.I.A. staff with the guidance of Roy Dahlstrom, National Lead Co.)

Total Recommended Applied Research

\$15,000

2. Basic Research

- a. Lead alloys - general research. (February 21 memo A-2-a).
b. Powder metallurgy of lead and lead alloys. (February 21 memo A-2-b).
c. Improvement of mechanical properties of lead with insoluble metals by suspension in the mushy state. (February 21 memo A-2-c).

All three of the foregoing, a, b and c, should start with a review of the literature and present knowledge and reference to similar work underway by others.

\$50,000

(The foregoing would be under the supervision of a subcommittee composed of A.D. Turnbull, The Consolidated Mining and Smelting Co. of Canada, Ltd., chairman, and I. L. Barker, Cerro de Pasco Corp.)

- d. Lead chelates and their applications. (February 21 memo A-2-d).

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e. Perfluorinated organolead compounds. (February 21 memo A-2-e).

f. Lead oxide condensation products with organic materials. (February 21 memo A-2-f).

g. Lead hydrides - properties and applications. (February 21 memo A-2-g).

These four projects, d, e, f and g, would be pursued primarily through one or more graduate research fellowships in each category.

\$25,000

(The foregoing would be under the supervision of a subcommittee composed of Roy Dahlstrom, National Lead Company, chairman, and Y. E. Lebedeff, American Smelting and Refining Co.)

Total Recommended Basic Research	\$75,000
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Contingency Fund	<u>\$13,000</u>
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Total Research, 1958	\$130,000
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RECAPITULATION OF RESEARCH BUDGET, 1958

Items Already Approved and Subscribed	\$27,000
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Items Recommended for Approval:

Applied Research	\$15,000	
Basic Research	75,000	
Contingencies	<u>13,000</u>	<u>\$103,000</u>

Total Research, 1958	\$130,000
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Respectfully submitted,

Technical Steering Committee
Harold E. Lee, Chairman

By:

R. L. L. Zingher
Secretary