

LEAD INDUSTRIES ASSOCIATION

430 LEXINGTON AVENUE

NEW YORK 17, N. Y.

RED LEAD DIVISION

CONFIDENTIAL

SUBJECT TO REVISION

RED LEAD TECHNICAL COMMITTEE

New York, N. Y.

January 18, 1946

A meeting of the members of the Red Lead Technical Committee was held in the offices of the Lead Industries Association on January 18, 1946. Present were:

Representative

A.C. Goets
O.F. Shobe
J.O. Johnstone
G. Diehlman

Company

Engle Richer Company
Glidden Company
Hanscom Lead Products, Inc.
National Lead Company

F.E. Forman, Secretary
R.L. Ziegfeld, Assistant Secretary
L.L. Carriek, Director of Red Lead Research
C.B. Voldrich, Battelle Memorial Institute.

The meeting was called to order at 10:30 A.M., with Dr. Carriek in the chair.

The Chairman asked for any corrections to the minutes of the previous meeting, held on December 7, 1945, and none were presented.

BATTELLE MEMORIAL INSTITUTE

He then asked Mr. Voldrich to report on the welding research at Battelle Memorial Institute, covering the period since the last meeting.

Mr. Voldrich said that results using the E-60-20 D.C. mineral coated flat position electrode were good on all the paints. With the other electrodes, E-60-10 and E-60-11 A.C. and vertical position, the lead pigmented paints gave a little more porosity in the weld and required more manipulation on the part of operator.

L.I.A. Nos. 111 and 118 were a little better than the other paints, and almost as good as 82-MC-29 and 82-A-18. L.I.A. No. 118 was the closest to these two.

He said that lead appears to make the slag more fluid which is a disadvantage in vertical welding.

Mr. Voldrich said that the radiographs of vertical fillet welds were not what he would call "awful" but might be questioned in inspections.

He explained that on the deep weld tests in which samples were taken to determine yield strength, ultimate tensile strength and elongation, the strength of

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all welds appeared to be about the same regardless of porosity or whether they were painted once or after each weld. The ductility, he said, is slightly off. He said that the Navy requires an elongation of 22% in 2 in.

He presented the following results on specimens painted once with a $2\frac{1}{2}$ to $3\frac{1}{2}$ mil thickness of paint:

PAINT	YIELD STRENGTH	ULTIMATE TENSILE STRENGTH	ELONGATION
	Lb. Per Sq. In.	Lb. Per Sq. In.	Percent
Control	81,000	85,000	20
(No Paint)	86,000	70,000	20
TT-A-86	82,000	64,000	18
	86,000	67,000	18
52-MC-23	82,000	64,000	20
	86,000	67,000	18
L.I.A. 111	69,000	64,000	17
	86,000	67,000	17
L.I.A. 118	82,000	65,000	14
52-A-18	81,000	65,000	17
	86,000	67,000	14
52-MC-29	69,000	64,000	19
	86,000	68,000	18
14 AC	82,000	67,000	12
	86,000	68,000	19

No ando the following comments on the above tests:

TT-A-86 was quite porous on the first pass with some additional porosity on completion of the weld.

52-MC-23 had some porosity, but less than TT-A-86.

L.I.A. 111 had about the same porosity as 52-MC-23 on the first pass and no porosity on subsequent passes.

L.I.A. 118 showed less porosity than L.I.A. 111.

52-A-18 had slight scattered porosity in the root bead but was better than 52-MC-23 in this respect. It was perfect with respect to porosity on the second test.

52-MC-29 showed slight scattered porosity on the first pass and none in subsequent passes.

This was also true of 14 AC.

Mr. Voldrich reported as follows for the tests made on welds which were painted with 2 to 4 mils thickness of paint after each layer of the weld, making a total of 6 or 7 paintings in each test;

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<u>PAINT</u>	<u>YIELD STRENGTH</u>	<u>ULTIMATE TENSILE STRENGTH</u>	<u>ELONGATION</u>
	<u>Lb. Per Sq. In.</u>	<u>Lb. Per Sq. In.</u>	<u>Per Cent</u>
Control (No Paint)	84,000	88,000	13
L.I.A. 111	87,000	70,000	18
82-MC-29	82,000	66,000	23
82-A-18	83,000	66,000	16
82-MC-23	84,000	66,000	14

He made the following comments on these tests:

The control sample showed slight scattered porosity as did L.I.A. 111.

82-MC-29 and 82-A-18 showed moderate scattered porosity, and 82-MC-23 fairly heavy porosity. There was no trouble in welding flat with the E-60-10 electrode.

He summed up his opinion of the general story of these tests by saying that there appeared to be little difference among the paints. He attributed the cut in ductility to the electrode and not to the paint. Unless there was too much paint used, the paint apparently had no effect. He said that while the indications of porosity sometimes look bad in these tests, the strength did not appear to be affected.

He pointed out that the Navy tests are run in a flat position only with the specimens placed in boiling water after each weld and the welding done while hot. He said that the Navy requirements call for yield strength of 82,000 lb. per sq. in., ultimate tensile strength of 68,000 lb. per sq. in., an elongation of 23%, and an elongation, heat treated, of 27%.

It was decided that vertical welds should be run on paints TT-A-26, 82-A-18, 82-MC-29, and L.I.A. Nos. 111 and 112.

It was also felt that tests under Navy conditions should be run on these same paints, painting the weld only once, and that a test should also be run under Navy conditions on paint L.I.A. 111, repeating the painting after each pass.

Mr. Veldrich reported that a number of the vertical fillet welds on the dry pigments had been completed. The vehicle used as a binder for the pigments was one part of 82-MC-21 vehicle in 10 parts of solvent. The amount of pigment was varied depending upon the individual properties of pigment used, and all mixtures were made to approximately the same consistency. This was done to produce a uniform thickness of pigment as nearly as could be estimated. With all pigments, the root penetration was good. The welds were rated as to porosity, operating characteristics and external appearance and resulted in the following ratings in which the lowest figure represents the least porosity:

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Iron Oxide - two samples	1.0
Mica-lith O	1.3
Zinc Oxide	2.0
Titanium Dioxide	2.3
Zinc Chromate	2.3
Magnesium Silicate	2.0
Normal Lead Chromate	2.3
Red Lead 97% grade	4.7
Basic Lead Silicate	2.3
Lead Silicate	2.3
Basic Lead Chromate	2.7
Litharge	6.7
Basic Lead Carbonate	7.0
Blue Lead	10.0
Basic Lead Sulphate	10.0

It was pointed out that the iron oxides used were only about 75% and 82% pure iron oxide (Fe_2O_3).

Mr. Woldrich reported on vertical welds on unpigmented vehicle films 1.8 to 2.8 mils thick. The porosity was slight in all tests. The operating characteristics and appearance were all satisfactory. The vehicles tested were those used in paints TT-P-86, 62-MC-21, L.I.A. 118 and 62-P-18. His conclusion was that the vehicles have no effect on the welds.

It was then decided that the following mixtures of pigments by weight should be used in vertical fillet welds to determine their effects:

1. 90% Red Lead
10% Zinc Chromate
2. 90% Red Lead
10% Zinc Oxide
3. 90% Red Lead
10% Titanium Dioxide
4. 75% Red Lead
15% Basic Carbonate White Lead
10% Iron Oxide
5. 75% Red Lead
10% Calcium Carbonate
15% Iron Oxide
6. 65% Red Lead
10% Zinc Oxide
10% Zinc Chromate
7% Iron Oxide
18% Mica-lith O
7. 65% Red Lead
10% Zinc Chromate
2% Iron Oxide
2% Litharge
13% Mica-lith O
8. 75% Red Lead
25% Iron Oxide

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It was decided to use a siliceous 85% Pb_2O_3 grade of iron oxide throughout the tests.

It was concluded that lead seems to cause porosity but the effect of this on strength has not definitely been determined. However, porosity might affect acceptance if the inspector is looking for porosity.

It was decided in further work to make transverse weld tensile tests on the same paints on which the regular tensile tests were being made, L.I.A. paint No. 111 to be applied after each pass, as well as in one application only.

The Committee decided to wait for a full report on the completed work until later in order to save Mr. Voldrich time. It expressed a desire to have a summarized report now covering the work on which Mr. Voldrich had reported orally at the meeting.

NEXT MEETING

The Committee decided to have its next meeting in New York on February 18 and 19, 1948, at which time Mr. Voldrich would have as much of the additional work completed as possible.

The Secretary was requested to provide Mr. Voldrich with copies of the part of the minutes of the meeting of December 7, 1948 dealing with the discussion of his work at the Battelle Memorial Institute.

Mr. Voldrich then left the meeting.

RED LEAD LABELING

Mr. Hoggfeld then reported that favorable replies on the Committee's recommendation on the labeling of red lead paint, drafted at the previous meeting, had been received from:

Engle Fisher Company
 Edmund Lead Products, Inc.
 National Lead Company
 Sherwin-Williams Company

The Committee decided that the wording should be sent on to the National Paint Varnish and Lacquer Association if and when approval is received from the Glidden Company.

MUTUAL CHEMICAL COMPANY OF AMERICA

The Chairman then read a letter written by the Secretary to the Mutual Chemical Company regarding their advertising, and the reply from that company, which was not considered satisfactory. This correspondence is attached as Exhibit "A."

ANDREW BROWN COMPANY

The Chairman pointed out that no reply had been received from Andrew Brown Company to a letter protesting misstatements in their advertising.

It was felt that a letter should be written to the Editor of "Southwestern Purchasing Agent" answering the article by the Chief Chemist of Andrew Brown Co. and that a complaint should be made to the Federal Trade Commission on the Andrew Brown Company advertising, as authorized by the Executive Committee of the Association.

"OFFICIAL DIGEST" ADVERTISING

A request that the Lead Industries Association advertise in the "Official Digest" (published by Federation of Paint & Varnish Production Clubs) was read and

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the Committee recommended that the Association should take some advertising provided it did not duplicate in the same publication, the advertising effort of members, and that some of the Association's space be devoted to red lead.

U.S. DEPT. OF LABOR BULLETIN

At this point, Mr. Coats exhibited a copy of Bulletin 839 of the U. S. Department of Labor, entitled "Fatal Work Injuries in Shipyards - 1943 and 1944," obtainable from the Government Printing Office for 10¢. He emphasized that this report of shipyard injuries made no mention of the occurrence of lead poisoning.

RESEARCH DIRECTOR

The Secretary asked if the Committee had any objection to engaging a Research Director to head both the Red Lead and White Lead Research programs.

The Committee expressed no objection.

Three applications for the position were considered to have the best possibilities, these being from:

A. L. Alexander
Naval Research Laboratory
Anacostia Station
Washington 20, D.C.

P. O. Pearson
U. S. Maritime Commission
Washington, D.C.

Frank K. Wilson
Scopolin Company
225 E. 42nd St.
New York 17, N.Y.

It was suggested that these three applicants might be asked to have a meal with the Committee at the time of its next meeting, one being asked for breakfast, another for lunch and another for dinner, in order that the Committee and the applicant might meet.

The Secretary was to arrange this for February 18, 1946.

Mr. Coats suggested the Secretary acknowledge all applications for the position.

PAPER ON X RAY PRIMERS

The Committee then proceeded to a consideration of the revised paper on marine primers and made some corrections. It was the consensus of opinion that the section entitled, "Conclusions" should be completely rewritten.

The Committee decided that the paper should in addition to its title carry the following by-line:

"Lead Industries Association
Red Lead Technical Committee,
L. L. Carriak, Director"

The meeting adjourned at 7:30 P.M.

He Norman
Secretary.

C O P Y

EXHIBIT A

MUTUAL CHEMICAL COMPANY OF AMERICA
270 Madison Avenue
New York 16, N.Y.

January 8, 1946

Mr. Felix Wormser
Lead Industries Association
420 Lexington Avenue
New York 17, N.Y.

Dear Felix:

I was very interested to have your note of January 7, mentioning one of our recent advertisements concerning zinc chromate primers and your remarks that you have red lead paints available, which in your opinion are superior to zinc chromates for maritime use etc. I was also interested in hearing what you had to say concerning lead chromate pigments.

For your information we are not in the pigment business, confining our relationship therein to supplying the pigment people with heavy chromium chemicals. However, as you know lead chromate has been a well known and reliable pigment for many years whereas zinc chromate has been a more or less recent development and consequently less generally known to industry. It is for this reason that we chose to give zinc chromate some publicity.

With kindest regards,

Sincerely yours,

(Signed) Enoch Perkins

EP:JM

CC: Mr. Benington

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