

LEAD INDUSTRIES ASSOCIATION

480 LEXINGTON AVENUE

NEW YORK 17, N. Y.

RED LEAD DIVISION

CONFIDENTIAL

SUBJECT TO REVISION

RED LEAD TECHNICAL COMMITTEE

New York, N.Y.

December 7, 1945

A meeting of the members of the Red Lead Technical Committee was held in the offices of the Lead Industries Association on December 7, 1945. Present were:

Representative

A.C. Goets
O.P. Shobe
G. Dickman

Company

Eagle-Picher Co.
Glidden Co.
National Lead Co.

F.E. Hornsby, Secretary
R.L. Ziegfeld, Assistant Secretary
L.L. Carriek, Consultant

The meeting was called to order at 9:15 A.M. with Dr. Carriek in the chair.

ATMOSPHERIC EXPOSURE PROGRAM

The atmospheric exposure program was brought up for discussion. Mr. Goets pointed out that he had submitted no suggestions for a program as he did not know what the objective was and thought that the objective should be determined.

It was felt that the objective is to meet the competition of zinc chromate and other metal primers by showing that red lead in paint does a better job, taking both cost and quality into consideration.

In any atmospheric exposure tests, the Committee felt that various grades of red lead should be tested. A list of paints which should be taken as standard in making atmospheric exposure tests was discussed, and the following was agreed upon:

TT-F-66
TT-F-66, Amendment 1

In the above paints, three grades of red lead were to be tested:

97%, 95% and 85% Red Lead

These three grades of red lead will also be made into paint using alkyd solution conforming with U.S. Maritime Commission Specification 62-MC-21. It was agreed that in the case of 85% grade red lead it would probably be necessary to mix the paint immediately prior to application. However, the committee felt that testing the three grades of red lead fundamental information would be provided.



R.L.T.C. Meeting

- 2 -

December 7, 1945

BATTILLE MEMORIAL INSTITUTE

The latest report of the welding tests at the Battelle Memorial Institute was discussed prior to the meeting with Mr. C.B. Voldrich, Chief Welding Engineer.

It was concluded that the work so far seemed to indicate that as the concentration of red lead goes up, it reaches a point where the welding is unfavorably affected.

In qualification of this conclusion, it was recognized that there was more red lead in some of the thick films with a low red lead content which were satisfactory for welding than in some of the thin films of a high red lead content which were not satisfactory. It was felt that the admixture of other pigments might account for this.

At this point Mr. Voldrich joined the meeting. He commented upon his reports and showed radiographs of some of the recent bead and fillet welds that had been made since the meeting at Columbus. On the basis of the work done so far with film thicknesses of 1 to 3 mils, Mr. Voldrich rated for porosity the paints tested in the following order, when using a 5/32" electrode:

1. Control
2. 52-P-18 and 52-P-26
3. 14 AC and TT-P-26
4. M3712-A
5. 52-MC-23

He pointed out that there was not much difference between the best and the poorest of these and in his opinion, all of them were acceptable.

With the 3/16" electrode, he rated them in the following order:

1. Control
2. 52-P-18 and 52-P-26
3. 14 AC
4. 52-MC-23
5. M3712-A
6. TT-P-26

In his opinion, none except about the first three were acceptable.

Rating the same work on ease of welding, they were as follows:

1. Control
2. 52-P-26
3. 52-P-18
4. 14 AC
5. M3712-A, TT-P-26, and 52-MC-23

He indicated that in his opinion, the lead bearing paints have a greater effect on the welders' operations of welding than zinc chromate.

He stated that he expected the complete series of fillet welds to be completed about December 21 and inquired whether strength tests should be made.

The Committee felt that paints LIA-111 and LIA-112 should be given fillet weld tests.

R.L.F.C. Meeting

- 3 -

December 7, 1945

It was pointed out that pigments apparently have an effect on the slag, lead making it more fluid. Various combinations of pigments may account for differences in the slag.

As work so far had shown that it made little difference whether the plates were pickled, grit, or sand blasted, it was felt necessary to use only pickled plates in future tests.

FUTURE WELDING PLANS

The Committee decided that future work should be as follows:

1. Vertical fillet welds should be made with E-60-10 electrodes, using both 5/32" and 3/16" electrodes on pickled plates only, with AC and DC current on paint films 2 mils thick, on the following paints:

LIA-111

LIA-118

Maritime Commission 52-MC-29

2. Tensile and ductility tests should be made on the foregoing paints, as well as TT-P-88, 52-P-18, 14 AC, 52-MC-28.

On the tensile tests, the sides of the groove only would be painted as is customary in this type of test. However, additional paint should be applied between welds on the following:

LIA-111

52-MC-29

52-MC-28

52-P-18

as well as testing with the side of the grooves only being painted.

Paint thicknesses on the groove sides should approximate 3 mils and one coat of paint should be applied between welds.

3. Vertical fillet weld tests should be made using one size electrode only on a series of dry pigments approximately 2 mils thick. The pigments thus to be tested are:

Red lead 97%

Zinc chromate

Normal lead chromate

Basic lead chromate

Zinc oxide - Lead free

Mica lith-6

Litharge

Titanium dioxide, Rutile type

Basic lead carbonate

Lead silicate (two types)

Basic lead sulfate - white

Blue lead

Magnesium silicate

Iron oxide 75% (Gen. S. Naphan Co. 272)

R.I.C. Meeting

- 4 -

December 7, 1948

The following mixtures should also be tested:

90% red lead
8% zinc chromate

95% red lead
5% zinc oxide

98% red lead
2% titanium dioxide

90% red lead
10% basic carbonate white lead

85% red lead
10% zinc chromate
2% asbestos
10% micaceous pigments

The effect on slag and porosity of all the foregoing should be examined. As it might not be possible to hold a dry pigment on the weld, Mr. Voldrich asked for suggestions for a vehicle that might be used in small amounts as a binder. It was suggested that either the vehicle of 82-MC-21 or sodium silicate might be tried.

Similar tests should also be conducted on 2 coats of unpigmented vehicles as follows:

82-MC-21
LIA-118
82-P-18
TT-P-66, Amendment 1

It was requested that all the work prior to the single pigment tests be completed before the next meeting so that a report on it can be considered at that time.

Mr. Hornsey then read Mr. Stewart's letter to him of November 21, 1948, which had been transmitted to Mr. Voldrich, and which is attached as Exhibit "A."

Mr. Voldrich explained that the cost to date had been somewhere near \$18,000, but was actually around \$10,000, although the Association had paid out \$12,500. The cost to the Association is what has actually been spent and if all the money paid by the Association to Battelle Memorial Institute is not expended, the difference will be refunded.

The Committee reiterated its feeling that the entire project should be kept confidential until there are results from which conclusions could be drawn.

INDUSTRIAL HYGIENE FOUNDATION

It was also decided that further work by the Industrial Hygiene Foundation be held up until the program outlined at this meeting is completed at Battelle Memorial Institute.

R.L.I.C. Meeting

- 8 -

December 7, 1945

NEXT MEETING

It was suggested that the Committee again meet in New York, probably during the middle week of January, 1946, the exact date to be decided upon when Mr. Voldrich advises just when the work will be completed. An attempt would be made to meet on January 16 or 18, as Mr. Goets would have to be in New York on Jan. 17 anyway.

Mr. Voldrich was advised that in order to speed up the work, he could shorten the drying time to five days.

Mr. Voldrich then left the meeting.

SCIENTIFIC SECTION CIRCULAR 710

Mr. H. Ratti of the National Lead Company's Research Laboratory, entered the meeting in connection with a discussion on Scientific Section Circular 710. He said that he would like to have more time to help prepare a paper for the Scientific Section on red lead based on the Committee's work which Mr. Shobe had already excellently summarized.

Mr. Goets felt that the best procedure would be to make a short, dignified statement in answer to Circular No. 710 and have it published through the Paint Association. He felt that Mr. Shobe's paper should be published by the Lead Industries Association and that the paint industry would not publish it.

Mr. Shobe felt, however, that Circular 710 gave the red lead manufacturers a golden opportunity to have a good paper on the work of the Committee published, as he believed the Committee's work deserved to be placed before paint formulators everywhere. He did not feel that Circular 710 should necessarily be mentioned directly in the paper, but merely by strong inference and Mr. Dickman felt that this could be handled by referring to Circular 710 in a footnote, just as other papers would probably be referred to in footnotes.

Mr. Hornsner read a letter from Mr. Dwight P. Joyce, which is attached as Exhibit "B."

It was agreed then that Mr. Ratti should go ahead and prepare a paper for the Scientific Section based on Mr. Shobe's paper.

ATMOSPHERIC EXPOSURE TESTS

The Committee then returned to a discussion of the suggested atmospheric exposure tests and agreed upon the following additional standard paints:

SI-P-18

SI-P-28

SI-MC-29

Red Lead 97% in U.S. Engineers Ohio River Division
No. 2 Vehicle.

(Red Lead 97% - 85%
(Zinc chromate - 80%
(Zinc oxide - 15%
(Iron oxide - 80%
(Asbestos - 80%

R.I.C. Meeting

- 8 -

December 7, 1945

T-1601 Corps of Engineers
444 Southern Railway

A group of commercially marketed proprietary metal
protective paints will also be included.

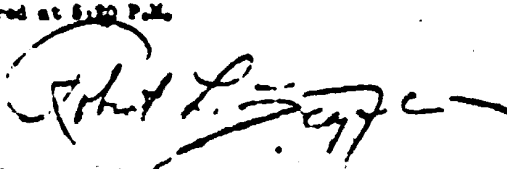
Zinc chromate pigmentations and vehicles to be tested had been decided upon at a previous meeting and were included in the minutes of the meeting of October 26.

The members were directed to bring to the next meeting their suggestions for red lead bearing paints to be tested, the red lead content probably not to run below 40% and the pigmentations to represent a range in price.

Exposures are to be made at Cleveland, Joplin, Sayville, San Francisco and New Orleans.

Mr. Shute suggested that when thoroughly organized an announcement of the atmospheric tests to be conducted be sent to a wide list of interested parties, explaining exactly what would be tested and how, and informing the recipients that they would receive periodic reports of results.

The meeting adjourned at 5:20 P.M.



Assistant Secretary.

COPY

Exhibit "A"

NATIONAL LEAD COMPANY
105 York Street
Brooklyn 1, N.Y.

November 21, 1945

Mr. F.E. Normser, Secretary
Lead Industries Association
420 Lexington Avenue
New York 17, N.Y.

Dear Mr. Normser:

With reference to your letter of November 19 transmitting copy of a progress report on the investigation of the effect of paint on the quality of fusion welds in structural steel by the Battelle Institute, we have read the report and find it very interesting.

After reading this report and more particularly the first report, as well as reviewing my visit to the Battelle Institute, I must frankly say I am somewhat disappointed. The program as originally outlined about twelve months ago is only about 60% completed and the expense to date I am informed approximates \$15,000. Based upon the work as it is being conducted and careful reading of the two reports submitted, there must have been a great amount of preliminary preparation.

Commenting upon the results to date, it is evident from watching the actual welding tests at Battelle Institute the other day that a 90-95% red lead paint cannot be compared with a paint containing 60% zinc chromate and extender. The metal basis of the red lead paint is far in excess of the zinc chromate and therefore is not comparable. Therefore, not only will the welding operation show definite differences but more particularly the toxicity phase of our study will certainly be out of line.

The program we discussed at Battelle Institute, which was approved by the Committee, appears to be by far the best. The paints, both red lead and zinc chromate, are comparable in composition. Therefore, the work conducted by the Industrial Hygiene Foundation should be repeated.

After giving some thought to the discussion, to which we all contributed at the Battelle Institute meeting, it is obvious that this program can become unwieldy and might take tangents which we may not want to investigate due to expense. I sincerely recognize the necessity of investigating many of the problems which were discussed but I do not believe they should become part of our program on welding of painted steel. Therefore, the remainder of the program, as you and I discussed, might be confined to testing the paints now under consideration by the bead test along with Dr. Holden's gas analysis. Following this, the physical testing part of the program and its scope could be discussed as well as the expense. In other words, the first part of the program might terminate with the testing of the samples of mixed paints, which we discussed the other day.

Yours very truly,

(Signed) ALEX STEWART

C O P Y

EXHIBIT "B"

THE GLIDDEN COMPANY
1396 Union Commerce Bldg.
Cleveland 14, Ohio

November 21, 1945

Mr. Felix Normeer
Lead Industries Association
420 Lexington Ave.
New York 17, N.Y.

Dear Mr. Normeer:

It has been some time since I have had the pleasure of seeing you or communicating with you.

Recently our Mr. O.P. Shobe showed me an unfinished draft of a paper that he had prepared on Marine Red Lead Primers which was certainly very interesting and illuminating to me. After going over this paper I am very firmly back of the idea of having the Scientific Section of the National Paint, Varnish & Lacquer Association publishing this paper and, as a matter of fact, can't see why they wouldn't be willing and anxious to publish it.

I think the paper is a very definite contribution to this whole important subject, and believe that in view of other previous papers the Scientific Section has published on this matter, which are somewhat in variance with the findings as outlined in Mr. Shobe's paper, that the Scientific Section should be most anxious to get the complete story across in regard to Marine Primers.

If you have any difficulty in getting the Scientific Section to publish this paper, I would be glad to take the matter up personally with Mr. Frigg, although I really don't think that will be necessary.

With personal regards and all good wishes, I am

Very truly yours,

(Signed) DWIGHT P. JOYCE

Vice President

DPJ:LS