

LEAD INDUSTRIES ASSOCIATION

400 LEXINGTON AVENUE — 60 East 42nd St.
NEW YORK 17, N. Y.

Pigments and Chemicals Division

SUBJECT TO REVISION

RED LEAD TECHNICAL COMMITTEE MEETING MINUTES

New York, N.Y.

December 6, 1957

A meeting of the Red Lead Technical Committee of the Lead Industries Association was held in the offices of the Association on December 6, 1957.

PRESENT

L. L. Carrick, Chairman
Paul Whitford
O. F. Shobe
J. O. Johnstone
R. P. Bates
E. K. Zimmermann

REPRESENTING

Lead Industries Association
The Eagle-Picher Co.
The Glidden Co.
Hammond Lead Products, Inc.
National Lead Co.
National Lead Co.

Robert L. Ziegfeld, Secretary-Treasurer
David M. Borcina, Secretary to Committee
Manfred Bowditch, Director of Health and Safety

The meeting was called to order at 9:50 A.M. with Dr. Carrick presiding.

The minutes of the previous meeting of September 17, 1957, were approved.

PROPOSED REVISION TO AWWA SPECIFICATION D-102-55T

The chairman brought to the attention of the committee the proposed revision to the AWWA Specification D-102-55T - Painting and Repainting Steel Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage, and the following memoranda: (Sent to members of the committee on November 27, 1957)

EXHIBIT "A"

A brief history of the Red Lead Paint - Potable Water Tank Controversy, 1949 - 1957.

EXHIBIT "B"

Lead Content of Water from Lead Painted Standpipes and Tanks by Hervey B. Elkins, Ph.D.



Red Lead Technical
Committee Meeting
Minutes

-2-

December 6, 1957

EXHIBIT "C"

The Solubility of Red Lead and Solution Characteristics of Red Lead Paints in Distilled, Natural and Treated Waters, by D. A. Fraser and L. T. Fairhall.

EXHIBIT "D"

Summary of the proposed revision to AMMA Specification D-102-557.

At the request of the chairman, Manfred Bowditch then reported on his efforts and stated that a meeting of medical people as well as interested laymen would be held in Cincinnati, Ohio, on December 17, 1957, in an attempt to formulate a research program if necessary, and also to determine the relative merits of the research work already done on the toxicity of red lead paints in potable water tanks.

He then stated that it would be of considerable assistance to him if some analyses of water from existing red lead-linseed oil painted potable water tanks could be made and requested of the committee that they let him know of the location of any such tanks in the New England area. He could then proceed immediately to arrange for such water analyses.

Eric Zimmermann stated that he would contact their Boston, Mass. office for the location of any such red lead-linseed oil painted tanks.

The committee generally agreed that the procedure being followed by the association with respect to the toxicity question was completely satisfactory.

With respect to the paints themselves that are included in the proposed specification, the committee requested the chairman to write to the AMMA committee and to the AMMA secretary, informing them of our objection to the inclusion of untried and unproven paints that will be permitted under the "Alternate" section of the proposed specification.

1958 PROGRAM

The secretary-treasurer reported that the board of directors had approved a budget of \$42,800 for the 1958 activities of this division. Among the items approved was an increase in the advertising schedule in "Engineering News-Record," a market survey in the marine field, publication of three new Red Lead Technical Letters, the addition of a part-time field man, and expansion of the publicity program.

CHAIRMAN'S REPORT OF S.S.P.C. MEETING

The chairman reported that he had attended the Steel Structures Painting Council meeting held in Pittsburgh, Penna., on October 8, 1957, and reported to the committee as per Exhibit "E" attached.

Red Lead Technical
Committee Meeting
Minutes

-3-

December 6, 1957

COMPILATION AND REVIEW OF COMPLETED L.I.A. PROJECTS

The chairman reported that he had been reviewing the data in the association's files on all completed L.I.A. test projects and was now in the process of summarizing these data.

The committee felt that such a summary would prove invaluable and requested the secretary to send copies to them when available.

REVIEW OF LEAD CYANAMID AND RED LEAD
PERFORMANCE TESTS

The secretary reported that he had received test data, including photographs, Exhibit "F" attached, on the performance of lead cyanamid and red lead in a variety of formulations, as conducted by The Eagle-Picher Company.

Lead cyanamid evaluations, as conducted by the National Lead Company, are also attached as Exhibit "G."

REVIEW OF L.I.A. PROJECT 25

The secretary reported that he had not as yet prepared a review of L.I.A. Project 25, but would do so as soon as possible and circulate it to the committee prior to the next meeting.

CORRESPONDENCE RECEIVED BY SECRETARY

Correspondence received by the secretary relative to the activities of the Red Lead Technical Committee were then presented to the committee for their information. The first of these was from General Mills, Inc., John E. Wiegmann, Technical Service Representative, Kankakee, Ill., requesting if we had evaluated their versamid polyamide resins in our tests.

The second of these was a letter from Dehydtag-Deutsche Hydrierwerke GMBH, Dusseldorf 1, Schlösserfach, Germany, offering through their American representatives, Fallick Products Co. Inc., 165 Broadway, New York 6, N.Y., samples of their "Texaphor" an anti-settling agent, the base of which is a special fatty alcohol sulphate.

There being no further business, the meeting adjourned at 3:50 P.M.

David M. Borcina

David M. Borcina
Secretary, Red Lead Technical Committee

Red Lead Technical
Committee Meeting
Minutes

Exhibit "E"
December 6, 1957

REPORT BY L.L. CARRICK OF SSPC MEETING,

PITTSBURGH, PENNA., OCTOBER 8, 1957

The meeting was called to order at 10:15 A.M., Mr. J.O. Jackson presiding. The roster of those present appears at the end of this report.

I. PAINTING RUSTY STEEL

The rough draft of the Painting of Rusty Steel was discussed as the first item of business. The report was read and only minor changes made. On page 3, the 1020 steel was changed to C-1010 steel, with a maximum of 0.05% copper. On page 4, line 2, "southern rural atmosphere" was changed to read "marine atmosphere" (e.g. Florida). The other location was approved as listed on page 4. The panels are to be exposed as prepared, except they are to be set at an angle of 30° to the horizontal so as to have perfect drainage.

There was some discussion about the proprietary paints listed on page 6 - just what was to be done with the data once they were secured. It was the consensus of those present that these data should not be made public as the Council does not wish to enter into routine testing for all people submitting paint samples. The testing of the samples was to give the committee an idea of their performance.

II. PAINTING OF WELDS

There are one or two items which I think should be brought to the attention of members of the Red Lead Technical Committee, namely: The information which is contained in the last paragraph of page 1 of the Abstract to the Progress Report on the Painting of Welds. Many of the members of the committee viewing this Abstract in connection with Table XII, page 33 of the report, would like to issue a preliminary report at this time. I raised the question whether this report would be advisable owing to the fact that all the data have not been collected and the panels have not run a full life. As the Abstract reads, TI-P-86a is of little value. I raised the question that after considering other primer failures as listed on page 33 that it was possibly the vehicle and not the red lead that was at fault and I felt that this should be thoroughly checked before such a statement were made. Once the statement has been made, it is very difficult to retract it in a final form report as many people read only the preliminary report and remember what it says and do not correct it in their minds if the final form is different.

On page 34 of this report, you will note that it is definitely indicated to date that an acid rinse without being washed off is detrimental to the paint coats. The acid, if applied and then rinsed with water, seems to be beneficial. They want to give this wide publicity. It is rather definitely indicated in case of sulphuric acid with 20 failures out of 24 specimens. These are the points which they wish to emphasize and get out before the public as soon as possible. I do not know how far my protests will go but I thought you should be advised.

III. WEATHERING Vs. SHOP PAINTING

This subject is in a turmoil. It seems as though the members of the Council did not have the same idea as to what was being tested. I believe it has slithered down to the following:

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Red Lead Technical
Committee Meeting
Minutes

Exhibit "F"
December 6, 1957

-3-

REPORT BY L.L. GARRICK OF SSPC MEETING (CONTINUED)

Is it necessary to clean steel before paint application? In order to check this, two procedures are being followed. The steel is power-cleaned or hand-cleaned at the factory, factory shop coat applied, and then the balance of the paint is applied in the field, all being done by brush. A second series of beams are to be shipped without coating or cleaning in any form from the factory to the job. Here they are to be erected and allowed to remain until the mill scale has rusted, presumably a period of 6 to 9 months, and then they are to be either hand-cleaned or power-cleaned and painted with the same kind, type and number of paint coats as used on the factory primed beams. Mr. Jackson insists that weathering is primarily for the purpose of reducing the cost and increasing the ease with which the weathered panels are cleaned of mill scale. He thinks this will greatly offset any additional costs which might arise from field application. He also feels that such a procedure will give a better paint film.

IV and V. EVALUATION OF SSPC SYSTEMS AND PAINT SYSTEMS FOR BRINE EXPOSURE

These will be taken up in greater detail at the next meeting.

VI. EVALUATION OF EPOXY SYSTEMS

The Council is endeavoring to assemble data from its members in regard to the use of epoxy resins in anticorrosive primer paints for steel. Several of the members have been using epoxy for some time. Mr. F. W. Shanks, a civil engineer of the Rock Island Arsenal, has been doing a great deal of work in this connection. Other members have done some and it is going to be assembled. Mr. Jackson thinks we should inaugurate a program in order to keep the specification book up to date. Members of the committee pointed out rather definitely that epoxy would undoubtedly be good for a marine or salt air environment but was not good for fresh water. Most members have the feeling that for fresh water, the vinyl finishes are better and they are open-minded as to which is better in salt or marine atmospheres - vinyl or epoxy.

VII. PAINTING UNDERGROUND VALVES AND HYDRANTS

Mr. Jackson is making a study of replies to his letter and has come up with the idea that possibly hot or cold tar applications would be the best for hydrants. This, of course, may cause difficulty with valve sticking.

VIII. PAINT SPECIFICATIONS FOR AMMA

The paint specifications for AMMA have been drawn by Mr. Jackson and a copy is enclosed. I think it would be very advisable if a copy of Mr. Jackson's write-up were sent to each member of the Red Lead Technical Committee for their study and comments. It would be well to have the comments mailed to you within the next three weeks so that they could be assembled and passed on to Mr. Jackson. Please send me a copy of the proposal submitted by Mr. Jackson as I am sending you my only copy.

Red Lead Technical
Committee Meeting
Minutes

Exhibit "B"
December 6, 1957

-3-

REPORT BY L.L. CARRICK OF SSFC MEETING (CONTINUED)

IX. LEAD PAINTS FOR WATER TANKS

Mr. Jackson seems to think that we should take some stand on this subject. Mr. Bigos and I and a few others thought that this is a matter with which the Council should have no dealings. It was decided to defer the discussion on this topic until the report by Dr. Fairhall was published. Also it was thought best to wait until the present evaluation which is being done by the Cincinnati Public Health has been evaluated and published. It was remarked by Mr. Jackson that the work of Dr. Elkins had not been published. Mr. Jackson thought the non-publication of Dr. Elkins' report might be a weak point in lead's case. It was called to his attention that there are no reported difficulties. Everything was based on supposition up to the present time. Proof as submitted in the documentary letters of Dr. Elkins and Mr. Bowditch were the only evidence we had in writing which was not on a supposition basis. Fifty years of experience without any difficulties is hard to overcome by supposition with fair-minded people. My comment was this. Referring to Mr. Keane's letter of September 24, three alternatives were set down for the committee's action. I suggested to Mr. Jackson that there was a fourth alternative, to wit: Those who wished to remove the present red lead from use on the inside of water storage tanks should do so by actual proof and not by innuendo and supposition. Further, since they were asking it to be removed, they are the ones who should submit the proof rather than the lead industries.

One other point came to light in the discussion and that was dropped by Mr. Van Eiten who said that some member of the Bureau had gone to Cincinnati last week in connection with the Cincinnati Public Health's study on the toxicity of lead in water storage tanks. He did not offer the man's name but I thought you might like to know this and maybe Mr. Bowditch could investigate. If data are published within the next two or three weeks, then I expect this will become a very live topic and Mr. Bowditch had better begin to get his ammunition in line from the report of Dr. Elkins.

X. SSFC PUBLICATIONS

This item was merely a routine discussion.

XI. NEW BUSINESS consisted of inaugurating a preliminary evaluation of airless paint spray as used to cover steel surfaces. A tentative program was set up where one type of steel panels will be coated by several users of airless paint equipment and these will be evaluated. The thickness of the film is to be two mils. Airless paint spray application is to be evaluated in comparison with airless sprayed-brushed paints.

MEMBERS PRESENT AT SSFC MEETING, October 8, 1957

J.O. Jackson
L.L. Carrick, L.I.A.
S.C. Frye, A.I.S.C.
H.K. Anthony, Mellon Institute
C.M. Ashman, A.I.I.
C.M. Angel, A.A.R.

J. Bigos, N.A.C.E.
C.F. Lamaker, A.I.S.F.
F.W. Shanks, Civil Engineer (Rock Island Arsenal)
F.M. Van Eiten, Bureau of Ships
H.W. Morgan

F. Dill, A.S.S.C.
O.F. Shobe, The Glidden Company

Red Lead Technical
Committee Meeting
Minutes

Exhibit #7
December 6, 1957

LEAD CYANAMID TESTS

CONDUCTED BY THE EAGLE-PICKER CO.

Attached are two photographs, in duplicate, which compare the performance of lead cyanamid and red lead in a variety of formulations. The red lead paints are the four types of Federal Specification TT-P-86a and the lead cyanamid paints are very similar in composition. Exact formulation data for the lead cyanamid primers are as follows, and the panels are identified on the mounting sheets.

Each of the primers was applied to 4 in. x 12 in. cold-rolled steel in the standard L.I.A. procedure; one prime coat on the lower half and two on the upper with an aluminum top coat on the right half of the entire panel. All of the panels were exposed in March, 1949, vertical south here at Joplin.

Our sample of lead cyanamid was received from the Office of Technical Services, U.S. Dept. of Commerce. The reported specific gravity on $PbCN_2$ is 6.80; however, the gravity of the sample we received was 5.05. The reported oil absorption for $PbCN_2$ is approximately twice that of red lead at equal weights.

PM-7-82

Lead Cyanamid	63.4	% by wt.
Al. Stearate	.3	
Raw Linseed	11.7	
Z-2 Linseed	11.7	
Mineral Spirits	12.4	
Lead	.3	
Cobalt	.1	
Manganese	.1	
	<u>100.0</u>	%

PM-7-84

Lead Cyanamid	55.0	% by wt.
Al. Stearate	.2	
*Glyptal 2454	30.8	
Mineral Spirits	13.5	
Lead	.3	
Cobalt	.1	
Manganese	.1	
	<u>100.0</u>	%

PM-7-83

Lead Cyanamid	44.3	% by wt.
Iron Oxide	6.2	
Asbestos	9.2	
Mica	3.1	
Al. Stearate	.3	
Raw Linseed	9.8	
*Glyptal 2454	19.6	
Mineral Spirits	7.0	
Lead	.3	
Cobalt	.1	
Manganese	.1	
	<u>100.0</u>	%

PM-7-85

Lead Cyanamid	57.7	% by wt.
Asbestos	.8	
Dicalite L	4.1	
Al. Stearate	.3	
**Varnish	28.6	
Mineral Spirits	8.5	
	<u>100.0</u>	%

* Glyptal 2454: 50% solids by wt., 34% P.A., I-2 viscosity, Linseed.
** Varnish: 60% solids by wt., 25 gal. pure phenolic - tung.

Red Lead Technical
Committee Meeting
Minutes

Exhibit 409
December 6, 1957

LEAD CYANAMIDE EVALUATION

CONDUCTED BY NATIONAL LEAD CO.

TEST A

Exposed August, 1942

Tide Range and Underwater - 8½ months with panels removed to prevent ice damage at 4½ months.

Lead cyanamid replaced zinc yellow in the Navy 84 (55ZnY-25 Asb-15 TiO₂ - 5 raw sienna - 52V17 and 52R13) and the USMC XXIII A (40ZnY - 35 I.O. - 5 ZnO- 10 Diat. Sil. - 10 Asb - Phenolic Varnish). In neither formula at either exposure did lead cyanamid perform nearly as well as did the control zinc yellow.

Atmospheric Exposure (45°S on N.S. Angles)

Lead cyanamid gave only half the protective life obtained by zinc yellow in the Navy 84 formula. In XXIII A it performed slightly inferior.

TEST B

Exposed December, 1943

Tide Range - 18 months

Lead cyanamid replaced zinc yellow in the following phenolic varnish primer (14 ZnY-41 RL-4 ZnO-26 I O - Balance siliceous). In this comparison the lead cyanamid was much inferior to zinc yellow. Red lead used in the same way, was equally poor.

Lead cyanamid replaced zinc yellow in a linseed oil primer (60 ZnY - 20 I O - 20 Asb). Here it was less severely attacked by intercoat peeling than was zinc yellow or red lead. In corrosion protection, it was slightly better than red lead and much superior to zinc yellow (peeling difficulties.)

Atmospheric Exposure (45°S on N.S. Angles)

In the phenolic, lead cyanamid was poorer than zinc yellow. Red lead, as the complete A.C. pigment, was poorer at one coat and only a trace better at two coats.

In the oil paint, lead cyanamid was poorer than either red lead or zinc yellow where the primer was exposed. Where top coated, it was better than zinc yellow. Red lead, when top coated was the best.

To summarize, our evaluations did not show lead cyanamid to advantage. Over all it was inferior to zinc yellow and to red lead. There is the feeling however, in reviewing the exposures, that by formulating differently, coatings or systems could be evolved which would be very satisfactory. The choice of different vehicles and/or pigment combinations, as systems, particularly, could be the key that could account for the favorable reports from Europe.