

LEAD INDUSTRIES ASSOCIATION

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

Pigments and Chemicals Division

RED LEAD TECHNICAL COMMITTEE MEETING

New York, N.Y.

June 20, 1957

A meeting of the Red Lead Technical Committee was held in the offices of the Association on June 20, 1957.

PRESENT

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

REPRESENTING

Lead Industries Association
The Eagle-Picher Co.
The Glidden Co.
National Lead Co.
National Lead Co.

David M. Borsina, Secretary to Committee

The meeting was called to order at 9:30 A.M. with Dr. Carrick presiding.

The minutes of the previous meeting of April 1 and 2, 1957, were approved.

HIGHWAY TOLL ROAD SPECIFICATIONS

The secretary reported on the results of his survey of the paint specifications of the various State Highway Authorities and Toll Road Commissions for the primer and first field coat of steel highway structures as per Exhibit "A-1" and "A-2" respectively as attached.

RED LEAD TECHNICAL LETTER NO. 12 REPORT ON DISTRIBUTION

The secretary reported that the Association had distributed 10,500 copies of Red Lead Technical Letter No. 12 - Painting Highway Structural Steel, to its regular mailing list which includes highway engineers.

After some discussion of further distribution, the secretary was instructed to write to the various State Highway Departments for lists of their Divisional Supervisors in charge of painting.

SUBJECTS FOR FUTURE RED LEAD TECHNICAL LETTERS

At the request of the chairman, the committee then discussed possible subjects for future "Technical Letters."

1. A compilation of all previous "Technical Letters," bringing the information up-to-date and incorporating it all in a single "Technical Letter."



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As a result, the secretary was requested to send each member of the committee copies of Red Lead Technical Letters Nos. 6 to 12 for their recommendations as to what should be incorporated in a single all-inclusive "Technical Letter."

2. A "Technical Letter" on the painting of rusted galvanized steel, new galvanized steel, and aluminized steel.

It was suggested that L.I.A. Paint No. 361, Formula 9-1 in Red Lead Technical Letter No. 9, whose performance was outstanding in L.I.A. Project 19, be used as the basis for such a "Technical Letter." It was the thought of the committee that no more than a four-page folder would be necessary.

3. A "Technical Letter" on the performance ratings of L.I.A. Paint No. 328 and the U.S. Navy Formula 14N, both of which were a part of the U.S. Navy test for bottom paints on the destroyers U.S.S. Healy and Robinson.

INSPECTION REPORT OF THE PAINTS ON THE
USS HEALY AND ROBINSON

The chairman reported that a preliminary report of this examination of the paints on the USS Healy and Robinson had been received and that a final report would be forthcoming from W.E. Adamson in a short time.

After some discussion, the secretary was requested to send the final report when received to the members of the committee and to incorporate it in the minutes of this meeting as Exhibit "B." (Sent to members on August 5, 1957).

The secretary was also requested to write the Bureau of Ships for the formula for U.S. Navy Paint 14N used in the Navy test program.

BUREAU OF SHIPS SURVEY

The chairman reported on his visit to the Mare Island Navy Yard relative to the survey of increased costs of applying red lead paint, as per Exhibit "C" attached.

L.I.A. PROJECT 26

A new test program to investigate ship bottom paints was instituted and assigned the number L.I.A. Project 26.

The purpose of the investigation would be to compare L.I.A. Paint No. 328, U.S. Navy Paint No. 14N and proprietary anti-corrosive ship bottom paints.

Among the proprietary paints which should be included in L.I.A. Project 26 would be the followings:

- | | |
|---------------------|---|
| 1. Navacote | 5. C. A. Woolsey's paint |
| 2. Redhand | 6. National Lead Co. (West Coast) paint |
| 3. Baltimore Copper | 7. U.S. Navy Vinyl System |
| 4. International | Navy 119 W.P. 117 |
| | 8. Copon (Coast Paint and Lacquer Co., Houston, Tex.) |

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It was further recommended that anti-fouling paint SMC-4038 be used over all paints.

The committee requested the secretary to write all of the companies represented in the test for their catalogs and at the same time attempt to secure the paints through commercial trade channels.

REVIEW OF ACTIVE L.I.A. PROJECTS

Each of the active L.I.A. projects was discussed and the committee's recommendations were as follows:

- L.I.A. Project 19 - Leave on exposure.
- L.I.A. Project 20 - Leave on exposure.
- L.I.A. Project 21 - Leave on exposure.
- L.I.A. Project 22 - Leave on exposure.
- L.I.A. Project 23 - The secretary stated that all of the details relative to this project were not available in his files. Mr. Bates thereupon volunteered to supply the secretary with the necessary data.

Mr. Bates also reported that the set of four panels sent to the committee by the Archer-Daniels-Midland Co. through the chairman, had been incorporated in this project.

The chairman reported that the paints used on these panels contain an epoxidized oil that is new and not yet on the market. The manufacturers, however, stated that if these panels work out satisfactorily, they will acquaint the committee with the formula.

Also, the chairman reported the pigment is red lead 97% grade, and the paint was made without adulterants. The panels were painted in the conventional manner which L.I.A. uses except that one side was coated with red lead and the primer baked. On the other side, the primer was applied and air dried in single and double coats and a finish coat similar to that used in L.I.A. Project 23 was applied.

- L.I.A. Project 24 - Complete data on this project will be supplied the secretary by Mr. Bates. "Blackled O" paints are to be included in this project.

- L.I.A. Project 25 - The preparation of the test panels should be changed to read as follows:

Test Specimens - Sand blasted steel panels allowed to rust 100 per cent, then wire brushed.

New galvanized panels, solvent washed.

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L.I.A. Project 25 - Two additional paints were incorporated in this project as follows:

(Continued)

L.I.A. Paint No. 2505 - Old L.I.A. Paint 9-1

L.I.A. Paint No. 2506 - Old L.I.A. Paint 9-4.

Mr. Whitford agreed to make up these additional paints in sufficient quantity for all three test sites.

L.I.A. Paint No. 2507 was assigned to the top coat, Massachusetts Green.

The following information should also be incorporated with the data on this projects

Paints to be brush applied, 2 mils thick.

PAPER FOR HIGHWAY RESEARCH BOARD

Action was deferred.

INVESTIGATIONS OF NEWLY INTRODUCED RESINS

Action was deferred.

NEXT MEETING DATE

It was generally agreed that the next meeting of the committee be held in New York at the office of the Association around September 15, 1957.

There being no further business, the meeting adjourned at 4:45 P.M.

David M. Borcia

David M. Borcia
Secretary, Red Lead Technical Committee

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Exhibit "A-1"
June 20, 1957

PRIMER PAINT SPECIFICATIONS OF STATE HIGHWAY AUTHORITIES

State	Pigment (in percent)				Vehicle (in percent)								Dry for Recoating	
	R.L.	I.O.	Hg. Sil.	Al. Sil.	Res. L.O.	Fract. L.O.	Temp.	Primer & Primer	Primer	L.O. & Syn. Resin Solids	S pig.	S veh.		Wt. per gal.
Delaware-Interstate Highway Commission	no standard specification													
Florida Turnpike Authority	no specification received													
Illinois State Toll Highway Com. (A) (B)	75 75	25 25				95.2	0.7	20.0	4.5	80.0	80.0 75.0	20.0 25.0	25.0 22.0	10 hr. 30 hr.
Indiana Toll Rd. Com. (A) (B)	75 75	25 25				95.2	0.7	15.0	4.5	80.0	75.0 80.0	25.0 20.0	22 23.0	30 hr. 10 hr.
Kansas Turnpike Authority	62.5	12.5	Remainder	0.0	Res L.O. - L.O. modified - 67%				Res. - Thin-Primer	66	30	26.7	10 hr.	
LA-Greater New Orleans Expressway Commission	AASHTO M72 Type II & AASHTO M-128													
Mo. Turnpike Auth.	Deposit 25% R.L.-I.O. primer 50% 2-200													
Md. Baltimore Tunnel Md. Eastern Expressway	75 50% 50%	25 25 point 5-50						15.0		80.0	80.0	20.0	25.0	10 hr.
Mass. Turnpike Auth.	Deposit 25% I.O. primer 50% 100-400 or filler R.L.-I.O. primer 50% 2-200													
Mich. Turnpike Auth.	on study basis													
N.J. Garden State Turnpike Auth.	no paint specifically mentioned Spec. in each case													
N. Y. St. Thruway Auth.	95				1/3 to	1/2	50% of L.O. bal. for L.O.				75-80	15-22		
Ohio Turnpike Com. (A) (B)	75 75	25 25				95.2	0.7	15.0	4.5	80.0	75.0 80	25.0 20	25.0	30 hr. 10 hr.
Okla. Turnpike Auth.	all	100	all have the same coat of red lead paint - Follow State Highway Spec.											
Pa. Turnpike Com.	99.5			0.5	35-50	L.O.	15-20	25.0					24.0	
VA.-Richmond - Petersburg Turnpike Auth.	AASHTO M-72 Type I or filler 8-3000													
W. Va. Turnpike Com.	no reply received													
Wisc. Turnpike Auth.	(inactive)													

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Exhibit "A-2"
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FIRST FIELD COAT SPECIFICATIONS OF STATE HIGHWAY AUTHORITIES

State	PIGMENT (in percent)							VEHICLE (in percent)							F.P.G.	B.Sph.	Wt. per Gal.	Dry for Recasting
	R.L.	I.B.	Wp. S.P.C.	Carbon Black	M.L.	ZnO	TiO	Res. L.O.	Sty. Resin Solids	Fract. L.O.	Syn. Resin	Drier Thinner						
Delaware-Interstate Highway Commission	80 standard specifications																	
Florida Turnpike Authority	80 specifications received																	
Illinois State Toll Highway Com.	(A) (B)	43 30.7	23 30.8	30 9.8						70.0	30.7	30.3 30.0		38.4 62.0	61.6 38.0	18 15	18 hr. 24 hr.	
Indiana Toll Rd. Com.	(A) (B)	30.7 43	30.8 23	9.8 30						70.0	30.7	30.0 30.3		62.0 38.4	38.0 61.6	18 15	24 hr.	
Iowa Turnpike Authority		79.5- 79.8			0.5- 1.0								Res. L.O. 40% Sol. L.O. 10% & Driers	77.5	22.5	24.5	24 hr.	
K.A.-Greater New Orleans Expressway Commission	AA500 H-75 Type I, 1 lamp each																	
Ka. Turnpike Auth.	Current DuPont structural Gray Green 83023-867																	
Kd. Outspan Tunnel Co. Eastern Expressway	43 43	23 23	30 30								30.7 30.7	30.3 30.3		38.4 38.4	61.6 61.6	18 18	18 hr. 18 hr.	
Kent. Type Auth.	Current DuPont intermediate brown 83047-16																	
Kich. Type Auth.	on star-20 basis																	
K. J. Garden State Type Auth.	30.7 Spec.	30.8 for each case	9.8							70.0		30.0		62	38	18		
K. K. S.L. Thruway Auth.			0-10		30-70	30-40		90						62-66	30-36			
Kolo Type Com.	43	23	30								30.7	30.3		38.4	61.6	18		
Kala. Type Auth.	All steel shall have a field coat of paint																	
Ka. Type Com.			15		43	23-30	18	30	31.5			30.5				23.4	24 hr.	
K.L.-Richmond - Petersburg Type Auth.	AA500 H-75 Type I, 1 lamp each Pitt. S-572																	
K. Va. Type Com.	80 reply received																	
K.M. Type Auth.	inactive																	

N2752.02

COPY
 H.E. ADAMSON
 532 North Street
 Portsmouth, Virginia

Exhibit "B"

July 24, 1957

Mr. Robert L. Ziegfeld
 Lead Industries Association
 60 East 42nd Street
 New York 17, N.Y.

Dear Mr. Ziegfeld:
Subject: Final Report on L.I.A. #328 paint on bottoms of
 U.S. Navy vessels

1. After getting excellent results with L.I.A. #328 paint in submerged panel tests, the U.S. Navy started service tests of the paint on the bottoms of three destroyers - USS Vogelsang (DD-862), USS Robinson (DD-562) and USS Healy (DD-672). Results from tests on the Vogelsang are stated in a memorandum left with you when we conferred on June 8, 1956. I am now reporting results from tests on the other vessels and summarizing these tests.

2. The Robinson and Healy docked at Norfolk Naval Shipyard on April 15, 1957. Because of delays in pumping the dry dock, it was not possible to make inspection until next day. Although I took data and conferred with the navy inspector, I have delayed report until the shipyard's official report was made to assure that data agreed on were reported. The reports are dated July 22, 1957, and I have examined them. The merit grades, based on 100 being perfect, are:

<u>USS ROBINSON</u>	<u>Fouling Resistance</u>	<u>Corrosion Resistance</u>	<u>Antifouling Film</u>
L.I.A. paint on starboard bow	99	99	87
L.I.A. paint on starboard midship	98	95	95
L.I.A. paint on port midship	97	99	98
L.I.A. paint on port quarter	99	95	95
Navy #14N on port bow	100	99	96
Navy #14N on starboard quarter	98	95	95

USS HEALY

L.I.A. paint on starboard bow	99	60	45
L.I.A. paint on starboard midship	99	40	30
L.I.A. paint on port midship	97	75	65
L.I.A. paint on port quarter	98	40	30
Navy #14N on port bow	98	50	30
Navy #14N on starboard quarter	98	70	40

3. L.I.A. paint proved slightly inferior to navy anticorrosive ship bottom paint on the Robinson, but it "affords protection that is equal or very slightly better than navy standard anticorrosive formula #14N, on the USS Healy." (The shipyard report on the Vogelsang, dated January 15, 1957, states "no significant difference in performance" between the two paints.)

4. The duration of these tests were:

USS Robinson - October 11, 1954 to April 15, 1957
 *USS Healy - October 20, 1954 to April 15, 1957
 USS Vogelsang - December 7, 1954 to December 10, 1956

* The Healy was docked at Norfolk Naval Shipyard on March 30, 1956, examined and undocked without any painting being done on the bottom. Data are in memorandum left with you on June 8, 1956.)

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N.E. Adameon

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5. Navy tests of L.I.A. #328 paint are now completed. The three bottoms have been sandblasted and painted with standard paints. The results may be summarized and appraised as follows:

(A) It is navy standard practice, when painting bottoms, to sandblast to the metal, apply on coat of "surface conditioner" (Navy #117), then apply the shipbottom paints. Because the panel tests indicated that L.I.A. #328 paint gave satisfactory results without the use of "surface conditioner" the midship sections of the three bottoms were used to check this. The service tests show the benefit of applying "Surface Conditioner."

(B) Normally L.I.A. paint produces thicker films than does navy standard anticorrosive paint, #14N, and this is an advantage. The effort was made in these service tests to obtain films of equal thickness. Although the official report does not mention it, I noted that the effort to get thick film when applying the standard anticorrosive paint on the Vogelsang caused the film to crack on drying. The cracked film was sanded off and the area repainted. Film thickness was measured at many points as painting progressed, and the average is slightly in favor of the L.I.A. paint - approximately 5.8 mils vs. 5.0 mils; 3 coats.

(C) On the Robinson and Vogelsang, the antifouling paint used over the anticorrosive paints was the very thick (22 mil.) filmed "hot plastic #15HPW." On the Healy, a relatively thin (9-12 mil. 3 coats) filmed antifouling paint was applied. The hot plastic is the standard for which a five year life is claimed. The thin filmed paint, "cold plastic #105," is designed for small boats that are lifted from the water, and about one year's service is anticipated. Thus, on two of the vessels, the test was more of a test of the antifouling paint than a comparison of two anticorrosive paints; since, had the thick antifouling film functioned as expected, water would not have gotten to the anticorrosive films. The hot plastic film often cracks when the vessel passes through the Gulf Stream. Also, this film tends to sag when exposed to direct, hot sunrays. It did sag badly on the Robinson before the vessel undocked in October, 1954. Only on the Healy was a real comparison of navy anticorrosive and L.I.A. paint obtained, and here results were affected by irregularities - an interim docking, during which the film was exposed to the atmosphere and the duration being much longer than the expected life of the antifouling paint film. But the L.I.A. paint proved superior to the navy standard in this test since the protection was given largely by the anticorrosive films.

(D) It is probable that the records of these tests will be filed at the Navy Department and forgotten unless there arises occasion to do otherwise. The navy now manufactures its ship bottom paints and apparently has ample funds to continue standard practices regardless of costs. If the navy is forced to discontinue manufacturing the anticorrosive paint, considerable difficulty probably will be encountered. The merit of this paint lies largely in its varnish ingredient which is manufactured at the shipyard. It has been demonstrated that uniformity of quality cannot be obtained through purchase under specifications and competitive bidding. The manufacturing cost of navy anticorrosive paint is relatively high because it must cover the manufacture of varnish. There is the further complication of a pending (employee-government) patent covering the paint. On the other hand, the L.I.A. paint carries none of these factors. It can be amply covered by purchase specifications, does not involve a special varnish, can be easily manufactured at a relatively low cost, can be easily applied without use of special equipment. When and if the navy is forced to economize, the L.I.A. paint should be attractive.

N. E. Adameon (Signed)

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Exhibit 700
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C O P Y
UNIVERSITY OF MICHIGAN
DEPARTMENT OF CHEMICAL AND METALLURGICAL ENGINEERING
ANN ARBOR, MICHIGAN

April 26, 1957

Mr. Robert L. Ziegfeld
Lead Industries Association
60 East 42nd Street
New York 17, N.Y.

Dear Mr. Ziegfeld:

At the suggestion made by Mr. Borcina at the last Red Lead Technical Committee meeting April 1 and 2, I took a day while in San Francisco, April 11, to visit the Mare Island Naval Shipyard at Vallejo, Cal. This was done in company with Mr. Kellner of the National Lead Company's San Francisco office. Previous to our visit to Mare Island, I had contacted Mr. Roberts of the National Lead Company and told him of the interest of the Mare Island Naval Shipyard representatives in L.I.A. Formula 3-7, a red lead alkyl vehicle primer for industrial and marine environments.

Mr. Kellner and I arrived at the shipyard about 10 A.M. and were immediately admitted to visit Mr. F. A. Braghetta, head of the laboratory branch of Mare Island Naval Shipyard. We talked an hour, discussing general paint problems with Mr. Braghetta, and we found that they are very well disposed towards the use of red lead. They were particularly interested in Formula 3-7 because of its pigment formulation and the fact that the vehicle was a castor oil alkyl. I explained the reason for our delay in contacting him last summer and I might say that they are very appreciative of our interest and have invited us to return at any time we are in the neighborhood of Mare Island. I assured him that if they still wished a sample of Formula 3-7 or the vehicle of Formula 3-7, we would be glad to see that they were supplied with an experimental sample. I requested that the next time they write to L.I.A., they direct the letter to my attention and I would see that they receive a sample at as early a date as is compatible with its preparation.

The day of our visit coincided with the laying of the keel of the USS Halibut. We finished our business about 11:30 and Mr. Braghetta insisted that we remain during the noon hour to witness the laying of the keel. This is the largest submarine powered by atomic energy and is capable of an 80,000 mile cruise on a single fueling. We were very much flattered by his insistence on our staying for the ceremonies.

He also showed us equipment that Mare Island has for the removing of carbon dioxide in the air of submarines so that they can remain below the surface for indefinite periods. This equipment was developed at the Mare Island Naval Shipyard. We were also permitted to see the English modification of carbon dioxide removal equipment. They have a very nice laboratory.

The National Paint, Varnish and Lacquer Association reports that they are going out of the paint business but I am a little bit skeptical because their orders for raw materials are increasing rather than decreasing.

Mr. Braghetta reported that the medical reports from the Mare Island Naval Shipyard at Vallejo and the Pearl Harbor Naval Shipyard were actually prepared at the yard and transmitted to the Navy Department at Washington. He did not seem to be greatly disturbed by these reports and felt that his continued use of red lead would not be influenced too greatly by them. The only pressure which is brought to bear upon them in regard to the toxicity is that which is associated with labor union demands but these are not as strong on the Pacific Coast as on the East Coast.

Very truly yours,
L. L. CARRICK (SIGNED)
Professor, Chemical Engineering

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