

LEAD INDUSTRIES ASSOCIATION

400 LEXINGTON AVENUE

NEW YORK 17, N. Y.

RED LEAD DIVISION

July 27, 1948

To the Members of the Red Lead Technical Committee:

SUBJECT: RED LEAD TECHNICAL COMMITTEEMEETING MINUTES - JUNE 24, 25, 1948

The final draft of the minutes of the Red Lead Technical Committee Meeting held on June 24, 25, 1948 at the Detroit-Leland Hotel, Detroit, Michigan, is attached.

Very truly yours,

C. J. Vander Valk
C. J. Vander Valk
Technical Director
Red Lead Division



N2803

LEAD INDUSTRIES ASSOCIATION

480 LEEDINGTON AVENUE
NEW YORK 17, N. Y.

RED LEAD DIVISION

FINAL DRAFT

CONFIDENTIAL

SUBJECT TO REVISION

RED LEAD TECHNICAL COMMITTEE

Detroit, Michigan

June 24, 25, 1948

A meeting of the Red Lead Technical Committee of the Lead Industries Association was held on June 24, 25, 1948 at the Detroit-Island Hotel, Detroit, Michigan. The following persons were in attendance:

Present

Mr. George Diehlman
Mr. A. C. Goets
Dr. J. O. Johnstons
Mr. O. F. Shobe

Representing

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

Mr. R. L. Ziegfeld, Secretary, Lead Industries Association
Dr. L. L. Carrick, Director of Red Lead Research, Meeting Chairman
Mr. C. J. Vander Valk, Technical Director

DISCUSSION OF PAPER FOR PUBLICATION: ATMOSPHERIC PRIMER SYSTEMS FOR MARINE ENVIRONMENTS.

The second draft of this paper was discussed at length by the Committee. The data were reviewed and the conclusions rewritten. It was decided to include a table of performance data of the seven best test paints with the control paints. It was also agreed that complete detailed formulations of outstanding test paints should be included.

The Committee next considered the best means of publicising this technical paper. It was agreed that it was most suitable for presentation before the Paint and Varnish Production Clubs. Since the paper deals with atmospheric paints for marine environments, it was suggested that a special effort be made to place it on the program of a few of the paint clubs along the Atlantic Coast. In line with this, the Technical Director was instructed to write to the secretaries of the New England, New York and Philadelphia Paint and Varnish Production Clubs requesting a place on their programs for the coming year.



N2803.01

R.L.T.C. Meeting
Minutes

-2-

June 24, 25, 1948

PROJECT NO. 14 - ATMOSPHERIC TEST PROGRAM

Mr. Coats requested clarification of the disposition of the few control paints for the project that were coarse or slow drying. It was agreed that these paints should be remade by Eagle-Picher to assure identical paint samples for each test site. The Technical Director was also requested to supply a list of these paints to each of the cooperators.

It was proposed that detailed formulation sheets for each paint in the Atmospheric Program be supplied to the Technical Director so that an appendix of formulations could be attached to the brochure for publication describing this program. It was so agreed.

It was also agreed that the efforts of the Committee at the next meeting be concentrated on outlining in detail methods by which the results of the Atmospheric exposure Test are to be publicized so that the fullest benefits might be realized by the companies participating in this extensive program. The chief aims of this publicity are the dissemination of the information to arouse the greatest interest at its initiation and the maintenance of this interest throughout the progress of the test. This is to be accomplished by the publication of an attractive and informative illustrated brochure shortly after the test panels are exposed and by the publication of detailed inspection data at practical intervals thereafter.

NEW RED LEAD TECHNICAL LETTER

The Committee reviewed the second draft of Red Lead Technical Letter No. 3. This draft contained revisions proposed at the meeting on May 6, 1948.

In addition to several editorial changes, the Committee agreed to include a primer formulation meeting the requirements of the latest Bethlehem Steel Corporation's specification for a Red Lead-Iron Oxide Shop or Field Coat Paint.

It was also decided to omit Formula 3-15 (L.I.A. Paint No. 183) because of the inconsistent performance of the alkyl modified short oil phenolic vehicle contained therein. Although this particular paint performed exceptionally well, many paints containing this vehicle (V-19) and similar pigmentations showed poor performance under the same conditions of exposure.

PAINTS FOR THE NAVY (NORFOLK) - PROJECT NO. 16

Copies of the information to be supplied to the Navy for this cooperative project were distributed to the Committee members. This included a summary table of paint systems, directions for the application of the vinyl coatings and detailed formulation sheets for each paint submitted. This information is attached to these minutes as Exhibit A.

R.L.T.C. Meeting
Minutes

-3-

June 24, 25, 1968

Mr. Dishman informed the Committee that the paints prepared for this project by the Glidden Company and the National Lead Company had been shipped to Norfolk Naval Shipyard.

PAINTS FOR THE NAVY (PHILADELPHIA) - PROJECT NO. 17

The Committee was informed that the paints prepared by the Glidden Company for tide range tests at the Philadelphia Naval Shipyard had been shipped to the National Lead Company Laboratories. Mr. Dishman stated that the remainder of the paints for this project would be completed shortly and be shipped to Philadelphia with the Glidden paints.

In reference to the formulation sheets on the paints for the Philadelphia Navy Yard, the Technical Director asked Mr. Shobe to submit the detailed formula and cooking procedure for "Revised Vehicle No. 5." Mr. Shobe agreed to do this.

PAINTS FOR PANAMA CANAL - PROJECT NO. 15

The Committee was informed by Mr. Goets that all of the paints had been prepared and shipped for the Lead Industries Association's cooperative paint test project with the Special Engineering Division, Panama Canal. These included five primer paints and four topcoats embracing the ten systems outlined in the table attached to these minutes as Exhibit B.

A copy of the brochure containing complete detailed information on all the paints submitted for this cooperative project was distributed to each of the Red Lead Technical Committee Members.

RED LEAD PAINTS FOR ALUMINUM ALLOYS

Because of the heavy demand of research projects already initiated, particularly the Atmospheric Test Program, on the time and manpower of the participating laboratories, it was decided to postpone until a later date the formulation of a program on primer paint systems for aluminum.

NEXT MEETING

It was decided to hold the next meeting of the Red Lead Technical Committee on August 5, 6, 1968 in the offices of the Lead Industries Association.

The meeting was adjourned at 3:30 p.m. on June 25, 1968.

C. J. Vander Valk
C. J. Vander Valk
Technical Director

Exhibit 93

LEAD INDUSTRIES ASSOCIATION
Panama Canal Test Paints
Summary Table

Type of Exposure	System	Surface Preparation	Wash Coat	Primer				Finish Coats			
				No.	Coats	Total Dry Film Thickness (mils)	Sq. Ft. per Gallon	No.	Coats	Total Dry Film Thickness (mils)	Sq. Ft. per Gall.
Atmospheric	A	Wire Brushed Solvent Cleaned	None	330	2	3.0	650	332	2	3.0	700
	B	Wire Brushed Solvent Cleaned	WP-1								
Atmospheric	C	Sandblasted	None	94	2	3.0	500	333	2	3.0	475
	D	Sandblasted	WP-1								
Fresh Water, Total Immersion	E	Sandblasted	None	331	4	6.0	550	--	--	--	--
	F	Sandblasted	WP-1								
Sea Water, Tide Range	G	Sandblasted	None	117	2	3.0	600	334	2	3.0	530
	H	Sandblasted	WP-1								
Sea Water Total Immersion	I	Sandblasted	None	316	2	3.0	650	335	2	3.0	520
	J	Sandblasted	WP-1								

LEAD INDUSTRIES ASSOCIATION
Test Primers For Use Under Plastic Antifouling Coatings

System	Wash Primer(a)	Paint No.	Anticorrosive Primers			Paint No.	Antifouling Coatings		
			Wils Dry Film Thickness (2 coats)	Schedule			Total Dry Film Thickness-Mils (3 coats)	Schedule	
	Between Coats	Before Topcoats			Between Coats	Before Exposure			
A	None	33	3 - 4	4 hrs. min.	over-night	(c)	—	—	—
B	306 (Bakelite WP-1)								
C	None								
D	306 (Bakelite WP-1)	35	3 - 4	4 hrs. min.	over-night				
E	None	327	3 - 4	2 hrs. min.	6 hrs. min.	(c)			
F	306 (Bakelite WP-1)								
G	None								
H	306 (Bakelite WP-1)	323	3 - 4	3 hrs. min.	over-night		—	—	—
I	339					(c)			
J	None	338	3 - 4	2 hrs. min.	over-night	(c)	—	—	—
K	306 (Bakelite WP-1)								
L	306 (Bakelite WP-1)								
M	339	336 (Bakelite I-10)	3 - 4(b)	1 hr.	1 hr.	337 (14AF)	10 - 12 (b)	1 hr.	overnight
N	306 (Bakelite WP-1)	326	3 - 4(b)	1 hr.	1 hr.	337 (14AF)	10 - 12 (b)	1 hr.	overnight

- (a) Applied according to accompanying directions for wash coat primers.
 (b) 2 coats, double pass per coat.
 (c) Navy hot and cold plastic antifouling compositions. PR 16 6-10-48

DIRECTION FOR APPLICATION OF VINYL COATINGSWash Coat - L.I.A. No. 306 (WP-1)

Reduce 1 volume of paint with 2 volumes of reducer to spray. Apply 0.3 to 0.5 mils dry film. It is recommended that the paint be applied to clean metal surfaces, and in maintenance applications sandblasting of the metal just prior to coating is preferred. It is emphasized that the reduced paint should not be stored for periods of time exceeding 8 to 12 hours or satisfactory adhesion will not be obtained. The spray coating may be recoated in 15 to 20 minutes, or for expediency the recoating time may be prolonged for several days. Optimum performance, however, is obtained by keeping the recoating interval to a minimum.

Anti-corrosive Vinyl Paints - L.I.A. No. 336 (P-10) and L.I.A. No. 326

Reduce 2 volumes of paint with 1 volume of reducer to spray. Apply 3 to 4 mils dry film in two separate double coats, allowing one hour between coats. Recoat with the topcoat in one hour.

Vinyl Topcoat - L.I.A. No. 337

Reduce 3 volumes of the paint with 1 volume of the reducer to spray. Apply 10 to 12 mils dry film in three separate double spray coats, allowing approximately one hour between coats. The final coating should be allowed to dry at least over night before exposure.

Wash Coat - L.I.A. No. 339

The reducer for paint L.I.A. 339 consists of the following mixture:

Phosphoric Acid(85%)	2.9 grams	} Reducer
Water	2.9 grams	
Isopropanol(99%)	9.2 grams	

Fifteen(15) grams of the above reducer is added to paint L.I.A. 339. The resulting mixture should be satisfactory for spray application. If not, add a small amount of 99% isopropanol. Apply 0.3 to 0.5 mils dry film thickness. It is recommended that the paint be applied to clean metal surfaces, and in maintenance applications, sandblasting of the metal just prior to coating is preferred. It is important that the reduced paint should not be stored for periods of time exceeding four days or satisfactory adhesion will not be obtained. The sprayed coating may be recoated in 20 minutes to one-half hour, or for expediency, the recoating time may be prolonged for several days. However for maximum performance, the recoating interval should be kept to a minimum.

LEAD INDUSTRIES ASSOCIATION

L.I.A. Paint No. 33

Reference: PR 16

PIGMENT	% BY WEIGHT 50.6	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Red Lead, 97% (TT-2-191a)	55.0	363.0	7.5	4.91
Zinc Oxide, Lead Free (TT-2-301)	10.0	66.0	4.7	1.40
Zinc Yellow (TT-2-415, Type I)	10.0	66.0	29.9	2.21
Siliceous Iron Oxide (55KPa-O ₂)	6.9	46.0	37.1	1.28
Magnesium Silicate (52-MC-523, Type I)	10.0	66.0	23.5	2.77
Diatomaceous Silica (52-S-9)	7.9	52.6	16.7	3.15
Aluminum Stearate (52-A-12a)	0.2	1.7	4.3	0.20
	100.0			

VEHICLE	% BY WEIGHT 49.4	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Alkyd Resin Solutions	33.2	214.0	8.0	26.75
L V 269ee	49.3	318.0	7.75	41.09
Lead Naphthenate (24% Pb)	0.3	1.9	9.5	0.20
Cobalt " (6% Co)	0.1	0.8	8.3	0.09
Mineral Spirits (TT-1-291a, grade I)	7.4	48.0	6.57	7.31
Hi Flash Naphtha	9.7	62.5	7.23	8.64
	100.0	1306.5		99.96

WEIGHT PER GALLON 13.1 lbs.
 PV (SPREADING BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 29.3
 VOLATILE AND DETER IN VEHICLE 47.28
 • Linseed Oil Modified Alkyd 25% P. A.
 • 10 gal. BR 9432 (5 Linseed
 Oil - 5 castor oil)

LEAD INDUSTRIES ASSOCIATION

L.I.A. Paint No. 35

Reference: PR 16

PIGMENT	5 WEIGHT 61.6	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Red Lead, 97% (TT-B-191a)	54.6	54.0	74	7.30
Zinc Oxide, Lead Free (TT-2-301)	9.9	98.0	46.7	2.10
Zinc Yellow (TT-2-415, Type I)	9.9	98.0	29.9	3.28
Siliceous Iron Oxide (85% Fe ₂ O ₃)	7.0	68.6	37.1	1.85
Magnesium Silicate (52-MC-523, Type I)	10.4	103.0	23.8	4.33
Diatomaceous Silica (52-S-9)	8.0	79.5	16.7	4.70
Aluminum Stearate (52-A-12a)	0.2	1.9	8.3	0.23
	100.0			

VEHICLE	38.4			
Alkyd Resin Solutions	36.9	227.0	7.67	29.60
LV 257C	55.1	338.0	9.5	39.76
Lead Naphthenate (24% Pb)	0.38	2.3	9.5	0.24
Cobalt " (6% Co)	0.12	1.9	8.3	0.23
Mi-Flash Naphtha	7.5	47.0	7.23	6.50
	100.0	1504.2		100.12

WEIGHT PER GALLON 16.0 LBS
 PV (API-MENT BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 41.2
 VOLATILE AND DRIER IN
 VEHICLE 47.56
 • - a linseed oil alkyd 34.5 P.A.

LEAD INDUSTRIES ASSOCIATIONL.I.A. Paint No. 327Reference: PR 16

PIGMENT	WEIGHT %	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Red Lead, 97% (TT-R-191a)	55.0	55.0	7 1/4	0.714
Zinc Yellow (TT-2-415, Type I)	10.0	10.0	29.9	0.334
Siliceous Iron Oxide (85% Fe ₂ O ₃)	6.0	6.0	37.2	0.161
Magnesium Silicate (S2-MC-S2), Type I	20.9	20.9	23.8	0.878
Mica, 325 Mesh	7.7	7.7	23.6	0.326
Aluminum Stearate (S2-A-12a)	0.4	0.4	8.3	0.048
	100.0			

VEHICLE	WEIGHT %	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Ethyl Cellulose (M/14)	11.51	88.0	9.5	9.263
Cumar V-24	7.14	53.2	9.16	4.903
Cumar P-10	5.91	44.0	9.16	5.803
Ester Gum	1.31	9.8	8.85	1.107
Aroclor #1254	2.68	20.0	12.86	1.555
Toluene	53.30	397.0	7.2	55.139
Ethyl Alcohol (Denatured)	17.72	132.0	6.74	19.585
Stabilizer	0.13	1.0	7.4	0.135
	100.0	805.0		99.881

WEIGHT PER GALLON 8.47 LBS.
 PV (PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION
 OF PAINT) 10.0
 VOLATILE AND DRIER IN
 VEHICLE 71.0%

LEAD INDUSTRIES ASSOCIATIONL.I.A. Paint No. 328Reference: PR 16

PIGMENT	% WEIGHT	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
	51.9			
Red Lead, 97% (TT-R-191a)	47.0	332.0	7 1/2	4.49
Zinc Oxide, Lead Free (TT-2-301)	8.3	58.1	47	1.24
Zinc Yellow (TT-2-415, Type I)	8.8	62.2	29.9	2.08
Mica, 325 Mesh	8.3	58.1	23.6	2.46
Magnesium Silicate (S2-MC-523, Type I)	27.2	192.0	23.8	8.07
Aluminum Stearate (S2-A-12a)	4.4	3.1	8.3	0.37
	100.0			

VEHICLE	% WEIGHT	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
	48.1			
Oumar V-2 1/2	25.4	166.0	9.16	18.12
Oumar P-10	8.7	57.0	5.16	6.22
Liquid Coal Tar (S2-T-5)	8.9	58.1	9.9	5.87
Zinc Resinate	3.2	20.8	9.6	2.17
Chlorinated Rubber	6.3	41.5	13.7	3.03
H1-Flash Naphtha	11.7	209.0	7.25	28.50
Savacol #1	15.0	94.5	5.90	16.69
Pine Oil	0.8	5.2	7.60	0.67
	100.0	1360.6		99.98

WEIGHT PER GALLON 13.6 LBS.
 PV (% PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 34.5
 VOLATILE AND LIMER IN VEHICLE 47.58

LEAD INDUSTRIES ASSOCIATIONL.I.A. Paint No. 338Reference: PR 16

PIGMENT	WEIGHT Lb.	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Red Lead, 97% (TT-B-191a)	54.6	410.0	97	4.23
Zinc Oxide, Lead Free (TT-Z-301)	9.9	74.4	47	1.58
Zinc Yellow (TT-Z-415, Type I)	9.9	74.4	29	2.57
Siliceous Iron Oxide (85% Fe ₂ O ₃)	7.0	52.0	37.1	1.40
Magnesium Silicate (52-MC-52), Type I	10.4	78.0	23.8	3.28
Diatomaceous Silica (52-S-9)	8.0	59.5	16.7	3.56
Aluminum Stearate (52-A-12a)	0.2	1.4	8.3	0.17
	100.0			

VEHICLE	WEIGHT Lb.	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLON	GALLONS
Alkyd Resin Solutions	22.1	138.0	7.67	17.99
LV 490ee	32.4	202.0	8.1	24.94
Ethyl Cellulose (M/14)	4.5	29.3	9.5	2.98
Hydroxyethyl Alcohol	2.9	18.2	8.4	2.17
Butyl Alcohol	17.8	111.0	6.74	16.47
Xylene	20.0	125.0	7.23	17.29
Lead Naphthenate (24% Pb)	0.22	1.6	9.5	0.17
Cobalt " (6% Co)	0.08	0.5	3.3	0.06
	100.0	1374.3		98.86

WEIGHT PER GALLON 13.7 LBS.
 PV (SPREADING BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 40.8
 VOLATILE AND DRYER IN VEHICLE 62.15

o - o linseed oil alkyd - 34.5 P.A.
 ee & 6 gal. Omar, BR 9432,
 sine resinate vehicle

LEAD INDUSTRIES ASSOCIATION

L.I.A. Paint No. 306Reference: PR 16

<u>PIGMENT</u>	<u>% WEIGHT</u>	<u>POUNDS</u>	<u>POUNDS PER SOLID GALLON</u>	<u>GALLONS</u>
Basic Zinc Chromate	85.2	94.40	30.6	3.080
Magnesium Silicate	14.2	15.70	23.7	.664
Lampblack	.6	.65	14.85	.004
	100.0			

<u>VEHICLE</u>	<u>% WEIGHT</u>	<u>POUNDS</u>	<u>POUNDS PER SOLID GALLON</u>	<u>GALLONS</u>
Polyvinyl Butyral	15.5	105.00	8.56	12.300
Methyl Ethyl Ketone	42.0	282.00	6.73	42.000
Denatured Alcohol	42.5	256.00	6.82	42.000
	100.0	753.75		100.000

WEIGHT PER GALLON 7.83 LBS.
 PV (A PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION OF PAINT) 23.40
 VOLATILE IN VEHICLE 84.56

LEAD INDUSTRIES ASSOCIATION

L.I.A. Paint No. 336Reference: PR16

	<u>% WEIGHT</u>		<u>POUNDS PER SOLID GALLON</u>	<u>GALLONS</u>
<u>PIGMENT</u>	<u>22.1</u>	<u>POUNDS</u>		
Red Lead, 97% (TT-R-191a)	100	202.5	73.3	2.76

<u>VEHICLE</u>	<u>77.9</u>			
VACN Vinylite	19.4	138.6	11.6	11.90
Methyl Isobutyl Ketone	51.5	368.0	6.5	56.70
Toluol	29.1	208.0	7.25	28.70
	100.0	917.1		100.08

WEIGHT PER GALLON 9.17 lbs.
 PV (% PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION OF 28.0%
 PAINT)
 VOLATILE IN VEHICLE 80.6%

LEAD INDUSTRIES ASSOCIATIONL.I.A. Paint No. 326Reference PR16

	<u>% WEIGHT</u>		<u>POUNDS PER SOLID GALLON</u>	<u>GALLON</u>
<u>PIGMENT</u>	<u>15.8</u>	<u>POUNDS</u>		
Red Lead, 97% (TT-R-191a)	75.3	101.0	73.3	1.38
Magnesium Silicate (52-MC-52) Type I)	24.7	33.2	23.7	1.60
	100.0			

<u>VEHICLE</u>	<u>84.2</u>			
VACON Vinylite	19.4	139.4	11.6	11.90
Methyl Isobutyl Ketone	51.5	368.0	6.5	56.70
Toluol	29.1	208.0	7.25	28.70
	100.0	803.6		100.08

WEIGHT PER GALLON 8.48 LBS.
 PV (PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 18.9%
 VOLATILE IN VEHICLE 80.6%

LEAD INDUSTRIES ASSOCIATION

L.I.A. Paint No. 337Reference: PR 16

<u>PIGMENT</u>	<u>99.8</u>	<u>POUNDS</u>	<u>POUNDS PER SOLID GALLON</u>	<u>GALLONS</u>
Cuprous Oxide	100.	924.00	50.76	18.20

<u>VEHICLE</u>	<u>40.2</u>			
Vynh Vinylite	15.2	94.65	11.32	8.36
Rosin	15.2	94.65	9.10	10.60
Methyl Isobutyl Ketone	35.0	213.00	6.50	33.60
Toluol	34.6	211.20	7.25	29.50
	100.0	1525.50		100.06

WEIGHT PER GALLON 15.45 LBS.
 PV (A PIGMENT BY VOLUME IN
 NON-VOLATILE PORTION OF
 PAINT) 49.35
 VOLATILE IN VEHICLE 69.66

L.I.A. Paint No. 332

Reference: PR 16

PIGMENT	WEIGHT %	POUNDS FOR 100 GALLONS	POUNDS PER SOLID GALLONS	GALLONS
	12.0			
Medium Chrome Yellow	88.8	80.5	18.65	1.655
Mag. Silicate	10.5	9.5	23.8	0.399
Carbon Black	0.45	0.44	15.1	0.029
Aluminum Stearate	0.25	0.22	8.3	0.026
	100.0			
VEHICLE	88.0			
	88.0			
Polyvinyl Butyral	12.0	80	8.58	9.324
Methyl Isob. Ketone	17.3	115	6.66	17.417
99% Isopropanol	70.7	470	6.55	71.756
	100.0			
		755.66		100.606

WEIGHT PER GALLON 7.51 lbs.
 PV (% Pigment by Volume in
 non-volatile portion of
 Paint) 18.5
 Volatile and Drier in
 Vehicle 88.0%