

LEAD INDUSTRIES ASSOCIATION

480 LEXINGTON AVENUE

NEW YORK 17, N. Y.

RED LEAD DIVISION

FINAL DRAFT
CONFIDENTIAL

RED LEAD TECHNICAL COMMITTEE

New York, New York

September 7, 8, 9, 1969

A meeting of the Red Lead Technical Committee was held on September 7 and 8 at Sayville, New York and on September 9 in the offices of the Lead Industries Association.

Present

Mr. George Dishman
Mr. A. C. Goets
Mr. O. F. Shobe

Representing

National Lead Company
Eagle-Picher Company
The Glidden Company

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

INSPECTION AT SAYVILLE OF PROJECTS 10, 14, 16 AND 17

A detailed inspection was made by the members of the Red Lead Technical Committee on September 7 and 8 of the projects on the painting of galvanized iron (Project No. 10), the comprehensive L.I.A. atmospheric project (Project No. 14), the cooperative Navy test on marine atmospheric and tide range primers (Project No. 17) and the cooperative Navy test on bottom paint systems (Project No. 16).

A report of this inspection is enclosed with these minutes.

REVIEW OF PROJECT NO. 14 DATA FROM CLEVELAND, JOPLIN AND SAYVILLE

On September 9, the first year inspection results obtained on the L.I.A. comprehensive atmospheric project at Cleveland, Joplin and Sayville were compared.

The results of this comparison can be summarized as follows:

1. None of the paint systems exposed on the panels at Cleveland showed any significant deterioration after one year. However all of the panels showed severe dirt collection. This exposure rack is located in a heavy industrial atmosphere and the dirt collection on the panel surfaces was aggravated by an unusually dry summer season.
2. All of the seventy paint systems under investigation, containing fourteen pigmentations in each of five vehicles, showed generally good performance at Sayville, especially on the flat specimens. Small areas of rust found on a few of the angle specimens were apparently due to loose and semi-adherent mill scale.



L.I.A. Meeting
Minutes

-3-

September 7, 8, 9, 1949

Although considerable corrosion was found on the single coat primer areas on a few panels and angles containing emulsion paint systems, no corrosion was found on the red-lead-base systems in this group.

3. The first year results from the Joplin site indicated a few serious failures by checking. These results were at variance with those obtained at Sayville where no checking was noted in any of the paints under study. Two red-lead-in-oil paints were among these showing serious checking.

After considering these variations in red lead paint performance at Sayville and Joplin, the committee requested the technical director to make a personal inspection of the exposed specimens at Joplin and New Orleans at an early date. The technical director said he would make arrangements to inspect these two sites as soon as possible.

REPORT NO. 1 - L.I.A. ATMOSPHERIC PROGRAM

The Committee was told that the initial descriptive report on the atmospheric program had been approved by the sub-committee appointed for this purpose and had been printed in galley-proof form.

In view of variation in performance data at Cleveland, Joplin and Sayville it was decided to postpone the final printing of this initial descriptive report until complete inspection data was available from all five sites and until more was known about the reasons for the checking of the red-lead-in-oil paints at Joplin.

PROPOSED PROGRESS REPORTS ON L.I.A. ATMOSPHERIC PROGRAM - CONSIDERATION OF FORM FOR PUBLICATION

At the July 1, 1949 meeting the committee agreed that progress reports containing performance data of the L.I.A. Atmospheric Project from the five test sites should be published on a single page adopted for insertion in a binder with the initial descriptive report. It was established that the quantity of data would necessitate a folded page. The technical director was asked to investigate the practicability of producing these reports in easily readable type on one side of a single page. He was also asked to look into the problem of obtaining a durable paper stock to withstand the necessary folding and rough handling over a period of years.

The technical director stated that he had investigated this problem with printing companies and had determined that it was feasible to print these reports in eight point type on one side of a single sheet for convenient folding into a binder. It was agreed that the progress reports be published in this form.

R.L.T.C. Meeting
Minutes

-3-

September 7, 8, 9, 1949

Out of several samples of paper, the committee selected a durable opaque sulfite stock for the printing of the progress reports.

REPORT ON STATUS OF RED LEAD PUBLICITY

The technical director reported to the committee that Red Lead Technical Letter No. 4 containing suggested red lead base formulations for marine exposures had been sent to the printer and would be circulated to the appropriate mailing lists within a few weeks.

It was also reported that a condensed version of the Battelle Memorial Institute report on the painting of structural steel housing members had been accepted by the editors of Iron Age Magazine and would probably appear in one of the October issues.

This is a report on a project sponsored by the American Iron and Steel Institute on protective paints for enclosed structural members in steel housing construction. Thirty-four kinds of paints were subjected to the following tests: (1) Continuous immersion in water, (2) contact with air at high humidity, (3) continuous condensation, (4) alternate wet-dry conditions, and (5) continuous contact with insulation in the presence of water. On the basis of these tests it was concluded that red lead paints, particularly those formulated with oil vehicles were outstanding.

NEW RESOLUTIONS FOR THE LABELING OF PAINTS CONTAINING RED LEAD

The technical director informed the committee members that the new resolutions on the labeling of red lead paints had received the approval of a majority of the sales executives of member companies manufacturing red lead and red lead paints. It was then agreed that the possibility of substituting these resolutions for those filed in 1945 with the National Paint, Varnish and Lacquer Association should be discussed with Mr. M. Q. MacDonald, legal counsel of the paint association.

Mr. Ziegfeld and the technical director stated that they would do this at the earliest opportunity.

A copy of the resolutions recently approved by the Red Lead Division and the original resolutions are attached to these minutes as Exhibit B.

CONSIDERATION OF RED LEAD DIVISION BUDGET AND PROGRAM FOR 1950

The proposed Red Lead Division Budget and Program for 1950 was reviewed by the Red Lead Technical Committee. A copy of the proposed budget and program is attached to these minutes as Exhibit C.

After receiving the Committee's approval of this general program and budget, Mr. Ziegfeld stated that he would forward this with a progress report for 1949 to the members of the Red Lead Division.

R.I.T.C. Meeting
Minutes

September 7, 8, 9, 1949

NEXT MEETING

The next meeting dates were tentatively set for the first week in December, probably December 1 and 2,

The meeting was adjourned at 5:30 P.M. on September 9.

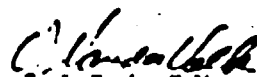

G. J. Vander Valk
Technical Director

EXHIBIT. B

THE LABELING OF PAINTS CONTAINING VARIOUS PROPORTIONS OF RED LEAD

(Resolutions adopted by the Red Lead Technical Committee of the Lead Industries Association on July 1, 1949.)

Definitions The term "Red Lead" as used herein means only the pure commercial pigment grades composed of a mixture of Pb_3O_4 and PbO with not more than 1% impurities including moisture.

1. The term "Pure Red Lead Paint" may only be used to designate a product which contains not less than 96% Red Lead by weight of the total pigmentation. Not more than 4% of the total pigmentation may consist of materials added for the purpose of tinting to differentiate between two coats of the same paint and/or for suspension of the pigment.
2. The term "Red Lead Paint" may only be used to designate a product which contains not less than 75% Red Lead by weight of the total pigmentation.
3. The term "Red Lead Base Paint" may only be used to designate a product which contains not less than 60% Red Lead by weight of the total pigmentation. The word "Base" shall be printed in letters as conspicuous as the words "Red Lead".
4. The term "Red Lead" shall not be used to designate a product which contains less than 40% Red Lead by weight of the total pigmentation except in a formula printed on the label.

1 - Original Resolutions approved by Red Lead Technical Committee on December 6, 1945.

EXCERPT OF RED LEAD TECHNICAL COMMITTEE
DECEMBER 6, 1945 MINUTES COVERING
THE LABELING OF RED LEAD AND RED LEAD PAINTS.

Consideration was given to a letter from the National Paint, Varnish and Lacquer Association regarding the labeling of red lead paint (circulated Nov. 29, 1945).

The subject was thoroughly discussed inasmuch as there was some question as to whether it should be opened at all since apparently there had not been too much difficulty with the labeling of red lead paints and since, also, some good paints contain red lead in rather small quantities which it might not be desirable to put at a disadvantage in comparison with other paints containing more red lead. However, the Committee finally decided that it would be well to make a recommendation to the Paint Association. It, therefore, adopted the following suggested wording, to be submitted for the further consideration of the managers of the Oxide Divisions of member companies, before transmitting it to the Paint Association:

"On labels of and in advertising and statements relating to paints, pastes, and other pigmented compositions:

1. The term 'Red Lead' means only the pure commercial product composed of a mixture of Pb_2O_3 and PbO with not more than 1% impurities including moisture.
2. The term 'Pure Red Lead' used to designate a product should be used only when the pigmentation is solely red lead, except that not more than 2% by weight of the total pigment may be tinting materials added for the purpose of differentiating between two coats of the same paint.
3. The term 'Red Lead' should be qualified by the word 'Modified' if red lead is admixed with other materials in a pigmentation, provided the red lead content is not less than 40% by weight of the pigmentation. The word 'Modified' should be printed immediately above, below, or adjacent to the word 'Red Lead' in letters equally conspicuous.
4. The term 'Red Lead' should not be used if a pigmentation contains less than 40% red lead by weight except to complete a formula printed on the label."

*Label
Insp. Report
Proj 16 - Total Immersion
" 17 - Land and Tide Range
Miami, Fla.
Nov. 10, 1949*

Inspection Report

Project No. 16

Exposure Site: Miami, Florida
Type of Exposure: Total Salt Water
Immersion
Date Exposed: February, 1949
Date Inspected: November 10, 1949
Elapsed Time: 9 Months
Inspected by: George Dishman

Project No. 17

Exposure Sites: Miami, Florida
Type of Exposure: Land and Tide
Range
Date Exposed: February, 1949
Date Inspected: Nov. 10, 1949
Elapsed Time: 9 Months
Inspected by: George Dishman

L.I.A. PROJECT NO. 16
 BOTTOM PAINT SYSTEMS EXPOSED
 BY NAVY

Location: Miami, Florida
 Type Exposure: Total
 Immersion

Exposure Dates:
 Inspection Dates:

PANEL NO.	Corrosion	Blistering	Peeling	Scaling	Cracking	Pitting	PRETREATMENT		ANTICORROSIVE			ANTIPOULING		
							WASH PROPER	NAVY PHOS.	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS
1A	5	6	6	8	8	5	-	X	33	2	2.5	Navy	2	5.5
1B	5	6	6	8	8	5	-	X	33	2	3.0	105	2	5.5
2A	10	8	10	10	9	8	306	-	33	2	2.75	Navy	2	5.25
2B	9	8	10	10	9	8	306	-	33	2	2.75	105	2	5.25
3A	5	6	8	8	8	6	-	X	35	2	3.0	Navy	2	6.0
3B	5	6	8	8	8	6	-	X	35	2	3.25	105	2	6.25
4A	10	9	10	10	10	9	306	-	35	2	3.0	Navy	2	5.5
4B	10	8	10	10	10	9	306	-	35	2	3.0	105	2	5.0
5A	10	9	9	10	9	8	-	X	327	2	3.5	Navy	2	5.0
5B	10	8	9	10	9	8	-	X	327	2	3.5	105	2	5.0
6A	9	6	10	10	9	9	306	-	327	2	3.5	Navy	2	5.5
6B	9	6	8	10	9	7	306	-	327	2	3.0	105	2	5.5
7A	10	9	10	10	10	9	-	X	328	2	4.0	Navy	2	4.5
7B	10	10	10	10	10	9	-	X	328	2	4.5	105	2	5.5
8A	10	10	10	10	10	10	306	-	328	2	4.5	Navy	2	5.5
8B	10	10	10	10	10	10	306	-	328	2	5.0	105	2	5.0
9A	9	7	7	8	9	9	339	-	328	2	4.5	Navy	2	5.5
9B	9	7	7	8	9	9	339	-	328	2	4.5	105	2	5.5
10A	3	7	6	7	8	9	-	X	338	2	2.5	Navy	2	5.0
10B	3	7	6	7	8	9	-	X	338	2	3.5	105	2	5.5
11A	10	9	10	10	10	10	306	-	338	2	3.0	Navy	2	5.5
11B	10	9	10	10	10	9	306	-	338	2	2.75	105	2	5.0
12A	10	10	10	10	10	9	306	-	336	4	3.25	337	4	5.75
12B	10	10	10	10	10	8	306	-	336	4	3.5	337	4	5.0
13A	10	9	10	10	10	9	339	-	336	4	3.5	337	4	5.5
13B	10	6	10	10	10	9	339	-	336	4	3.0	337	4	6.5
14A	10	8	10	10	10	8	306	-	326	4	3.5	337	4	6.5
14B	10	9	10	10	10	8	306	-	326	4	3.75	337	4	5.0

PANEL NO.	Corrosion	Blistering	Peeling	Scaling	Cracking	Fouling	PRETREATMENT		ANTICORROSIVE			ANTIPOULING		
							WASH PRIMER	NAVY PHOS.	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS
15A	10	9	10	10	10	8	339	-	326	4	3.5	337	4	5.5
15B	10	9	10	10	10	8	339	-	326	4	3.5	337	4	5.5
33A	10	10	10	10	7	8	Navy	X	Navy	1	19.0	Navy	2	6.0
33B	10	10	10	10	7	8	X-14	X	P-89A	1	20.0	105	2	6.0
34A	9/	9/	10	9	9/	9/	-	X	Wf12	2	4.5	Navy	2	5.5
34B	9/	9/	10	9	9/	10	-	X	55-94	2	4.25	105	2	5.75
35A	10	10	10	10	10	9/	-	X	Wf12	1	24.0	Navy	2	6.0
35B	10	10	10	10	10	9/	-	X	147-85	1	20.0	105	2	6.0
36A	10	9	10	10	10	7	-	X	Navy	2	3.0	Navy	2	6.5
36B	10	9	10	10	10	9	-	X	14	2	3.5	105	2	6.0
37A	10	10	10	10	10	8	-	X	Navy	2	3.0	Navy	1	22.0
37B	10	10	10	10	10	8	-	X	14	2	3.5	15HP	1	20.0

X - 5% Phosphoric acid wash.

All paints spray applied with each coat given a double pass.

PROJECT NO. 16 - PAINT COMPOSITIONS

INGREDIENTS PERCENT	33	35	326	327	328	336	338	337(MF)
Red Lead (97% Grade)	55.0	54.6	75.3	55.0	47.0	100.0	54.6	-
Zinc Oxide (Lead Free)	10.0	9.9	-	10.0	8.3	-	9.9	-
Zinc Yellow	10.0	9.9	-	-	8.6	-	9.9	-
Siliceous Iron Oxide	6.9	7.0	-	6.0	-	-	7.0	-
Curcous Oxide	-	-	-	-	-	-	-	100.0
Magnesium Silicate	10.0	10.4	24.7	20.9	27.2	-	10.4	-
Diatomaceous Silica	7.9	8.0	-	-	-	-	8.0	-
Mica	-	-	-	7.7	8.3	-	-	-
Lampblack	-	-	-	-	-	-	-	-
Aluminum Stearate	0.2	0.2	-	0.4	4.4	-	0.2	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VEHICLE								
Alkyd Resin Solution (a)	33.2	-	-	-	-	-	-	-
Alkyd Resin Solution (b)	-	36.9	-	-	-	-	22.1	-
Varnish IV 258 (c)	49.3	-	-	-	-	-	-	-
Varnish IV 257C (d)	-	55.1	-	-	-	-	-	-
Varnish IV 490 (e)	-	-	-	-	-	-	32.4	-
Cumar V-24	-	-	-	7.1	25.4	-	-	-
Cumar F-10	-	-	-	5.9	8.7	-	-	-
Ester Gum	-	-	-	1.3	-	-	-	-
Arachlor #1254	-	-	-	2.7	-	-	-	-
Liquid Coal Tar	-	-	-	-	8.9	-	-	-
Zinc Resinate	-	-	-	-	3.2	-	-	-
Chlorinated Rubber	-	-	-	-	6.3	-	-	-
VAM Vinylite	-	-	19.4	-	0.8	19.4	-	-
VHM Vinylite	-	-	-	-	-	-	-	15.2
Rosin	-	-	-	-	-	-	-	15.2
Mineral Spirits	7.4	-	-	-	-	-	-	-
Hi Flash Naphtha	9.7	7.5	-	-	31.7	-	-	-
Ethyl Cellulose	-	-	-	11.8	-	-	1.5	-
Hydrated Alcohol	-	-	-	-	-	-	1.9	-
Butyl Alcohol	-	-	-	-	-	-	17.8	-
Ylone	-	-	-	-	-	-	20.0	-
Toluene	-	-	29.1	57.3	-	29.1	-	34.6
Butyl Alcohol (denatured)	-	-	-	17.7	-	-	-	-
Isosol #1	-	-	-	-	15.0	-	-	-
Ethyl Isobutyl Ketone	-	-	51.5	-	-	51.5	-	15.0
Stabilizer	-	-	-	0.2	-	-	-	-
Lead Naphthenate (24)	0.1	0.1	-	-	-	-	1.7	-
Lead Naphthenate (6)	0.1	0.2	-	-	-	-	0.1	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- (a) Linseed Oil Modified
 (b) OE 2454 - a linseed oil alkyd
 (c) 10 gal. BR 9432 (5 Linseed Oil - 5 ester oil)
 (d) A 6 gallon-linseed oil (22) - 50% Cumar V-24 50% BR9432
 (e) A 6 gal. cumar, BR 9432, zinc resinate vehicle

PROJECT NO. 17
Navy Project #198
Tide Range and Land Inspection Data

Exposure Site: Miami, Florida
Type Exposure: Land
Date Exposed: 2-1-49
Date Inspected: 11-10-49
Inspected By: George Dickman

Panel No.	Paint No.	Corrosion	Blistering	Peeling	Sealing	Cracking
17L	317	10	10	10	10	10
57L	317	10	10	10	10	10
67L	318	10	10	10	10	10
77L	318	10	10	10	10	10
127L	319	10	10	10	10	10
157L	319	10	10	10	10	10
177L	320	10	10	10	10	10
197L	320	10	10	10	10	10
217L	321	10	10	10	10	10
227L	321	10	10	10	10	10
267L	322	10	10	10	10	10
277L	322	10	10	10	10	10
337L	323	10	10	10	10	10
357L	323	10	10	10	10	10
367L	323	10	10	10	10	10
377L	323	10	10	10	10	10
417L	324	10	10	10	10	10
427L	324	10	10	10	10	10
487L	325	9	10	10	10	10
507L	325	9	10	10	10	10
517L	Navy 64/47	9	10	10	10	10
527L	Navy 64/47	10	10	10	10	10
567L	Navy 64/47	10	10	10	10	10
577L	Navy 64/47	10	10	10	10	10
1817L	Navy 64/47	10	10	10	10	10
1527L	Navy 64/47	7	10	10	10	10

PROJECT NO. 17
Navy Project 7-158
Tide Range and Land Inspection Data

Exposure Site: Miami, Florida
Type Exposure: Tide Range
Date Exposed: 2-1-49
Date Inspected: 11-10-49
Inspected By: George Dickman

Panel No.	Paint No.	Corrosion	Blistering	Peeling	Sealing	Cracking
2FT	317	7	9	10	10	10
3FT	317	9	9	10	10	10
4FT	317	9	10	10	10	10
8FT	318	9	9	10	10	10
9FT	318	9	9	10	10	10
10FT	318	10	9	10	10	10
11FT	319	6	7	10	10	10
13FT	319	9	9	10	10	10
14FT	319	9	9	10	10	10
16FT	320	10	8	10	10	10
18FT	320	10	9	10	10	10
20FT	320	8	8	10	10	10
23FT	321	9	9	10	10	10
24FT	321	10	10	10	10	10
25FT	321	10	10	10	10	10
28FT	322	10	8	10	10	10
29FT	322	8	9	10	10	10
30FT	322	9	9	10	10	10
31FT	323	7	6	10	10	10
32FT	323	8	9	10	10	10
34FT	323	8	9	10	10	10
38FT	323	3	6	10	10	10
39FT	323	4	5	10	10	10
40FT	323	3	5	10	10	10
42FT	324	10	10	10	10	10
43FT	324	8	10	10	10	10
45FT	324	10	10	10	10	10
46FT	325	10	7	10	10	10
47FT	325	10	6	10	10	10
49FT	325	10	8	10	10	10
53FT	Navy64/47	9	9	10	10	10
54FT	Navy64/47	9	9	10	10	10
55FT	Navy64/47	4	6	10	10	10
58FT	Navy64/47	9	7	10	10	10
59FT	Navy64/47	8	7	10	10	10
60FT	Navy64/47	10	9	10	10	10
83FT	323	3	3	10	10	10
84FT	323	4	4	10	10	10
85FT	323	3	3	10	10	10
86FT	Navy64/47	1	1	10	10	10
87FT	Navy64/47	0	0	10	10	10
88FT	Navy64/47	4	4	10	10	10

Panel No.	Paint No.	Corrosion	Blistering	Peeling	Scaling	Cracking
93FT	Navy 84/47	8	6	10	10	10
94FT	84/47	7	7	10	10	10
95FT	84/47	9	6	10	10	10
117FT	52-WC-201	9	10	10	10	10
118FT	52-WC-201	10	10	10	10	10
119FT	52-WC-201	6	8	10	10	10
166FT	52-P-18 (52-V-20)	8	9	10	10	10
167FT	"	9	9	10	10	10
170FT	"	8	9	10	10	10
171FT	52-P-18 (52-V-21)	9	9	10	10	10
172FT	"	10	9	10	10	10
175FT	"	10	10	10	10	10
176FT	Navy 84/47	10	10	10	10	10
177FT	Navy 84/47	10	10	10	10	10
180FT	Navy 84/47	10	10	10	10	10
183FT	Navy 84/47	5	8	10	10	10
184FT	Navy 84/47	7	9	10	10	10
185FT	Navy 84/47	6	7	10	10	10
246FT	P-10	10	10	10	10	10
247FT	P-10	10	10	10	10	10
248FT	P-10	10	10	10	10	10
251FT	P-10	9	10	10	10	10
252FT	P-10	10	10	10	10	10
253FT	P-10	9	10	10	10	10
256FT	P-21	10	10	10	10	10
257FT	P-21	10	10	10	10	10
260FT	P-21	10	10	10	10	10
261FT	P-21	8	8	10	10	10
262FT	P-21	9	9	10	10	10
269FT	P-21	10	9	10	10	10

PROJECT NO. 17 - PAINT COMPOSITIONS

INGREDIENTS	317	318	319	320	321	322	323	324	325
PIGMENT									
Red Lead (97% Grade)	53.0	53.0	52.3	45.0	53.5	52.7	55.2	53.0	45.0
Carbon Black Yellow	-	-	-	15.0	-	-	-	-	-
Zinc Yellow	9.8	10.0	10.2	7.0	10.1	10.0	10.4	10.0	10.0
Zinc Oxide	8.0	8.0	9.0	8.0	8.0	7.9	-	8.0	10.0
Titanium Dioxide	-	-	-	-	-	-	-	-	15.0
Raw Sienna	3.9	4.0	3.8	-	4.0	4.0	4.2	4.0	-
Graphitic Mica	15.2	15.0	14.5	15.0	14.7	15.1	15.6	15.0	15.0
Magnesium Silicate	9.8	9.7	9.8	10.0	9.4	10.0	14.3	9.7	10.0
Aluminum Stearate	.3	.013	.6	-	.3	.3	.3	.3	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VEHICLE									
Raw Linseed Oil	-	-	-	-	-	-	29.5	7.1	-
Vehicle 27 (Castor Oil Alkyd)	69.1	25.4	-	25.5	42.4	-	-	29.8	-
Alkyd Solution (Navy 52-R-13a, Type I)	-	43.3	-	43.4	-	-	45.8	-	64.9
Alkyd Solution (Maritime Com. 52-MC-501, Type I)	-	-	29.7	-	-	-	-	-	-
Alkyd Resin Solution (a)	-	-	-	-	-	-	-	42.3	-
Vehicle No. 5 (Long Oil Mod-Alkyd Phenolic Varnish)	-	-	36.5	-	-	61.0	-	-	-
High Viscosity	-	-	-	-	4.7	-	-	-	-
Aromatic Mineral Spirits	29.5	-	32.5	-	-	37.1	-	-	-
Mineral Spirits	-	29.3	-	29.3	-	-	22.7	18.9	32.9
Hi-Flash Naphtha	-	-	-	-	17.1	-	-	-	-
Ethyl Butyl Ketone	-	-	-	-	35.0	-	-	-	-
Lead Naphthenate (2% Pb)	.9	1.4	.8	1.5	.5	.7	2.1	1.5	1.5
Cobalt Naphthenate (1% Co)	.1	.2	.1	.2	.1	.1	.1	.2	0.2
Manganese Naphthenate (6% Mn)	.2	.2	.2	.2	.1	.1	.1	.2	0.1
Anti-Skinning Agent	.2	.2	.2	.2	.1	.2	.3	.2	0.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Linseed alkyd (3% Phthalic Anhydride)

Source of Mfr.	Mfr. Code	Type of Surface	Wp-1 Yes or No	Land (FL)		Tide Range (FT)		
				P-158	P-158	P-158	P-158	P-158
L. Ind.	317	Reg.	No	1	5	2	3	4
do	318	do	do	6	7	8	9	10
do	319	do	do	12	15	11	13	14
do	320	do	do	17	19	16	18	20
do	321	do	do	21	22	23	24	25
do	322	do	do	25	27	28	29	30
do	323	do	do	33	35	31	32	34
do	323	W.B.	do	36	37	38	39	40
do	323	P.R.S.	do	81	82	83	84	85
do	324	Reg.	do	41	44	42	43	45
do	325	do	do	43	50	46	47	49
Ind. Test Lab.								
Phila. Navy Yard	84-47	do	do	51	52	53	54	55
do	84-47	W.B.	do	56	57	58	59	60
do	84-47	P.R.S.	do	69	90	86	87	88
do	84-47	S.B.	Yes	91	92	93	94	95
do	84-47	Reg.	do	178	179	176	177	180
do	84-47	S.B.	No	181	182	183	184	185
Nat'l Lead	U-6318	Reg.	do	64	65	61	62	63
do	do	S.B.	Yes	77	78	76	78	80
do	U-6319	Reg.	No	68	69	66	67	70
do	do	S.B.	Yes	71	72	73	74	75
do	U-6320	Reg.	No	116	120	117	118	119
Ind. Test Lab.	52-P-15							
Phila. Navy Yard	(52-V-20)	do	do	163	169	166	167	170
do	52-P-16							
do	(52-Y-21)	do	do	173	174	171	172	175
Nat'l Lead	P-10	do	Yes	249	250	246	247	248
do	P-10	S.B.	do	254	255	251	252	253
Brexel Finishes	P-21	Reg.	do	253	257	256	257	260
do	P-21	S.B.	do	263	264	261	262	265
E.-P.e	463	Reg.	No	58	59	56	57	100
doe	461	do	do	103	105	101	102	104
doe	462	do	do	106	108	107	109	110
doe	467	do	do	111	112	113	114	115
doe	84-47	Reg.	do	329	330	326	327	328
doe	84-47	P.R.S.	do	319	320	316	317	318
doe	84-47	Reg.	Yes	311	314	313	314	315
doe	84-47	S.B.	No	311	312	313	314	315
doe	52-P-15	Reg.	No	301	302	303	304	305
doe	52-P-15	S.B.	No	306	307	308	309	310
doe	460	Reg.	No	792	793	791	793	794
doe	461	Reg.	Yes	794	795	797	798	800
doe	461	Reg.	No	811	811	812	811	813
doe	461	Reg.	Yes	815	819	816	817	820

Source or Mfr.	Mfr. Code	Type of Surface	WFI Yes or No	Land (FL)		Tide Range (FT)		
				A-158	A-158	A-158	A-158	A-158
done	462	Reg.	No	833	834	831	832	835
done	do	Reg.	Yes	837	839	836	838	840
done	467	Reg.	No	851	852	853	854	855
done	do	Reg.	Yes	856	858	857	859	860
done	84/47	Reg.	No	871	872	873	874	875
done	do	Reg.	Yes	876	880	877	878	879

Key to symbols under Type of Surface

Reg. - regular Navy procedure, acid pickled-phosphate treated steel.

WFI - wire brushed.

Pr.R.S. - partially rusted steel

NOTE: All panel numbers contain the prefix A-158, designating the Navy project number.

All panel numbers contain the suffix FL or FT to designate Florida Land or Florida Tide Range, respectively. Example: The first panel exposed on land containing L.I.A. Paint No. 317 should be marked: A-158-1-FL.

*These panels were exposed approximately one month after the L.I.A. panels.

**These panels were exposed approximately two months after the L.I.A. panels.

EXHIBIT C

RED LEAD DIVISIONRECOMMENDED PROGRAM FOR 1950GENERAL

It is felt that the emphasis of the work of this Division should again be placed on promotion rather than research in 1950, as was done in 1949. In this way full advantage can be taken of the research programs started, and in some cases concluded, in recent years. It is felt, however, that new developments may make advisable a limited amount of additional research to keep our recommendations and promotional material up to date and to provide data for promotional work in future years. Therefore, a limited amount of research is included in the Recommended Program for 1950.

PUBLICITY FOR ATMOSPHERIC
EXPOSURE PROGRAM

The first report of this program, describing it in detail, and the first progress report rating the specimens after one year's exposure, will have been published and circulated to some 10,000 or 15,000 people by the end of 1949. It is felt that at least one additional progress report should be issued during 1950. While frequent reports may not show much difference in the ratings on many of the panels at this early stage of the project, they seem advisable for the purpose of bringing the project before the people we wish to interest.

It also seems advisable during 1950 to prepare a paper describing, in detail, the atmospheric exposure program and giving preliminary reports of results for delivery before some Paint and Varnish Production Clubs during 1950, followed in later years by papers bringing the preliminary data up to date.

RED LEAD TECHNICAL LETTERS

The Red Lead Technical Letters issued by the Association have received broad and favorable acceptance and have resulted in the adoption of suggested formulas in a number of cases known to us. It is felt that there will be sufficient data available to issue two more Technical Letters during 1950. These will be circulated, as in the past, to between 10,000 and 15,000 manufacturers, users and specifiers of metal protective paints. Publicizing these Technical Letters in the trade press has also brought many inquiries which have added valuable names to our mailing list and such publicity should be continued for future Technical Letters.

PRIMERS FOR GALVANIZED IRON

Last year it was suggested that a number of articles might be prepared on the Association's project on primers for galvanized iron, for publication in farm papers, factory maintenance papers, sheet metal

N2858.03

-2-

trade papers, and building construction papers, and that reprints could be used for Association distribution. This work was not consummated in 1949 and it is suggested that it be included in the 1950 program. Likewise, it was suggested a year ago that this work, at a somewhat later date, would lend itself to preparation of a paper before Paint and Varnish Production Clubs, subsequently to be published in the "Official Digest," reprints to be used by the Association and its members. This also should be a part of the 1950 activities.

VEHICLES FOR USE WITH RED LEAD MIXED PIGMENT FORMULATIONS

It was also suggested a year ago that an early research project of the Association on suitable vehicles for use with red lead mixed pigment formulations would yield data suitable for the preparation of a paper on this subject. As this has not yet been done, it should be included in the 1950 activities.

PAPER ON METAL PROTECTIVE PAINTS NATIONAL ASSOCIATION OF CORROSION ENGINEERS

At the annual meeting of the National Association of Corrosion Engineers in April, 1949, a paper on Metal Protective Primers was delivered by Mr. S. C. Frye of the Bethlehem Steel Corp. This paper turned out to be excellent promotional material for red lead. It has not as yet been published in "Corrosion," the official publication of the N.A.C.E. When this paper appears in print, reprints should be obtained by the Association and circulated to our mailing list of between 10,000 and 15,000 interested people.

RESEARCH

It is felt that because of new developments in vehicles it might be wise to initiate a limited program of study of vehicles for use with mixed pigment red lead paints, to carry on where earlier similar projects of the Association left off. Results of such a program could be the basis for promotional work in later years.

FIELD WORK

A larger amount of field work should be included in the 1950 activities. It will be necessary to keep close contact with the Navy's cooperative test programs on metal protective paints and also to bring the information developed in such tests, and in our own tests, before Government Agencies and large industrial users and specifiers of paint and paint manufacturers.

A larger amount of time in the field will also be required to make inspections of the L.I.A. atmospheric exposure program.

SUMMARY

The foregoing recommended program for the Red Lead Division for 1950 can be summarized as follows:

-3-

1. Publication of the second progress report of the atmospheric exposure program initiated in 1948, with related publicity releases.
2. Preparation of a paper for delivery before Paint and Varnish Production Clubs describing the atmospheric program and giving some preliminary results.
3. Publication of two Red Lead Technical Letters.
4. Preparation of a paper for delivery before Paint and Varnish Production Clubs on paints for galvanized iron, and preparation of articles on the same subject for publication in suitable specialized papers.
5. Preparation of a paper on an earlier Association project on vehicles for use in red lead mixed pigment formulations.
6. Printing and circulation of reprints of the paper by Mr. S. C. Frye delivered at the 1949 annual meeting of the National Association of Corrosion Engineers, and other similar papers which may become available during the year.
7. Initiation of a new modest research program on vehicles for use with red lead mixed pigment paints, to include recent vehicle developments and continue the work of an earlier Association project on this subject.
8. Maintain close contact with the Navy's cooperative test programs on red lead paints.
9. Field work to bring the information developed by the Red Lead Technical Committee before Government agencies and large industrial users and specifiers of red lead paint, as well as paint manufacturers.