

Lead Industries Association

420 LEXINGTON AVENUE

NEW YORK, N.Y.

CLAYTON A. GRADE, President
J. E. WORMAN, Vice President
J. B. HOFFMANN, General Manager
WILLIAM GRADE, Treasurer and
Secretary

January 16, 1943

Report No. 3

RED LEAD MEETING

To Members of the Lead Industries Association
Manufacturing Red Leads

Attached please find the transcript of the meeting of the technical representatives of member red lead companies held at the Research Laboratories of the Eagle-Picher Lead Company on January 11-12 in Joplin, Mo.

This office will be glad to circulate to our group any discussion prompted by a study of these minutes.

Please note that the next meeting is scheduled in New York for Thursday, April 1. Notification of the time and place will be mailed you some time in March.

Very truly yours,

J. E. Worman

Secretary

Notes: Beginning with this report, we are numbering consecutively the records of our various meetings and discussions. This is the report of the third meeting.



MEETING OF TECHNICAL REPRESENTATIVES OF MEMBER COMPANIES
OF THE LEAD INDUSTRY ASSOCIATION

Held at the Research Laboratories of
The Eagle-Picher Lead Company
Joplin, Missouri, January 11 and 12, 1943

Those present were:

F. A. Vermeer.		Secretary, Lead Industries Ass'n
M. M. Zeller .		The Eagle-Picher Lead Company
J. O. Johnston .		Hammond Lead Company
O. F. Schobe .		Glidden Company
George Diehlman .		National Lead Company
E. J. Sherbord .		National Lead Company
A. C. Coats .		The Eagle-Picher Lead Company
W. J. Ritchie .		The Eagle-Picher Lead Company
H. V. Coats .		The Eagle-Picher Lead Company
H. B. Garlock .		The Eagle-Picher Lead Company
J. H. Macgrave .		The Eagle-Picher Lead Company
E. V. McFallen .		The Eagle-Picher Lead Company

Mr. Vermeer opened the meeting by re-stating the main objectives, which were:

1. To improve the position of red lead for the future;
2. To meet the immediate competition of zinc chromate paints, particularly with the Maritime Commission.

He gave a brief summary of the discussions and conclusions of the two previous meetings.

Mr. Zeller stated that he believed it necessary to secure a very high-class man to act as coordinator of this program. His duties would involve guidance of the laboratory and testing work in each of the member companies and dissemination of the information obtained to the general trade.

The position necessitated a man of the highest type -- well-known to the paint trade -- whose previous reputation would inspire confidence in any statements that he issued. Mr. Zeller asked for suggestions as to the most acceptable persons who might be available.

- 2 -

The following names were listed by various members:

George E. Young.		Hellen Institute
George C. Sward.		Scientific Section, NYMMA.
Wayne Fuller.		Grand Rapids Varish
Harley A. Nelson		New Jersey Zinc Company
L. L. Carrick		North Dakota University
M. E. Smith.		Isak-H Company
George Seayron		Hellen Institute
F. L. Browne		Forest Products Laboratory
Paul Howard.		Bureau of Standards
George Schl.		Mesinox Products
Jeff Stewart		Consultant (Washington)
C. G. Moore.		Glidden Company

After some discussion the list was narrowed to five men, and a ballot taken to rate these men in the order of preference. The following list gives the names in the order selected -- in each case the preference was very positive:

1. L. L. Carrick
2. George Seayron
3. M. E. Smith
4. C. G. Moore
5. George C. Sward

Mr. Wernsper agreed that he would present these suggestions to the Executive Committee and ask them to take suitable action.

The meeting recessed for a period to inspect the test fences of the Eagle-Picher Lead Company, some four miles out of Joplin. Discourses of both metal and wood finishes were discussed at the fences.

The meeting resumed about 4:00 PM.

Mr. McMillan opened the technical session by presenting a list of formulas suggested by Mr. R. W. Coats which, according to theory and past experience, might meet sine chromate competition in both cost and performance. Some of these paints had been exposed to salt water for 3 1/2 weeks. The panels were examined and showed serious blistering while the sine chromate paint showed some blistering and some rusting. The remaining paints listed by Mr. Coats had not been made up due to a delay in securing raw materials. The main conclusion from these panels was that a low red lead content paint seemed to show good rust inhibition which indicated that the problem was mainly that of vehicle formulation.

Mr. Schabo exhibited a series of panels of several red lead formulations as compared to the Navy sine chromate paint.

Duplicate sets of panels had been exposed to 3% salt water for 10 days and salt spray for 260 hours. Some of the red lead paints had shown no blistering in salt water and maintained good film strength and cohesion. The sine chromate paint showed bad blistering and had lost greatly in film strength.

- 3 -

and adhesion. Exposure to salt spray was not sufficient to show results, although the zinc chromate paint had lost some film strength.

An examination of the formulas showed; the best results indicated that lean oil varnishes with suitable pigment formulation showed less blistering than more "water-proof" vehicles.

Mr. Diehlman discussed the results of his marine exposures, some of which had been examined at the previous meeting. The indications all seemed to point to the same thing, as indicated by Mr. Schabo's tests — namely, advantage with leaner oil varnishes.

After considerable discussion of these results, Mr. Kathleen asked for suggestions for the most suitable vehicle formulations to be tested by the various laboratories in connection with one or more pigment formulations to be selected later.

The following suggestions were made and listed, with the understanding that they were to be revised by the smaller group meeting the following day:

Mr. Schabo

Vehicle in his 12143 paint.

1. New Linseed Oil	1 3/8 pints
25 gal. Ester gum 70% - Amberal 30% - dehydrated Castor Oil varnish	3 pints
70 gal. 2963 Bakelite (40 gal. linseed; 30 gal. tung)	3 pints
Lead Manganese Saligen (3% lead - 1% Mn)	1/8 pints

.....
- Vehicle in his 1214 C and D paints -

2 and 3.	
New Linseed Oil	3 1/2 pints
70 gal. 2963 Bakelite as above	4 pints
(alternate 25 gal. Ester gum 70% - Amberal 30% dehydrated castor oil varnish which gave even better results)	
Mineral Spirits	1/2 pint
Lead Manganese Saligen	4 ounces

Pigmentation	
98% Red Lead	6 pounds
Lead-Free ZnO	1 1/2 pounds
82% Fe ₂ O ₃	3 pounds
Asbestine	2 1/2 pounds

.....

- 4 -

Mr. Michelson

4. 50 gal. Amberal 37
(80% Dehydrated Castor)
(20% Linseed)

5. 25% varnish as above.
65% linseed oil.
10% mineral spirits and dryer.

6. 33 gal. Bakelite EM 254 82.46
(60% tung, 40% linseed)
Mineral Spirits 13.76
Fish Oil 3.26
Butanol .76

Pigmentation used with above:

97% Red Lead 36.86
Iron Oxide - 85% Fe₂O₃ 53.36
Diatomaceous Silica 9.96

Pigment in paint - 64%
Weight per gallon - 17.06

7. LV-26 (formula to be supplied)

E. V. Coats

8. JV 1056 1000
Lures L20 67 gallons
22 Linseed Oil
Mineral Spirits
Dryer

9. Bakelite 2563 1000
Dehydrated Castor 40 gal.
Fish Oil (Varnish Grade) 20 gal.
Mineral Spirits
Dryer.

10. Bakelite 2563 1000
Graftite or equivalent 67 gal.
Mineral Spirits
Dryer

- 5 -

Mr. Shenhard

11. Bakelite 8963
 #717 Linseed Oil (83)
 Mineral Spirits
 Dyer

100 #
 60 gal.

.....
 The discussion of suitable pigmentations brought out the general idea that this first work was much more of a vehicle study than a pigment study. Three pigmentations were first adopted which later were changed to two which are as follows:

	A	B
97% Red Lead	45%	70%
Zinc Oxide (Maritime Comm. Spec.)	10%	10%
Iron Oxide	30%	10%
Asbestine (Maritime Comm. Spec.)	10%	7%
Cellite or Dicalite	5%	3%

.....

It was agreed that in at least one varnish, the zinc oxide in B would be omitted and replaced with iron oxide.

Also in one varnish the asbestine in B would be omitted and replaced with Cellite or Dicalite.

It was agreed that one company should furnish the entire quantity of each pigment used to eliminate variables.

Mr. Zoller offered the Zinc Oxide.

Mr. Schobe offered the Iron Oxide and Asbestine and Dicalite.

Mr. Diehlman offered the Red Lead.

Meeting adjourned at 5:15 PM to allow some members to catch a train. Tomorrow, members were to visit a mine and Doyle-Wisher Central Mill in the morning and resume sessions in the afternoon.

—L. V. McKillen
 Secretary, Pro-Tem.

SM/mn

Tuesday, January 12, 1943

Meeting Begun at 2:00 P.M.

The suggestion of a very short oil varnish was considered. The following was suggested:

12. Sakelite 4036	100 pounds
Linseed	5 gallons
Dehydrated castor	5 "
Mineral Spirits	
Dryer	

This to be used with pigmentation 3 only.

A second suggestion was approved:

13. Sakelite 3360	40 pounds
Mercolyn	60 "
Kellin oil	20 gallons
Mineral Spirits	
Dryer	

This also to be used with pigmentation 3 only.

It was suggested that iron oxide be eliminated from one pigmentation in one varnish to make a formula as follows:

97% Red lead	70%
Iron Oxide	10%
Asbestos	14%
Cellite	6%

All special pigmentations to be put in Vehicle #1

Due to raw material difficulties, Mr. Shobe suggested that the tung oil in Vehicle #1 be replaced with Dehydrated Castor oil for the entire study.

The list of vehicles prepared on Monday was considered. Mr. Diehlman is to look over formula #7 and if it is similar to formula #3 is to so report and eliminate it from consideration. If Vehicle #7 is eliminated there will be a total of 23 paints; if Vehicle #7 is included there will be a total of 24 paints required by this program.

Mr. Shobe is to make

Vehicles 1, 2, 3, 13

Mr. Diehlman is to make

Vehicles 4, 5, 6, 7, 11, 12

Mr. Coats is to make

Vehicles 8, 9, 10.

- 2 -

Whoever makes the varnishes will make the paints from these varnishes and send one quart of each paint in pint containers to each laboratory.

Mr. Shobe will ship to each laboratory

50 pounds Dicalite
100 " Asbestos
100 " Iron Oxide

Mr. Dickman will ship:

200 pounds Red Lead

Mr. Eagle-Picher will ship:

100 pounds Zinc Oxide

Mr. Van Lee is to be written asking for new ideas and offering pigments for his use. Mr. McMillan is to write this idea to Mr. Warner for transmission.

The panels for sea water immersion should be 6" x 12" of 12 to 14 gauge hot rolled steel. Panels for each laboratory are to be any convenient size and any reasonable gauge hot rolled steel.

Sea water panels are to be painted by National Lead Company at Bayville.

Each laboratory is to suggest to National Lead suitable drying time.

Each laboratory is to establish suitable pigment-vehicle ratio for their own paints.

Two coats primer and two coats low visibility gray are to be made according to Specification 52-MC-13 issued 12/8/42 (tentative).

Eagle-Picher is to make up low visibility gray.

One set is to be made up by National Lead Company with one coat primer, one coat intermediate iron oxide and one coat anti-fouling paint to conform to Maritime Specification.

Standards to be used

Navy 52718
supplied by Mr. Shobe

Maritime Class 22
supplied by Mr. Dickman

Outdoor exposure of extra panels is to be at each laboratory's option.

As a matter of interest, Mr. Shobe's paint 12143 was tested for drying time

- 3 -

alongside of Navy zinc chromate paint. Both were dust free in less than three hours and suitable for recoat in less than six hours. The 12143 was highly superior for application and if anything, dried faster.

Suggestion was made that the next meeting be held in New York, April 1, 1943.

RM/CC

R. Y. Hamilton
Secretary, Pro Tem