

LEAD INDUSTRIES ASSOCIATION

66 EAST 42ND STREET

NEW YORK 17, N. Y.

April 21, 1979

Ref. LP-24-79

To All Members of the
Technical Steering Committee
The Pigments Technical Committee and the
Lead Chemicals Subcommittee of the
Lead Industries Association

Gentlemen:

Sometime back Professor Raymond E. Myers of Lehigh University submitted a general statement on the utilization of lead compounds as additives in paints, pigments, and printing inks. I subsequently sent him a copy of our proposal requirements and he resubmitted the attached proposal entitled "Lead Chelates. Their Preparation, Mechanical Properties and Chemical Behavior."

The program in question, which is to cover a period of two years, is estimated at \$9500.

I would appreciate your comments on this proposal.

Sincerely yours,

Frederic J. Puddeke

SFR:gm
attachment



Research Proposal to Lead Industries Association

Lead Chelates. Their Preparation, Mechanical Properties and Chemical Behavior.

Personnel, Capabilities, and Facilities

Project director, approximately 1/4 time, Professor Raymond R. Myers

Graduate student, 1/2 time, winter (9 mo.)
full time, summer (3 mo.)

Experience: chelates of the transition metals and their use in catalysis of oxidative polymerizations. Rheology and its application to the development of structure in liquids. Lehigh has a record of continued experience in organic coatings since 1920: from paints to printing inks, and from driers to rheology. Our instrumentation and facilities for this type of work are adequate.

Publications of R. R. Myers (partial list)

1. Catalysis by Complexes. I. The Drying of Linseed Oil, *Ind and Eng Chem* 46, 2220 (1954). II Electronic Explanation of the Drying of Linseed Oil, *ibid* 46, 2223 (1954).
2. U. S. Patent No. 2,852,405. Complex Driers
U. S. Patent No. 2,559,167. Polysilicon Oxyhalides
3. Quantum Aspects of Catalysis. I. Oxidations and Other Reactions of Ethylene, *Annals N. Y. Acad. Sciences* 72 Art 10, 339 (1958). II. The Drying of Linseed Oil, *ibid*, in press. Second article was accorded an A. Creasy Morrison Award and is on a different subject from *Ind and Eng Chem* articles.
4. Paint Div. ACS Preprint Booklet 15, No 2, 28-33, and four other papers presented before the same division on subjects related to drying films. Also, Gordon Conference on Organic Coatings, 1958.
5. Drier Catalyst Activity of 1,10 Phenanthroline in Oleoresinous and Latex Coatings, to be presented April 1959 Boston ACS meeting.
6. Articles on the Application of Films by rolls, in rheology and colloid chemistry journals; chapter on Printing Ink Rheology in *Rheology, Theory and Applications*, Vol III, Academic Press.
7. Article in press on electrokinetics; others to follow. This field is of interest in power sources, including batteries.

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Program (2 years)

1. Ascertain which types of amine additives accelerate the Pb-catalyzed drying of linseed oil, oleoresinous systems, and latices.
2. On the basis of molecular structures, formulate electronic hypothesis on efficacy of drier additives for Pb.
3. Prepare Pb chelates using agents suggested by first two phases of the program. Include amines selected from heterocyclic polynucleares (1,10 phenanthroline), and from amino acids (glycine).
4. Investigate the preparation and potentialities of porphyrin structures with Pb. Non-toxic Pb complex may result.

Expenses

Direction of research	\$2400
Graduate student (summer included)	2600
• Tuition and fees	400
Overhead, 50% of salaries*	2900
Laboratory and office supplies	1200
Travel and communication	500
	<u>\$9500</u>

*Estimate only. Formalization of this agreement must be made by the Lehigh Institute of Research. Army Audit shows that overhead costs exceed 50% figure.