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LEAD INDUSTRIES ASSOCIATION

60 EAST 42nd STREET

NEW YORK 17, N. Y.

May 12, 1959

SUBJECT: THELOTROP IC RED LEAD PAINTS

To Members of the Lead Pigments Technical Committee:

I am attaching a reprint of an article describing a new Swedish development, trade-named "Plomb-monja," a red lead in a thixotropic binder.

As the article points out, this paint will produce a one-coat film thickness of 3-4 mils without sagging, and also the same protective paint thickness results with two coats as was previously obtainable with four applications of conventional paint.

This development will be placed on the agenda for the next meeting at which time its advantages and disadvantages can be thoroughly explored.

Sincerely yours,

David M. Borsina

David M. Borsina
Secretary, Lead Pigments Technical Committee

Swedish Development

ANTI-CORROSIVE PAINT SYSTEM for MAINTENANCE APPLICATIONS

Successful large scale tests have recently been carried out in Sweden with new anti-corrosive paints which give the same protective thickness with two coats—namely one of primer and one top coat—as was previously obtainable only with four applications of conventional paint.

Because the protective quality of anti-corrosive paint depends largely on achieving a paint film of sufficient thickness—approximately 6 mils—which is usually obtained by applying four coats, AB Wilh. Becker, paint manufacturers in Stockholm, were interested in the economic advantage of a paint which would reduce the number of coats necessary and, therefore, the cost of labor.

In 1954 this company started work on thixotropic paints. During their investigations they learned that by using thixotropic binders they could obtain this result.

In 1958 the company, after intensive research, produced a red lead paint "Plumb-monja" which will produce a dry thickness of 3-4 mils without sagging, with only one application.

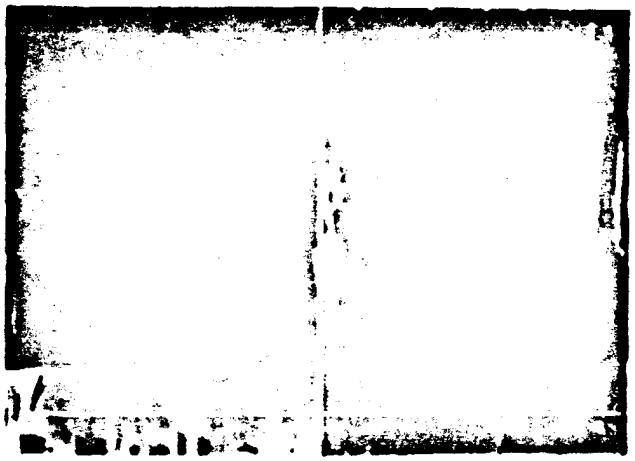
The production of this paint did not involve merely making existing anti-corrosive paints in a thixotropic form. There were additional problems to consider. For instance, what particular type of binder to use, the degree of thixotropy, and if the state would interfere with the corrosion resistance of the paint.

Testing

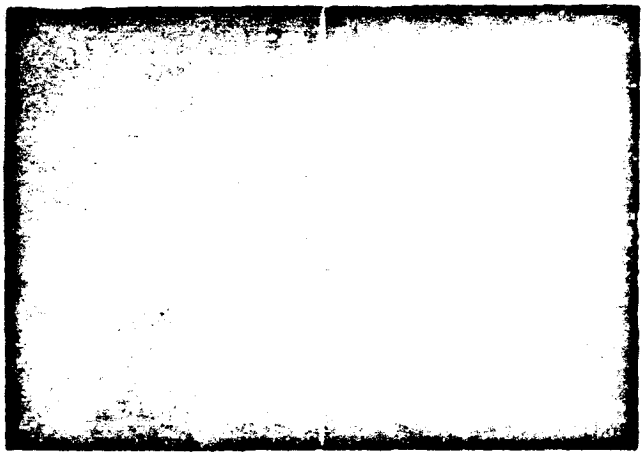
The answers were found after intensive research using laboratory as well as practical tests. The paints were tested in corrosion chambers with sulphur dioxide, carbon dioxide and water, in Weather-O-Meters, in salt spray equipment, and by immersion in distilled water at 40 degrees Centigrade. This was in addition to the usual tests for drying properties, hardness at various film thicknesses, wetting properties, adhesion, elasticity and adhesion for covering paints.

As the final part of the practical tests, this paint was used on railway bridges, viaducts and other outdoor construction work. In all these tests the paint has proved itself to be very satisfactory.

Although the paint is mainly oil-based, it dries without wrinkling in thick applications, and it has the additional advantage of not producing brush marks to the same extent as normal red lead oil paint. This factor increases its anti-corrosive properties for it is in the "valleys" of the brush marks



Comparing adhesion properties of top coat after immersion in water. Left Panel: dark portions show where the top coat has been applied over the new red lead paint "Plumb-monja". Right Panel: shows applied over conventional red lead paint. The lighter spots are scratch tests made by knife after water test. Brush marks are clearly visible on the conventional red lead paint.



Accelerated weathering tests show how conventional paint breaks down after exposure to ozonolene. "Plomb-esonja" is still intact after 1000 hours exposure (left panel). The conventional red lead paint has crumbled after 600 hours exposure (right panel).

that rust very often gets a grip. The paint has also exceptional covering powers on sharp edges which are most susceptible to corrosion.

Because of its thixotropic character, it is also possible to take more paint on the brush and to use larger sizes of brushes. This means that, in addition to the possibility of achieving enough film thickness with half the number of applications, the resultant savings in the cost of labor more than compensates for the increased price of the new paint as compared with conventional red lead paint.

The company has also produced a calcium plumbate primer with the same application properties as "Plomb-esonja" but with the additional advantage of being suitable for use on galvanized steel. The primer makes use of the anti-corrosive properties of calcium plumbate and is the result of a successful series of extensive tests with the pigment on galvanized and ordinary steel surfaces. Further investigations are taking place to determine its suitability for use underwater.

The third in the anti-corrosive primer group consists of a thixotropic zinc chromate primer based on an alkyd vehicle.

To complete the picture, the company has produced a top coat based on thixotropic alkyds that will produce a dry film thickness of approximately 3 mils with one application.

A paint film of six or seven mils can, therefore, be obtained by using one of the three new primers combined with the new top coat, instead of using four coats of the conventional anti-corrosive paints.