ALLIED RESEARCH BULLETIN

RC-58

SUBJECT:

ACICULAR ZINC OXIDE AND ACICULAR LEAD SULPHATE - BEHAVIOR IN TINTED PAINTS.

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Acicular Zinc Oxide and Acicular Lead Sulphate - Behavior in Tinted Paints

General Statement

The Pittsburgh Plate Glass paint technologists claimed superior durability and color retention through the use of a mechanical mix of Acicular Zinc Oxide and Basic Lead Sulphate as against a co-fumed Leaded Zinc in their light colored house paints.

Information was received from another source to the effect that they also were using an Acicular Basic Lead Sulphate.

In evaluating their claims as to the superior performance of Acicular Zinc Oxide, both the standard and the Acicular Basic Lead Sulphates were used. Also, the Anaconda Acicular Zinc Oxide, as well as the American Zinc Company's Acicular Zinc Oxide, was used.

Test Procedure

The Pittsburgh Plate Glass pigment formula is approximately as follows:

35% Basic Lead Carbonate

54% *Leaded Zinc, or equivalent (35% Zinc Oxide, 19% Lead Sulphate)

11% Inert Pigment

100%

*In exposure No. 3 where Ozlo 50/50 was used, this Leaded Zinc represented 70% of the total pigment.

The paints were shaded to a conventional Cream and Gray color, applied three coats self-primed on White Pine. Exposed vertically at Chicago test farm. Exposure period 16 months.

It is to be noted that the Zinc Oxide content of 35% is somewhat higher than generally used in Outside White Paints, and about in the middle range of the majority of light colored paints.

Exposure Results

While this series of exposures has not progressed to the point of final evaluation, the failures which have occurred are sufficiently definite to indicate what can be expected.

The tinting colors used in producing the tints aid somewhat in increasing durability as against the same formulation in the White.

No.	Leaded Zinc or Equivalent	Checking		Color Retention	
		Gray	Cream	Gray	Cream
1.	Ozlo 35/65	Absent to Slight.	Absent.	Badly faded.	Badly faded.
2.	Azo Co-fumed	" "	"	"	"
3.	Ozlo 50/50	Absent.	"	"	"
4.	Std. Basic Lead Sulphate* and XX Zinc Oxide**	Bad	Bad	"	"
5.	Acicular Basic Lead Sulphate and XX Zinc Oxide	"	"	"	"
6.	Std. Basic Lead Sulphate and Am. Acicular Zinc Oxide	Absent	Absent	"	"
7.	Std. Basic Lead Sulphate and Anaconda Acicular Zinc Oxide	Very Slight.	"	"	"
8.	Acicular Basic Lead Sulphate and Am. Acicular Zinc Oxide	" "	"	"	"

* National Lead Co.
** New Jersey Zinc XX

Based on the results to date, the durability performance of Ozlo 50/50 is slightly superior to Ozlo 35/65, but with an appreciably greater degree of fading, definitely the poorest of the series.

The durability of a mechanical mixture of regular Basic Lead Sulphate and regular Zinc Oxide is definitely inferior to that of a co-fumed Leaded Zinc, a consistent exposure result.

The introduction of Acicular Zinc Oxide increased durability to a degree equal or superior to that of a co-fumed Leaded Zinc.

The introduction of Acicular Basic Lead Sulphate decreases durability.

The paints containing American Process Non-Acicular Zinc Oxide show slight but not considerably the best color retention, the color retention being poor in all instances.

In the Pittsburgh Plate Glass type of formulation, the substitution of a mechanical mix for a co-fumed Leaded Zinc has shown no distinctive superiority to date.

CHA:MF