

MEMORANDUM SUPPLEMENTARY REPORT OF HOUSE PAINT PRIMER
STUDIES FLORIDA EXPOSURE

Prepared by: O. R. Jagd

November 5, 1937.

ALLIED RESEARCH LABORATORIES
CHICAGO, ILLINOIS

N12512

0007-SWP-000006674

MEMORANDUM SUPPLEMENTARY REPORT OF HOUSE PAINT PRIMER STUDIES
FLORIDA EXPOSURE

Introduction:

This report supplements the Allied Research Bulletin No. RC-14, subject "House Paint Primer Studies," issued November 9, 1936, with special reference to page 7, paragraph 1, on the 1936 series. The primer tests mentioned in this report are divided into three sections, as a direct comparison could not be made between the various primers due to somewhat differing dates of exposure and type of lumber used.

Section 1: This section represents a direct comparison between the Devoe's Undercoat and House Paint system against a primer formula developed for possible usage by Sherwin-Williams, in one case being recoated with SWP White (titanium dioxide type) and in another with approximately the T-T-P-101 (Government Spec. Paint) having the following pigment composition: 28% zinc oxide, 28% lead sulphate, 27% white lead carbonate, 7% titanium dioxide and 10% asbestine.

Section 2: This group is composed of Titanium Pigment Company's Exterior Primer recommendation MT-401 and various Institutional primer developments, such as Acme (lead-zinc sulphide type), Lowe Brothers (lead-titanium dioxide type) and the experimental primer mentioned above for Sherwin-Williams (lead-titanium dioxide type). All primers of this set were recoated with Rx 471 (SWP White).

Section 3: This section includes a special primer for pitchy and badly weathered yellow pine recoated with SWP White and compared with SWP two coats.

Application:

All paints were applied in the laboratory and allowed to dry for 48 hours during which they were exposed to a carbon arc for two 6-hour periods

0007-SWP-000006675

between coats to simulate summer exterior painting conditions. Section No. 1 was applied as two and three coat work on Northern White Pine siding. The other two sections were applied as two coat work on flat grain Southern Yellow Pine and edge grain Northern White Pine. All panels were exposed from 12 to 14 months at 45 degrees south in Miami, Florida.

Results:

Upon examination of the two coat system as recommended by Devoe, it becomes quite evident that a definite sacrifice has been made in film integrity by reason of lowered film thickness and checking tendencies through the use of a special exterior primer.

The Devoe Undercoat and Finish Coat are both Titanox B formulations and the above system has shown a definite tendency to retain its chalk. The old SWP Outside White (Titanox B formulation) was very similar in this respect, the retention of the chalk preventing erosion of the film to the extent that severe cracking of the film occurred. The Devoe system developed a distinct yellowish cast due to the lead titanate as compared with the guide paint (SWP White).

Where the T-T-P-101 (Government Spec. Paint) type of formulation was used as a finish coat over the SWP experimental primer a somewhat similar appearance to that of Devoe's existed. The panel was slightly dirtier than the guide and was holding its chalk, which appears to be due to the 511 Dry (50/50 leaded zinc) that was used in this formulation.

All panels in the two coat work are checking slightly, except where T-T-P-101 is used as a finish coat.

0007-SWP-000006676

In the three coat work where the special primers were used and recoated with two additional coats of SWP Outside White or Devco's House Paint, the film integrity and opacity was much better.

Section 2 - Yellow Pine Panels

No apparent difference could be noticed in rate of chalking. All were failing due to checking or cracking, these conditions being considerably advanced. The general order of preference is Acme, MW-401 (Titanium Pigments Co.), Lowe Bros. and SWP (suggested). The difference between one paint and the next are distinctly observable but not pronounced. These tests again indicated the insufficiency of a two coat system on unpainted woods, such as yellow pine, which have always been difficult to paint satisfactorily.

Section 2 - White Pine Panels

The film integrity was good, showing only very slight checking or cracking and were all rated good in general appearance.

Section 3

The special developed primer for pitchy badly weathered pine plus one coat SWP White showed a decided improvement over SWP White two coats, but does not to date equal a three coat SWP job self-primed. The specially primed panel is now showing a slight cracking condition, whereas the two coat SWP panel showed a definite cracking condition which has advanced to definite flaking. This appears to be among the best of the primer possibilities for two coat work. The composition of this primer is 78.6% White Lead Carbonate, 8.7% Titanium Dioxide, 8.9% Celite, 3.8% Mica and the vehicle contains 34.3% Raw Oil, 19.2% Bodied Oil, 46.5% Volatile.

Conclusion:

There is no indication to date that the exterior primers which have been placed on the market and advocated by the various manufacturers will be effective in building up a two coat system which can equal the durability of the standard three coat practice. The opacity and integrity of the primer and finish coat will both have to be improved before a satisfactory all-around performance will be obtained.

CRJ:MLK

O. R. Jagd

0007-SWP-000006678