

Cross Reference:

Punch Card Index

R. B. Davis, Lab.
C. R. E. Merkle, Lab.
K. C. Lampert, Lab.
S. Graves, Lab.
O. D. Shreve, Lab.

Marshall Laboratory
July 30, 1951

MEMORANDUM REPORT NO. M-371AG 21⁴⁵STAINING OF HOUSE PAINT

TEST ON HOUSE OF
FRANCIS GALLAGHER
840 FLORAL AVENUE
ELIZABETH, NEW JERSEY

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This report is to place on record the result of a test carried out on the Gallagher house in Elizabeth, N. J. White houses in this area turn brown because of copper in the air. The analytical work is recorded in a memorandum from O. D. Shreve to J. W. Iliff, November 2, 1949.

Nine paints were tested on two small areas of the Gallagher house, facing west and east, to determine the effect of composition of the paint. The nine paints consisted of two alkyd paints pigmented with titanium oxide, five house paints having a blend of titanium oxide, zinc oxide and extender with or without lead pigment, the war-time Town and Country White 301-904 with a blend of basic carbonate white lead and leaded zinc oxide, and white lead in oil.

Inspection of houses in the vicinity had shown that white lead in oil was slower to stain than paints with mixed pigments. Paints of a number of different manufacturers were identified, all showing a considerable degree of stain.

The paints were applied in July 1949. They were inspected in October and November, 1949, and February 1950. An inspection was made by Mr. A. A. O'Mara of the Elizabeth paint store during the summer of 1950. A final inspection was made July 23, 1951, with Salesmen O'Mara and Rhawn together with Dr. Vannoy of the Pigments Department. The test will be discontinued.

Summary:

All paints with the conventional mixed pigmentation including titanium oxide, zinc oxide and extender show a bad brown discoloration at the present time. The beginning of the discoloration was noticed in November 1949 and had become definite in February 1950.

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One of the test paints is 301827, the same paint that is on the body of the house. Where it is fully exposed on the house it has become white through chalking after two years. It remains brown in the sheltered areas.

White Lead in Oil does not stain under these conditions. It is slightly gray from dirt collection but is much superior in appearance to the paints that stain.

The war-time Town and Country White 301-904 does not stain. This paint collects less dirt than White Lead in Oil and has a better appearance. However, it shows considerable cracking after two years. The cracking is characteristic of the formula and is the reason it is not offered for sale. The cost is higher than #40 White.

The two alkyd titanium oxide paints showed staining earlier than any of the others. Considerable staining was noticed in November 1949. However, they began to clean up as chalking commenced and showed only slight staining in February 1950. They have continued to show slight staining since then. Their appearance is very much better than the conventional mixed pigment house paint. At the present time, two test sections that are fully exposed have chalked enough to lose all stain, while four other test sections that are more protected show slight stains.

Action Proposed:

This test and inspections in Elizabeth have established the technical fact that the most desirable paint for the restricted location where staining occurs is White Lead in Oil. The alkyd paints might be superior in general appearance and durability, but involve a risk that has already been rejected by management in the case of Trim and Shutter White. Any decision for action on these facts must be made by the Sales Department, since White Lead in Oil is a direct competitor for our products.

Details:

The paints in the test are the following:

1. SR-42973 Stain Resistant White Alkyd Paint supplied by Dr. Vannoy of the Pigments Department. This paint probably contains a blend of "TiPure" FF and "TiPure" R-110.
2. P-87-R-14732 Alkyd White with "TiPure" R-110 and Dowicide G as mildew inhibitor.
3. 303-768 Fume Resistant Outside White.
4. 301-875 #40 Outside White. This is the product current in 1949 with lead free zinc oxide.

5. 301-882 #40 Outside White for trial sale. This product is lead free zinc oxide with soya PE oil as the vehicle.

6. 301-864 #40 Outside White with leaded zinc oxide.

7. 301-827 Outside White. This is the composition used on the Gallagher house. The pigmentation is titanium oxide, leaded zinc oxide and extender with a low concentration of titanium oxide.

8. 301-904 Town & Country White. The pigmentation is basic carbonate white lead, leaded zinc oxide and extender. The paint has the "oil saving" vehicle.

9. White Lead in Oil mixed according to the recommendation of the National Lead Company.

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WFS:tms