

MEMORANDUM REPORT

SPECIAL HOUSE PAINT PRIMER STUDIES

General Statement:

In continuation of our studies on the two coat house paint system, it becomes quite evident that the advocates of this sytem have overlooked the durability of the primer itself when exposed to climatic influences.

After two years of average exposure on new wood, the top coat of a two coat system has usually eroded away and the only protection afforded the wood depends upon the priming coat. On repaint jobs where a primer is employed to "uniform" the surface, the durability of the primer is again of considerable importance for the same reason.

Practically all of the special house paint primers contain a considerable percentage of bodied oil for controlled penetration, whereas with a regular mixed paint which is reduced for priming, a liberal percentage of raw linseed oil is added. This abundance of raw oil is available for penetration as the character of the wood will permit.

The question arises, does the use of a special primer of slight penetration protect the wood as well as the conventional first coat reduction, using only raw oil? The principal claims made are their superior performance on woods which are difficult to paint satisfactorily from the standpoint of durability. Coniferous woods, such as Southern Yellow Pine, Douglas Fir and California Pine would fall in this classification.

It was therefore considered desirable to determine how typical primers would wear on flat grain Southern Yellow Pine, as this is a type of wood which has a tendency to crack when exposed to the weather. A comparison was made

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between the primers of controlled penetration and the conventional first coat reduction of a mixed paint using raw oil.

Application:

This series comprised 9 members, of which 5 were experimental and 4 representing competitive house paint primers (Devco's, Wallhide, Titanium Pigments Recommendation MT-401, and Moorwhite (Benjamin Moore). The primers were applied as one coat work on flat grain Southern Yellow Pine six inch clapboard siding. The STP White (Titanium Dioxide Type) was used as a guide on each panel and reduced according to the label directions. The panels were exposed vertical south on June 2, 1937 for a period of 20 weeks at the Sherwin-Williams Exposure Farm, at Chicago.

COMPOSITION OF PRIMERS

COMPETITIVE

	White Lead Carb.	Titanox B.	Zinc Sul- phide	Titanium Dioxide	Lead Sul- phate	Zinc Ox- ide	Mag. Sil- icate	Cel- ite	Mica
Devco's Under- coater	38%	37%					25%		
Wallhide Ex. Primer				7%	27%	50%	1%		
T.P. Cos. MT-401 Recommendation	38%	37%					25%		
Moorwhite Ex. Primer									No Analysis Given

INSTITUTIONAL DEVELOPMENTS

	White Lead Carb.	Titanox B.	Zinc Sul- phide	Titanium Dioxide	Lead Sul- phate	Zinc Oxide	Mag. Sil- icate	Cel- ite	Mica
Acme Balanced Ex. Primer	81%		9%				3%	7%	
Lowe Bros. Ex. Prim.	60%			10%			30%		

INSTITUTIONAL DEVELOPMENTS - CONT'D.

	White Lead Carb.	Titanox B.	Zinc Sul- phide	Titanium Dioxide	Lead Sul- phate	Zinc Oxide	Mag. Sili- cate	Cel- ite	Mica
Special Primer for Y. Pine	78%			9%			9%	4%	
Sherwin-Williams Experimental #1	81½%			8½%			10%		
Sherwin-Williams Experimental #2	81½%			8½%					10%
STP White (Rex 471)	34½%			10%	16%	29½%	10%		

Exposure Results:

These exposures have passed through a complete summer and are now approaching the critical part of the exposure cycle. The priming coats have weathered sufficiently so that the following comments can be made. The protective value or integrity of the primer is rated in direct comparison to the guide that was painted on each panel. STP White was used as a guide and reduced according to label directions for priming.

The failure as to checking and cracking appears to be the least on the Acme experimental and the special development for yellow pine, but from the standpoint of the guide, the Acme primer is definitely better. The Devco and MF-401 both show a slight improvement over the guide in this respect. The special primer for yellow pine, Talthide and the two Sherwin-Williams experimentals show the same degree of cracking as their guides. The Love Bros. development and Moorwhite primers are cracking more than the guide and are the poorest primers of this set.

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A decided difference in chalking is noticed between the various primers. The Wallhide and Moorwhite primers are chalking slightly and are very similar to the guide. The Devco, Acme, MT-401, and Sherwin-Williams' Special Development are all showing moderate chalking characteristics. The Lowe Bros., Regular Sherwin-Williams Experimental, and the primer for yellow pine are chalking badly with rapid erosion.

The opacity of all the primers is definitely better than the guide (SWP White priming coat), with the exception of Wallhide and Moorwhite. The Wallhide primer is slightly better than the guide and Moorwhite is not equal in opacity.

Conclusion:

From our observations of these exposures, it appears that there is little or no improvement in durability obtained by the use of the exterior primers over the conventional first coat reduction for priming of new wood. The exposure results obtained on exterior primers indicate that a definite improvement will have to be made before a two coat system will be obtained which approaches the satisfactory performance of a three coat system self-primed.

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