PRODUCT DEVELOPMENT REPORT

COATINGS AND RESINS GROUP LABORATORIES

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In all of the above recommendations we have used Y1800 as a generic description. In every place where Y1800 is recommended, Y1850, Y1867, Y1892 or Y2218 could also be employed. In general, the gloss house paints will protect a poor prime coat where a flat breathable finish cannot. It becomes more and more apparent that flat finishes must have primers of outstanding merit in order to develop good durability in a paint system. Any flat finish over a questionable primer can result in very serious peeling, flaking and generalized failures.

We hope this clarifies any questions you may have had. If not, please contact us.

S. T. Bowell

LEADED ZINC OXIDES IN HOUSE PAINTS

We have changed leaded zinc pigments in house paint to obtain lower costs. For many years we used W-6 (35% leaded zinc oxide) in Y1800. We then changed to use W-35 (10-20% leaded zinc oxide) and W-1 (lead sulfate), keeping the lead/zinc ratio still at 35/65. This gave us a savings of 7¢ per gallon in Y1800. We are now using W-249 (18% leaded zinc oxide) in Y1800A. You will note that we have kept the zinc oxide level the same while the lead sulfate has been lowered.

The greater efficiency of the lead in W-249 (Ozlo 18M) is obtained by the elimination of the inert lead sulfate ($PbSO_4$) component from the basic sulfate white lead. Basic sulfate white lead, as such and in leaded zinc oxides, is a mixture of monobasic lead sulfate and normal lead sulfate of about the following composition: $PbO.\ PbSO_4+3PbSO_4$. This means that only one in five of the atoms of lead in basic sulfate white lead is basic and, therefore, available to react with fatty acids in the paint and paint film. The lead is, therefore, only 20% efficient.

The lead in W-249 is present as straight monobasic lead sulfate, $PbO.PbSO_4$. One in two of the atoms of lead is basic and available to react with fatty acids. The lead is, therefore, 50% efficient or two and one half times as effective as the lead in basic sulfate white lead.

We have been checking out this approach for seven years in Y1800. Our exposures have shown equal durability for W-249 and we now have an additional cost savings of 11¢ per gallon in Y1800.

In essence what we are doing is replacing 5# of W-6 (35% leaded zinc oxide) or any blend of equal lead and zinc, with 4# of W-249 (18% leaded zinc oxide). You will note that the zinc oxide content remains the same.

Our hope is to use W-249 in all Y Line house paints where leaded zinc is used thus having only one leaded zinc pigment in stock.

J. E. Southwick

TESTING OF COMPETITIVE PVA PRIMERS AND COMPARISON TO Y3525

Several competitive PVA primers have been submitted to us from various regions to be checked. These primers are Martin Senour PVA Sealer White B5086; Continental Paint Company's PVA Primer; Benjamin Moore & Co. Quick Dry Primer Sealer and Sherwin-Williams Painter Craft PVA Wall Primer. These paints were compared to Y3525-G which is currently being relabeled as a primer and a special version of XM-60043 special primer employing Glidden Latex.

The primers were checked for package and film properties with the following results:

	Package Condition	Odor	Hide	Film Appearance	Gloss 60°
Martin Senour	4"separation smooth,restir easily	sweet	fair	rough,poor texture, glossy	18
Continental	good,restir well	ok	good	rough,poor texture,small particles and agglomerates	4
Benjamin Moore	2"separation, restir easily	ammonia	fair	smooth,some fish eyes	4
Sherwin-Williams	1-1/2" separation, restir well	ok	fair	smooth,somewhat glossy	12
Y3525	good,smooth, heavier	ok	excellent	smooth,even	4
Exp.XM60043 DN1151	1"separation, smooth,restir well	ok	good	smooth,some small foam holes	6

The Martin Senour and Continental paints had many large agglomerates and undispersed pigment particles breaking the surface of the film which is an undesirable property. Only the Y3525-G had an excellent hide. This factor helps because there is more assurance of complete hiding with the finish coat. The gloss is usually a good indication of a primer. In general, those paints with high gloss have the best holdout properties but even so the Y3525, at lower gloss had good holdout properties. With this lower gloss it provides more "bite" for the topcoat.

The primers were tested for sealing properties over bare upson board and bare plaster with the following results.