

Trade Sales
 "DULUX" Super White
 58 Line
 PE Resins

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Philadelphia Laboratory
 March 15, 1946

MEMORANDUM REPORT NO. M-33

"DULUX" SUPER WHITE

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This report covers work undertaken under Investigation No. WT-37 which requests the formulation of a Super White using a Pentaerythritol resin. A product P-58-P-43854 has been developed which appears to have satisfactory initial film properties compared to 58-613. A table of comparisons is attached. A 10 gallon batch has been made and this material is to be given to Laboratory employees to use for painting in their homes in order to give practical field tests for adhesion and repaintability of the product.

Details of Development:

Using PRC-P-36972 a 60% Soya Bean Oil-Pentaerythritol resin at 65% solids a product was developed which was judged to be the best product that could be made using this vehicle alone. This is P-58-P-43764. However, it is low in total solids, loses gloss on aging, has slow initial dry which speeds up on aging, and when brushed, shows inferior build and brushing properties although the brushing properties pick up on aging.

The resin laboratory was then asked to make another resin longer in oil. This was PRC-P-36982 a 70% Soya Bean Oil-Pentaerythritol resin at 65% solids. Products made with this resin were slow in dry and had soft film setup. The total solids were high due to the low body (G) of the resin.

The resin laboratory then undertook to make a resin at 64% oil content. However, this resin PRC-P-36986 did not improve drying or film hardness and total solids were too high.

At this time it was decided to use soya bean acids in place of soya bean oil. The resin laboratory, therefore, made PRC-P-36987 a 68% soya bean acids-pentaerythritol resin at 65% solids and body "R". Products made with this gave good hard dry, good brushing properties and better build. However, the resin had to be cooked a long time to get it to body. Therefore, an attempt was made by the Resin Laboratory to reduce the length of cook by introducing 10% of bodied soya bean oil in place of soya bean acids. This resin PRC-P-36989 had a shorter length of cook but products made with the resin were slow in dry with a soft film setup.

On the basis of the experience gained in working with the resins previously mentioned it was decided to use resins made with all soya bean acids with no soya bean oil. It was also decided to keep the solids at 75%, in order to reduce the length of cook and to adjust the total solids of the products using PRC-P-36960 a 60% soya bean acid-pentaerythritol resin.

PRC-P-36992, a 68% soya bean acid-pentaerythritol resin at 75% solids and body Z was made by the Resin Laboratory at a shorter cook than the 68% Oil Resins previously prepared. A mill base was ground in PRC-P-36960 and was let down with PRC-P-36992. This product is P-58-P-43854 previously mentioned in the opening paragraph. Formulas for the mill base and finished product have been issued and control standards turned in to file. Exposure Series #9051 has been issued to compare the yellowing properties of this product against 58-613 Standard "DULUX" Super White.

PHILADELPHIA LABORATORY

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ORV:MEH

TABLE OF COMPARISONS

58-613 = standard
P-58-P-43854 = material
under test

<u>Property</u>	<u>Comment</u>
1. Initial Dry	Equals standard
2. Overnight hardness	Better than standard
3. Initial Gloss	Equals standard
4. Build and fullness	" "
5. Sag resistance	" "
6. Flow	" "
7. Viscosity stability	Appears normal so far
8. Elevated temperature viscosity stability.	Unknown at present
9. Shelf settling	None
10. Settling on travelometer	None
11. Skinning in can	None
12. Brushing properties	Equals standard
13. Ease of brushing	" "
14. Lapping	" "
15. Ability to stick to sharp edges	" "
16. Residual tack	Less than standard
17. Surface slickness	Equals standard
18. Hiding	Equals standard
19. Drying stability	Unknown at present
20. Adhesion properties	" " "
21. Elevated temperature color retention	Better than standard
22. Ability to mix with Ovalite Undercoater	Equals standard
23. Flexibility and impact resistance	" "
24. Resistance to flooding when tinted with Raw Sienna or Chrome Green.	" "
25. Resistance of Chrome Green tint to alkali staining.	" "