

Cross Reference:

Trade Sales
58 Line
Reichhold Chemicals, Inc.
Beckosol P-296 & P-296-G
Competitive Resins
Release Letter #948

CC: - Mr. J. B. Sullivan, Lab.
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Philadelphia Laboratory
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MEMORANDUM REPORT #M-63:

"DULUX" MILL WHITE AND HI-HIDING MILL WHITE

This memorandum report covers work completed under investigations WT-34, WT-48 and WT-74, requesting the formulation of "DULUX" Mill White and Hi-Hiding Mill White using Beckosol P-296, a soya alkyd resin and Beckosol P-296-G, a soya PE resin. Both resins are made by Reichhold Chemicals, Inc., and are 64% oil at 70% solids. Satisfactory duplications of both the Mill White and Hi-Hiding Mill White have been formulated and have been covered in Release Letter #948.

An attempt was also made to formulate a "DULUX" Super-White using P-296 and P-296-G, but due to the very low build of the resulting products, they were rejected by the Sales Department and laboratory work discontinued.

Details of Development:

The initial investigation as requested by Sales was for the development of a "DULUX" Super-White utilizing the available Beckosol resins. Formulation was accomplished by replacing the RC-114/RC-193 soya alkyd combination with the Beckosol resins at the same percent oil. Hiding was adjusted to the pre-war Super-White level, rutile titanium being used in place of the anatase type. Flow and sag resistance were satisfactorily controlled by using 2% Turkey Red Oil on the pigment, after the following flocculating agents had been investigated.

TM-311B
Sag Test

1% H-555 Neofat on pigment	29 mm.
1% H-226 Wecoline on pigment	26 "
2% VM-7790 Soya Lecithin on pigment	41 "
2% H-522 Turkey Red Oil on pigment	18 "

The final product, P-58-P-45957, was considered satisfactory for hiding, brushing, gloss, dry and flow characteristics. This product was rejected, however, because of its poor build.

The Beckosol Mill Whites were formulated in exactly the same manner as the Beckosol Super-White. The Beckosol resin was substituted for the RC-114/RC-193 combination at the same percent

oil and the hiding was adjusted to the pre-war level, rutile titanium being used in place of the anatase type. In substituting one Beckosol resin for the other, that is P-296 for P-296-G, no difference in initial film properties were noted with the exception of flow. The P-296 formula showed definitely more flow than the P-296-G formula, so that it was not possible to establish one formula code and use the two resins interchangeably. To obtain flow characteristics equal to standard the P-296-G formulas were flocculated to the same extent as the Beckosol Super-White, that is 2% Turkey Red Oil based on the total pigment. The P-296 formulas required 5% Turkey Red Oil on the same basis to obtain the same results. Formulas have been entered in file under the following codes:

P-296 Mill White (soya/alkyd) P-58-P-56421
P-296 Hi-Hiding Mill White (soya/alkyd) P-58-P-56423
P-296-G Mill White (soya/PE) P-58-P-56406
P-296-G Hi-Hiding Mill White (soya/PE) P-58-P-56407

Release Letter #948 has been written and several large plant batches of each product has been made with no difficulty encountered either in manufacture or with the final product.

The initial film properties of the Beckosol Mill Whites compare favorably with our pre-war offerings in all respects with the exception of build. When applied over 66-044 "DULUX" Mill White Undercoater, the Beckosol Mill Whites do not develop the excellent build and gloss of the pre-war Mill Whites, but when applied over old enameled surfaces, this deficiency is not apparent. We do feel, however, that the Beckosol products have sufficient build for present day use as Mill Whites and we have so recommended them to Sales.

Can stability to date approximately 6 months, shows the Beckosol products to behave in the same manner as our pre-war offerings. During the first two weeks, the original viscosity of #10 cup/75" increases to a maximum of approximately 10F/120" after which the material thins slightly and levels off at approximately 10F/100". Six months exposure in the laboratory yellowing racks indicate the Beckosol products to compare favorably with the pre-war products in retention of gloss and color.

Information on work done in connection with the formulation of the Beckosol Super-White is contained in Laboratory Notebook #2924. Laboratory Notebook #3012 contains the information on work done in connection with the formulation of the Beckosol Mill White and Hi-Hiding Mill White.

PHILADELPHIA LABORATORY

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