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#150 - Durability Studies of Zinc Sulphide Pigment Combinations

Panels 2280-4 C were examined after a full 6 years' exposure at Chicago. There are duplicate sets - vertical and 45° exposure. They consist of 3-coat self-primed work on Ponderosa pine siding. Wardway's Coverall Buff of 1938 is the basic formula, with both stock paint and our laboratory reproduction represented. This formula uses about 21% each of New Jersey Zinc's Cryptone MS-130 and 35/65 leaded zinc, plus about 28% each of 20 L asbestine and Metronite (calcium-magnesium-carbonate-silicate); three special lots of Coffeyville ZnS (Mg) blends are substituted for the Cryptone MS-130. Though originally of primary importance, the four ZnS (Mg) comparisons have developed practically no difference in performance. In fact, there is no choice between the paints except for slightly greater fading and more dirt on the part of the Wardway stock guide.

Between the vertical and 45° exposures, however, there is a striking difference. The former are free from failure (except slight erosion) and have excellent color with a minimum of dirt, while the 45° panels are nearly black with mildew and dirt, and are in an advanced stage of failure. A combination of cracking and erosion has exposed considerable wood, and a great deal of wood-checking has resulted. The logical conclusion is that while this tint is very satisfactory up to 6 years of normal south exposure at this locality, no chances can be taken with it under severe exposure conditions. It should be noted, however, that a previous report showed these 45° panels still without significant failure and looking good at 40 months.

#86 - Durability of Pigments with Special Reference to Leaded Zinc and White Lead.

A special report was written on exposures 4500-4633 C, Cof., F and mimeographed as a supplement to previous reports. Various competitive zinc oxides, white leads and leaded zincs are compared, based on (a) Rex 471 Gloss White of 1-4-40, (b) Rex 375 Colonial Yellow of 1-5-40 and (c) a special 25% lead titanate formula of Rex 375. Complete results cannot be presented here. The report is essentially routine at about 5-1/2 years' exposure, since it follows one prepared in April, 1944 at some 7 months less exposure time and will be followed by a final report in about a year.

The panels are all cedar, primed with Rex 450 Undercoater and exposed vertical south. Mechanically-mixed leaded zincs are seen to be definitely inferior in durability to co-fumed. In these mechanical mixtures, St. Joseph #46 Zinc Oxide stands out as consistently poor, with Azo ZZZ-33 one of the best. National acicular basic lead sulphate is also outstandingly poor, with the other white leads tested nearly identical. Ozlo 35/65 leaded zinc seems to have a slight advantage over Azo 35 L and Lehigh 60 and 635.

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The essential differences in the tint group are found between the lead titanate and regular (non-chalking titanium) types. The slow-cleaning Chicago panels show both as bad due to heavy adherent chalk and dirt. A general view leads to the conclusion that lead titanate holds a slightly better color and is cleaner, up to the point where self-cleaning should reach its peak. Thereafter, the regular will clean quite thoroughly, but lead titanate holds its dirt more stubbornly.

#163 - One Coat House Paint

Panels 9148-9154 C and F were prepared for exposure during the month. The paints were described in the December report. They are variations of the regular One Coat House Paint CH 4697 with no lead titanate, but comparing the following micas: Alsibronz #19, AA Mica, AAA Mica, Kraft's C 1000 and C 3000 Micas, and Concord India Mica.

Panels 9158-9169 C and F were prepared for exposure. This series is divided into two groups. The first compares regular One Coat House Paint CH 4697 with its zinc oxide content of 25.8%, with a special with 30% zinc oxide content, also another special with no lead titanate. The second group includes special formulations for superior whiteness and self-cleaning.

#77 - Mildew Inhibitors

Formulas have been given to the factory for the manufacture of a number of mildew resistant paints using phenyl mercuric oleate, phenyl mercuric naphthenate, and tetrachlorphenol. These paints are to be exposed in house tests at Lafayette, Louisiana, as soon as the paints can be manufactured. The phenyl mercuric naphthenate will be introduced as Nuocide 321 in concentrations of 0.02% and 0.04% Hg based on the paint solids. Phenyl mercuric oleate will be used in a concentration of 0.04% Hg based on the paint solids and tetrachlorphenol at the usual concentration of 5% based on the total weight of the paint.

Exposures 7250-63 F, FY were examined after 16 months' Florida exposure, vertical south. These tests comprised various fungicidal agents in Rex 63057 Mildew Resistant Treated Gloss White: tetrachlorphenol, 2052 dry, the regular agent in this formula, and 1/1000 and 1/2000 parts (by weight of paint) of phenyl mercuric borate, phthalate, salicylate, gluconate, nitrate and oleate. Rex 471 Gloss White was used as guide; the primer was Rex 450 Undercoater on all panels, which were both cedar and yellow pine. In spite of our special request that these panels be exposed in a place favorable to mildew growth, very little mildew has formed. This is probably due to the relatively low humidities and the 50% of normal rainfall during the past year.