

MAY RESEARCH REPORT

15.

1965

Coatings and Resins Group

CONFIDENTIAL

GLD006636

TRADE SALESMISCELLANEOUS

May, 1965

Subject: Spred Satin Preservative Study
(NT23017DA263)

Contributors: P. Hawkins, L. Taylor

Summary: To find effective, inexpensive, non-toxic preservatives for Spred Satin, several preservatives, at various levels of concentration, were substituted for Dowicide A and Metasol L in Y-3418 Decorator White.

Discussion: Stability and preservative effectiveness tests of the following are now in progress. Concentration figures are based on total paint and represent the sum of the preservative placed in the grind and the amount contributed by the thickener preservative: Troysan 142, Troy Chemical Co., and Fungitrol 11, Nuodex Products Co. - 0.012%, 0.062%, 0.094%*, 0.112%, 0.262%; Biocide 280, Drew Chemical Co. - 0.006%, 0.019%, 0.057%*, 0.065%, 0.106%; Nalcon 240 and Nalcon 248, Nalco Chemical Co. - 0.005%, 0.025%, 0.064%*, 0.045%, 0.065%.

An asterisk (*) after a concentration figure indicates standard 197-T-27A thickener was used in the let-down of the sample.

All samples appear normal at this time.

Subject: Exposure Test No. 131:

Corrosion Resistant Primers for Trade Sales

Exposed: Cleveland - 45° South - 6 months

Results: At this time the best primers are Y-471 and Y-1851-K. Y-585 and Y-1851-L are a trace poorer. Next comes Y-470, then a Dyphos PG primer, the Y-1851 containing P-7 Lead, and finally an experimental Rustmaster Consumer White Primer containing P-7 Lead. All paints are rated good for corrosion resistance at the scribe with the exception of the experimental primer which is fair. Exposure continuing.

Subject: Exposure Test No. 79:

Polyurethane Florenamel Tinting Base

Exposed: Cleveland - 45° South - 12 months

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Results: Color and gloss retention of Y-880 with 8 oz. per gallon tints of blue and ferrite dramatone are acceptable to good. Exposure continuing.

Subject: Exposure Test No. 134:

Medium Chrome Yellows

Exposed: Cleveland - 45° South - 6 months

Results: Regal X-3218 is equal to standard YW-2 for color retention, tint retention, and gloss. The Regal X-2778 is equal for gloss but slightly poorer for color and tint retention. Exposure continuing.

Subject: Exposure Test No. 146:

Complaint Investigation - BL-74 Fading

Exposed: Cleveland - 45° South - 5 months
New Orleans - 45° South - 3 months

Results: Complaint of 2 month color fade - loss of BL-74, was not substantiated by these exposures. Substantiated by these exposures. Subsequent information supplied cause of complaint - therefore exposure discontinued.

Subject: T102
(NT25004IK154)

Contributors: J. Southwick, J. Bednarik

Summary: British-Titanium Pigments "Tioxide R-CR3"

We have made an initial examination of Tioxide R-CR3 versus Zopaque R-88-S. Our testing was in Japalac Enamel - Tinting White (Y-1218-A). Two lots of R-88-S, two lots of R-CR3, and a single lot of DuPont R-900 were evaluated. The R-CR3's were examined at three levels: an equal replacement of the R-88-S, a 95% replacement, and a 90% replacement. Exterior exposures at Cleveland and New Orleans have been initiated and Weatherometer exposure is starting on these paints and gray tints of these tinting whites.

Initial examination shows the Tioxide R-CR3 to be equal to R-88-S for hiding and tint strength at a 90-92.5% replacement level. At this level improved gloss, appearance, and a noticeably bluer-cleaner tint tone is also observed. The Tioxide R-CR3 seems to be equal to DuPont R-900 for hiding, tint strength and tint tone.

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The spectrum of this sample is an exact match for the spectrum obtained on Dion-6325 Polyester (reported 2-17-65)

* Includes Fumaric

6.) Japco-9660 Pipe Coating (Jamestown P.&V. Co.) -- Madison

DRIES: Lead (small calcium content was found, also)

SOLVENT: Mineral spirits, xylene, super V. M. & P. naphtha, methyl ethyl ketone.

BINDER. An unmodified, P. E. - glycerine - soya - o-phthalic alkyd.

<u>SOLVENTS</u>		<u>BINDER</u>	<u>CONSTANTS</u>	
S-43	69%	P.A.	23.4%	NV 49.4%
S-23	8%	Soya F.A.	64.4%	Acid No. 4.9%
S-342	21.5%			
S-120	1.5%			

7.) 118-605 Light Chrome Yellow Amer-Flint (Am. Lacquer Solvents) -- Elmwood

SOLVENT: Xylene, toluene, isopropanol, cellosolve acetate, ethyl acetate

PIGMENT: Light chrome yellow (lead chromate - lead sulfate), silicates, silica

BINDER: Epoxidized soyabean oil and cellulose acetate butyrate

<u>TOTAL SAMPLE</u>		<u>PIGMENT</u>	<u>SOLVENT</u>
Pigment	35.0%	PbCrO ₄ 76.1%	S-23 37.1%
Solvent	29.3%	PbSO ₄ 14.2%	S-6 36.0%
Binder	35.7%	Silicates 3.9%	S-88 13.0%
		Silica ~ 3%	S-50 12.8%
			S-2 1.1%

<u>BINDER</u>		<u>CONSTANTS</u>	
epoxidized soya	~ 76%	NV	70.7%
C.A.B.	~ 24%	Veh. NV	54.9%

8.) 118-610 Catalyst (Am. Lacquer Solvents) -- Elmwood

SOLVENTS: Xylene, Cellosolve Acetate

SOLIDS: This is the Pentaerythritol esters of "Het" and phthalic acids (acids in large excess)

NV	33.5%	% Het. anly.	63.2%	<u>SOLVENTS</u>
Acid No.	158 (on NV)	P.A.	23.4%	S-23 64.4%
Cl	36.2% (of NV)			S-50 35.6%

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9.) #392 Clear Topcoat (Grand Rapids Varnish - for Plastiwall) -- Nubian

SOLVENT: Toluene, methyl isobutyl ketone, isopropanol, ethyl acetate, naphtha

BINDER: Nitrocellulose, rosin-maleic adduct ester (such as VM-441), and a non-drying alkyd (saturated F.A. -- glycerine-- o-phthalic alkyd). Fatty acid distribution (see below) is a good match for Neo-Fat #18-57 (hydrogenated tallow). No haze was observed when the sample was cooled (overnight in a freezer, at -9°F. both as is, and diluted 1 to 1 with S-6/S-111.)

<u>SOLVENT</u>		<u>BINDER</u>		<u>FATTY ACIDS</u>	
S-6	66.1%	N.C.	33%	Myristic	5.6%
S-111	16.4%	P.A.	6%	Palmitic	30.3%
S-88	12.6%	F.A.	27%	Stearic	56.9%
S-2	2.9%	VM-441 &		Oleic	7.2%
Naphtha	2.0%	Polyol	balance		

CONSTANTS

NV 29.1%
N₂ 4.0% (of NV)

10.) Duracron #300 Modified Acrylic En. (C.P.I.) -- Toronto

SOLVENTS: Toluene, butanol, xylene, naphtha (comparable to S-106), methyl ethyl Ketone.

BINDER: The resin system here is essentially identical to a sample called Duracron #2591 Finishing Varnish (P. P. G. -- for Federal Tin), analyzed in September of 1963 for Elmwood. It consists of Duracron 200*, together with a substantial amount of high N.W. polypropylene glycol (such as Dow's P-2000).

<u>TOTAL SAMPLE</u>		<u>SOLVENT</u>		<u>CONSTANTS</u>	
Pigment	17.3%	S-6	33.1%	NV	51.6%
Solvent	48.6%	S-1	32.6%	Veh. NV	39.4%
Binder	34.3%	S-23	8.5%	N ₂	2.0%
		S-106	21.4%	Veh. Acid No.	5.7% (14.5 on NV)
		S-120	2.6%	H ₂ O	0.5%
		Unk:	1.8%		

* Terpolymer of styrene (most), small amount of ester (very probably ethyl acrylate), and acrylamide formaldehyde, blended with an "Epon" - type epoxy resin (present in fair amount).

11.) Arco En. Reduced for Electrocoating (Arco - for Gibson Refrigerator Co.) -- Nubian

SOLVENT: Toluene, xylene, methyl ethyl ketone, butan

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