

18.
AUGUST RESEARCH REPORT

1964

Coatings and Resins Group

CONFIDENTIAL

N13112

GLD012879

TRADE SALES PRODUCTSOIL PAINT - TRADE

August 1964

Subject: A comparison of chrome yellows and Hansa pigments
(SR9200ZZ196)

Contributors: Green, Davis, Southwick

Summary: Exposure studies show that Hansa Yellow has good color retention in alkyds but fades rapidly in oils. Chrome Yellow has good tint retention in oils but fades rapidly in alkyds.

All exterior oils should be shaded with chrome yellows and all exterior alkyds should be shaded with Hansas.

Regal Yellow X2777 coded YW133 shows superior tint retention as compared to YW-1 in oil paints. Regal Yellow X2778 only shows slightly better color retention. This comparison is based on 9 months exposure at New Orleans and Cleveland.

Subject: Glid-Tone Stains - Reading
(RS9200ZZ196)

Contributors: Hawkins, Kerby

Summary: Two Reading Glid-Tone Stain production samples Y-254 Cherry, P143118 and Y-257 Driftwood, P144284 are equal to out standard Glid-Tone Stains.

Discussion: The two final samples of Glid-Tone Stains, Reading Production, Y-254 Cherry, P143118 and Y-257 Driftwood, P144284 have been evaluated. Both have been found to be equal to our standard Glid-Tone Stains in all respects.

Conclusions: These two stains complete the Reading production of the complete Glid-Tone Stain line. Our tests show that their reproduction is sufficiently close to our standards to be approximately equal in quality in all respects.

Subject: EGL64305 Water Repellent Glid-Tone Stain Vehicle Formulation Change and Exposure Evaluation
(NT23045AH262)

Contributors: Davis, Southwick

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Summary: A change in formulation on EGL65405 has been written up, which eliminates the necessity of heating the material to 200°F in order for the zinc stearate, M438, to go into solution. The change involves replacing S-91, denatured alcohol with S-64 Diacetone alcohol and changes in procedure of mixing, other physical properties are not changed. This enables the stain vehicle to be heated only to temperature to melt wax, (150°F) allowing utilization of steam heat jacketed drums for ease of handling in manufacturing.

Exposures after nine months are very promising, showing excellent durability and good color retention. These exposure panels were prepared

by mixing several of our Glid-Tone Stain colors and our Velvet House Paint colors one to one with EGL64305, water repellent stain vehicle. Panels have been returned for further weathering. The new formulation is EGL64305A

Subject: Y-1851L vs Competitive Primers

Contributor: R. W. Green

Summary: Comparisons have been made of Glidden's Basecoat, Y-1851L, vs eight major competitive primers. Our preliminary tests show Y-1851L to be superior to any other primer.

Our initial tests included brushing, dry, water soak and blister tests. Further tests are being conducted on exterior exposures. These exposures include cedar, white pine, yellow pine, and fir plywood. Blister tests are in progress on the GTMG's and in the deep freeze blister box.

The table below rates each paint tested and the results.

These tests confirm that Y-1851L is a superior, easy brushing, non-staining, blister resistant primer.

Package condition	Viscosity	Grind	Wt/Gal	Hiding as TiO ₂	% Lead	Blister box test	Water soak test	Dry	
Glidden's Basecoat Y-1851L	Very good	75 Ku	3	11.6	2#	0 Lead free	Best No blisters	1st small blisters	5 1/2 hrs
DuPonts 39	Poor	79 Ku	1	12.75	1.4#	Basic carbonate of white lead 13%	7th Large blist.	9th Large blisters	5 1/2 hrs
DuPonts 49	Excellent	67 Ku Too thin	7	9.80	1# Very low	0 Lead free	2nd best few small blisters	2nd Medium blisters	5 1/2 hrs
SWP 450	Good	77 Ku	3	12.55	1.43#	Basic lead carbonate	8th lg. blisters	5th Med. to lg. blisters	6 hrs
SWP A-100 Primer	Poor	79 Ku	2-3	12.53	1.75#	Basic Lead carbonate 13%	9th lg. Blist.	8th lg. blisters	6 hrs
Pittsburgh 1-201	Good	72 Ku	2-3	11.00	1.45#	0 Lead free	3rd Few lg. blist.	3rd Med. to lg. blisters	5 1/2 hrs
Pratt & Lambert 305	Fair	77 Ku	1+	12.33	1.45#	Basic carbonate of white lead 7.8%	4th many med. Blist.	7th lg. blisters	8+ hr
						Basic silicate of White lead 4.7%			

Package condition	Viscosity	Grind	Wt/Gal	Hiding as TiO ₂	% Lead	Blister box test	Water soak test	Dry
Sears Master Mix 2190-4	Fair to poor	74 Ku	0-1	12.52	1.25#	Basic silica of White Lead 5th lg. blisters	4th Med. to lg blisters	7 ¹ / ₂ hrs

Dutch Boy 010	Good	86 Ku	3-4	13.84	1.42#	50-50 basic carbonate of white lead and silicate of white lead 49.7%	6th many med. blist.	6th many med. blist.	5 hrs
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TRADE SALES PRODUCTS

(S1100001170)

August 1964

LATEX PAINTS - EXTERIOR

Subject: One Coat Spred House Paint
(NT23025BJ362)

Contributors: W. Kirkpatrick, D. Glauner, N. Petro, E. Saville

- Summary:
1. Latex paints made on the Cowles have developed crystals or beads. Results to date indicate the cause is high shear on aluminum or magnesium silicates. Studies continue.
 2. Field trials are being made on the alkyd-latex and the oil systems.

Summary: Alkyd Modified Acrylic Paints - Made With Cowles Dissolver

Roughness of paint films seem to arise from:

1. Agglomeration
2. Crystallization

Temperature, order of addition and grinding time are some of the factors controlling agglomeration.

ME4-220-1 using VICTAMIDE for TKPP was one of the attempts to prevent crystal formation. ME4-233-2 TKPP, TRITON X-100, DAXAD-30 surfactant combination resulted in crystal formation.

ME4-234-2 DAXAD 30, CTA-639 combination resulted in crystal formation together with a batch made with TKPP omitting DAXAD 30. (Table 1 & 2). An unmodified latex formula with Tamol 531, TRITON CF-10 also resulted in crystal formation.

Hence, variation of the surfactants showed no improvement in crystal prevention, consequently suspicion was cast on pigment selection. By process of elimination it is assumed the presence of the silicates ALSILATE "W" and NYTAL 300 in ME4-216-1 type of formulas (Table 1 & 2), cause crystal formation. ASBESTINE 3X was another silicate tried that showed an even more numerous crystal formation.

ME4-234-1 (substituting SNOWFLAKE for the silicates) appeared without crystals.

ME4-216-1 formula without TiO_2 , using ALSILATE "W" and NYTAL 300 showed evidence of crystals. Drawdowns on glass plates after the addition of each ingredient have not shown crystals until the addition of either ALSILATE "W" or NYTAL 300. Further studies are necessary on the above behavior.

Exterior Exposure:

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RFT-64034, ME4-233-1 White alkyd Modified Acrylic
Mr. Maurice Wetzel, 46 Meadow Drive, Berea

Oil Emulsion Exterior Paints

Field Trials - See Table 3

RFT 64030, EE4-233-1, Grey Acrylic Alkyd
Mr. Bordell Funk, 23125 West Road, Westview

RFT 64036, EE4-239-2, White Linopol - Sherwin Williams
Mr. Jack Knapp, 26815 Sprague Road, Columbia Station

RFT 64031, EE4-203-1, White Cargill 1308

To be compared with above

RFT 64032, EE -205-1, White Arolin 1652, ADM

To be compared with above

EE4-234-1 - Green trim for above

EE4-239-1 was made to check ease of manufacture of Cargill 1308 on the Cowles. Sufficient difficulty was encountered to warrant the making of future batches or plant batches on the pebble mill. As procedures are developed the Cowles may become acceptable.

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TABLE 1

SPRED HOUSE PAINT - AUGUST 1964

		ME4-216-1	ME4-217-1	ME4-219-1	ME4-220-1	ME4-233-2
S-14	Water	60.0	do	39.2	254.2	253.5
CH-473	TKPP	3.0	do	do	-	3.0
W-208	Zopaque R-88	220.0	210.0	225.0	220.0	do
W-91	" SD	30.0	-	-	30.0	do
W-223	Alsilate "W"	30.0	do	-	30.0	do
W-188	Nytal 300	101.7	101.4	75.0	101.7	do
W-260	Zopaque LDC	-	50.0	-	-	-
CH-418	Victamide	-	-	-	2.0	-
CH-280	Triton X-100	-	-	-	-	4.0
M-487	QP-4400	-	-	-	5.4	5.0
CH-181	Ethylene Glycol	-	-	23.2	do	do
CH-450	Daxad 30	7.0	do	do	do	do
195-T-27	QP-4400 (3%)	220.0	do	do	-	-
CH-474	CTA-639	4.0	do	do	do	-
CH-447	Defoamer 357	2.5	do	do	do	do
CH-380	Hg Fungicide	1.5	do	do	do	do
VM-885	W.S. Acrylic	75.0	do	do	do	do
V-855	Alkyd	66.4	do	do	do	do
S-148	Refined Kerosene	12.0	do	do	do	do
VM-432	Pb Drier	5.0	do	do	do	do
VM-433	Mn Drier	1.5	do	do	do	do
CH-444	Balab-746	4.0	do	do	do	do
RCR-0400B	Acrylic	283.0	do	do	do	do
W-121	Snowflake	-	-	75	-	-
	Yield in Gals.	100	do	do	do	do
	Pig. Vol. in Gals	13	do	do	do	do
	Vehicle Vol.	24	do	do	do	do
	PVC %	35	do	do	do	do

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TABLE 2

SPRED HOUSE PAINT - AUGUST 1964

		<u>ME4-223-1</u>	<u>ME4-223-2</u>	<u>ME4-234-1</u>	<u>ME4-234-2</u>	<u>ME4-239-1</u>
S-14	Water	253.5	246.0	196.0	192.0	263.0
CH-473	TKPP	3.0	do	do	-	3.0
W-208	Zopaque R-88	220.0	do	do	do	do
W-91	" SD	30.0	do	do	do	do
W-223	Alsilate "W"	30.0	do	-	30.0	do
W-188	Nytal 300	-	101.7	-	101.7	do
W-121	Snowflake	97.6	-	128.7	-	-
M-487	QP-4400	6.0	do	3.7	do	5.0
CH-181	Ethylene Glycol	23.2	do	do	do	14.0
195-T-27	QP-4400(3%)	-	-	60.0	do	-
CH-450	Daxad 30	7.0	do	do	10.0	7.0
CH-474	CTA-639	4.0	do	do	do	do
CH-447	Defoamer 357	2.5	do	do	do	do
CH-380	Hg Fungicide	1.5	-	1.5	do	do
VM-659	Super Ad It	-	8.0	-	-	-
VM-885	W.S. Acrylic	75.0	do	do	do	do
V-855	Alkyd	66.4	do	do	do	do
S-148	Refined Kerosene	12.0	do	do	do	do
VM-432	Pb Drier	5.0	do	do	do	do
VM-433	Mn Drier	1.5	do	do	do	do
CH-444	Balab 746	4.0	do	do	do	do
RCR-0400C	Acrylic	283.0	do	do	do	do
	Yield in Gals	100	do	do	do	do
	Pig. Vol.	13	do	do	do	do
	Vehicle Vol.	24	do	do	do	do
	PVC %	35	do	do	do	do

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TABLE 3

		EE4-233-1	EE4-234-1	EE4-239-1	EE4-239-2
W-208	Rutile TiO ₂	233.1	234.1	239.1	239.2
W-91	Anatase TiO ₂	-	-	50.0	45.0
W-188	Nytal 300	112.2	-	100.0	100.0
W-121	Calcium Carbonate	110.0	-	-	-
W-173	ASP 400	-	142.0	-	-
M-239	Celite 281	-	35.0	-	25.0
W-35	Leaded Zinc Oxide	-	-	-	140.0
ZZZ55LO	Zinc Oxide	-	125.0	do	-
Zinosperse A		-	-	-	14.0
Tanol 850		-	-	-	7.0
CH-468	KTPP	-	-	6.0	2.0
CH-473	TKPP	3.0	6.0	-	-
CH-422	Tanol 731	-	12.0	do	-
CH-474	Igepal CTA 639	4.0	-	-	-
CH-450	Daxad	7.0	-	-	-
M-484	Surfynol TG	-	2.0	do	-
CH-280	25% Triton X-100	-	18.0	16.0	-
CH-181	Ethylene Glycol	23.2	12.0	do	-
VM-659	Super-Ad-it	-	2.0	do	1.0
CH-380	Phenyl Mercuric Borate	1.5	-	-	-
195-T-27	Natrosol 250 MR 3%	75.5	50.0	-	-
Natrosol 250 HR		-	-	37.5	149.0
Acrysol G-110		-	15.0	do	5.0
M-487,	Natrosol 250 MR 100%	3.3	-	-	-
VM432	Nuodex Pb 24%	5.0	-	-	-
VM-433	Nuodex Mn 6%	1.5	-	-	-
Witco 24% Pb		-	-	-	8.6
Witco 6% Co		-	-	-	4.3
Advacar 6% Mn		-	2.4	2.2	-
Advacar 6% Co		-	2.4	2.2	-
Advacar 24% Pb		-	9.4	9.0	-
Linopol	Linseed Oil Emulsion	-	-	-	360.0
Cargill 1308	Linseed Oil Emulsion	-	373.4	367.0	-
RCR-0400	Acrylic Latex	283.0	-	-	-
VM-885	Water Solution Acrylic	75.0	-	-	-
V-855-A	Alkyd	66.4	-	-	-
S-148	Refined Kerosene	12.0	-	-	-
CH-444	Balab 746	4.0	-	-	-
CH-447	Hercules #357	2.5	-	-	-
Colloids 581-B		-	4.0	do	2.0
S-14	Water	178.0	195.0	237.5	169.3

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