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TABLE I

H.P. #1 Lead Free House Paint -
Fig. 2.2# W-91, 0.8# W-170, 2.5# W-188

H.P. #2 Y-1800 Type
Fig. 2.8# W-35, 0.3# W-1, 1.3# W-91, 0.5# W-170,
1.1# W-188

H.P. #3 Y-1867 Type
Fig. 4.0# W-6, 1.0# W-91, 1.0# W-170, 2.4# W-188

Exposed 33 months vertical south.

Formula Type	Vehicle	CLEVELAND				NEW ORLEANS			
		Chalk	Mildew	Checking	General Appearance	Chalk	Mildew	Checking	General Appearance
<u>Stds</u>									
Y-1800	-	10	4	10	ok	2	8	10	OK
Y-1850	-	10	4	10	ok+	3	7-8	9-10	ok-- fair
Y-1867	-	10	4	10	ok+	2	10	10	ok+
Y-2218	-	10	4	10	ok	4	5-6	10	poor
RGL-28040	-	10	4	10	fair	6	3	10	very- poor
HP#1	899-10	10	3	8-9	fair	4	5	10	poor
"	862-24	10	3	8-9	fair	4	4	10	poor
"	862-37	10	3	8-9	fair	4	4-5	10	poor
"	862-39	10	3	8-9	fair	4	4-5	10	poor
"	890-41	10	3	8-9	fair	4	5	10	poor
"	890-48	10	3	8-9	fair	4	5	10	poor
"	GRV-3140	10	3	8-9	fair	4	5	10	poor
Y-1800 Type	899-10	10	4	10	ok	4	10	10	ok+
"	862-24	10	4	10	ok	4	10	10	ok+
"	862-37	10	4	10	ok	4	10	10	ok+
"	862-39	10	4	10	ok	4	10	9	ok+
"	890-41	10	4	10	ok	4	10	10	ok+
"	890-48	10	4	10	ok	4	10	10	ok+
"	GRV-3140	10	4	10	fair	4	10	8	ok+
Y-1867 Type	899-10	10	4	10	ok	2	8-9	10	ok-
"	862-24	10	4	10	ok	2	9	9	ok+
"	862-37	10	4	10	ok	3	8	10	ok
"	862-39	10	4	10	ok	3	7	9-10	fair
"	890-41	10	4	10	ok	3	6-7	10	fair
"	890-48	10	4	10	ok	2	9-10	10	ok
"	GRV-3140	10	4	10	ok	2	10	7-8	ok

OIL PAINT - TRADE

Subject: Exposure evaluation of house paints containing experimental long oil isophthalic alkyds.

(TR-4200E3, TR-4203E2, ST-4206E2)

Contributors: R. W. Green, J. E. Southwick, J. J. Bednarik

Conclusions &

Discussion: Thirty-three months New Orleans and Cleveland exposures:
Reference: Lab Book #185 - Exposure Series NO9G & E96
Quarterly Research Reports
Fourth Quarter, 1960, C-52
Third Quarter, 1959, C-81

Alkyds Evaluated:

899-10	80% Linseed-Tall Oil IPA
862-24	85% Linseed IPA
862-37	85% Linseed IPA
862-39	80% Linseed IPA
890-41	90% Linseed IPA
890-48	85% Tall Oil IPA
GRV-3140	81.5% Linseed Polyruethane

These vehicles were exposed in Y-1800, Y-1867, and a lead-free blister resistant type house paint formulation. No significant differences could be detected between these vehicles in any of the formulations exposed. There was however, a substantial difference between the three formulations. The Y-1800 and Y-1867 types were much better with regard to mildew and general appearance as compared to the lead and zinc free formulation.

Seven month New Orleans and Cleveland exposures:

Reference - Lab Book #215, exposure Series 2-18 & N-2-18

Alkyds Evaluated:

1400-3	85% Linseed IPA
1400-12	85% Tall Oil IPA
V-869	60% Soya OPA
V-855	75% Linseed OPA

The primary formulation tested was a enamelled house paint based on V-869. Modifications of $3/4$ # Anatase Titanium per gallon, $1\frac{1}{2}$ # Anatase Titanium per gallon, $1\frac{1}{4}$ and $2\frac{1}{2}$ gallons mildewcide (VM-659 Super-Ad-It) per one hundred gallons, and 2# Busan 11 per gallon were included. These paints were exposed self-primed and over Y-1851.

Results noted in Cleveland exposures of the enamelled house paint (V-869, 0-5) with various levels of Anatase TiO_2 were greater yellowing with the Linseed IPA and slightly better general appearance and resistance to dirt accumulation with the Tall Oil IPA. Only the paints containing $1\frac{1}{2}$ # Anatase TiO_2 per gallon were equal in appearance to Y-1800 or Y-1850. The Y-1892 was poor in comparison to Y-1800 or Y-1850. No differences were noted between self-priming or using Y-1851 Primer for the enamelled house paints.

The same paints at New Orleans showed several general results. All were very badly covered with mildew. All of the alkyds were the same. Doubling the mildewcide showed no improvement. In all cases a slight improvement in mildew resistance was noted when Y-1851 was used as against self-priming. The use of none, $3/4$ #, or $1\frac{1}{2}$ # Anatase TiO_2 per gallon all yielded heavy mildew growth. The higher levels of Anatase TiO_2 should show less mildew.

Y-1800 over Y-1851 was fairly mildew resistant at New Orleans and slightly better than Y-1850. Y-1892 was badly mildewed.

The paints containing Busan 11 were the best looking ones at New Orleans. These same paints, when exposed at Cleveland showed slightly poorer general appearance and dirt accumulation than their counterparts without Busan, because they were absolutely non-chalking.

TABLE II

Trim & Trelis Quality Enamelized House Paint

Pigm. 2.65# W-208, 0.10# W-188, 0.16# W-154
(W-91 replacements for W-208)
(Buson 22 additions)

Veh. V-869 0-5, 1½ 1. oz. VM-659/gallon

Buckman Lab's 9258 c House Paint

Pigm. 2.0# W-208, 1.0# W-188, 2.5# Busan 22
Veh. V-855

Ti Pig 6131 Fume & Stain Resistant House Paint

Pigm. 1.7# W-208, 1.7# W-91, 2.7# W-188
Veh. V-869, 0-1, 0-63, chlorowax 70

Exposed 7 months south verticle.

Top Coat (Vehicle)	Primer	W-91/gallon	VM-659 level	CLEVELAND			NEW ORLEANS		
				Chalk	Dirt	General Appearance	Chalk	Mildew	General Appearance
<u>Stds.</u>									
Y-1800	Y-1851	-	-	5	5	ok	5	9	ok
Y-1850	Y-1851	-	-	5	5	ok	6-7	6-7	fair
Y-1892	Y-1851	-	-	9	3-4	fair	10	4	poor
<u>Trim & Trelis Enamelized H.P.</u>									
V-869, 0-5	self	-	std	10	3	poor	10	2	Bad+
"	1851	-	"	10	3	poor	10	3	poor
"	self	-	dbl	10	3	poor	10	2	bad+
"	1851	-	"	10	3	poor	10	3	poor
1400-3	self	-	std	10	3	poor	10	2	bad+
"	1851	-	"	10	3	poor	10	2	bad+
"	self	-	dbl	10	3	poor	10	2	bad+
"	1851	-	"	10	3	poor	10	2	bad+
1400-12	self	-	std	10	4	poor	10	2	bad+
"	1851	-	"	10	4	Poor	10	2	bad+
"	self	-	dbl	10	4	poor	10	2	bad+
"	1851	-	"	10	4	poor	10	2	bad+
V-869, 0-5	self	0.75#	std	10	3-4	fair	8-9	3	poor
"	1851	"	"	10	3-4	fair	8-9	4	fair-
"	self	"	dbl	10	3-4	fair	8-9	3	poor
"	1851	"	"	10	3-4	fair	8-9	4	fair-

TABLE II (Continued)

Top Coat (Vehicle)	Primer	W-91 gallon	VM-659 level	CLEVELAND			NEW ORLEANS		
				Chalk	Dirt	General Appearance	Chalk	Mildew	General Appearance
1400-B	self	0.75#	std	10	3	fair-	9	2-3	poor
"	1851	"	"	10	3	fair-	9	2-3	poor
"	self	"	dbl	10	3	fair-	9	2-3	poor
"	1851	"	"	10	3	fair-	9	2-3	poor
1400-12	self	0.75#	std	10	4-5	fair	9	4	poor
"	1851	"	"	10	4-5	fair	9	4-5	poor
"	self	"	dbl	10	4-5	fair	9	4	poor
"	1851	"	"	10	4-5	fair	9	4-5	poor
V-869, 0-5	self	1.50#	std	6	5	good	6-7	4	fair-
"	1851	"	"	4-5	6	good	5	5	fair
"	self	"	dbl	6	5	good	6-7	4	fair-
"	1851	"	"	4-5	6	good	5	5	fair
1400-3	self	1.50#	std	5	5	ok	5	4	poor
"	1851	"	"	5	5	ok	5	4	poor
"	self	"	dbl	5	5	ok	5	4	poor
"	1851	"	"	5	5	ok	5	4	poor
1400-12	self	1.50#	std	6	6	ok	4-5	4	fair-
"	1851	"	"	6	5	ok	4-5	4-5	fair-
"	self	"	dbl	6	6	ok	4-5	4	fair-
"	1851	"	"	6	6	ok	4-5	4-5	fair-

Exp. H.P. (2.0# Busan/gallon)

V-869	self	-	-	10	4	fair	10	9	good
1400-3	"	-	-	10	4	fair	10	9	good
1400-12	"	-	-	10	4	fair	10	9	good

Buckman 92580 H.P. (2.5# Busan/gallon)

1400-3	self	-	-	10	4	fair	10	9	good
1400-12	"	-	-	10	4	fair	10	9	good

Ti Pig 6131 H.P.

V-869, 0-1	Y-1851	-	-	2	6	good	2	9	good
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Other formulations exposed included two Oronite house paint formulas, a Ti Pig formulation, and Buckman Lab's 9258c house paint formulation. Also tested were General Paint's 1002 (Fume Resistant House Paint) and three Jones-Dabney (two top coats and one primer) Syntex house paint samples utilizing alkyds similar to V855.

The Oronite formulas (CR-21947 stain & blister resistant zinc free H.P. and CR-22024 stain & blister resistant zinc containing H.P.) showed no difference between the alkyds tested. Neither formulation looked as good as Y-1800 at Cleveland. The CR-22024 was very good at New Orleans and the CR-21947 was poor.

Buckman Lab's 9258c H.P. formula (2.5# Busan per gallon) showed no difference with any of the vehicles tested. At Cleveland greater dirt accumulation than Y-1800 or Y-1850 was noted. At New Orleans excellent appearance and complete mildew resistance occurred.

General Paints 1002 Fume Resistant (alkyd type) H.P., when compared to Y-1850, was slightly worse at Cleveland and very poor at New Orleans. This was when exposed both self-primed and over Y-1851. The Y-1850 was not as good as the Y-1800 at either location.

The Jones-Dabney paints were slightly poorer than Y-1800 at Cleveland and much poorer at New Orleans. Their primer was equal in durability only to Y-1851 at both locations with either Y-1800 or Y-1892 top coats. Ti Pig 6131 Fume & Stain Resistant H.P. formula using Butile & Anatase and Chlorowax 70 was equal to Y-1800 at either location. It was slightly better than Y-1850 at Cleveland and equal at New Orleans.

These observations are a condensation of the data taken from the panels. Complete data is available in case of further or specific interest. The panels will be re-exposed and reported at the next examination.

TRADE SALES PRODUCTS

OIL PAINT-TRADE

January 1963

Subject: Exterior Exposures - ST4310E2

18M in Mound City Paints - Chemet 118 Equal to 18M
O-286, O-315, O-398 Compared in House Paint
Machine Grade Dramatone vs. Old Dramatone
Shake Kote vs. Y2750
EGL62006 Compared to Competitive Primers
Non-Reactive Zinc (W219) Compared to Standard Zinc

Contributor: R. W. Green

Conclusions: Standard formulas of Mound Cities LZT644, LZT611, LZT607B and LZT605 using 35% leaded zinc were compared to formulas made with 18M (W249). No difference could be found and the 18M formulations are judged equal to the standard.

Three lots of Chemet 118 leaded zinc were compared to 18M (W249) in Y1800. The results were equal and we recommend that Chemet 118 be added as a source of W249.

O-286 bodied linseed oil was compared to O-315 and 398 bodied soya oil. Little difference was noted in these vehicles when comparing panels prepared in Cleveland and shipped to New Orleans. However, panels actually prepared in the field at New Orleans showed considerably more mildew on the soya paints than on the linseed paints. This indicates less dry on the part of soya as compared to linseed. Exposures were made in Y1892 and Y1850.

The new machine grade dramatone was compared to the old quality dramatone in Y1850. We could find no difference in the two qualities.

New Orleans exposures of Shake Kote shingle paint shows an appreciable increase in mildew compared to Y2750, Velvet House Paint.

EGL62006 our new lead free primer was compared to DuPont's 49, Sherwin-William's A-100 primer and Syntex 1260B10. Y1850 was used as a standard. At present, very little can be determined from these panels. The EGL62006 does show a slight advantage in mildew resistance under Y3600 and Y2750. EGL62001 (a Busan containing house paint) was also used as a primer in this series. EGL62001 uses 250# of Busan and looks very good for mildew resistance.

Non-reactive (Dehorned) zinc oxide, W219 does not have good mildew resistance as compared to standard zinc oxide (W33). 75# of W219 and 25# of W218 were equal to 50# of W128 for mildew resistance in Everon House Paint.

R. W. Green

GLD37599

MULTI-PANEL PAINT INSPECTION SHEET

Printed in U.S.A. 9/61

TEST NUMBER N-1-39	PROBLEM NUMBER SR 4201 R1 ST 4203 P2	COLOR White, Green, Black	INSPECTED BY Wade G
LOCATION New Orleans	EXPOSURE N (S) E W	VERT.	DATE 12-61

PANEL OR PAINT NUMBER			PROPERTIES																
Cedar			6 Mos. Moist No. Mildew 11-19-62 in Mildew chalk																
45t																			
			ISTECH																
1	{	517	4	7-8 2															Y-1851
		518	4	7-8 2															"
2	{	519	2	2 10															"
		520	2	2 10															"
3	{	521	6	3 9															"
		522	6	3 9															"
4	{	523	3	3 10															"
		524	3	3 10															"
5	{	525	4	7-8 2															"
		526	4	7-8 2															"
		527	4	7-8 2															"

CONTINUED

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TRADE SALES PRODUCTS

OIL PAINT-TRADE

January 1963

Contributor:

J. E. Southwick

Subject:

Compare Mildew Resistance and Color Retention of Wollastonite vs. Calcium Carbonate in Endurance Tint Base 1W125. Comparison of Titanium Calcium Pigment (W180) vs. Pure Rutile Titanium (W208) Mixed with Magnesium Silicate.

Summary-Conclusions:

At two years south exposure Wollastonite shows slightly more chalk than calcium carbonate at Cleveland while at New Orleans there is very little difference in chalk. While there was no mildew at Cleveland the New Orleans panels did mildew, with calcium carbonate showing less mildew than Wollastonite. On color retention calcium carbonate was superior to Wollastonite at Cleveland and equal at New Orleans. The white paints were dirtier with calcium carbonate.

Paints were made using 1.5#, 2.0# and 2.6# zinc oxide. All paints were exposed as whites and 4 1 oz. tints using Dramatone Blue and Ferrite. All panels were primed with Y1851 Endurance Base-coat and given one coat of test paint on four foot cedar siding and exposed at Cleveland and New Orleans. The results are tabulated on the attached sheet.

J. E. Southwick

GLD37601

Panel No.	Pigmentation	NEW ORLEANS				CLEVELAND			
		Chalk	Mildew	Retention	Color	Chalk	Mildew	Retention	Color
118	W208-1.2#, W188-2.3#, W33-2.6#	8	5	--	White	6	10	7	7
119	"	8	5	5	Ivory	6	10	8	8
120	"	8	6	4	Blue	4-5	10	8	8
121	W180-3.5#, W63-2#, W33-2.6#	8	7	--	White	6-7	10	6	6
122	"	8	7	6	Ivory	6-7	10	8-9	8-9
123	"	8	7	6	Blue	6-7	10	8-9	8-9
133	W208-1.2#, W215-4.0#, W33-2.6#	8	4	--	White	6	10	7	7
134	"	8	4	6	Ivory	6	10	7	7
135	"	7	4	5	Blue	6	10	7	7
136	W208-1.28#, W215-4.5#, W33-2.0#	9	3-4	--	White	6	10	7	7
137	"	9	3-4	6	Ivory	6	10	7	7
138	"	8-9	3-4	5	Blue	6	10	7	7
139	W208-1.35#, W215-5#, W33-1.5#	8	3	--	White	6	10	7	7
140	"	8	3	6	Ivory	6	10	7	7
141	"	8	3	5	Blue	6	10	7	7
142	W208-1.2#, W63-5#, W33-2.6#	8	7	--	White	7	10	5	5
143	"	8	7	6	Ivory	7	10	8	8
144	"	7	7	5	Blue	7	10	8	8
145	W208-1.2#, W63-5.4#, W33-2.0#	8	7	--	White	7	10	5	5
146	"	8	7	6	Ivory	7	10	7	7
147	"	7	7	5	Blue	7	10	7	7
148	W208-1.35#, W63-5.8#, W33-1.5#	8	6	--	White	7	10	5	5
149	"	8	6	6	Ivory	7	10	7	7
150	"	8	6	5	Blue	7	10	7	7

White exposed at New Orleans were not rated for color due to the heavy mildew.

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TRADE SALES PRODUCTS

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OIL PAINT - TRADE

February 1963

Subject: Flocculation in Y-500 Barn Red H.P.
(ST-4311-E1)

Contributors: J. Bednarik, J. Southwick

Summary-

Conclusions: Refer: Report of February 26, 1963 to Dr. H. J. Kiefer
Title: BUY-OUT 0-62

Subject: Gloss Enamel Improvement
(ST-4313-G2)

Contributors: J. Bednarik, J. Southwick

Summary-

Conclusions: Due to problems of seeding being experienced in Japalac Gloss Enamel we have initiated work to examine a zinc-free gloss enamel formulation.

Discussion: We have indications that a zinc-free enamel of high PVC (in the range of 25 - 35) has sufficient non-yellowing to replace Japalac (zinc containing and PVC-17). Our work has just started and no results are available. Yellowing tests will be initiated and results available in three months.

We are also at the same time investigating the possibility of removing the lead drier from the proposed Japalac formula to increase the resistance to discoloring or staining.

Subject: Testing Estide Oils in House Paints with the objective of improving mildew resistance.
(TR-4300-E3)

Contributors: R. Green, J. Southwick

Summary-

Conclusions: Grinds were made on the Y-1850 formula using Estide Oils submitted by the resin laboratory, 1437-28 and 1437-25. These paints showed harder dry than standard oils. Initial grinds indicate that these materials are more difficult to "wet out" than standard oils. More grinds are planned using different levels of zinc oxide and exposures are being prepared.

Subject: To improve the brushing of the Endurance House Paint line.
(ST-4310-E2)

Contributors: R. Green, J. Southwick

Summary-

Conclusions: The work mentioned in the January 1963 report has been continued with more work on thin bodied oils. Some concern

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has been expressed concerning the durability of paints containing thinner bodied oils. Along this line of thinking we are comparing paints made with different degrees of body to determine any effect on durability. In addition we are adding rutile titanium dioxide to our paints to decrease the erosion rates.

TRADE SALES PRODUCTSMILL PRIMERS

April 1963

Subject: Mill Applied Primers - SI4317K3

Contributors: J. Watson, R. Toth

Summary-

Conclusions: During the month work was done on Zytel 61 nylon resin. We continued with the industrial high build coatings, e.g. hard boiled mastic, vinyl. Also, work was continued on the tris-amino styrenated alkyd vehicles continually being prepared by Mr. T. Cashie. Finally, a study was started on the difference between lead and Busan in our basic primer formula.

Discussion:

A solution of Zytel 61 nylon resin was made by refluxing 15% of the solid resin in a 80/20 mixture of ethanol and water. We then made a grind using only this cut and TiO_2 . The material webbed very badly on spraying and could not be corrected. We did succeed in making a set of panels which was exposed in the weatherometer. After 150 hours, all the panels were complete failures. No additional work has been planned.

Tests are still continuing with the industrial high build coatings. A series is on the blister box while another is following a cycle of 4 hours soak at 180° F. and 20 hours in a 145° F. oven. So far, our best system is the hard boiled mastic with two coats of vinyl over it. The tests will continue since most of the panels are holding up very well. The tris-amino styrenated alkyd vehicles have been tested in our primer formulas and found to be far from adequate for mill application. The biggest complaint is a residual tackiness that remains for at least 30 minutes. We are attempting to iron out these difficulties with the resin laboratory.

A series is being prepared that will show a difference between Busan and lead. Our basic primer formula was used with Busan 11, lead silicate W236, and lead carbonate W104.

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TRADE SALES PRODUCTSOIL PAINT - TRADE

May 1963

Subject: Test Easy Dispersing Chrome Yellow in the Pilot Plant
Cowles (SR9201R1)

Contributors: R. W. Green, J. E. Southwick

Discussion: As a follow up of work done on a laboratory basis, Cowles grinds of three easy dispersing chrome yellows were made in the pilot plant. These chrome yellows were Kentucky Colors 3-0 Softex Light Yellow, Imperial's 3320, and Mineral Pigment's Jet Milled Medium Chrome Yellow. Grinds were made on a special 369Y2 formula. This formula calls for: 220# pigment, 100# V869, 12# S43. Grinding procedure calls for a 20-30 minute grind on the Cowles at 140° F.

The results of these grinds were not satisfactory. The Mineral Pigment chrome yellow while not dispersing to the desired 7-8 grind, did reach a clean 5-1/2 - 6 grind. This is not too bad when compared to standard YW2 which will only grind to a 1 under similar grinding procedures. The Imperial 3320 ground to a very dirty 5 and the Kentucky Color ground to a 4-6.

The main difficulty in grinding these chrome yellows is in the inability of the Cowles to operate at a speed sufficient to grind and still maintain a temperature of 140° F. Further at grinding speeds in these heavy pastes the Cowles will overheat if grinding is prolonged. This is, of course, the reason we are looking for a pigment that will disperse without too much work.

In the near future we are planning to repeat this work with a new easy dispersing chrome yellow from du Pont.

Correlation of pilot plant grinds of the chrome yellows and laboratory grinds on the Cowles are not too good. The reason is mainly due to easier control of temperature and a lesser degree of overheating of the Cowles in the laboratory.

Subject: To Give Better Gloss Retention and Mildew Resistance in Long Oil Alkyd Trim Paints (ST4310E2)

Contributors: R. W. Green, J. E. Southwick

Discussion: Three long oil alkyds similar in composition to Sherwin-Williams Dyal XAD-10 have been compared in Endurance trim colors. The three varnishes involve variations to check the effects of fatty acid composition. These varnishes are 79A51 - an 80% N.V. 70% oil length 70FA/PA/PE alkyd, 79A55 - an 80% N.V. 70% oil length (26% linseed, 44% tall) TOFA - linseed/PA/PE alkyd, and 79A61 - an 80% N.V. 70% oil length soya/PA/PE alkyd.

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All of these alkyds look very good on initial test. Exposure panels are being made. Also work has been started to find a bodying agent for this type of material. At present Attagel 30 looks very good.

Subject: Busan House Paint (ST4310G2)

Contributors: R. W. Green, J. E. Southwick

Discussion: An 85% TOFA/IPA alkyd at 100 N.V. has been tested in the EGL62001 formula. This alkyd is similar to a TOFA/IPA alkyd suggested by Amoco. The level of Busan has been dropped from 250# to 200# per 100 gallons. This formula shows good dry and excellent gloss. No wrinkling was found as was often the problem with EGL62001.

We are working on an Attagel 30 addition to this paint to overcome some of the brush drag encountered in EGL62001 which uses RCR6164, linseed alkyd.

We hope to have field tests on this material before cold weather sets in.

Subject: Rustmaster (Y470) Primer (ST4314P2)

Contributors: J. Bednarik, J. Davis, J. E. Southwick

Discussion: We have begun work to examine two pigments - Hammond P-7 lead and Buckman lab's Busan 11-MI as possible replacements for zinc chromate yellow (YW-77) as the anti-corrosion pigment in Rustmaster Primer Y470. Lower cost and increased corrosion inhibitance are the objectives.

Our work has not progressed sufficiently to report testing results as yet. Exterior exposure, humidity and salt-fog testing, and stability testing is planned.

Subject: Semi-Gloss Enamel Odor (ST4313G2, ST4318V2)

Contributors: J. Bednarik, J. E. Southwick

See report of May 23, 1963 to Dr. H. J. Kiefer

Subject: Alkyd-Polyurethane Florenamel Formulation (ST4306Y3)

Contributors: J. Bednarik, J. Davis, J. E. Southwick

Discussion: Based on initial exposure and Tabor abrasion results we have begun a reformulation of the Florenamel line to use a vehicle system of equal parts on a non-volatile basis of an alkyd (V869) and a modified polyurethane (RCR-5050). Six month exposures on wood and metal at New Orleans and Cleveland have shown this vehicle combination to give a Florenamel of superior gloss retention and chalk resistance. Tabor abrasion tests

TRADE SALES PRODUCTSOIL PAINT - PAINTER

June 1963

Subject: Development of a fast dry exterior house paint primer that can be recoated in 2 - 4 hours.
(ST4329P2)

Contributors: Green, Southwick

Summary-

Conclusions: Several fast dry primers are now being evaluated. These primers are based primarily on two formulas. The first is GP52783D using Aroplaz 7310 X-50. The second formula is a Busan primer developed by Mr. Watson using RCR6132 (V891 in S23). Both of the above formulas are mill primers.

We have modified the Busan primer by substituting solvents in the formula and by variations in the alkyd. Three similar alkyds have been tested in this primer, a 60% NV soya Isophthalic, a 60% linseed Isophthalic alkyd, and a 60% NV Safflower Isophthalic alkyd.

The GP52783D formula has been modified by solvent substitution and by replacing lead silicate with lead carbonate.

In addition to these formula a third primer has been developed using the RCR6132 family of varnishes. This primer is lead free and does not use Busan.

Exposure tests are being prepared and will include fur plywood, cedar, yellow pine, and white pine.

Blister test will be run on the blister box and in Mr. Saville's blister cabinet.

Subject: ADM Soyagel for use in Low Cost House Paint

Contributors: Davis, Southwick

Summary-

Conclusions: Work has begun using ADM Soyagel in a low cost house paint formulation. This material is supposed to have thixotropy and excellent brushing. After making one experiment this material looks interesting.

GLD37608

TRADE SALES PRODUCTS

MISCELLANEOUS

October 1963

Subject: Evaluation of Imperial X2777 Regal Lt. Yellow and Imperial X2778 Regal Med. Yellow for use in our 369 line for better color retention.
(SR8201R1)

Contributors: Davis, Southwick

Summary: Work has started comparing Regal X2777 Lt. Yellow to YW-1 and Regal X2778 Med. Yellow to YW-2 presently being used in our 369 line. Tints of Y1892 and Y4575 have been made at both 1 loz and 4 loz levels. Initial tests show comparative colors very close in tint strength and color tone.

Exposure panels of these materials are being prepared for examination of possible color retention of the Imperial materials..

Subject: Exposure Examination

Contributor: Bednarik

F-131-133 3 Panels 23 Months Retired

Silicone Enamel & S.G. Enamel
Checking & chalk present - outweigh gloss retention

F-153-155 3 Panels 23 Months Retired

Spred Lustre with Busan II
Equally poor gloss and chalk, but increased mildew with the Busan II

Series N-1-9 4 Panels 20 Months Continuing

Black Gloss Enamels - Y-1207, Y-4551, Dulux, & S.W. Automobile.
Best gloss with Y-1207, then S.W., and Dulux & Y-4551 equal.
Best color S.W. with Dulux next and Y-1207 & Y-4551 equal.

Series N-1-16 2 Panels 20 Months Retired

Cook's V-891 vs V-890 in Y-4550
No noticeable differences

Series 2-37 3 Panels 15 Months Continuing

Y-4450 testing Std., Desoto, & Atlanta V-891
No noticeable differences

Series 2-41 & N-2-41 4 Panels 12 Months Continuing

Y-1217 with Std. V-869 vs Resynal V-869
Resynal V-869 slightly better for gloss

GLD37609

Series 2-117 6 Panels 10 Months Continuing

Exp Speedenamel QD Primer (EGL-63414) Std RCR6103 vs 2-KB-729
No differences noticed - base primer, Y-4550 & 111-W-12 Topcoats

Series 2-32 2 Panels 15 Months Continuing

Y-4600 Std vs Y-4600 with 2.0# Busan 11/Gallon
Poorer corrosion resistance and resistance to dirt pickup with Busan.

Series 2-29 9 Panels 15 Months Continuing

Y-555 as primer with Busan 11, Harmon P-7 Lead, & Calcium Molybdate.
Busan is worst due to blistering, gloss loss (Y-4550 Topcoat) and rusting, Molybdate's fair-OK, P-7 Lead almost equal to Y-585 and Y-470 Rustmaster.

Series 2-33 & N-2-33 8 Panels 15 Months Continuing

Ripolin Sea-Kote (Y-4100) with V-891 & W-244
Slightly lower gloss (4-5 units out of 61-62) with V-891 (12.5 gallons per 100 gallons). No difference for use of W-244.

Series 2-50 2 Panels 14 Months Retired

YW-132 (369-Y-129 Hilton Davis) vs S.W.'s FL Hansa Yellow (FL-12-378).
In Speedenamel (Y-4575) no difference.

NO-315 - No-323 9 Panels 20 Months Retired

Colors-In-Oil vs Dramatone in Ripolin Sea-Kote (Y-4100)
Equal color retention & gloss retention except for Dramatone Ruby Red - far better color retention than American Vermillion (Y-1717).
No checking.

Series 2-35 16 Panels 15 Months Retired

RCR-5050 (Polyurethane) blends with V-869 (Japalac), V-891 (Speedenamel), and RCR-6037 (Ripolin Sea Kote).
Substantial gloss loss and chalking rules out the use of even 25% RCR-5050 as enamel vehicle.

Series 3-32 2 Panels 6 Months Retired

Tris-Amino V-869 vs Std. V-869 in Japalac Y-1217
Far worse gloss loss & chalking with Tris-Amino.

Series 2-68 7 Panels 11 Months Continuing

RCR-5050 (Polyurethane) - V-869 Florenamels
Increasing V-869 ratio increases gloss retention & chalk resistance.
Even 25% V-869 better than Std. Y-874. 75% V-869 approaches Speed-enamel.

ing on the edge of the New Orleans panels, however, the Cleveland panels show the Y3651A to be a trace better.

Subject: Thixotropic House Paints Made with Versamid 3480
(ST4310E2)

Contributors: Green, Southwick

Summary: A white alkyd trim paint was made using an 80% non-volatile linseed/tall oil/20% phthalic/PE alkyd jelled with 8% Versamid 3480. The paint gave a low viscosity (70 KU initial and 78 KU after 3 days) but had excellent thixotropy that handled quite well. The addition of the Versamid 3480 had no effect on the gloss. The flow was good. The properties of this trim paint indicates that it might be a satisfactory paint to consider for the future, however, the addition of 8% Versamid 3480 increases the price of the alkyd 18¢ per gallon.

Subject: Alkyd Trim House Paints
(ST4310E2)

Contributors: Green, Southwick

Summary: Work is progressing on Alkyd Trim House Paints based on an 80% linseed/tall oil/20% phthalic/PE alkyd. Two colors Y-1813 and Y-1860 were exposed in the spring of 1963 using this alkyd. These paints were made at 64% NV and are slightly high in cost. At present we are reformulating these paints at 60-62% NV to bring the costs in line. All of the trim colors in our Endurance Line are being formulated with this alkyd.

In addition a white trim paint with and without zinc oxide are being developed. The purpose of this work is to determine how much and the type zinc oxide this alkyd can tolerate without excessive reactivity and cracking. Non-reactive zinc oxide (W219) is being tested along with leaded zinc (W249) and lead-free zinc (W33).

Subject: Periodic Exterior Exposure Examination
(ST4313G2)

Contributor: J. Bednarik, Southwick

Summary: Series N-2-57 - 9 Panels - 12 Months - Continuing

Polyurethane Florenamel on Fir Panels.

Best panels are Speedenamel & 75:25 blend polyurethane-alkyd. Almost equal is 50:50 blend polyurethane-alkyd. Poor but acceptable is std. Florenamel. Worst is S.W. Porch & Floor.

Series 3-18 - 1 Panel - 7 Months - Continuing

Florenamel vs Mary Carter Trim & Deck.
Mary Carter slightly better for gloss.

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Series 2-107 - 10 Panels - 13 Months - Continuing

Galvanized Metal Primers.

Y-471 is good, Y-1851 & EGL-63006 are OK, Y-3525 and Y-555 are poor.

Series 3-60 - 4 Panels - 6 Months - Continuing

Japalac with CH-448 (CaO) to retard seeding.

No differences noted.

Series 3-65 - 4 Panels - 6 Months - Continuing

Speedenamel Q.D. (111W12) with V-306 modification for flexibility.

No differences noted for gloss & film properties.

Series N-2-130 and N-2-120 - 7 Panels - 10 Months - Continuing

Parlon V-891 equal to std. v-891 in Y-4550.

Resynal V-869 slightly lower gloss than std. V-869 in Y-7000.

Easy dispersing YW-2's in Y-4560.

M.P.C. J1238 & Imperial X3220 fair for color & gloss, Harshaw 2343 poorer for color, and RCI 1290 poor compared to DuPont Y469D std.

Series N-2-80 - 10 Panels - 12 Months - Retired

YW-2's & YW-131's in Speedenamel Y-4560.

YW-2's: S.W. 12272, Harshaw 2343, and M.P.C. J-1238 equal or acceptable to std. DuPont Y4690 for color retention and gloss.

YW-131's: Harshaw 2623 equal to stds. RCI1290 and Imp. X-1810 for color retention and gloss. MPC j-1239 superior for gloss but unacceptable due to darkening.

Series N-2-37 - 3 Panels - 12 Months - Continuing

Desoto, Atlanta and Cleveland V891 in Speedenamel Y-4550.

No significant differences.

Panels No. 224 - 229 - 6 Panels - 20 Months - Continuing

RCR-6037 vs RCR-6043 in Y-4100

Slightly better gloss with RCR-6043

Series N-2-66 - 10 Panels - 12 Months - Continuing

Alkyd (V-891) - Polyurethane (RCR-5050) Enamels.

75-25 blend vehicle equal to std. Y-4575 for gloss retention and chalk. Better gloss with alkyd dispersion & polyurethane let-down than vice-versa.

NO-242-245 - 4 Panels - 20 Months - Retired

V-891 Florenamel with W-108 inert vs std. V-869.

Better gloss retention & color with V-891. Use of 0.5 or 1.0# W-108 per gallon is acceptable.

Series 2-84 & N-2-84 - 4 Panels - 12 Months - Retired

Kentucky color's DS-107 in Japalac Y-1270.

Trace poorer color with DS-107 Hansa Yellow when