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OCTOBER RESEARCH REPORT

1963

Coatings and Resins Group

CONFIDENTIAL

GLD005041

TRADE SALES PRODUCTS

LATEX PAINTS - EXTERIOR

October 1963

Subject: Exterior Latex Current Problems
(ST2314E1)

Contributor: J. Watson

Summary: Only two batches of VM879 were tested this month. Productions 1690H and 1691H from Reading were tested. P1691H was below average for crack resistance.

We are still not 100% safe with the VM879 flexibility. For some reason the productions are not uniform.

When the oil modified SHP is in production, this lack of flexibility will no longer be apparent. No decision has been made on how we should proceed with future production testing.

The proposed new Glide-On line based on VM879 is now complete. No decision has been made as yet concerning its introduction.

Subject: One Coat Spred House Paint
(ST2316E3)

Contributors: J. Kerby, D. Glauner, D. Tuwalski, E. Saville

- Summary:
1. Work continued on combinations of alkyd and latex to improve durability.
 2. Field trials - EXM64023, 64032, 64022, 64019 and 64031.
 3. A non-chalking white was made (EK with no Anatase TiO₂).
 4. Paints with 66% oil 34% latex evaluated.
 5. Latices with bactericides added were made.
 6. Work continued on water thin primers.

Styrene Acrylate Paints - Table I

CCE3-274-1 (EXM64023) standard EK formula for evaluation by Dr. Kiefer, 10310 Edgewater Drive, Cleveland.

CCE3-275-2 (EXM64023) to evaluate V855 substituted for GRV3140 - Dr. Kiefer.

CCE3-277-1 a repeat with RE20317 (23% styrene) for a larger scale test (Saville Granary).

CCE3-281-1 a repeat with RE20318 (18% styrene for test (Saville Granary).

EE3-291-1 (EXM64032) a non-chalking white (EK formula all Rutile TiO₂) for field trial by G. Eireman, 6622

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Balsam Dr., Bedford Heights. This paint to be used above Cape Cod Red. EE3-303-4 and 5 (Table III) were made to check RE20335 (repeat RE20317) in EK and EJ formula respectively. EJ being used as it shows up the differences in latices better.

Acrylic Paints - Table II

CCE3-276-1, 277-2 and 284-2 (EXM64022) A blend was field tested to evaluate acrylic (2/3) alkyd (1/3) combinations. Calcium carbonate was included in the formula to improve mildew resistance. Test by Mr. Kovacks, Durkee Rd., Grafton.

EE3-280-1 was made to evaluate high level oil modification, 66% urethane oil and 34% acrylic. The drying rate was satisfactory but the application was slightly heavy.

EE3-280-2 was made with 66% V855 alkyd, the drying was slightly slower.

EE3-281-1 (EXM64019)(RE20169 100% ethyl acrylate) was made to evaluate straight acrylic paints for one coat over chalk. The PVC was held low to obtain chalk binding properties, this created a sheen higher than desirable. Celite 281 reduced the sheen slightly. The sheen seems to disappear on exposure to the sun but is still present in the shade. The penetration seems less than oil modified systems and wet adhesion slightly less. Paint was given to Mr. E. Schulte for field trial.

CCE3-289-1 Repeat EE3-280-1 for further testing.

CCE3-289-2 was made with Eagle Picher 417 zinc oxide as the sole fungicide.

CCE3-290-1 Repeat 289-2.

CCE3-290-2 (EXM64031) blend above two paints for field trial. Don Linden 26309 Sprague Rd., Columbia Station.

Bactericides in Latex - Table III

EE3-303-1	RE20340	300 PPM Troysan PMC Acetate
EE3-303-2	RE20339	300 PPM CH402 (Metasol)
EE3-303-3	RE20338	300 PPM VM659 (Super Ad-It)

Water Thinned Primers for Wood

Primers are being made to improve durability when applied directly to wood.

Examination of numerous panels exposed over the past five years have shown Y3601 to be equal in many cases and superior in some cases to 3651 in prevention of cracking of Y3600 topcoat, however chalking and erosion

of the topcoat was faster. No. 2 Primer by itself eroded much faster than 3651. This type of failure might be attributed to - the quality of the vehicle, the solubility of the emulsifying agents and thickeners, to water sensitivity, or to insufficient solids.

The Primers, listed in Table IV, have been made primarily to improve the emulsifying system and to evaluate different vehicles

DD3-276-3 has a vehicle combination of RE-20169 (80% EA acrylic) and Sherwin Williams Linopol, a linseed oil emulsion, while DD3-280-2 uses RE-20169 and Spencer Kellogg Linaqua, water soluble linseed oil. DD3-295-2 and DD3-295-4 contain differing ratios of GRV-3140, urethane oil, and RE-20169. DD3-295-2 also contains W-188 magnesium silicate. Combinations of RE-20169 - V855 linseed alkyd are used in DD3-296-2 and DD3-296-4, with inclusion of W-188 in DD3-296-4. DD3-301-2 employs only Linopol, Sherwin Williams linseed oil emulsion and DD3-302-2 Spencer Kellogg Linaqua water soluble linseed oil, mineral spirits replacing water in both formulations. W-188 magnesium silicate, is used in DD3-301-2 and DD3-302-2.

DD3-301-2 is unsatisfactory because of slow through dry. DD3-302-2 dries to touch but is easily peeled with the fingernail. Spencer Kellogg 89-P-20 Linaqua primer was also made to evaluate against these primers.

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TABLE I

SHE CCT. 19.3

	CCE3 274-1	CCE3 275-2	CCE3 277-1	CCE3 281-1	DDE3 276-1	DDE3 277-1	EE3 291-1
W-208	230.0	do	do	do	50.0	250.0	do
W-91	20.0	do	do	do	-	-	-
W-223	30.0	do	do	do	-	-	30.0
W-241	110.0	do	do	do	-	-	110.0
W-121	-	-	-	-	262.0	130.0	-
W-188	-	-	-	-	-	-	-
CH-380	1.5	do	do	do	do	do	do
CH-474	4.0	do	do	do	do	do	do
CH-450	7.0	do	do	do	do	do	do
CH-473	3.0	do	do	do	do	do	do
CH-447	2.5	do	do	do	do	do	do
RE20317	-	-	294.2	-	-	-	-
RE20318	-	-	do	231.7	-	-	-
VM-885	75.0	do	do	do	do	do	do
VM-879	255.0	do	do	-	255.0	do	-
GRV-3140	65.0	-	65.0	do	do	do	do
V-855A	-	66.4	-	-	-	-	-
S-148	12.0	do	do	do	do	do	do
CH-444	4.0	do	do	do	do	do	do
VM-432	5.0	do	do	do	do	do	do
VM-433	1.5	do	do	do	do	do	do
195-T-27	145.0	152.0	121.0	126.9	145.0	do	do
S-14	151.2	144.2	145.8	152.8	151.2	do	156.1
P.V.C.	35.0	35.4	35.4	35.5	35.4	35.4	140.3
Vehicle Volume	23.4	23.4	23.4	23.5	23.4	23.4	35.4
Pigment Volume	13.	13.	13.	13.	13.	13.	13.

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TABLE II

	CCE3 276-1	CCE3 277-2	EE3 280-1	EE3 280-2	EE3 281-1	CCE3 284-2	CCE3 289-1	CCE3 289-2	CCE3 290-1	CCE3 290-2
W-208	-	-	230.0	do	do	-	230.0	210.0	do	do
W-170	220.0	do	-	-	-	220.0	-	-	-	-
W-91	30.0	do	do	do	20.0	30.0	do	do	do	do
W-223	-	-	-	-	40.0	-	-	-	-	-
W-241	-	-	-	-	70.1	-	-	-	-	-
W-121	-	-	-	-	-	-	-	-	-	-
W-188	57.5	do	50.9	do	-	57.5	50.9	-	-	-
M-239	59.9	do	53.8	do	-	59.9	53.8	153.2	do	do
E.P.#417	-	-	-	-	20.0	-	-	-	-	-
CH-380	1.5	do	do	do	-	do	do	75.0	do	do
CH-474	4.0	do	do	do	do	do	do	do	do	do
CH-450	7.0	do	do	do	do	do	do	do	do	do
CH-473	3.0	do	do	do	do	do	do	do	do	do
CH-253	-	-	-	-	9.0	-	-	-	-	-
CH-447	5.5	do	do	do	3.0	5.5	do	do	do	do
CH-444	-	-	-	-	2.0	-	-	-	-	-
V-855-A	53.3	do	-	132.2	-	63.3	-	-	-	-
GRV-3140	-	-	131.2	-	-	-	131.2	do	do	do
S-148	12.0	do	do	do	-	12.0	do	16.0	do	do
RE20169	318.0	do	170.7	do	615.2	318.0	170.7	do	do	do
VM-432	5.0	do	do	do	-	5.0	do	do	do	do
VM-433	1.5	do	do	do	-	1.5	do	do	do	do
195-T-27	115.6	107.3	138.0	170.5	84.0	107.3	150.5	127.5	145.8	136.6
S-14	202.0	200.0	255.0	222.8	36.7	200.6	222.5	245.1	238.3	241.7
P.V.C.	35	35	35	35	29	35	35	35	35	35
Vehicle Volume	23.4	23.4	24.1	24.1	29.6	23.4	24.1	24.1	24.1	24.1
Pigment Volume	12.0	12.0	13.0	13.0	12.0	12.0	13.0	13.0	13.0	13.0

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TABLE III

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	EE3 303-1	EE3 303-2	EE3 303-3	EE3 303-4	EE3 303-5
W-208	230.0	do	do	do	236.0
W-91	20.0	do	do	do	20.0
W-223	30.0	do	do	do	33.0
W-241	99.3	do	do	do	72.0
CH-474	4.0	do	do	do	-
CH-450	7.0	do	do	do	-
CH-473	3.0	do	do	do	-
CH-418	-	-	-	-	3.0
CH-181	-	-	-	-	10.0
CH-368	-	-	-	-	3.0
CH-380	1.5	do	do	do	do
CH-444	4.0	do	do	do	3.0
CH-447	2.5	do	do	do	3.0
M-484	-	-	-	-	1.0
RE20340	255.0	-	-	-	-
RE20339	-	255.0	-	-	-
RE20338	-	-	255.0	-	-
RE20335	-	-	-	294.0	385.2
GRV-3140	65.9	-	-	do	-
S-148	12.0	do	do	do	-
VM-432	5.0	do	do	do	-
VM-433	1.5	do	do	do	-
195-T-27	160.0	145.0	160.0	146.8	147.0
S-14	136.0	151.2	136.0	120.0	127.0
VM-885	75.0	do	do	do	do
P.V.C.	35	35	35	35	40
Vehicle Volume	23.4	23.4	23.4	23.4	20.1
Pigment Volume	13.	13.	13.	13.	12.03

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TABLE IV

PRIMERS

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	DD3 275-3	DD3 280-2	DD3 295-2	DD3 295-4	DD3 298-2	DD3 298-4	DD3 301-2	DD3 302-2
W-208	150.0	do	154.0	150.0	do	154.0	do	do
W-121	95.0	do	47.0	95.0	do	47.0	do	do
Eagle Picher #202								
BSWL White Lead	200.0	do	do	do	do	do	do	do
W-188	-	-	49.0	-	-	49.0	do	do
Magnesium Silicate								
CH-474	4.0	do	do	do	do	do	do	do
Igepal CTA 639	7.0	do	do	do	do	do	do	do
CH-450	3.0	do	do	do	do	do	do	do
TKPP	5.5	do	do	do	do	do	do	do
CH-447								
Hercules #357								
Linopol	Linseed Oil Emulsion 214.0	-	-	-	-	-	-	-
Linaqua	Water Soluble Linseed Oil	181.0	-	-	-	-	130.0	-
RE-20169	80% EA Acrylic	149.0	142.0	95.0	do	142.0	-	-
GRV-3140	Urethane Oil	-	305.0	265.0	-	-	-	-
V-855	Linseed Alkyd	-	-	-	268.0	308.0	do	435.0
VM-432	Nuodex Pb	5.0	do	do	do	do	do	9.5
VM-433	Nuodex Mn	1.5	do	do	do	do	do	do
195-T-27	3% QP 4400	113.5	do	80.0	do	80.0	do	do
S-148	Refined Kerosene	15.0	do	do	do	do	-	-
S-43	Mineral Spirits	-	-	-	-	-	141.0	do
S-14	Water	211.0	do	160.0	do	160.0	-	-
PVC								
Vehicle Volume	35.6	31.3	22.7	25.9	25.9	22.6	20.4	19.8
Pigment Volume	23.5	28.55	44.45	37.23	37.23	44.45	50.75	52.67
	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00

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