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AUX. RES. DEPT.

Mineral Products Laboratory

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AL-2 - DEVELOPMENT AND IMPROVEMENT OF LITHOPONE - PERMOLITH 10NColumbus Coated FabricsProgress ReportDiscussion:

Columbus Coated Fabrics requires a lithopone similar to Penolith HR-8 for use with Albalith 90 for their coating for celloeth. At the present time they are using a half and half combination of Albalith 90 and Penolith HR-8. The latter is selected by the manufacturer for higher consistency properties than regular Penolith HR-8.

Penolith HR-8 is a lithopone with low oil absorption, low reactivity, and low zinc oxide with reasonably good texture.

Permolith 10N has been developed as a match for Penolith HR-8 in the above coating. Its physical and chemical properties in comparison to the Penolith HR-8 as used by Columbus Coated Fabrics, and the regular HR-8 are given below. (Sufficient samples of HR-8 from Columbus Coated Fabrics was not available for all tests.):

Source	Permolith 10N	Penolith HR-8	
	Lot 05900	Columbus	W.
AURL	2849	2806	2788
A Factor (Consistency)	16.1	17.	14.2
Zinc Oxide	0.08	0.07	0.10
pH	7.7	6.9	7.0
Sol. Salts	0.09	0.08	0.09
P. C. Factor	5.2	4.4	4.0
Texture			
50 Rev.	4 3/4	—	4 1/2
200 Rev.	5 1/4	—	5 1/4
Flat Wall Paint			
Consistency			
1 Day	16.5		13.5
2 Day	16.9		14.0
5 Day	20.9		17.0
12 Day	19.5		17.0

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Paints or coatings were made using the Columbus Coated Fabrics formula (CG):

<u>Base Formula</u>		
50#	1.39 Gal.	Permolith NR-8 or Permolith 10W
50	1.39	Alkalith 90
55	6.72	M-15 Vehicle
12	1.85	Mineral Spirits
4	0.61	
1.38	0.20	Mn Naphthenate, 2% Mn
0.55	0.08	Co Naphthenate, 2% Co
<u>72.93</u>	<u>12.24 Gal.</u>	

Both the Permolith 10W and NR-8 were dispersed to a 5 Hognan grind. Comparisons were made on these paints drawn down at 0.005" on hiding power sheets, gloss sheets and primed fabric after curing for two hours at 180°F.

Results:

Our results showed no appreciable difference between the NR-8 and Permolith C5900 as to gloss, hiding power, haze, and flexibility. Color was slightly in favor of Permolith 10W as being less yellow. The reflectance measurements were as follows:

<u>Paint or Coating</u>	<u>Reflectance</u> (Over White)	<u>C. R.*</u>	<u>Yellowness</u> <u>Factor</u>
Permolith NR-8 (CG-11h8)	77.4%	92%	27
Permolith 10W (CG-11h9)	77.7%	93%	26

*Contrast Ratio - over black and white

Conclusion:

Based on our tests, we believe that Permolith 10W as represented by C5900 should be satisfactory for Columbus Coated Fabrics as a replacement for Permolith NR-8. We would, therefore, recommend that a sample be submitted to them for trial in the laboratory, and if their results confirm ours, arrangements be made for a plant run.

Drawdowns on gloss sheets, hiding power sheets (gray/white and black/white) and primed fabric are attached for their inspection.

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