

Mineral Products Laboratory

February 5, 1954

A42 - DEVELOPMENT AND IMPROVEMENT OF LITHOPONS

Pernolith 10N

Progress Report

Purpose:

To cooperate in the development of a non-reactive type of lithopons, and especially to evaluate the trial lots prepared by the production department.

Summary:

Eleven trial lots of a non-reactive type lithopons, Pernolith 10, have been made and evaluated. Some of the early lots were not satisfactory because of high body in a typical flat wall paint, and because of low Specific Resistances (high soluble salts). Later lots have shown a correction of most of the early difficulties. Based on tests to date, it appears that the Pernolith 10N must be low in P. C. Factor, A Factor, and soluble salts, in order to exhibit low consistency and lack of afterbody in paint formulation.

Results:

Physical and Chemical Tests:

0007-SWP-043734

N23245

Lot No.	AURL	Oil Absorption	P. G. Factor	A Factor	Sp. Res.	pH	Texture		ZnO
							Rev.	200	
C-5847	27678	14.4			7500	6.6	4 1/2	5	
C-5850	2783	14.3	8-10		7050	6.4	4 7/8	5 5/8	
C-5851	2784	14.1			7430	7.1	4 1/2	5 3/8	
C-5863	2785	12.4			5850	7.4	4 1/2	5 3/8	
C-5880	2819	12.6			8050	6.8	3 1/2	5	
C-5881	2820	12.1	7-8		9080	6.9	4	4 1/2	
C-5896	2834	11.8	5.0		8800	6.25	5	5 1/2	
C-5900	2849	11.7	5.2	16.1	8600	7.7	4 3/4	5 1/4	0.08
C-5901	2863	11.8	5.3	14.3	9200	8.4	4 5/8	5 1/4	0.09
C-5905	2853	12.6	10.4		5650	7.4	4 1/2	5 1/8	
C-5915	2883	12.9	6.8		5850	6.8	4 1/2	4 7/8	
Penelith NR-8	2768	13.3	4.8	14.2	14200	7.0	4 1/2	5 1/4	0.10

Paint Formulation:

Flat-tone, Rr 810, Card 22; Modified

Lbs.	Gals.	Material
125	5.27	Lithopone
170	7.74	566; W. G. Galeite
400	11.20	312; magnesium silicate
175	5.01	2228; rutile
4	0.46	1826
11.3	1 1/2	(4230)
6.7	1	(5026)
232	32	(4113)
16	2	81 326
1.8	1/4	(4231)
0.9	1/8	(4232)
181	25	(4113)
69.5	10 1/2	(5027)

T.Wt./Gal. 13.8

Paint No.	Lithopone		Paint Characteristics					
	Lot	AOHL	A.Wt. Gal.	Grind Hegman	Consistency #5 C.C.			
1120	NR-8*	2768	13.60	2 1/4	10	50	120	420
					8.4	10.7	12.3	14.5
1122	C5847-R5	2767B	13.56	2	11.7	17.3	21.6	30.8
1123	C5850	2783	13.54	2	11.6	16.4	20.6	27.7
1124	C5863	2785	13.59	2	8.8	12.3	14.2	18.6
1128	NR-8*	2768	13.79	1 1/2	10	60	100	360
					10	13.3	16.2	16.1
1129	C5880	2819	13.77	3	15.7	22.0	28.2	32.6
1130	C5881	2820	13.89	3 3/4	16.2	21.2	24	29.4
1150	NR-8*	2768	13.83	4	10	50	120	
					13.0	14.0	14.5	
1151	C5900	2849	13.82	3 1/2	16.7	18.0	18.4	
1152	C5901	2863	13.83	4 1/4	15.0	16.6	17.6	
1153	C5905	2853	13.82	3 3/4	21.3	22.0	23.6	

*Control

A comparison of lot C-5900 with Penolith NR-8 for film characteristics was generally favorable, viz.:

	Lot C-5900	C-5901	Penolith NR-8 (Standard)
Hiding Power	Very close	Very close	Very close
Sheen	Slightly higher	Slightly higher	Dead flat
Gloss	Same	Same	—
Color	Close	Close	—

Conclusions:

A Penolith 10W of the general characteristics of lots C-5900 and C-5901 should be a satisfactory replacement for Penolith NR-8. The important characteristics are low P.C. Factor (5.0 or less), low A Factor (15 or less), and high Specific Resistance (9,000 or higher), low zinc oxide (0.09% or less).

Oil absorption will be slightly lower, consistency slightly higher, but afterbody about the same on the typical lot of Penolith 10W than on the Penolith NR-8. Lot C-5900 gives consistencies slightly on the high

side and should be satisfactory for such accounts as Columbus Coated, which used NR-8 of slightly higher oil absorption. Lot C-5901 should be satisfactory for general usage as a replacement for NR-8.

Texture and color are generally comparable to the NR-8 and no difficulty is expected in this respect.

Special reports giving the characteristics of Permolith 10N have been written and distributed to the P. C. and C. Department.

A special report was also written and distributed to the Central P. C. and C. Department for such accounts as Columbus Coated. (See report attached.)

C. H. Adams
Mineral Products Laboratory


P. C. Verduin:ff

cc: SBC JVR ES CHD VRR JES GW