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R. A. Johnston, Lab.
D. L. Herndon, Lab.

File: 1810

Marshall Laboratory
January 7, 1954.

CORRECTION TO MEMORANDUM REPORT M-662

Attached is a corrected copy of Memorandum Report M-662. The name of one extender (W-165 Celite #266) had been omitted from the table.

Please retain this copy and discard the incomplete copy distributed earlier.

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William F. Singleton
W. F. SINGLETON

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Marshall Laboratory
December 16, 1953.

MEMORANDUM REPORT NO. M-662

Prepared by: W. F. SINGLETON

STABILITY OF VARIOUS EXTENDERS
IN LOW GLOSS "FLOW-KOTE"

INTRODUCTION

When "Flow Kote" was revised to lower the gloss in December, 1952, via the use of W-4 Asbestine extender at 38% pigment volume, additional experiments with other extenders were begun. This memorandum will report the results of one year's stability test on the most systematic study of other extenders in the same gloss range. The paints were prepared by R. A. Johnston.

There are five extenders, as listed in the attached table. Each extender was tested at two levels of pigment volume, two levels of soya lecithin, and two levels of casein concentration. The extenders included two forms of silica, two blends with calcium carbonate in varying amounts, and one clay extender. The clay extender, W-1002 ASP-400, is now the sole extender in "Flow Kote" tints. Another of the extenders, W-165, Celite #266, is the chief extender in "Flow Kote" White.

SUMMARY

The only factor in the study that is found to have a significant effect is the level of soya lecithin. At 2% soya lecithin by weight on the total paint, the paints have good freeze resistance when they are fresh, but they drop in viscosity when they are aged, either on the shelf or in the oven. Paints with 0.5% soya lecithin are unsatisfactory for freeze resistance, but

but have better viscosity stability on shelf storage.

The freeze resistance of aged paint is not as good as fresh. Paints with 2% soya lecithin aged one year do not coagulate in the freeze test, but they body to a heavier viscosity than when they are fresh.

DETAILS

The attached table lists some of the data. There is additional data on gloss, pH, settling and viscosity in the original notebooks.

REFERENCES:

Notebook #3916, pages 14 and 15.
Notebook #5578, pages 197 through 201.
Notebook #5444, pages 146 and 147.

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WILLIAM F. SINGLETON

WFS:lcm
12/14
Attach.

STABILITY OF VARIOUS EXTENDERS IN "FLOW NOTE"

Extender	Paint P-391-U-	%Soya Lecithin	Casein Lb./Gal.	Pigment Volume	Initial KU	Initial Shelf Storage		Fresh	Freeze Test	
						I	Mo.		Aged 1 Yr.	
W-1002 ASP-400 Clay	47776	2.0	0.13	38	70	67	63	80	110	
	47777	0.5	0.13	38	67	80	86	Too Heavy	Partially Coagulated	
	47778	2.0	0.19	38	74	69	62	72	Coagulated Too heavy for Storner	
	47779	0.5	0.19	38	74	77	72	Too Heavy	Coagulated	
	47780	2.0	0.13	34	74	67	65	82	123	
	47781	0.5	0.13	34	74	82	82	Too Heavy	Coagulated	
	*47782	2.0	0.17	34	69	72	70	Too Heavy	Coagulated	
	*47783	0.5	0.17	34	74	67	59	80	124	
	48900	2.0	0.13	36.5	72	67	59	84	134	
	48901	0.5	0.13	36.5	68	75	80	Too Heavy	Coagulated	
4/1 W-4 Asbestine Snowflake Quicium Carbonate	48902	2.0	0.18	36.5	73	69	63	80	138	
	48903	0.5	0.18	36.5	70	81	79	Too Heavy	Coagulated	
	48904	2.0	0.13	32.0	69	82	51	74	60	
	48905	0.5	0.13	32.0	67	72	70	Too Heavy	Coagulated	
	48906	2.0	0.16	32.0	67	61	57	70	112	
	48907	0.5	0.16	32.0	69	77	70	Too Heavy	Coagulated	

(*) These two paints appear to be interchanged.

STABILITY OF VARIOUS EXTENDERS IN "FLOW NOTE"

Extender	Paint P-391-U-	%Soya Lecithin	Casein lb./Gal.	Pigment Volume	Initial KU	Shelf Storage 1 Mo.	1 Yr.	Freeze Test	
								Fresh	Aged 1 Yr.
W-31 Silica	47752	2.0	0.13	33.5	72	57	59	77	121
	47753	0.5	0.13	33.5	72	83	79	Too Heavy	Coagulated
	47754	2.0	0.16	33.5	71	66	59	77	105
	47755	0.5	0.16	33.5	74	79	75	134	Coagulated
	47756	2.0	0.13	32	70	63	58	69	90
	47757	0.5	0.13	32	70	79	77	Too Heavy	Coagulated
	47758	2.0	0.16	32	67	67	58	72	87
	47759	0.2	0.16	32	72	80	82	Too Heavy	Coagulated
W-165 Celite #266	47764	2.0	0.13	33	72	70	64	73	118
	47765	0.5	0.13	33	70	71	61	Too Heavy	Coagulated
	47760	2.0	0.16	33	71	67	55	82	102
	47761	0.5	0.16	33	74	79	72	Too Heavy	Coagulated
	47766	2.0	0.13	30.5	70	67	66	72	107
	47767	0.2	0.13	30.5	67	80	77	Too Heavy	Coagulated
	47762	2.0	0.15	30.5	70	65	59	72	82
	47763	0.5	0.15	30.5	71	72	72	Too Heavy	Coagulated
Lorite (SO/20 Calcium Carbonate/ diatomaceous silica)	47768	2.0	0.13	34.0	65	65	60	70	89
	47769	0.5	0.13	34.0	67	80	77	Too Heavy	Coagulated
	47770	2.0	0.17	34.0	70	66	61	77	106
	47771	0.5	0.17	34.0	70	72	70	Too Heavy	Coagulated
	47772	2.0	0.13	33.0	70	67	59	86	112
	47773	0.5	0.13	33.0	72	71	79	118	Coagulated
	47774	2.0	0.16	33.0	70	65	62	72	114
	47775	0.5	0.16	33.0	70	79	63	Too Heavy	94 Coagulated