

House Paint
Archer-Daniels-Midland

Mr. J. E. Bullitt, Lab.
Mr. J. W. Iliff, Lab.
Mr. S. Graves, Lab.
Mr. H. R. Young
Mr. H. F. Ether
Mr. C. D. Reinecker

"INDEXED"
Jc 25 '53

Philadelphia Laboratory
February 15, 1946

MEMORANDUM REPORT #M-27

RETURN TO MARSHALL LABORATORY LIBRARY

ARCHER-DANIELS-MIDLAND K-371 &
K-381 OILS IN HOUSE PAINT

NOT FOR CIRCULATION

In letters of January 2nd and January 21, 1946, Mr. George Woodward of Archer-Daniels-Midland Company has submitted samples of K-371 and K-381 oils for evaluation in house paint. These consist of a portion which has been polymerized by a process not disclosed together with a portion of unbodied oil. K-371 is for use in whites and K-381 for use in tints. They differ in the refining process used for the unbodied portion of the oil. There is a premium of 2.4¢ per lb. over raw oil for K-371 and 1.6¢ per lb. over raw oil for K-381.

It is recommended that these oils be pigmented about 35% pigment volume to give about 75% volume solids in the finished paint.

White paints have been made with the pigmentation of 301-828 at 35% pigment volume to compare K-371 oil with the present vehicle consisting of refined oil and VO-5168 Z-2 bodied oil and with the expected postwar vehicle consisting of 75/25 refined oil/VO-114 bodied oil. A similar set of cream enamels with the "Ti-Tint" pigmentation of 301-802 Prepared Paint Cream has been made to compare K-381 oil with the oil conservation and the postwar vehicles.

The Archer-Daniels-Midland oils are comparable to the postwar vehicle in solids content and ease of brushing. They have a different type of consistency, so that the measured Stormer consistency at the point of good brushing is lower than the Stormer consistency with the postwar vehicle. The solids are about the same at this point. The appearance is the same as regards gloss and brush marks. The color of the paint made with K-371 oil is somewhat better than the white control made with the postwar vehicle.

At the present cost of H-253 raw linseed oil, H-259 acid refined oil (1¢ per lb. premium over raw oil) and VO-114 bodied oil, the Archer-Daniels-Midland oils would cost about 1¢ per lb. more than the postwar vehicle. This is an increase of 4¢ per gallon, since there are about 4 lbs. of oil per gallon at 35% pigment volume.

The paints are being exposed for durability in Series 9027. However, in view of the higher cost, it is not likely that the oils will be of interest in our production of house paint.

Reference: Notebook 3033, pages 36 to 57.

PHILADELPHIA LABORATORY

William F Singleton
WILLIAM F. SINGLETON

WFS:MEH

TABLE I
CONSISTENCY AND BRUSHING

<u>Code</u>	<u>Binder</u>	<u>Color</u>	<u>Stormer Consist- ency</u>	<u>Volume Solids</u>	<u>Ease of Brushing</u>
P-301-P-58517	57/43 H-259/VO-5168 Solids	White	90	70.7%	Good
-P-58519	75/25 H-259/VO-114	"	98	82.6	"
-P-58521	ADM K-371 Oil	"	83	81.0	" (too heavy at Stormer 100)
-P-58523	57/43 H-259/VO-5168 Solids	Cream	78	69.7	Too thin
-P-58525	75/25 H-259/VO-114	"	95	72.6	Too thin
P-58527	ADM K-381 Oil	"	87	75.1	Good (Sl. drag at Stormer 95)

TABLE II
COMPOSITION

White - Pigmentation of 301-828

	<u>Pigment Volume</u>	<u>% by Weight</u>
W-5 FF titanium oxide	6.8	17.8
W-18 35% leaded zinc	12.4	50.0
W-4 asbestine	16.3	32.2
	<u>35.5</u>	<u>100.0</u>

Cream - Pigmentation of 301-802 (unshaded)

W-606 buff "Ti-Tint"	7.7	20
W-18 35% leaded zinc	12.8	50
W-4 asbestine	15.3	30
	<u>35.8</u>	<u>100</u>

Vehicle Codes

H-253 raw linseed oil
H-259 refined linseed oil
VO-114 linseed oil bodied to GH-S
VO-5168 " " " " GH-Z2 (solids only)
DS-16444 ADM #371 Oil - GH-H
DS-16482 ADM #381 Oil - GH-I