

House Paint
"47" Process
Pfaumer Bros.
Wetting Agent

"INDEXED"

11/30/50

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Marshall Laboratory
November 28, 1950

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MEMORANDUM REPORT NO. M-322

GLOSS OF HOUSE PAINT (COVERING WORK **REFERENCE COPY**)
FROM 9/1/50 TO 11/1/50)

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Purpose:

To improve the gloss of 301-885 with only minor changes in the formula.

Conclusions:

Pfaumer Bros. wetting agent (SP-1505), at a concentration of 0.5% in 301-885 gives a visible increase in gloss when ammonium stearate (347-18323) is omitted. There are indications also of an improvement in brushing properties.

A visible improvement also results when the present formula is ground on a laboratory "47" process.

The values for the increase in gloss above the 301-885 control are given in Table I.

TABLE I

EFFECT OF MINOR MODIFICATIONS OF 301-885
ON GLOSS AND BRUSHABILITY

<u>Formulation</u>	<u>Magnitude of the Increase in Gloss (P= 0.05)</u>	<u>Brushability</u>	
		<u>Spreading</u>	<u>Lapping</u>
1. 301-885	Control	Very Good	Very Good
2. Omitting ammonium stearate and adding 0.5% wetting agent	12.8 ± 7.0	Excellent	Excellent
3. Omitting ammonium stearate and adding 0.5% wetting agent and M-25 OKO bodied oil.	15.6 ± 7.1	Good	Good
4. Omitting ammonium stearate and soya lecithin and adding wetting agent and bodied oil	17.7 ± 2.9	Good	Fair
5. Omitting ammonium stearate and soya lecithin and adding wetting agent.	17.5 ± 8.6	Fair	Fair
6. Omitting ammonium stearate and soya lecithin	12.3 ± 4.1	Poor	Fair
7. Omitting soya lecithin	9.3 ± 5.3	Good	Very Good
8. Omitting ammonium stearate	3.3 ± 1.1	-	-

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The effect of grinding twice with the laboratory "47" process instead of the 3 roll mill, varies with the formula of the paint. The extra grinding is less effective when the wetting agent is present.

TABLE II

<u>Formulation</u>	<u>Value of Increase in Gloss due to "47" Process instead of 3 Roll Mill (P= 0.05)</u>
(a) 301-885	15.4 $\pm$ 10.4
(b) 301-885 without ammonium stearate	10.7 $\pm$ 10.7
(c) 301-885 without ammonium stearate but with 0.5% wetting agent	3.7 $\pm$ 3.7
(d) 301-885 without ammonium stearate and soya lecithin but with wetting agent and OKO M-25 Oil	6.9 $\pm$ 9.4

Since the wetting agent is apparently accomplishing the same extra dispersion as the "47" process, it is possible that additional experiments would show that properly chosen wetting agents could reduce grinding costs.

The effect of the laboratory "47" process following a plant 3 roll mill is illustrated by the following gloss increases. One pass through the "47" process gave an increase of 9.1 ± 4.8 (P= 0.05); 3 passes gave an increase of 16.9 ± 7.4 gloss units.

Details:

The data in Table I were obtained by pairing gloss measurements from brushouts on 5 different days, on 3 different substrates (primed red cedar, pearl, and clapboards) and from paints prepared by both 3 roll and "47" process grinds.

For Table II, pearl boards were brushed and dried out in the constant temperature room. The gloss was read on the 85° photovolt glossmeter calibrated at 96 gloss units with a black gloss standard.

Using the constant temperature room, and the same type of alkyd-primed red-cedar panels, good reproducibility can be obtained. Thus, 20 readings on 5 different areas of 4 different panels, brushed out on 4 different days, gave a mean gloss of 60.4 ± 1.4 (P= 0.05). The eye is probably not able to detect differences in gloss of less than about 7 gloss units.

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