

~~Confidential~~

301 Line House Paint

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"INDEXED"  
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Philadelphia Laboratory  
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MEMORANDUM REPORT NO. M-316

REFERENCE COPY

BUTYL METHACRYLATE BLENDS IN HOUSE PAINT

NOT FOR CIRCULATION

### Purpose:

Experiment suggested by M. E. Cupery (See letter, 6/1/50). Butyl methacrylate blends have not previously been investigated as vehicles in house paints.

### Conclusions:

(1) There is no outstanding advantage in using this polymer as a vehicle; there is no further interest unless there is a definite advantage in durability.

(2) Information on durability will be established.  
Series #11460.

### Patent:

Blend of well known materials probably are not patentable. There is no patent activity planned unless durability studies indicate that the paints have commercial importance.

### Details:

The butyl methacrylate blends were tested in the formula of 301-885 #40 Outside White in place of the linseed oils. See Table attached for data.

The paint containing butyl methacrylate blend polymerized in place has initial properties similar to the control paint. The solids volume, brushing, lapping, flashing and drying results corresponds closely to the control. The gloss is not as high, and the color is somewhat more white.

The paint containing the blend of butyl methacrylate polymer and oil give results which are, on the whole, very much below

N35415

those of the control paint. The solids volumes are very low. The viscosity of these paints is too low, and the brushing, lapping and flashing are all poor. The gloss is much lower than the control. The drying times are faster than the control. For these paints the maximum drying time for firmness is seventeen (17) hours but the actual time for the firmness falls between eight and seventeen hours. The color of the paint containing the 20% blend is higher, while that containing the 14% blend is lower, in whiteness.

The gloss measurements were made with the photovolt gloss-meter set at an 85° angle and using a black standard set at 48. The color was measured as the color difference versus magnesium oxide. The drying times were obtained by applying the paints to clear glass panels with a 0033 doctor blade, and maintained at 77°F. and 50% relative humidity in the constant temperature room.

Notebook Reference:

3705 pages 1-14, 20, 21, 25

PHILADELPHIA LABORATORY

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AS:ms

ATTACH:

| Code          | Vehicle                                                 | % Solids by volume | Brushing Five min. lap | Flash-<br>ing<br>V.Sl. | 85° Gloss<br>Limits | Difference<br>vs. MgO<br>Limits | Drying<br>Tack Free<br>Hours Limits | Drying<br>Firm<br>Hrs. Limits                   |
|---------------|---------------------------------------------------------|--------------------|------------------------|------------------------|---------------------|---------------------------------|-------------------------------------|-------------------------------------------------|
| P-301-R-74901 | Control                                                 | 87.0               | Excel-<br>lent         | 58.1                   | 58.1±15.4*          | 4.14±0.66*                      | 8±3.4                               | 23±9.4                                          |
| P-301-R-74903 | DS-21029 14% Butyl Methacrylate<br>Polymerized in Place | 85.4               | Excel-<br>lent         | Slight                 | 51.2±15.4*          | 3.91±0.66*                      | 8±3.4                               | 23±9.4                                          |
| P-301-R-74905 | DS-21028 20% Butyl Methacrylate<br>Blend                | 61.8               | Poor                   | Defi-<br>nite          | 24.2±15.4*          | 3.87±0.66*                      | 7±3.4                               | Max. is 17,<br>but fall<br>between 8<br>and 17. |
| P-301-R-74907 | DS-21028 14% Butyl Methacrylate<br>Blend                | 71.7               | Pair                   | Defi-<br>nite          | 31.5±15.4*          | 4.40±0.66*                      | 7±3.4                               |                                                 |

\* Significant difference  
between any two means at  
p = 0.05.