

Emulsion Paints
House Paints

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Philadelphia Laboratory
September 29, 1949

REFERENCE COPY

MEMO REPORT NO. M-267

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"INDEXED"

4/15/53

INTERIOR FINISHES AS VAPOR BARRIERS

The moisture vapor permeability of 4 different interior paint systems has been determined in response to questions from the field and to evaluate Glidden's "Vapor Barrier" system. The results are reported as grains of water per hour per square foot per inch of mercury difference in vapor pressure. Since our tests are run under different conditions than those specified by A.S.T.M. (D-899-48T) or TAPPI (T-448) our data cannot be compared with their results or specifications. A.S.T.M. and TAPPI operate with a 45 - 50 % relative humidity difference, while the Philadelphia Laboratory method approaches 100% differences. We have no data to show that a change in relative humidity produces a proportional change in the rate of vapor passage.

The four systems and their vapor passage in grains are:

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|---|------|
| (1) Glidden's Spred "Vapor Barrier" system | 1.42 |
| (2) DuPont Semi-Gloss emulsion. | 1.36 |
| (3) DuPont Interior Gloss enamel and alkyd primer
sealer. | .17 |
| (4) DuPont Interior Gloss enamel and emulsion First
Coater | .16 |

The systems were prepared by applying the paints to tin plated sheets and removing the dry film by amalgamation. Each system consists of three coats, one of the specified primer and two of the topcoat. In the case of the semi-gloss emulsion, a third coat of the same material served as the primer. All coats were applied at approximately 400 - 500 sq. ft. per gallon.

Glidden's Spred "Vapor Barrier" System

The Glidden system consists of the Spred Primer Sealer and Spred Satin, which are both water emulsions of what appears to be Dow Latex 512-K (a butadiene-styrene copolymer emulsion). It is claimed that this system will pass only .45 grains of water vapor by the TAPPI method. The maximum rate usually accepted for

vapor barriers is 1 to 1-1/4 grains. The discrepancy between their claim according of TAPPI of .45 grains and our result of 1.42 grains is presumably due to the difference in the method.

References:

1. Letter: W. F. Singleton to J. W. Iliff - 10/16/46
2. Notebook 3568, page 96-97

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