

Tentative Method of Test for

WATER VAPOR PERMEABILITY OF PAPER AND OTHER SHEET MATERIALS AT ELEVATED TEMPERATURE AND HUMIDITY¹



A.S.T.M. Designation: D 830 - 45 T

ISSUED, 1945.²

This Tentative Method has been approved by the sponsoring committee and accepted by the Society in accordance with established procedures, for use pending adoption as standard. Suggestions for revisions should be addressed to the Society at 1916 Race St., Philadelphia 3, Pa.

Scope

1. This method of test covers the procedure for determining the permeability to water vapor of paper and other sheet materials at high temperature and humidity. The influence of temperature and humidity on the water vapor transmission of most sheet materials is not linear so that test results obtained under the standard atmospheric conditions prescribed in the Tentative Method of Test for Water Vapor Permeability of Paper and Paperboard (A.S.T.M. Designation: D 783)³ cannot be extrapolated to apply to excessively warm, damp atmospheric conditions. This method provides a means of predicting the permeability that will occur under such conditions.

Definition

2. Water vapor permeability is defined for the purpose of this test as the

weight of water transmitted per unit of time, per unit area, measured while the specimen separates a dry atmosphere in a test cell from an atmosphere of 90 per cent relative humidity at a temperature of 100 F. on the other face.

Apparatus

3. The apparatus shall consist of the following:

(a) *Test Dish*.—An open-mouth cup or dish of such size and shape that it can be accommodated readily on the pan of an analytical balance. The opening should be as large as practical, preferably with an area of at least 30 sq. cm. The test dish shall be of such design that a wax seal can be made that will be impervious to leakage of water vapor and will define clearly the test area. Suitable designs for the dish with supporting rings and flanges are shown in Fig. 1. Other modifications of these designs may be made, provided the principle of preventing edge leakage by means of a complete wax seal is retained.

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-6 on Paper and Paper Products.

² Accepted by Committee E-10 on Standards, June 27, 1945.

³ Appears in this publication, see Contents in Numeric Sequence of A.S.T.M. Designations at front of book.