

TESTING OF PAINT, VARNISH, LACQUER, AND RELATED MATERIAL

(A Modification of Federal Test Method Standard 141)

SCOPE

1. (a) This group of tests describes the procedures for routine chemical and/or physical testing of paints and the raw materials used in the manufacture of these organic protective coatings for surface preservation or marking of wood, metal, and/or masonry installations.

(b) This test method may involve hazardous material, operations, or equipment. This test method does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

(c) See Appendix A1 of the Materials Testing Manual for information regarding the procedure to be used for rounding numbers to the required degree of accuracy.

(d) Metric (SI) units and values are shown in this test method with English units and values following in parentheses. Values given for metric and English units may be numerically equivalent (soft converted) for the associated units, or they may be given as rounded or rationalized values (hard converted). Either the metric or English units along with their corresponding values shall be used in accordance with applicable specifications. See Appendix A2 of the Materials Testing Manual for additional information on the metric system.

APPARATUS & REAGENTS

2. (a) Requirements for the frequency of equipment calibration and verification are found in Appendix A3 of the Materials Testing Manual. All apparatus shall conform to those specifications given in the respective tests.

(b) All reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.

GENERAL

3. (a) Consistency - The determination of consistency of paint shall be as specified in ASTM Designation D 562, "Consistency of Paints Using the Stormer Viscosimeter."

(b) Drying Time - Determine the dry-to-touch and dry-hard times of paints by following the procedures specified in ASTM Designation D 1640, "Drying, Curing, or Film Formation of Organic Coatings at Room Temperature."

(c) Pigment Content - Follow ASTM Designation D 2371, "Pigment Content of Solvent-Reducible Paints," to determine percentage by weight. The remaining percentage may be considered as vehicle.

(d) Vehicle Composition - Follow ASTM Designation D 2621, "Infrared Identification of Vehicle Solids from Solvent-Reducible Paints."

(e) Density, kilograms per liter (pounds per gallon)

1) The apparatus shall consist of a smoothly finished aluminum, brass, stainless steel or plated cup provided with a snug-fitting, plug type cover having a small hole in its center. The capacity of the cup at 25.0 ± 0.5 °C shall be 83.2 ± 0.1 mL. The inside of the bottom of the cup shall be rounded. A convenient size for the apparatus is about 76 mm high by 38 mm in diameter. The cup shall be tared.

2) Pour the well-mixed paint, brought to a temperature of 25.0 ± 0.5 °C, into the cup until it is nearly full, put on the cover, rotate it firmly into place. Wipe off excess paint that exudes through the hole. Determine the weight of the sample to the nearest 0.1 gram. Multiply this weight by 0.012 to obtain the density in kilograms per liter (divide the weight of the sample by 10 to obtain the density in pounds per gallon).

3) This same procedure is applied for paste and semipaste, with care that all air pockets are removed from the material.

RAW MATERIALS, PIGMENTS

4. (a) White Pigments - Follow ASTM Designation D 34, "Chemical Analysis of White Pigments."

(b) Magnesium Silicate Pigments - Follow ASTM Designation D 717, "Analysis of Magnesium Silicate Pigment."

(c) Diatomaceous Silica - Follow ASTM Designation D 719, "Analysis of Diatomaceous Silica Pigment."

(d) Dry Red Lead - Follow ASTM Designation D 49, "Chemical Analysis of Dry Red Lead."

(e) Iron Oxide - Follow ASTM Designation D 50, "Chemical Analysis of Yellow, Orange, Red, and Brown Pigments Containing Iron and Manganese." Refer to Section 11 and 12 of same.

ALUMINUM PASTE

5. Follow ASTM Designation D 480, "Sampling and Testing of Flaked Aluminum Powders and Pastes," for the tests given below.

(a) Coarse Particles

(b) Easily Extracted Fatty and Oil Matter

(c) Nonvolatile Matter