Designation: D1360 – 98 (Reapproved 2011)

Standard Test Method for Fire Retardancy of Paints (Cabinet Method)[1]

This standard is issued under the fixed designation D1360; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method determines quantitatively the fire retardant properties of a coating or coating system on a wood surface and the leaching effect of water on the fire retardancy of the coating or coating system. Specifically, this test method determines the weight loss and char index of coated panels subjected to a flame and the effect of leaching of the coating on these parameters.

1.2 This test method should be used solely to measure and describe the properties of materials, products, or systems in response to heat and flame under controlled laboratory conditions and should not be considered or used for the description, appraisal, or regulation of the fire hazard of materials, products, or systems under actual fire conditions.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *Federal Standard:*[2]
Fed. Spec. TT-V-119 — Varnish Spar, Phenolic Resin

2.2 *Military Standard:*[2]
Mil. Spec. MIL-A-22397 — Adhesive Phenol, and Resorcinal Resin Base for Marine Use

2.3 *ASTM Adjuncts:*
Cabinet Assembly[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *fire retardancy, n— in paint,* the ability of a paint to retard the spread of a flame over coated substrate usually at the sacrifice of the paint film.

4. Summary of Test Method

4.1 *Fire Retardancy*—Panels are conditioned before and after coating with the material under test. They are subjected to a flame from a small amount of burning alcohol or other solvent, and the weight loss and char index are determined.

4.2 *Leaching*—Similarly prepared panels are immersed in water for a specified time and then subjected to the fire-retardancy test. The weight loss, char index, and difference in weight loss and char index between leached and unleached panels are determined.

5. Significance and Use

5.1 This test method determines the relative fire-retardant properties of coatings and the water leaching of the fire-retardant material from the applied coating. Leaching simulates the effect of high humidity, weathering, and washing on the fire retardancy of a coating, and is specified in various regulations and specifications for fire-retardant paints.

6. Apparatus

6.1 *Cabinet,*[3,4] a glass and metal box as shown in Fig. 1.

6.2 *Assembly,*[3,4] consisting of supports for the test panels and solvent cup. The assembly is shown within the cabinet in Fig. 1.

6.3 *Cylindrical Cup,* to hold solvent, made of brass to the following dimensions:

Outside diameter, mm (in.)	24 (15/16)
Outside height, mm (in.)	17 (11/16)
Wall thickness, mm (in.)	1 (1/32)
Volume, mL	6.0
Operating capacity, mL	5.0

[1] This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.21 on Chemical Analysis of Paints and Paint Materials.

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[2] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://dodssp.daps.dla.mil.

[3] Drawings of cabinet, assembly, etc., are available from ASTM International Headquarters. Order Adjunct No. ADJD1360. Original adjunct produced in 1985.

[4] The sole source of supply of a suitable cabinet and assembly known to the committee at this time is Dek-Tron Scientific, 244 East 3rd St., Plainfield, NJ 07060. If you are aware of alternative suppliers, pleasse provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.

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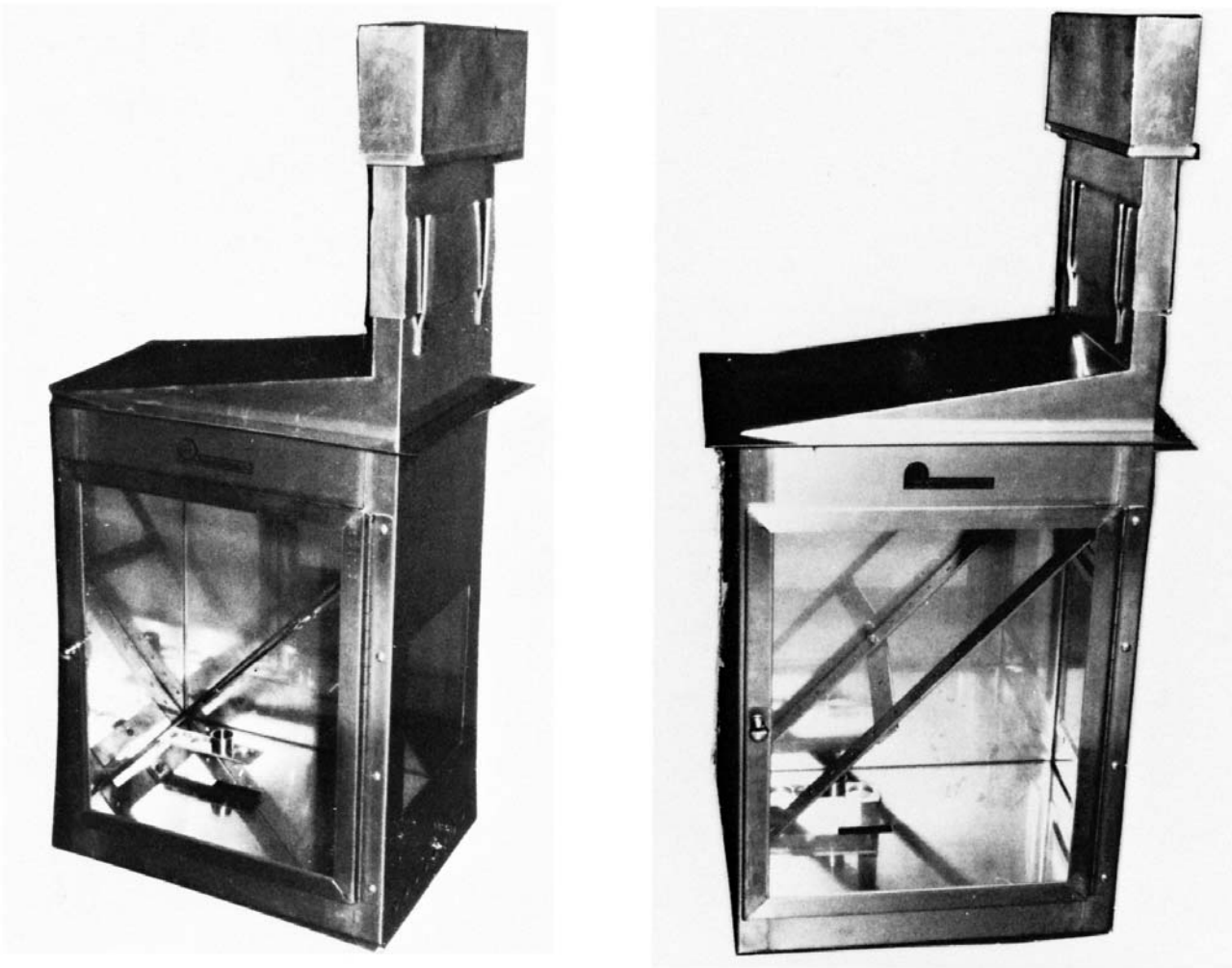

View A View B

FIG. 1 Apparatus

6.4 *Balance,* weighing to 0.1 g.

6.5 *Buret or Pipet,* calibrated in millilitres.

6.6 *Container or Water Bath,* 320 by 165 by 165 mm (12.5 by 6.5 by 6.5 in.), galvanized steel with cover to accommodate 15 panels, or other sizes to accommodate 5 to 10 panels.

6.7 *Oven* capable of maintaining a temperature of 50 ± 2°C (120 ± 3°F).

6.8 *Constant Temperature and Humidity Cabinet or Room,* maintained at 50 ± 5 % relative humidity and 23 ± 2°C (73.5 ± 3.5°F).

7. Test Materials

7.1 *Ignition Fuel,* absolute ethyl alcohol (ethanol) or comparable solvent blend.

NOTE 1—A mixture of 71.4 % reagent grade isopropanol and 28.6 % reagent grade methanol having the same heat of combustion as pure absolute ethanol may be used as the source of ignition.

7.2 *Test Panels:*

7.2.1 Unless otherwise specified or agreed, yellow poplar heartwood panels 6 by 150 by 305 mm (¼ by 6 by 12 in.), close-grain, and as nearly edge grain as possible, free from knots and other imperfections, with surfaces planed and sanded. Panels shall be of solid wood or edge glued sections to obtain the width, provided that no strip is less than 38 mm (1 ½ in.) wide and that no more than two glue lines occur in any one panel. The adhesive used in gluing these panels shall conform to Mil. Spec. MIL-A-22397. Test panels shall be kiln dried so as to contain no more than 10.0 weight % moisture and after conditioning as specified in 8.1 shall weigh from 125 to 140 g/panel (27 to 30 lb/ft^3).

7.2.2 Douglas fir or other woods shown in Table 1 may be used where required. Table 1 shows the densities and weight per panel for each wood after conditioning.

NOTE 2—Asbestos board (or inorganic reinforced cement board), steel,

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