



Designation: D5025 – 05

Standard Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials¹

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1. Scope*

1.1 This specification covers the physical dimensions and characteristics of a laboratory burner to be used as an ignition source for small-scale burning tests on plastic materials. The burner is used with methane, propane, or butane supply gases for flame heights of 20 to 125 mm.

NOTE 1—The burner described in this specification is suitable for use in the following ASTM standards: Specification C509, Test Method D229, Test Method D635, Test Method D876, Test Method D3014, Test Method D3801, Test Method D4804, Test Method D4986, and Test Method D5048. Safety hazards and known limitations on applicability of fire-test-response standards are addressed in the individual test methods.

NOTE 2—This specification is equivalent to the ignition source specified in IEC 60695-11-3, Annex A and IEC 60695-11-4, Annex A.

NOTE 3—This specification is equivalent to the P/PF2 ignition source specified in ISO 10093.

2. Referenced Documents

2.1 ASTM Standards:²

- C509 Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
- D229 Test Methods for Rigid Sheet and Plate Materials Used for Electrical Insulation
- D635 Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
- D876 Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation
- D883 Terminology Relating to Plastics
- D1600 Terminology for Abbreviated Terms Relating to Plastics
- D3014 Test Method for Flame Height, Time of Burning, and Loss of Mass of Rigid Thermoset Cellular Plastics in a Vertical Position

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.30 on Thermal Properties.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- D3801 Test Method for Measuring the Comparative Burning Characteristics of Solid Plastics in a Vertical Position
- D4804 Test Method for Determining the Flammability Characteristics of Nonrigid Solid Plastics
- D4986 Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials
- D5048 Test Method for Measuring the Comparative Burning Characteristics and Resistance to Burn-Through of Solid Plastics Using a 125-mm Flame
- D5207 Practice for Confirmation of 20-mm (50-W) and 125-mm (500-W) Test Flames for Small-Scale Burning Tests on Plastic Materials
- E176 Terminology of Fire Standards

2.2 ISO Standards:³

ISO 10093 Plastics—Fire Tests—Standard Ignition Sources

2.3 IEC Standards:³

IEC TS 60695-11-3 Fire Hazard Testing—Part 11-3: Test Flames—50W Flames—Apparatus and Confirmational Test Methods

IEC TS 60695-11-4 Fire Hazard Testing—Part 11-4: Test Flames—500W Flames—Apparatus and Confirmational Test Methods

3. Terminology

3.1 *Definitions*—For terms relating to plastics, the definitions are in accordance with Terminology D883, and the abbreviations are in accordance with Terminology D1600. For terms relating to fire, the definitions are in accordance with Terminology E176.

4. Design

4.1 The burner shall consist of a barrel that threads onto a one-piece base and gas inlet, as shown in Fig. 1. The components shall be constructed of metal.

4.1.1 *Burner Barrel*—The burner barrel shall consist of a mixing tube and threaded air-inlet adapter. The mixing tube shall be of seamless construction, with an inside diameter of 9.5 ± 0.3 mm. The length of the barrel from the top of the air-inlet openings to the top of the mixing tube shall be

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

*A Summary of Changes section appears at the end of this standard.