



Designation: D4804 – 19

Standard Test Method for Determining the Flammability Characteristics of Nonrigid Solid Plastics¹

This standard is issued under the fixed designation D4804; 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 fire-test-response test methods describe small-scale laboratory procedures for determining the comparative burning characteristics of solid plastic materials that, due to specimen thinness and nonrigidity, distort, shrink, and/or are consumed up to holding clamp when tested using Test Method D3801. A flame is applied to the base of specimens held in a vertical position and the extinguishing times are determined upon removal of the test flame.

1.2 The classification system described in Appendix X1 is intended for quality assurance and the preselection of component materials for products.

1.3 This standard measures and describes the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire hazard or fire risk assessment of the materials, products, or assemblies under actual fire conditions.

NOTE 1—This standard is equivalent to ISO 9773, IEC 60695-11-10, and UL 94 (Section 11).

NOTE 2—For rate of burning of nonrigid solid plastics in a horizontal position, formerly Test Method B of this test method, see Test Method D635.

1.4 This test method is not intended to cover plastics when used as materials for building construction or finishing.

1.5 *Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.*

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see 6.1.1.

1.7 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

D635 Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position

D883 Terminology Relating to Plastics

D3801 Test Method for Measuring the Comparative Burning Characteristics of Solid Plastics in a Vertical Position

D5025 Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials

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

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 ISO Standards:

ISO 9773-98 Plastics—Determination of Burning Behaviour of Thin Flexible Vertical Specimens in Contact With a Small Flame Ignition Source³

3. Terminology

3.1 *Definitions*—For terms relating to plastics, the definitions in this test method are in accordance with Terminology D883. For definitions of fire-related terms used in this test method, refer to Terminology E176.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *flame-application time*—the time in seconds that the flame from the burner is in contact with the specimen.

3.2.2 *flaming material*—flaming drips or particles from the specimen which ignite the dry, absorbent 100 % surgical cotton placed 300 mm $\pm$ 10 mm below the test specimen.

¹ This test method 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.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

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