



Designation: D4986 – 20

Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials¹

This standard is issued under the fixed designation D4986; 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 standard contains a test method for small-scale laboratory procedures to be used to determine the relative rate of burning and the extent and time of burning of horizontally oriented cellular polymeric materials having a density less than 250 kg/m³.

1.2 The results are intended to serve as a preliminary indication of their acceptability with respect to flammability for a particular application. The final acceptance of the material is dependent upon its use in the end-product that conforms with the standards applicable to such end-product.

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

1.4 *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.*

1.5 The values stated in SI units are to be regarded as standard.

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 a specific hazard statement, see **6.1.1**.

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

NOTE 1—This test method is equivalent to ISO 9772.

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 *ASTM Standards:*²

D883 Terminology Relating to Plastics

D4483 Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries

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

E176 Terminology of Fire Standards

E456 Terminology Relating to Quality and Statistics

E2016 Specification for Industrial Woven Wire Cloth

2.2 *ISO Standard:*³

ISO 9772 Cellular Plastics—Determination of Horizontal Burning Characteristics of Small Specimens Subjected to a Small Flame

ISO 13943 Fire Safety—Vocabulary

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms relating to plastics, the definitions in this test method are in accordance with Terminology **D883**. For terms relating to fire, the definitions in this test method are in accordance with Terminology **E176** and ISO 13943. In case of conflict, the definitions given in Terminology **E176** shall prevail. For terms relating to precision and bias and associated issues, the terms used in this test method are in accordance with the definitions in Terminology **E456**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *afterflame, n*—flame that persists after the ignition source has been removed.

3.2.2 *afterflame time, n*—the length of time for which a material continues to flame, under specified conditions, after the ignition source has been removed.

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