



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 test method describes a small-scale horizontally oriented burning test procedure for comparing the relative rate of burning and the extent and time of burning of cellular polymeric materials having a density less than 250 kg/m³.

1.2 The classification system described in the [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.*

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

1.5 *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.* For a specific hazard statement, see [Note 3](#).

1.6 *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.

2. Referenced Documents

2.1 ASTM Standards:²

[D4483 Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries](#)

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.

[D5025 Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials](#)

[E176 Terminology of Fire Standards](#)

[E437 Specification for Industrial Wire Cloth and Screens \(Square Opening Series\) \(Discontinued 2000\) Replaced by E 2016 \(Withdrawn 2000\)](#)³

2.2 *ISO Standard:*

[ISO 9772 Cellular Plastics—Determination of Horizontal Burning Characteristics of Small Specimens Subjected to a Small Flame](#)⁴

3. Terminology

3.1 Definitions:

3.1.1 For definitions of fire-related terms used in this test method, refer to Terminology [E176](#).

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

3.1.3 *afterglow time, n*—the length of time for which a material continues to glow under specified test conditions, after the ignition source has been removed or cessation of flaming, or both.

3.1.4 *flame, v*—to undergo combustion in the gaseous phase with emission of light.

3.1.5 *glow, n*—visible light, other than from flaming, emitted by a solid undergoing combustion.

4. Summary of Test Method

4.1 This test method for measuring the burning characteristics of cellular polymeric materials employs a small standard test specimen 50 by 150 mm. The specimen is supported horizontally. One end is exposed to a specified gas flame for 60 s and the extent of burning is measured.

5. Significance and Use

5.1 This test method provides a means of measuring the time and extent of burning for cellular polymeric materials. It

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ 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