



Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source¹

This standard is issued under the fixed designation E 162; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This fire-test-response standard describes the measurement of surface flammability of materials. It is not intended for use as a basis of ratings for building code purposes (see Appendix X1).

1.2 The values stated in pound-inch units are to be regarded as the standard. The values in parentheses are for information only.

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 *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.*

1.5 Fire testing of products and materials is inherently hazardous, and adequate safeguards for personnel and property shall be employed in conducting these tests. This test method may involve hazardous materials, operations, and equipment. Specific information about hazard is given in Section 7.

NOTE 1—There is no similar or equivalent ISO standard.

2. Referenced Documents

2.1 ASTM Standards:

- D 3675 Test Method for Surface Flammability of Flexible Cellular Materials Using a Radiant Heat Energy Source²
- E 84 Test Method for Surface Burning Characteristics of Building Materials³
- E 176 Terminology Relating to Fire Standards³
- E 1546 Guide for Development of Fire Hazard Assessment Standards³

¹ This test method is under the jurisdiction of ASTM Committee E05 on Fire Standards and is the direct responsibility of Subcommittee E05.22 on Surface Burning.

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² Annual Book of ASTM Standards, Vol 08.02.

³ Annual Book of ASTM Standards, Vol 04.07.

2.2 ISO Standards⁴

ISO 13943 Fire Safety—Vocabulary

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method, refer to the terminology contained in Terminology E 176 and ISO 13943. In case of conflict, the definitions given in Terminology E 176 shall prevail.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *radiant panel index, I_s, n* —the radiant panel index is the product of the flame spread factor, F_s , and the heat evolution factor, Q .

3.2.2 *flashing, n* —flame fronts of 3 seconds or less in duration.

3.2.2.1 *Discussion*—All flame fronts, however temporary, are to be taken into account.

4. Summary of Test Method

4.1 This test method of measuring surface flammability of materials employs a radiant heat source consisting of a 12 by 18-in. (305 by 457-mm) panel, in front of which an inclined 6 by 18-in. (152 by 457 mm) specimen of the material is placed. The orientation of the specimen is such that ignition is forced near its upper edge and the flame front progresses downward.

4.2 A factor derived from the rate of progress of the flame front and another derived from the rate of heat liberated by the material under test are combined to provide a radiant panel index.

5. Significance and Use

5.1 This test method provides a laboratory test procedure for measuring and comparing the surface flammability of materials when exposed to a prescribed level of radiant heat energy. It is intended for use in measurements of the surface flammability of materials exposed to fire. The test is conducted using small specimens that are representative, to the extent possible, of the material or assembly being evaluated. (Example: in terms of their thickness, layering, and any potential substrate.)

⁴ Available from International Standardization Organization, P.O. Box 56, CH-1211, Geneva 20, Switzerland.

