



Standard Test Method for Surface Flammability of Flexible Cellular Materials Using A Radiant Heat Energy Source¹

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1. Scope

1.1 This is a fire test response standard.

1.2 This test method describes the measurement of surface flammability of flexible cellular materials.

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 hazards is given in Section 7.

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

2. Referenced Documents

2.1 ASTM Standards:

E 84 Test Method for Surface Burning Characteristics of Building Materials²

E 162 Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source²

E 176 Terminology of Fire Standards²

E 1317 Test Method for Flammability of Marine Surface Finishes²

E 1321 Test Method for Determining Material Ignition and Flame Spread Properties²

E 1546 Guide for Development of Fire-Hazard-Assessment Standards²

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 Annual Book of ASTM Standards, Vol 04.07.

2.2 ISO Standards:³

ISO 13943 Fire Safety— Vocabulary

3. Terminology

3.1 Definitions:

3.1.1 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.

3.1.2 *flame front, n*—the leading edge of a flame propagating through a gaseous mixture or across the surface of a liquid or solid.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *flashing, n*—flame fronts of three seconds or less in duration.

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

4. Summary of Test Method

4.1 This test method of measuring surface flammability of flexible cellular materials employs a radiant panel heat source consisting of a 300 by 460-mm (12 by 18-in.) panel in front of which an inclined 150 by 460-mm (6 by 18-in.) 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 Factors derived from the rate of progress of the flame front and 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 is intended for use when measuring surface flammability of flexible cellular materials exposed to fire. The 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. The test is conducted using specimens that are representative, to the extent possible, of the material or assembly being evaluated.

³ Available from International Standardization Organization, P.O. Box 56, CH-1211; Geneva 20, Switzerland.