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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Method for Determining Changes in Fire-Test-Response Characteristics of Cushioning Materials After Water Leaching[1]

This standard is issued under the fixed designation F 1534M; 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.

ε1 NOTE—The designation of this standard was corrected in November 1994.

1. Scope

1.1 This fire-test-response test method covers a procedure for leaching cushioning materials with water and determining changes in two specific fire-test-response characteristics: (*1*) the surface flammability, per Test Method D 3675 and (*2*) the specific optical density of smoke generated, per Test Method E 662.

1.2 *This standard should be used to measure and describe the response of materials, products or assemblies to heat and flame under controlled conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire hazard or fire risk assessment which takes into account all of the factors that are pertinent to an assessment of the fire hazard or fire risk of a particular end use.*

1.3 In view of the wide variation in potential service conditions, it is likely that results of this leaching test will not give a direct correlation with service performance for all applications. However, the test method yields comparative data on which to base judgments as to expected service of cushioning materials and is useful in research and development work.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 3675 Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source[2]

E 176 Terminology Relating to Fire Standards[3]

E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials[3]

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method and associated with fire issues refer to Terminology E 176.

3.2 *Descriptions of Terms Specific to This Standard:*

3.2.1 *cushioning, n*—the material used to isolate or reduce the effect of externally applied shock or vibration forces, or both.

3.2.2 *fire performance, n*—response of a material, product, or assembly in a specific fire, other than a fire test involving controlled conditions (different from fire-test-response characteristic, q.v.).

3.2.2.1 *Discussion*—The ASTM Policy on Fire Standards distinguishes between the response of materials, products, or assemblies to heat and flame "under controlled conditions," which is fire-test-response characteristic, and "under actual fire conditions," which is fire performance. Fire performance depends on the occasion or environment and may not be measurable. In view of the limited availability of fire-performance data, the response to one or more fire tests, appropriately recognized as representing end-use conditions, is generally used as a predictor of the fire performance of a material, product, or assembly.

3.2.3 *fire-test-response characteristic, n*—a response characteristic of a material, product, or assembly, to a prescribed source of heat, or flame, under controlled fire conditions; such response characteristics may include but are not limited to ease of ignition, flame spread, heat release, mass loss, smoke generation, fire endurance, and toxic potency of smoke.

3.2.3.1 *Discussion*—A fire-test-response characteristic can be influenced by variables of exposure such as ignition intensity, ventilation, geometry of item or enclosure, humidity, or oxygen concentration. It is not an intrinsic property such as specific heat, thermal conductivity, or heat of combustion, where the value is independent of test variables. A fire-test-response characteristic may be described in one of several terms. Smoke generation, for example, may be described as smoke opacity, change of opacity with time, or smoke weight. No quantitative correlation need exist between values of a response characteristic for two or more materials, products, or assemblies, as measured by two or more approaches, or tested under two or more sets of conditions for a given method.

3.2.4 *leaching, n*—the removal in solution of the more soluble materials by percolating or moving water.

3.2.5 *softened water, n*—water that has been treated with

[1] This test method is under the jurisdiction of ASTM Committee F-33 on Detention and Correctional Facilities and is the direct responsibility of Subcommittee F33.05 on Furnishings and Equipment.
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[2] *Annual Book of ASTM Standards*, Vol 09.02.
[3] *Annual Book of ASTM Standards*, Vol 04.07.