



Standard Test Method for Measurement of Smoke Obscuration Using a Conical Radiant Source in a Single Closed Chamber, With the Test Specimen Oriented Horizontally¹

This standard is issued under the fixed designation E 1995; 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 is a fire-test-response standard.

1.2 This test method provides a means of measuring smoke obscuration resulting from subjecting essentially flat materials, products, or assemblies (including surface finishes), not exceeding 25 mm [1 in.] in thickness, in a horizontal orientation, exposed to specified levels of thermal irradiance, from a conical heater, in the presence of a pilot flame, in a single closed chamber. Optional testing modes exclude the pilot flame.

1.3 The principal fire-test-response characteristic obtained from this test method is the specific optical density of smoke from the specimens tested, which is obtained as a function of time, for a period of 10 min.

1.4 An optional fire-test-response characteristic measurable with this test method is the mass optical density (see Annex A1), which is the specific optical density of smoke divided by the mass lost by the specimens during the test.

1.5 The fire-test-response characteristics obtained from this test are specific to the specimen tested, in the form and thickness tested, and are not an inherent property of the material, product, or assembly.

1.6 This test method does not provide information on the fire performance of the test specimens under fire conditions other than those conditions specified in this test method. For limitations of this test method, see 5.5.

1.7 Use the SI system of units in referee decisions; see IEEE/ASTM SI-10. The inch-pound units given in brackets are for information only.

1.8 *This test method is used to measure and describe 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.*

1.9 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. See also 6.2.1.2, Section 7, and 11.7.2.

1.10 *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:²

- D 2843 Test Method for Density of Smoke from the Burning or Decomposition of Plastics
- D 4100 Test Method for Gravimetric Determination of Smoke Particulates from Combustion of Plastic Materials
- D 5424 Test Method for Smoke Obscuration of Insulating Materials Contained in Electrical or Optical Fiber Cables When Burning in a Vertical Cable Tray Configuration
- E 84 Test Method for Surface Burning Characteristics of Building Materials
- E 176 Terminology of Fire Standards
- E 603 Guide for Room Fire Experiments
- E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- E 906 Test Method for Heat and Visible Smoke Release Rates for Materials and Products
- E 1354 Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter
- E 1474 Test Method for Determining the Heat Release Rate of Upholstered Furniture and Mattress Components or Composites Using a Bench Scale Oxygen Consumption Calorimeter

¹ This test method is under the jurisdiction of ASTM Committee E05 on Fire Standards and is the direct responsibility of Subcommittee E05.21 on Smoke and Combustion Products.

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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.

