



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 E1995; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

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

[D2843 Test Method for Density of Smoke from the Burning or Decomposition of Plastics](#)

[D4100 Test Method for Gravimetric Determination of Smoke Particulates from Combustion Of Plastic Materials \(Withdrawn 1997\)](#)³

[D5424 Test Method for Smoke Obscuration of Insulating Materials Contained in Electrical or Optical Fiber Cables When Burning in a Vertical Cable Tray Configuration](#)

[E84 Test Method for Surface Burning Characteristics of Building Materials](#)

[E176 Terminology of Fire Standards](#)

[E603 Guide for Room Fire Experiments](#)

[E662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials](#)

[E906 Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using a Thermopile Method](#)

[E1354 Test Method for Heat and Visible Smoke Release](#)

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.

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

*A Summary of Changes section appears at the end of this standard