



Standard Test Method for Determining the Corrosive Effect of Combustion Products Using the Cone Corrosimeter¹

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1. Scope

1.1 This fire-test-response standard measures the corrosive effect by loss of metal from the combustion products of materials, components, or products.

1.2 This test method provides corrosion results of product and material specimens limited to a maximum size of 100 by 100 mm in area and 50 mm thick.

1.3 The results of this test method have not been investigated with respect to correlation to actual fires.

1.4 *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.*

1.4.1 Additional information regarding the targets, the test conditions, and test limitations are provided in the annex.

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.* For specific hazard statements, see Section 7.

1.6 The values stated in SI units are the standard (see IEEE/ASTM SI 10).

2. Referenced Documents

2.1 ASTM Standards:

D 618 Practice for Conditioning Plastics for Testing²

D 1711 Terminology Relating to Electrical Insulation³

E 176 Terminology of Fire Standards⁴

E 1354 Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter⁴

IEEE/ASTM SI-10 Standard for Use of the International System of Units (SI): The Modern Metric System⁵

2.2 Other Document:

OSHA 191.1450 Occupational Exposure to Hazard Chemicals in Laboratories⁶

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, refer to Terminologies E 176 and D 1711.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *cone corrosimeter, n*—equipment used to determine corrosion in this test method.

3.2.2 *corrosion-by-metal-loss, n*—loss of metal of a target expressed as reduction of thickness of the target metal.

3.2.3 *exposure chamber, n*—enclosure in which a target is exposed to combustion products.

3.2.4 *heating flux, n*—incident power per unit area that is imposed externally from the heater on the specimen.

3.2.4.1 *Discussion*—The specimen, once ignited, is also heated by its own flame.

3.2.5 *sustained flaming, n*—existence of flame on or over the surface of the test specimen for periods of 4 s or more.

3.2.5.1 *Discussion*—Flaming ignition of less than 4 s is identified as transitory flaming or flashing.

3.2.6 *target, n*—detector of known electrical resistance which can lose metal through a process of corrosion when it is exposed to combustion products.

3.3 Symbols Specific to This Standard:

3.3.1 A_0 —initial corrosion instrument reading.

3.3.2 A_1 —corrosion instrument reading at the end of 1-h exposure to combustion products.

3.3.3 A_{24} —corrosion instrument reading at the end of 24 h in the environmental chamber.

3.3.4 C —corrosion of a target, nm.

3.3.5 C_1 —corrosion at the end of 1-h exposure to combustion products, nm.

3.3.6 C_{24} —corrosion at the end of 24 h in the environmental chamber, nm.

¹ This test method is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.21 on Fire Performance Standards.

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² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 10.01.

⁴ *Annual Book of ASTM Standards*, Vol 04.07.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ Available from Occupational Safety and Health Agency.