



Standard Test Method for Determining the Heat Release Rate and Other Fire-Test-Response Characteristics of Wall Covering or Ceiling Covering Composites Using a Cone Calorimeter¹

This standard is issued under the fixed designation E1740; 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.

INTRODUCTION

This test method provides a means for measuring the fire-test-response characteristics of wall coverings, ceiling coverings, wall covering composites, and ceiling covering composites using a bench-scale oxygen consumption calorimeter.

1. Scope*

1.1 This fire-test-response test method covers determination of the ignitability and heat release rate of composites consisting of a wall covering or ceiling covering, a substrate, and all laminating adhesives, coatings, and finishes. Heat release information cannot be used alone to evaluate the flammability of wall coverings or ceiling coverings. The data are intended to be used for modeling or with other data to evaluate a material.

1.2 This test method provides for measurement of the time to sustained flaming, heat release rate, peak and total heat release, and effective heat of combustion at a constant initial test heat flux of 35 kW/m². Heat release data at different heat fluxes are also obtained by this test method. The specimen is oriented horizontally, and a spark ignition source is used.

1.3 The fire-test-response characteristics are determined using the apparatus and procedures described in Test Method [E1354](#).

1.4 The tests are conducted on bench-scale specimens combining the components used in the actual installation.

1.5 The values stated in SI units are to be regarded as the standard. See [IEEE/ASTM SI-10](#).

1.6 Fire testing of products and materials is inherently hazardous, and adequate safeguards for personnel and property shall be used in conducting these tests. This test method potentially involves hazardous materials, operations, and equipment.

1.7 *This standard 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.*

1.8 *Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests. Specific information about hazard is given in Section 6.*

1.9 *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

[C1186](#) Specification for Flat Fiber-Cement Sheets

[D123](#) Terminology Relating to Textiles

[D5865](#) Test Method for Gross Calorific Value of Coal and Coke

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

[E176](#) Terminology of Fire Standards

[E603](#) Guide for Room Fire Experiments

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

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.

Current edition approved April 1, 2015. Published May 2015. Originally approved in 1995. Last previous edition approved in 2010 as E1740 – 10. DOI: 10.1520/E1740-15.

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.