



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

This standard is issued under the fixed designation E 1740; 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 wallcoverings and wallcovering 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 wallcovering, a substrate, and all laminating adhesives, coatings, and finishes. Heat release information cannot be used alone to evaluate the flammability of wallcoverings. 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 radiant heat flux of 35 kW/m². Heat release data at different heating 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 E 1354.

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 Practice E 380.

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 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. 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:

C 1186 Specification for Flat Non-Asbestos Fiber-Cement Sheets²

D 123 Terminology Relating to Textiles³

E 84 Test Method for Surface Burning Characteristics of Building Materials⁴

E 176 Terminology of Fire Standards⁴

E 380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)⁵

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

E 1474 Test Method for Determining the Heat Release Rate of Upholstered Furniture and Mattress Components or Composites Using a Bench Scale Oxygen Consumption Calorimeter⁴

2.2 NFPA Standard:⁶

NFPA 265 Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Covering

¹ This test method is under the jurisdiction of ASTM Committee E05 on Fire Standards and is the direct responsibility of Subcommittee E05.15 on Furnishings and Contents.

Current edition approved Aug. 10, 2000. Published October 2000. Originally published as E 1740 – 95. Last previous edition E 1740 – 95.

² Annual Book of ASTM Standards, Vol 04.05.

³ Annual Book of ASTM Standards, Vol 07.01.

⁴ Annual Book of ASTM Standards, Vol 04.07.

⁵ Annual Book of ASTM Standards, Vol 14.02.

⁶ Available from National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269-9101.