Designation: E 1474 – 04

An American National Standard

Standard 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 standard is issued under the fixed designation E 1474; 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 ignition time and heat release of the composite upholstered components of upholstered furniture and mattresses using an oxygen consumption calorimeter.

1. Scope

1.1 This fire-test-response test method can be used to determine the ignitability and heat release from the composites of contract, institutional, or high-risk occupancy upholstered furniture or mattresses using a bench scale oxygen consumption calorimeter.

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/m^2. Heat release data at different heating fluxes may also be obtained by this test method. The specimen is oriented horizontally, and a spark ignition source is used.

1.3 The times to sustained flaming, heat release, and effective heat of combustion are determined using the apparatus and procedures described in Test Method E 1354.

1.4 The tests are performed on bench-scale specimens combining the furniture or mattress outer layer components. Frame elements are not included.

1.5 This test method should be used to measure or describe the responses of materials, products, or assemblies to heat and flame under controlled conditions and should not be used to describe or appraise the fire hazard or fire risks of materials, products, or assemblies under actual fire conditions. However, the results of the test may be used as elements of a fire hazard assessment or a fire risk assessment that takes into account all of the factors that are pertinent to an assessment of the fire hazard or fire risk of a particular end use.

1.6 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.7 *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 precautionary statements, see Section 6.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 123 Terminology Relating to Textiles

E 176 Terminology of Fire Standards

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

2.2 *Other Documents:*

CA TB 133, Flammability Test Procedure for Seating Furniture for Use in Public Occupancies[3]

ISO 5725 Part 2, Accuracy (Trueness and Precision) of Measurement Methods and Results—Basic Method for the Determination of Repeatability and Reproducibility of a Standard Measurement Method[4]

[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.

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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] Available from State of California, Dept. of Home Furnishings and Thermal Insulation, North Highlands, CA 95660-5595.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

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