

NFPA® 701

Standard Methods of
Fire Tests for Flame
Propagation of
Textiles and Films

2010 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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ISBN: 978-087765939-6 (Print)
ISBN: 978-087765987-7 (PDF)

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NFPA® 701

Standard Methods of

Fire Tests for Flame Propagation of Textiles and Films

2010 Edition

This edition of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, was prepared by the Technical Committee on Fire Tests. It was issued by the Standards Council on October 27, 2009, with an effective date of December 5, 2009, and supersedes all previous editions.

This edition of NFPA 701 was approved as an American National Standard on December 5, 2009.

Origin and Development of NFPA 701

Requirements for flameproofing of textiles were adopted by the NFPA on recommendation of the Committee on Fireproofing and Preservative Treatments in 1938. These requirements were amended in 1939, 1940, 1941, and 1951. This standard is now under the jurisdiction of the NFPA Technical Committee on Fire Tests; the 1966 edition, which was an extensive revision of the previous edition, was prepared by that committee, as were the 1968, 1969, 1975, 1976, and 1977 editions.

The 1989 edition was a complete rewrite with significant changes to the small-scale test.

The 1996 edition represented a significant departure from earlier editions, as it provided a new test for single-layer and multilayer fabric assemblies but maintained the large-scale test for multilayer assemblies involving coated fabric blackout linings. This new test was developed to address the problem presented by multilayer assemblies that could not be addressed by the current test procedures. The new Test 1 proved through experience to be an adequate predictor of the behavior of single-layer and multilayer assemblies. Chapter 10, "Field Test, Match Flame Test," of the 1989 edition was established as a separate document, NFPA 705, *Recommended Practice for a Field Flame Test for Textiles and Films*.

The 1999 edition incorporated mostly editorial revisions that reflected the appropriate terminologies used within the document. Many of the editorial changes applied to the application of test procedures for flame propagation of textiles and film in lieu of a material being designated as flame resistant. A section on conditioning of test specimens was added to assist the user.

The 2004 edition included a complete editorial rewrite of the document to come into compliance with the *Manual of Style for NFPA Technical Committee Documents*. As such, significant chapter renumbering and rearranging of information occurred. Technical changes in the 2004 edition provided clarifications that Test Method 1 was not applicable for plastic blinds and multilayered fabrics. Advisory information was added to the annex regarding previous small-scale test methodologies that were no longer applicable.

The 2010 edition includes a number of primarily organizational changes. The lists and examples of the types of materials that are governed by NFPA 701 have been relocated from Chapter 1 to Annex A. The applicable test protocols for materials that are to be used as part of an interior finish application have been revised to recognize the ASTM E84/UL 723 tests. NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, has also been included as an acceptable test for evaluation of materials for interior finish.



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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

Information on referenced publications can be found in Chapter 2 and Annex E.

Chapter 1 Administration

1.1* Scope.

1.1.1* Test Method 1.

1.1.1.1 Test Method 1 shall apply to fabrics or other materials used in curtains, draperies, or other window treatments. Vinyl-coated fabric blackout linings shall be tested according to Test Method 2.

1.1.1.2 Test Method 1 shall apply to single-layer fabrics and to multilayer curtain and drapery assemblies in which the layers are fastened together by sewing or other means. Vinyl-coated fabric blackout linings shall be tested according to Test Method 2.

1.1.1.3 Test Method 1 shall apply to specimens having an areal density less than or equal to 700 g/m² (21 oz/yd²), except where Test Method 2 is required to be used by 1.1.2.

1.1.2 Test Method 2.

1.1.2.1 Test Method 2 (flat specimen configuration) shall be used for fabrics, including multilayered fabrics, films, and plastic blinds, with or without reinforcement or backing, with areal densities greater than 700 g/m² (21 oz/yd²).

1.1.2.2 Test Method 2 shall be used for testing vinyl-coated fabric blackout linings and lined draperies using a vinyl-coated fabric blackout lining.

1.1.2.3 Test Method 2 shall be used for testing plastic films, with or without reinforcement or backing, when used for decorative or other purposes inside a building or as temporary or permanent enclosures for buildings under construction.

1.1.2.4 Test Method 2 shall apply to fabrics used in the assembly of awnings, tents, tarps, and similar architectural fabric structures and banners.

1.1.3 Test Methods 1 and 2.

1.1.3.1 When durability to cleaning or weathering is claimed, the textile or material shall be tested for flame propagation as produced and after being subjected to the applicable cleaning or exposure procedures, in accordance with Chapter 16.

1.1.3.2 For materials that are to be applied to surfaces of buildings or backing materials that are to be used in buildings as interior finishes, the test textiles and films shall be tested and classified in accordance with ASTM E 84, ANSI/UL 723, NFPA 265, *Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls*, or NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, whichever is required by the authority having jurisdiction.

1.2* Purpose.

1.2.1 The purpose of Test Methods 1 and 2 shall be to assess the propagation of flame beyond the area exposed to the ignition source.

1.2.2 Test Methods 1 and 2 shall not be deemed to indicate whether the material tested resists the propagation of flame under more severe fire exposure conditions or when the material is used in a manner that differs from the test conditions.

1.3 Units.

1.3.1 If a value for measurement as given in this standard is followed by an equivalent value in other units, the first stated value shall be regarded as the requirement.

1.3.2 A given equivalent value shall be considered to be approximate.

Chapter 2 Referenced Publications

2.1 **General.** The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 **NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 265, *Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls*, 2007 edition.

NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, 2006 edition.

2.3 Other Publications.

2.3.1 **AATCC Publications.** American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

AATCC *Test Method 124, Appearance of Fabrics After Repeated Home Laundering*, 2006.

2.3.2 **ASTM Publications.** ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 5025, *Standard Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials*, 2005.