



Standard Test Method for Flammability of Blankets¹

This standard is issued under the fixed designation D 4151; 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.

1. Scope

1.1 This test method provides a means to identify blanket fabrics which ignite easily and propagate flame across the surface.

1.2 This test method specifies the procedures described in the “Voluntary Blanket Flammability Standard” which has been used by the blanket industry in the United States since 1972.

1.3 *This test method should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.*

1.4 *This standard does not purport to address all of the safety problems, 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:

D 123 Terminology Relating to Textiles²

D 1230 Test Method for Flammability of Apparel Textiles²

D 1776 Practice for Conditioning Textiles for Testing²

D 3411 Test Methods for Flammability of Textile Materials³

2.2 Federal Specification:

NNN-P-40b⁴

3. Terminology

3.1 Definitions:

3.1.1 *blanket, n—for bedding*, an unquilted fabric covering designed primarily to provide thermal insulation.

3.1.1.1 *Discussion*—Blankets may be made by any textile process from various types of fibers and may or may not have

a raised fiber surface. Construction may be woven, knitted, flocked, or nonwoven.

3.1.1.2 *Discussion*—Electric blankets include resistance heating wires and can provide heat as well as thermal insulation.

3.1.2 *flammability, n*—those characteristics of a material that pertain to its relative ease of ignition and relative ability to sustain combustion.

NOTE 1—In this test, evidence of ignition is shown by discoloration, charring, or burning of the paper monitor.

3.1.3 *ignition, n*—initiation of combustion.

3.2 For definitions of other textile terms used in this test method, refer to Terminology D 123.

4. Summary of Test Method

4.1 Specimens cut from the blanket fabric are prepared by brushing if they have a raised fiber surface and by drying. The dried specimen is held in a special apparatus, a standardized flame is applied to the surface for a specified time under controlled conditions, and burning, charring, or discoloration of a paper monitor is noted. Two classes of flammability are described.

4.1.1 A burn of sufficient intensity to discolor a paper monitor in specified contact with the surface of the test specimen indicates ignition of the blanket surface (see 11.4.1).

5. Significance and Use

5.1 This test method for the determination of the flammability of blankets is considered satisfactory for acceptance testing of commercial shipments of blankets since this test method has been used extensively in the trade for acceptance testing.

5.2 This test method may be used to evaluate electric blanket fabric, but tests should be performed on the fabric itself without the resistance heating wires inserted.

5.3 All fabrics made of natural or regenerated cellulose, as well as many made from other natural or synthetic fibers, are combustible. Some combustible fabrics when used for blankets are potentially dangerous to the user because of the ease of ignition, rapidity, and intensity of burning. The first characteristic can be judged with the aid of the flammability tester.

6. Apparatus and Materials

6.1 *Flammability Tester*, as shown in Figs. 1-4 and described in A1.1.1, A1.1.2, and A1.1.9 of Test Method D 1230.

¹ This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.52 on Flammability.

Current edition approved July 30, 1982. Published September 1982. Originally published as D 4151 – 82. Last previous edition D 4151 – 82.

² *Annual Book of ASTM Standards*, Vol 07.01.

³ Discontinued, see 1980 *Annual Book of ASTM Standards*, Part 32.

⁴ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.