



Designation: F 1506 – 00

Standard Performance Specification for Flame Resistant Textile Materials for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards¹

This standard is issued under the fixed designation F 1506; 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 performance specification covers the flame resistance of textile materials to be used for wearing apparel for use by electrical workers exposed to momentary electric arc and related thermal hazards.

NOTE 1—This performance specification does not cover coated fabrics commonly used in rainwear.

NOTE 2—At present, a bench scale arc test for laboratory use is not available. It is the intent of the committee to continue the search for an acceptable laboratory test based on either an electric arc exposure or an acceptable alternative, which will form the basis of a modification of this specification.

1.2 Materials used for basic protection levels are covered.

1.3 Protective properties relate to thermal exposure from momentary arc and associated exposure to open flame and radiant heat. (See Appendix X1.)

1.4 This performance specification covers wearing apparel design characteristics that relate specifically to protection from exposure to momentary electric arc and that relate to the utility of the wearing apparel.

NOTE 3—A number of other thermal test methods are under consideration and development and, when evaluated and proved effective by Committee F18, will be incorporated in either this specification or an appropriate alternative test method or specification.

1.5 *This standard should be used to evaluate and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions. It should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions.*

1.5.1 The results of this evaluation may be used as elements of a fire-risk assessment that takes into account all of the factors that are pertinent to an assessment of the fire hazard 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 This performance specification is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.65 on Wearing Apparel.

Current edition approved May 10, 2000. Published July 2000. Originally published as F 1506–94. Last previous edition F 1506–98.

1.7 The following precautionary caveat pertains only to the test methods portion, Section 8, of this performance specification: *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:

D 123 Terminology Relating to Textiles²

D 434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam²

D 1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum Type (Elmendorf) Apparatus²

D 1682 Test Methods for Breaking Load and Elongation of Textile Fabrics³

D 2262 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)⁴

D 2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics²

D 3786 Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics—Diaphragm Bursting Strength Tester Method⁵

D 6413 Test Method for Flame Resistance of Textiles (Vertical Test)⁶

F 1449 Guide for Care and Maintenance for Flame Resistant and Thermally Protective Clothing⁷

F 1959 Test Method for Determining Arc Thermal Performance (Value) of Textile Materials for Clothing by Electric Arc Exposure Method Using Instrumented Sensor Panels⁸

2.2 AATCC Test Methods:⁹

Method 61 Colorfastness to Washing, Domestic and Laundering, Commercial: Accelerated

² Annual Book of ASTM Standards, Vol 07.01.

³ Discontinued; see 1991 Annual Book of ASTM Standards, Vol 07.01.

⁴ Discontinued; see 1995 Annual Book of ASTM Standards, Vol 07.01.

⁵ Discontinued; see 1996 Annual Book of ASTM Standards, Vol 07.02.

⁶ Annual Book of ASTM Standards, Vol 07.02.

⁷ Annual Book of ASTM Standards, Vol 11.03.

⁸ Annual Book of ASTM Standards, Vol 10.03.

⁹ AATCC Technical Manual, available from American Association of Textile Chemists and Colorists, PO Box 12215, Research Triangle Park, NC 27709.