



Standard Performance Specification for Protective Clothing and Materials for Use by Workers Exposed to Specific Molten Substances and Related Thermal Hazards¹

This standard is issued under the fixed designation F1002; 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 establishes the minimum design and performance requirements for protective clothing and protective clothing materials for both primary and secondary protection from exposure to molten substances and related thermal hazards.

1.2 This performance specification is not intended to address protection from hot liquids or from specialized forms of heat and flame protection such as any fire fighting application.

1.3 This performance specification describes the properties of specific textile materials in their material or garment composite form as tested by laboratory methods and is not intended to be used to appraise the thermal hazard or risk under actual conditions. However, it is acceptable to use information on the thermal performance of clothing made from textile materials conforming to this specification as an element in thermal risk assessment which takes into account all factors pertinent to the thermal hazard of a particular end use.

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

1.5 *This performance specification does not purport to address all of the safety concerns, if any, associated with the use of compliant protective clothing or protective clothing materials. It is the responsibility of the persons or organizations that use this performance specification to conduct a hazard and risk assessment to determine the applicability of this performance specification to the intended application of the protective clothing or protective clothing materials, and to establish appropriate safety and health practices.*

¹ This specification is under the jurisdiction of ASTM Committee F23 on Personal Protective Clothing and Equipment and is the direct responsibility of Subcommittee F23.80 on Flame and Thermal.

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2. Referenced Documents

2.1 ASTM Standards:²

- D123 Terminology Relating to Textiles
 - D1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus
 - D2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics
 - D4157 Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method)
 - D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
 - D5587 Test Method for Tearing Strength of Fabrics by Trapezoid Procedure
 - D6413 Test Method for Flame Resistance of Textiles (Vertical Test)
 - D7138 Test Method to Determine Melting Temperature of Synthetic Fibers
 - F955 Test Method for Evaluating Heat Transfer through Materials for Protective Clothing Upon Contact with Molten Substances
 - F1494 Terminology Relating to Protective Clothing
 - F1939 Test Method for Radiant Heat Resistance of Flame Resistant Clothing Materials with Continuous Heating
- ### 2.2 AATCC Test Methods:³
- 135 Dimensional Changes in Automatic Home Laundering of Woven and Knitted Fabrics
- ### 2.3 NFPA Standard:⁴
- NFPA 1971 Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting

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 AATCC Technical Manual, Current Edition available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

⁴ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.