



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

This standard is issued under the fixed designation F 1002; 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 textile materials to be used for protective clothing.

1.2 Materials used for both primary protection and for secondary protection are covered.

1.3 Protective properties relate to contact with molten substances and hot surfaces, and exposure to open flame and radiant heat.

1.4 This performance specification covers clothing design characteristics that relate to the unique protective requirements of working with molten substances.

1.5 This performance specification describes the properties of specific textile materials in their fabric or garment composite form as tested by laboratory methods and should not be used to appraise the thermal hazard or fire risk under actual conditions. However, clothing made from textile materials conforming to this specification may be used as an element in thermal risk assessment which takes into account all factors pertinent to the thermal 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.

1.7 The following precautionary caveat pertains only to the test methods portion, Section 8, of this 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 (Elmendorf) Apparatus²

D 2262-83 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)³

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

D 4108-87 Test Method for Thermal Protective Performance of Materials for Clothing by Open-Flame Method⁴

D 4157 Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method)⁵

D 5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)⁵

F 955 Test Method for Evaluating Heat Transfer Through Materials for Protective Clothing Upon Contact with Molten Substances⁶

NOTE 1—Standards cited with last approval have been withdrawn and no longer appear in the Annual Book of Standards. Copies are not available from ASTM but ASTM will direct to a copy source.

2.2 AATCC Test Methods:⁷

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

132 Colorfastness to Drycleaning

135 Dimensional Changes in Automatic Home Laundering of Woven and Knitted Fabrics

2.3 Federal Standard:⁸

Fed. Std. No. 191A, Method 5903.1, Flame Resistance of Cloth, Vertical

2.4 Military Standard:⁹

MIL-C-87076A Resistance of Materials to Radiant Heat

¹ This specification is under the jurisdiction of ASTM Committee F-23 on Protective Clothing and is the direct responsibility of Subcommittee F23.80 on Molten Substances.

Current edition approved Dec. 10, 1996. Published February 1997. Originally published as F 1002 – 86. Last previous edition F 1002 – 86 (1990).

² Annual Book of ASTM Standards, Vol 07.01.

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

⁴ Discontinued; see 1994 Annual Book of ASTM Standards, Vol 11.03.

⁵ Annual Book of ASTM Standards, Vol 07.02.

⁶ Annual Book of ASTM Standards, Vol 11.03.

⁷ AATCC Technical Manual, Current Edition available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

⁸ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

⁹ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.