



Standard Test Method for Measurement of Cut Resistance to Chainsaw in Lower Body (Legs) Protective Clothing¹

This standard is issued under the fixed designation F1414; 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 measures cut resistance of garments and devices worn to protect the lower body (legs) when operating a chainsaw.

1.2 This test method may be used to test for compliance to minimum performance requirements in established safety standards.

1.2.1 By agreement between the purchaser and the supplier, or as required by established safety standards, it will be decided if this test method will be used to determine one or both of the following: (1) chain speed 50 (CS50), and (2) success/failure (jamming/chain stop or no cut in less than 1.5 s) at specified chain speed.

1.3 This test method may be used to determine levels of protection for areas of coverage as stipulated in established safety standards.

1.4 The values stated in SI units are to be regarded as standard.

NOTE 1—The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.5 *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 The following documents, form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards*:²

¹ This test method is under the jurisdiction of ASTM Committee F23 on Personal Protective Clothing and Equipment and is the direct responsibility of Subcommittee F23.20 on Physical.

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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.

D123 Terminology Relating to Textiles

D1056 Specification for Flexible Cellular Materials—Sponge or Expanded Rubber

D1776/D1776M Practice for Conditioning and Testing Textiles

F1494 Terminology Relating to Protective Clothing

2.3 AATCC Test Methods:³

AATCC 96 Dimensional Changes in Laundering of Woven and Knitted Fabrics, except Wool (1988)

AATCC 158 Dimensional Changes on Dry Cleaning in Perchloroethylene: Machine Method

2.4 Military Standards:⁴

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

2.5 Federal Standard:⁴

FS 5100-86 Type II, Cloth, Duck, Nylon, Polyurethane Coated

3. Terminology

3.1 Definitions:

3.1.1 *chain saw, n*—a portable power operated tool used for cutting wood which has cutters linked in a chain.

3.1.2 *chain speed, n*—the speed of synchronized movement of linked cutters around a guide bar and sprocket.

3.1.3 *chain speed 50 (CS50), n*—for chainsaw protection, the mean speed at which cut through occurs.

3.1.3.1 *Discussion*—This value establishes the relationship between the probability of cutting through the protective clothing (or foot protective device) and the speed of the saw chain. For lower chain speeds, the probability of cut through approaches zero, while for higher chain speeds, the probability of cut through approaches one.

3.1.4 *chain stop, n*—the resulting action when a material clogs (jams) the drive sprocket or slows the speed sufficiently to prevent advancement of the saw chain.

³ Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709-2215, <http://www.aatcc.org>.

⁴ Available from DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil>.