



Standard Test Method for Measurement of Cut Resistance to Chainsaw of Foot Protective Devices¹

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1. Scope

1.1 This test method measures cut resistance of foot protective devices that are designed to protect the foot 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, this test method can be used to determine any one or both of the following: (1) chain speed 50 (CS50), (2) success/failure (jamming/chain stop) 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 *ASTM Standards:*²

F1414 Test Method for Measurement of Cut Resistance to Chainsaw in Lower Body (Legs) Protective Clothing

F1494 Terminology Relating to Protective Clothing

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.

2.2 *AATCC Test Methods:*³

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

AATCC 158 Dimensional Changes on Drycleaning in Perchloroethylene: Machine Method

2.3 *Military Standards:*⁴

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

MIL-C-12369 Cloth, Ballistic, Nylon

2.4 *Federal Standard:*⁵

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

3. Terminology

3.1 *Definitions:*

3.1.1 *centerline, n*—in foot protective devices, a line that extends from the toe of the footwear horizontally along the sole to the heel vertically to the top of the footwear, and diagonally to the point of intersection at the toe.

3.1.2 *chainsaw, n*—a portable power-operated tool that has cutters linked in a chain used for cutting wood.

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

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

3.1.4.1 *Discussion*—This value establishes the relationship between the probability of cutting through the chainsaw leg 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.

3.1.5 *chain stop, n*—for chainsaw cut resistance, 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>.

⁵ Available from U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001, <http://www.gpo.gov>.