



Standard Test Method for Measurement of Cut Resistance to Chain Saw 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 chain saw.

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 all of the following: (1) threshold stopping speed, (2) pass/fail at specified chain speed, or (3) cut through time.

1.3 *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.*

1.4 The values stated in SI units or in other units shall be regarded separately as standard. 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.

2. Referenced Documents

2.1 ASTM Standards:

- D 123 Terminology Relating to Textiles²
- D 1056 Specification for Flexible Cellular Materials—Sponge or Expanded Rubber³
- D 1776 Practice for Conditioning Textiles for Testing²
- F 1414 Test Method for Measurement of Cut Resistance to Chain Saw in Lower Body (Legs) Protective Clothing⁴
- F 1494 Terminology Relating to Protective Clothing⁴

2.2 AATCC Test Methods:⁵

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

AATCC 158 Dimensional Changes on Drycleaning in Perchloroethylene: Machine Method

2.3 Military Standards:⁶

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

MIL-C-12369 Cloth, Ballistic, Nylon

2.4 Federal Standard:⁷

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

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

3.1.4 *chain stop, n*—for chain saw 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.

3.1.5 *cut resistance, n*—the ability of a material, while in contact with the linked cutters, to resist penetration of the cutter of a moving saw chain, independent of either jamming or chain stop.

3.1.6 *cut-through time, n*—the time required for a running saw chain to effect complete penetration through a protective device.

¹ This test method is under the jurisdiction of ASTM Committee F-23 on Protective Clothing and is the direct responsibility of Subcommittee F23.20 on Physical Properties.

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² Annual Book of ASTM Standards, Vol 07.01.

³ Annual Book of ASTM Standards, Vol 08.01.

⁴ Annual Book of ASTM Standards, Vol 11.03.

⁵ Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

⁶ Available from Standardization Documents Order Desk, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

⁷ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.