



Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)¹

This standard is issued under the fixed designation D3389; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This test method covers the determination of the wear resistance of fabrics coated with rubber or plastics to abrasion. The abrasion is measured by mass loss or number of cycles required to wear through the coating to initially expose the base fabric.

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D1349 Practice for Rubber—Standard Conditions for Testing

D1566 Terminology Relating to Rubber

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

G195 Guide for Conducting Wear Tests Using a Rotary Platform Abraser

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *abrader, n*—a wear testing instrument, also referred to as a rotary platform tester or abraser.

3.1.2 *abrasion cycle, n*—in abrasion testing, one or more movements of the abradant across a material surface, or the material surface across the abradant, that permits a return to its starting position.

3.1.2.1 *Discussion*—In the case of the rotary platform test method, it consists of one complete rotation of the specimen.

3.1.3 *resurface, v*—the preparation of an abrasive wheel on a resurfacing disc or diamond tool wheel refacer, prior to use or during testing.

3.2 For definitions of other terms used in this test method, refer to Terminology **D1566**.

4. Summary of Test Method

4.1 Abrasion resistance of fabrics coated with rubber or plastics is measured by subjecting the specimen to the rotary-rubbing action of two abrasive wheels under controlled conditions of pressure by the use of the rotary platform abrader. The test specimen, mounted on a turntable platform, turns on a vertical axis against the sliding rotation of two abrading wheels. One abrading wheel rubs the specimen outward toward the periphery and the other, inward toward the center. The resulting abrasion marks form a circular pattern of crossed arcs over an area of approximately 30 cm². Resistance to abrasion is evaluated by average mass loss, wear index (average mass loss per revolution) or cycles required to wear through the coating to expose the yarn in the base fabric.

5. Significance and Use

5.1 Abrasion resistance tests are intended to measure the wear resistance properties of a material. This may be correlated to expected end use performance.

5.2 The resistance of coated fabrics to abrasion, as measured on a testing machine in the laboratory, is generally only one of several factors contributing to wear performance or durability as experienced in the actual use of the material. While abrasion resistance (often stated in terms of the number of abrasion cycles) and durability are frequently related, the relationship varies with different end uses and different factors may be necessary in any calculation of predicted durability from specific abrasion data. This test method provides a comparative

¹ This test method is under the jurisdiction of ASTM Committee **D11** on Rubber and Rubber-like Materials and is the direct responsibility of Subcommittee **D11.15** on Degradation Tests.

Current edition approved April 15, 2016. Published November 2016. Originally approved in 1975. Last previous edition approved in 2015 as D3389 – 15. DOI: 10.1520/D3389-16.

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.