



Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double-Head Abrader)¹

This standard is issued under the fixed designation D 3389; 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 covers the determination of the resistance to abrasion of fabrics coated with rubber or plastics. The abrasion is measured by mass loss.

1.2 Two methods are covered as follows:

1.2.1 *Method A*—Abrasion to end point (Sections 8-10).

1.2.2 *Method B*—Abrasion for a specified number of cycles with determination of loss in mass (Sections 11-13).

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

1.4 *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 4483 Practice for Determining Precision for Test Method Standards in the Rubber and Carbon Black Industries²

3. Summary of Test Method

3.1 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 revolving platform, double-head (RPDH) abrader.³ This action is maintained by the use of abrasive wheels.

4. Significance and Use

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

5. Time Lapse Between Manufacturing and Testing

5.1 For all test purposes, the minimum time between manu-

facturing and testing should be 16 h.

5.2 For non-product tests the maximum time between manufacturing and testing should be 4 weeks. For evaluation intended to be comparable, the tests, as far as possible, should be carried out after the same time interval.

5.3 For product tests, whenever possible, the time between manufacturing and testing should not exceed 3 months. In all other cases, tests should be made within 2 months of the date of receipt by the customer.

6. Apparatus

6.1 *Abrasion Apparatus* (RPDH), comprised of a removable flat circular specimen holder, a pair of pivoted arms to which the abrasive wheels are attached, a motor for rotating the platform and specimen, a fan for cooling the motor, and a counter for indicating the revolutions of the specimen holder. The specimen holder shall be mounted to produce a circular surface travel of an essentially flat specimen in the plane of its surface at a uniform angular velocity. The abrasive wheels, which are attached to the free end of the pivoted arms, shall rotate and have, when resting on the specimen, a peripheral engagement with the surface of the specimen, the direction of travel of the periphery of the wheels and of the specimen at the contacting portions being at acute angles, and the angle of travel of one wheel periphery being opposite to that of the other. Motion of the abrasive wheels, in opposite directions, shall be provided by rotation of the specimen and the associated friction therefrom.

6.1.1 The specimen holder shall be supported by an adapter that is motor-driven and that provides motion for the circular travel of the specimen holder.

6.1.2 A clamping ring shall be used to secure the specimen to the specimen holder.

6.1.3 The abrasive wheels shall be mounted on independently pivoted arms, which provide free-floating action to compensate for any minor unevenness in the specimen and ensure uniform pressure of the abrasion wheels against the specimen at all times (selection of abrasive wheels to be made by the purchaser and vendor).

6.1.4 The apparatus shall be provided with a vertical-force adjustment (weights) for varying the vertical force of the abrader wheels on the specimen. The pivoted abrader arms without auxiliary masses or counterweights apply a vertical force against the specimen of 2.45 N (250 gf) per wheel. A start

¹ This test method is under the jurisdiction of ASTM Committee D-11 on Rubber and is the direct responsibility of Subcommittee D11.37 on Coated Fabrics and Rubber Thread.

Current edition approved Feb. 15, 1994. Published May 1994. Originally published as D 3389 – 75. Last previous edition D 3389 – 87.

² *Annual Book of ASTM Standards*, Vol 09.01.

³ The Taber Abrader and Wheels, manufactured by the Teledyne Taber Instrument, Co., North Tonawanda, NY, meets these requirements.