

Standard Method of Test for ABRASION RESISTANCE OF RUBBER COMPOUNDS¹



ASTM Designation: D 394 - 59 (1965)

ADOPTED, 1940; LAST REVISED, 1959; REAPPROVED, 1965

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 394; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

NOTE.—Editorial change in Section 7 was made in June, 1961.

Scope

1. This method is designed to measure the abrasion resistance of soft vulcanized rubber compounds. The significance to be attached to the results can only be determined by each laboratory for its particular problem.

Type of Materials

2. Any vulcanized rubber compound, whether prepared experimentally in the laboratory, taken from process during manufacture, or cut from a finished article of commerce (providing a section of sufficient size is available), may be tested. It is assumed that the bulk of the testing will be on compounds especially designed to withstand abrasion and that the test will be carried out with a reference compound of the same general characteristics.

Apparatus

3. (a) *Abrasion Machine*.—An E. I.

¹ Under the standardisation procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-11 on Rubber and Rubber-Like Materials, and is the direct responsibility of Subcommittee XV on Life Tests for Rubber Products.

du Pont de Nemours and Co. abrasion machine² as shown in Fig. 1, having the following components:

(1) *Disk*, which carries an abrasive surface mounted on a hollow shaft. The disk rotates counterclockwise in a vertical plane at a uniform speed of 34 to 40 rpm.

(2) *Bar*, attached permanently to a rod (axis) extending through the hollow shaft which carries the abrasive disk. Provisions shall be made for mounting two test specimens on the inside of the bar so that their 2-cm (0.8-in.) square surfaces are in contact with the abrasive and diametrically across the disk so that the center of each specimen is 2.5 in. from the center of rotation of the disk.

(3) *Weight*, 3.62-kg, attached to the end of the rod by means of a cable and acting over a pulley for holding the test specimens against the abrasive.

(4) *Lever Arm*, with one end attached

² For further reference, see Ira Williams, "Measurement of Abrasion Resistance of Rubber," *Industrial and Engineering Chemistry*, Vol. 19, No. 6, p. 674, June 1927.