

Standard Method of Test for

HARDNESS OF RUBBER¹



A.S.T.M. Designation: D 314 - 39

ADOPTED, 1934; REVISED, 1939.²

This Standard of the American Society for Testing Materials is issued under the fixed designation D 314; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. (a) This method of test covers the procedure for determining the hardness of the more common grade of rubber such as tire treads, most automotive mechanical rubber parts, etc., but not extremely hard or extremely soft rubbers which fall beyond the range of the instrument specified.

(b) For the purpose of this test, the hardness of rubber shall be considered as that property by virtue of which the surface and adjoining layers resist indentation when subjected to a definite pressure by an indentation element of standard size, the contact surface of which conforms in shape to a portion of a true spherical surface.

A.S.T.M. Hardness Number

2. The A.S.T.M. Hardness Number is the indentation in thousandths of an inch determined under definitely prescribed conditions.

Apparatus

3. The apparatus consists of a table

for supporting the test specimen, an indenter acting under a dead-weight load, an annular presser foot exerting a definite force on the surface of the specimen surrounding the indentation area, and a suitable device for indicating the depth of indentation.

(a) *Table*.—The table used to support the test specimen shall possess a flat horizontal surface of minimum linear dimension of 2 in.

(b) *Indenter*.—The indenter shall consist of a rigid vertical shaft, the lower end of which is finished to a true hemisphere 0.0938 ± 0.0005 in. in diameter. The maximum diameter of that portion of the shaft which passes through the presser foot shall not exceed that of the indenter point. The point shall be made of a highly-polished, noncorrosive, hard metal properly treated to resist wear due to continuous use (a plated point is not satisfactory). The indenter shall be actuated by a freely acting dead-weight load of 3 lb. $\pm$ 0.25 oz. Less than 0.25 oz. shall be required to overcome friction and to produce perceptible motion of the penetrator when counter-balanced. The indenter shall act through the opening in the center of the presser foot.

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-11 on Rubber and Rubber-Like Materials.

² Prior to adoption as standard, this method was published as tentative from 1929 to 1934, being revised in 1931.