



Designation: D2583 – 24

Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor¹

This standard is issued under the fixed designation D2583; 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 indentation hardness of both reinforced and nonreinforced rigid plastics using a Barcol Impressor, Model No. 934-1 and Model No. 935.

1.2 The values stated in SI units are to be regarded as 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—There is no known ISO equivalent to this test method.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D618 Practice for Conditioning Plastics for Testing

D883 Terminology Relating to Plastics

D4000 Classification System for Specifying Plastic Materials

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

¹ This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.10 on Mechanical Properties.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3. Terminology

3.1 *Definitions*—For definitions of technical terms pertaining to plastics used in this test method, see Terminology D883.

4. Summary of Test Method

4.1 A material's surface hardness is determined through the use of a Barcol Impressor. The relative depth of penetration of the Impressor's indenter provides a comparative measure of the material's hardness. The Model No. 934-1 and Model No. 935 Barcol Impressors are designated for use with plastics. Within the range of hardness measured by these Impressors the Model No. 934-1 is used for measuring harder materials and the Model No. 935 is used for measuring softer materials.

5. Significance and Use

5.1 The Barcol Impressor is portable and therefore suitable for testing the hardness of fabricated parts and individual test specimens for production control purposes.

5.2 Before proceeding with this test method, reference shall be made to the specification of the material being tested. Table 1 of Classification System D4000 lists the ASTM material standards that currently exist. Any test specimen preparation, conditioning, dimensions, or testing parameters or combination thereof covered in the relevant ASTM material specification shall take precedence over those mentioned in this test method. If there are no relevant ASTM material specifications, then the default conditions apply.

6. Apparatus (Fig. 1 and Fig. 2)

6.1 *Indenter*³—The indenter shall consist of a hardened steel truncated cone having an angle of 26° with a flat tip of 0.157 mm (0.0062 in.) in diameter. It shall fit into a hollow spindle and be held down by a spring-loaded plunger. See Fig. 2.

³ The sole source of supply of the apparatus known to the committee at this time is InstruCon, Inc., 3415 Precision Drive, Rockford, IL 61109. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.

*A Summary of Changes section appears at the end of this standard