



Designation: D952 – 10

# Standard Test Method for Bond or Cohesive Strength of Sheet Plastics and Electrical Insulating Materials<sup>1</sup>

This standard is issued under the fixed designation D952; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This test method covers the determination of the bond strength or ply adhesion strength of sheet plastic and electrical insulating materials. It is applicable to both laminated and nonlaminated thermoplastic and thermosetting materials.

1.2 Test data obtained by this test method is relevant and appropriate for use in engineering design.

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.*

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

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

D618 Practice for Conditioning Plastics for Testing

D883 Terminology Relating to Plastics

D4000 Classification System for Specifying Plastic Materials

D4805 Terminology for Plastics Standards (Withdrawn 2002)<sup>3</sup>

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

2.2 *ANSI Standard*:

B1.1 Standard for Unified Screw Threads<sup>4</sup>

<sup>1</sup> 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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<sup>2</sup> 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.

<sup>3</sup> The last approved version of this historical standard is referenced on www.astm.org.

<sup>4</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

## 3. Terminology

3.1 *Definitions*—For definitions of technical terms pertaining to plastics used in this test method, see Terminology D883 or Terminology D4805.

## 4. Significance and Use

4.1 This test, when applied to laminated plastics, is a measure of the interlaminar or intralaminar strength, whichever is smaller, in a direction normal to the plane of the laminate. When applied to nonlaminated plastics, the test is a measure of the cohesive strength of the material. The property determined is fundamental and has not yet been correlated with the results of any other method for bond strength.

4.2 The test may be found to be useful as (1) a research test when studying the effects of changes in independent variables, (2) a specification test, or (3) a referee test.

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

## 5. Apparatus and Materials

5.1 *Testing Machine*—Any suitable tensile testing machine capable of crosshead movement at a constant rate of 1.3 mm/min. (0.05 in./min.) and of sufficient capacity to exceed the failure load of the material being tested.

5.2 *Loading Fixtures*—The loading fixtures shall be self-aligning and shall not apply eccentric loads.

5.3 *Metal Blocks*—A pair of 51-mm (2-in.) square metal blocks each having a maximum height of 51 mm (2 in.). Each block shall be configured to permit attachment to the testing machine's loading fixture (see Fig. 1).

NOTE 2—Blocks constructed from heat-treated aluminum alloy, each having a hole in one end tapped  $\frac{7}{8}$  in. in accordance with ANSI B1.1, to accommodate threaded  $\frac{7}{8}$ -in. studs of convenient length, have been used successfully.

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