



Standard Test Method for Pressure-Sensitive Tack of Adhesives Using an Inverted Probe Machine¹

This standard is issued under the fixed designation D2979; 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 measurement of the pressure-sensitive tack of adhesives. This test method is applicable to those adhesives which form a bond of measurable strength rapidly upon contact with another surface and which can be removed from that surface cleanly, that is, without leaving a residue visible to the eye. For such adhesives, tack may be measured as the force required to separate an adhesive and the adherend at the interface shortly after they have been brought into contact under a defined load of known duration at a specified temperature.

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

2. Referenced Documents

2.1 *ASTM Standards:*²

D907 Terminology of Adhesives

E4 Practices for Force Verification of Testing Machines

E171 Practice for Conditioning and Testing Flexible Barrier Packaging

3. Terminology

3.1 *Definitions*—Many terms in this test method are defined in Terminology D907.

¹ This test method is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.14 on Tape and Labels.

Current edition approved Oct. 1, 2016. Published November 2016. Originally approved in 1971. Last previous edition approved in 2009 as D2979 – 01(2009). DOI: 10.1520/D2979-16.

² 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.

4. Summary of Test Method

4.1 This test method involves bringing the tip of a cleaned probe of defined surface roughness into contact with the adhesive at a controlled rate, under a fixed pressure, for a short time, at a given temperature; and subsequently breaking the bond formed between the probe and adhesive, also at a controlled rate. Tack is measured as the maximum force required in breaking the adhesive bond.

5. Significance and Use

5.1 This test method provides a quantitative measure of the pressure-sensitive tack of the adhesive.

5.2 The method is designed for the adhesive mass itself and is suitable for measuring the tack of pressure-sensitive adhesives for use on both rigid and flexible backings.

5.3 This test method is suitable for quality control and research purposes.

6. Apparatus

6.1 *Probe*—A Type 304 stainless steel rod, 5.0 mm (0.197 in.) in diameter, machined at one end of 90° to the longitudinal axis. The tip is finished to a surface roughness of not more than 500 or less than 250 nm (20 to 10 μ m.) rms as measured by a surface-measuring device.³

NOTE 1—When the adhesive is supported on flexible backings, or is greater than 0.25 mm (0.010 in.) thick, a probe with a spherical crown of 0.05 mm (0.002 in.) high, and with a 62.5-mm (2.5-in.) radius may be used.

6.2 *Pressure-Loading Weight*—An annular ring whose inside diameter is slightly larger than the probe diameter. The ring weight is such that the pressure applied to the sample is 9.79 ± 0.10 kPa (1.42 psi).

NOTE 2—Contact pressures of 0.98, 1.96, or 4.90 kPa (0.14, 0.28 or 0.71 psi) may be obtained by employing annuli of different weight. These lower pressures as well as ones of 98 kPa (14.2 psi) or higher can be used to show the effect of pressure directly when tack is pressure-dependent.

6.3 *Force Gage*—A spring device with an indicator that retains the maximum force reading until reset manually. The

³ An example of a suitable surface-measuring device is a Surfindicator manufactured by Gould, Inc., Gage and Control Div., 4601 Arden Dr., El Monte, CA.