



Designation: D6004 – 04 (Reapproved 2011)

Standard Test Method for Determining Adhesive Shear Strength of Carpet Adhesives¹

This standard is issued under the fixed designation D6004; 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 describes a procedure to measure shear strength development for adhesives used to bond carpet adhesives to selected underlayments.

1.2 This test method provides a quantitative means of measuring and recording shear strength of the adhesive when it is applied to the desired underlayment.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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.*

2. Referenced Documents

2.1 ASTM Standards:²

D618 Practice for Conditioning Plastics for Testing

D907 Terminology of Adhesives

E4 Practices for Force Verification of Testing Machines

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

2.2 Voluntary Product Standards³

PS1 Construction and Industrial Plywood

PS2 Structural Use Panels

3. Terminology

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

¹ This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.70 on Construction Adhesives

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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.

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

4. Significance and Use

4.1 In selecting or developing a carpet adhesive, it is critical to have knowledge regarding how well the adhesive will bond to the desired underlayment. Shear loading simulates a common failure mode.

4.2 The test method determines the failure shear load for the test adhesive and specific underlayment combination.

5. Apparatus

5.1 *Applicator trowel*, with a notch pattern of 1/8 in. (3.2 mm) wide, 3/32 in. (2.4 mm) deep, 1/8 in. (3.2 mm) flat.

5.2 Three 10-lb (4.54-kg) weight equivalents.

5.3 Three 2 × 3-in. (51 mm × 76 mm) sections of underlayment for dead weight distribution.

5.4 *Convection Oven*, capable of maintaining a temperature of 122 ± 2°F (50 ± 1°C).

5.5 *Calibrated Universal Testing Machine*, capable of a controlled application of force with a force measurement accuracy of ± 1 % when calibrated in compliance with Practices E4 requirements.

6. Materials

6.1 *Adhesive*—Any appropriate adhesive for carpet installation.

6.2 *Duck cloth*—natural, untreated, #10, 14.73 oz.

6.3 *Underlayment*—Common wood-based products such as PS2 grade mark stamped oriented strand board underlayment or PS1 grade mark stamped plywood underlayment. Other products, recommended by the adhesive manufacturer may also be used.

7. Conditioning

7.1 Condition the duck cloth, underlayment and adhesive to be tested for 24 h at 73 ± 3°F (23 ± 2°C) and 50 % ± 5 % relative humidity prior to testing.

8. Sample Preparation

8.1 Cut the duck cloth into three 2 × 6-in. (51 × 127-mm) pieces.

8.2 Cut one section of underlayment into a 16 × 5-in. (406 × 127-mm) section.