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Standard Test Method for Determining Open Assembly Time of Carpet Mastic Adhesives[1]

This standard is issued under the fixed designation D6325; 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 open assembly time for a troweled carpet adhesive.

1.2 This test method provides an evaluation of the ability of an adhesive to effectively wet out the intended carpet backing.

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]

C679 Test Method for Tack-Free Time of Elastomeric Sealants

D618 Practice for Conditioning Plastics for Testing

D907 Terminology of Adhesives

3. Terminology

3.1 *Definitions:*

3.1.1 Many of the terms in this test method are defined in Terminology D907.

4. Significance and Use

4.1 The ability to have a sufficient open assembly time is critical when bonding a carpet. An adhesive with too short an open assembly time will not allow the installer enough time to position the carpet before the adhesive is dried beyond use. A product with too long an open assembly time will not provide enough dry time for the carpet to bond to the intended substrate without movement of the carpet.

4.2 The test method provides a means of measuring the open assembly time for an adhesive. Use of such a test method can aid both the manufacturer to develop and the user to select the appropriate adhesive for the installation of carpet.

4.3 Test Method C679 was used as a model for this test method.

5. Apparatus

5.1 *Applicator Trowel*—⅛ in. (3.2 mm) wide, ⅛ in. (3.2 mm) deep, 1⁄16 in. (1.6 mm) space V-notch.

5.2 *One-kg Weight*, at least 2 in. (51 mm) in diameter.

5.3 *Chronometer*.

6. Materials

6.1 *Adhesive*—Any appropriate adhesive used to install carpet.

6.2 *Polyethylene*—Low density (LDPE) with a 0.006 in. (0.15 mm) thickness.

6.3 *Glass,* 12 in. by 12 in.

7. Conditioning

7.1 Condition the LDPE, glass, and adhesive to be tested 24 h prior to testing at 73.4 ± 3.6°F (23 ± 2°C) and 50 ± 5 % relative humidity according to Practice D618.

8. Sample Preparation

8.1 Cut the LDPE into twenty 2 in. (50.8 mm) by 2 in. (50.8 mm) pieces.

9. Procedure

9.1 Hold the trowel at a 45° angle and spread enough adhesive to cover the entire glass surface. Start the chronometer.

9.2 Place an LDPE square on the adhesive taking care not to put unnecessary pressure on it.

9.3 Apply the 1-kg weight on the LDPE for 10 s.

[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.

9.4 Grasp one end of the LDPE square and slowly peel away (at a 90 degree angle) the LDPE within 5 s. Record the percentage of the adhesive transferred to the LDPE.

9.5 Every 5 min. after the adhesive was originally troweled, repeat steps 9.2-9.4 using a new LDPE square on a section of adhesive not previously tested or bonded.

9.6 Continue the testing until you have no adhesive transfer.

9.7 This is the open assembly time.

10. Report

10.1 Report the following information:

10.1.1 The type of carpet adhesive used.

10.1.2 The substrates used.

10.1.3 The adhesive open time. Record the % of LDPE area covered as a function of time in minutes until no further transfer to LDPE is evident.

10.1.4 Report the temperature and humidity test conditions.

11. Precision and Bias

11.1 No information is presented about either the precision or bias of this test method for measuring open time since the final result is a plot of percent area covered versus time.

12. Keywords

12.1 adhesive; adhesion; carpet; open assembly time