



Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants¹

This standard is issued under the fixed designation C794; 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 a laboratory procedure for determining the strength and characteristics of the peel properties of a cured-in-place elastomeric joint sealant, single- or multicomponent, for use in building construction.

1.2 The values stated in metric (SI) units are to be regarded as the standard. The values given in parentheses are provided for information only.

1.3 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

1.4 *This standard does not purport to address all of the safety problems, 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

C717 Terminology of Building Seals and Sealants

C1375 Guide for Substrates Used in Testing Building Seals and Sealants

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

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

3. Terminology

3.1 For the definitions used in this test method, see Terminology **C717**, standard conditions.

¹ This test method is under the jurisdiction of ASTM Committee **C24** on Building Seals and Sealants and is the direct responsibility of Subcommittee **C24.30** on Adhesion.

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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.

4. Summary of Test Method

4.1 This test method consists of preparing test specimens by embedding a wire mesh screen between two thin layers of the sealant being tested, on test substrates, curing these specimens under specified time and conditions, then placing the specimen in a tension-testing machine in such a way that the embedded wire mesh screen is peeled back from the substrate at 180°, while measuring the force exerted as well as the mode of failure of the sealant from the substrate.

5. Significance and Use

5.1 There are differences in opinion among those concerned with sealant technology whether or not this adhesion-in-peel test simulates the type of strain and e-tensile stresses encountered by a sealant in normal use. Nevertheless, this test provides a valuable measurement of the ability of the cured sealant to maintain a bond to the substrate under severe peel conditions.

5.2 Many sealant manufacturers utilize the adhesion-in-peel test for determining the adhesive characteristics of sealant/primer combinations with unusual or proprietary substrates. This test is especially useful for quality measurements comparing batches of the same sealant relative to adhesion or for studying adhesion of a given sealant to a variety of substrates.

5.3 This test method alone is not appropriate for comparing the overall performance of different sealants in a given application. The adhesive force that determines if a given sealant is useful in a given application also depends on the modulus of elasticity and the degree to which the sealant will be strained. This test, as it exists, does not consider the modulus of elasticity, nor amount of stress that will be produced by a given strain in an actual sealant in a moving joint. No known correlations are given to relate and apply modulus values to the peel values.

5.4 This test requires that the results indicate whether the failure mode is primarily adhesive or cohesive. It is important to note that a cohesive failure is not necessarily better than an adhesive failure, if the adhesive value is sufficient for the application. Having adhesive failure allows one to study the change of adhesion with time and with the various stress conditions.