



## Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants<sup>1</sup>

This standard is issued under the fixed designation C 794; 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 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:

C 33 Specification for Concrete Aggregates<sup>2</sup>

C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)<sup>3</sup>

C 150 Specification for Portland Cement<sup>3</sup>

C 717 Terminology of Building Seals and Sealants<sup>4</sup>

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials<sup>5</sup>

### 3. Terminology

3.1 **Definitions**—See Terminology C 717 for applicable definitions of the following terms: cure, elastomeric, joint, primer, sealant, and substrate.

### 4. Summary of Test Method

4.1 This test method consists of preparing test specimens by embedding a strip of cloth in a thin layer of the sealant being

tested, on several substrate materials, curing these specimens for a certain length of time under specified conditions, then placing them in a tension-testing machine in such a way that the embedded cloth is peeled back from the substrate at 180°, and measuring the force exerted as well as the nature of the separation 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 is intended to simulate the conditions encountered by a sealant in normal use. Nevertheless, since it represents a test to destruction, the value of the test denotes the ability of the cured sealant to maintain a bond to the substrate under severe 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.

### 6. Apparatus and Materials

6.1 **Testing Machine** with tension grips capable of pulling at the rate of separation of 51 mm (2 in.)/min, and having a chart indicator calibrated in 0.45-kg (1-lb) units.

#### 6.2 Standard Substrates:

6.2.1 **Aluminum Alloy**, Type 6063-T5 or 6061-T6, with a clear anodized finish of not less than 0.0075-mm (0.3-mil) thickness over a scale-free finish; 2 pieces, 152 by 76 by 6.3 mm (6 by 3 by ¼ in.).

6.2.2 **Mortar Slabs**, prepare two cement mortar slabs, each 152 by 76 by 9.5 mm (6 by 3 by ⅜ in.) in size, using one part of high early strength Portland cement conforming to Type III of Specification C 150 for Portland Cement, to two parts by weight of clean, uniformly graded, concrete fine aggregate (sand) conforming to Specification C 33, for Concrete Aggregates. Use sufficient water to produce a flow of  $100 \pm 5$  when tested in accordance with the procedure for the determination of consistency of cement mortar described in Test Method C 109. After curing 1 day in moist air and 6 days in saturated lime water at  $23 \pm 2^\circ\text{C}$  ( $73 \pm 3^\circ\text{F}$ ), prepare the surface of 152 by 76 mm (6 by 3 in.) of each slab by wet grinding either side with a belt sander using No. 60 aluminum carbide sanding belt or using an iron lap with No. 60 silicon carbide (or aluminum oxide) grain until the aggregate is uniformly exposed. Return the slabs to saturated lime water storage until needed.

<sup>1</sup> 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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<sup>2</sup> Annual Book of ASTM Standards, Vol 04.02.

<sup>3</sup> Annual Book of ASTM Standards, Vol 04.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 04.07.

<sup>5</sup> Annual Book of ASTM Standards, Vol 14.02.