



Designation: C1635 – 14

# Standard Test Method to Evaluate Adhesion/Cohesion Properties of a Sealant at Fixed Extension<sup>1</sup>

This standard is issued under the fixed designation C1635; 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 describes a laboratory procedure for measuring the adhesion/cohesion properties of a sealant when subjected to tensile loads resulting from an applied specified strain. The adhesion/cohesion properties are evaluated before, during, and after water immersion.

1.2 This test method examines the adhesive and cohesive performance of a sealant on a specified substrate at a strain equivalent to a multiple of the strain/movement capability designated by the manufacturer for the given sealant per Specification C920.

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

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.*

### 1.5 Comparable Test:

1.5.1 ISO 10590, Building construction - Jointing products - Sealants - Determination of adhesion/cohesion properties at maintained extension after immersion in water

1.5.2 ISO 8340, Building construction - Jointing products - Sealants - Determination of tensile properties at maintained extension

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

C717 Terminology of Building Seals and Sealants

C719 Test Method for Adhesion and Cohesion of Elasto-

meric Joint Sealants Under Cyclic Movement (Hockman Cycle)

C920 Specification for Elastomeric Joint Sealants

C1375 Guide for Substrates Used in Testing Building Seals and Sealants

## 3. Terminology

### 3.1 Definitions:

3.1.1 *casting spacers*—the spacers used in the fabrication of the joints made from wet sealant

3.1.2 *separators*—the device or item used to maintain the specimens at fixed extension.

## 4. Summary of Test Method

4.1 Test specimens made in accordance with dimensions set forth in Test Method C719 are fabricated and allowed to cure.

4.2 Test specimens are extended at standard conditions as defined in Terminology C717 to a specified strain and blocked at the strain for a specified period of time.

4.3 The test specimens are examined for adhesive or cohesive failure, or both, of the sealant at 0, 24 and 168 h.

4.4 A duplicate set of three test specimens are cured at standard conditions as defined in Terminology C717, extended to a specified strain, and then immersed (totally) in deionized water or specified medium (3 specimens/liter of liquid).

4.5 Immersed test specimens are observed at 0, 24 and 168 and other additional specified hours.

4.6 This test method uses ASTM standard substrates as described in Guide C1375. This test method does not exclude the use of any other substrate that provides a suitable flat surface.

## 5. Significance and Use

5.1 In any sealant application, the sealant must be capable of maintaining an adhesive bond to the substrate when held in strain for its intended service life.

5.2 This test method is an indicator of a sealant's ability to adhere under strain to a given substrate.

5.3 The default test strain is the movement ability of the sealant as designated by the manufacturer. The default joint

<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

Current edition approved Sept. 1, 2014. Published October 2014. Originally approved in 2006. Last previous edition approved in 2006 as C1635-06. DOI: 10.1520/C1635-14.

<sup>2</sup> 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.