



Designation: C1815 – 17

# Standard Practice for Periodically Measuring and Monitoring Sealant Dimensions to Stability Following a Period of Compression or Tension<sup>1</sup>

This standard is issued under the fixed designation C1815; 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 practice covers a procedure for measuring and monitoring the physical dimensions of an elastomeric joint sealant in a test specimen configuration described in Test Method C719 following a period of compression or tension. These sealant materials are typically highly filled elastic materials. The dimensional change of these sealant materials is determined by measuring the dimensions at specific intervals over a period of time.

1.2 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*

C717 Terminology of Building Seals and Sealants

C719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

C1589 Practice for Outdoor Weathering of Construction Seals and Sealants

C1735 Test Method for Measuring the Time Dependent Modulus of Sealants Using Stress Relaxation

E631 Terminology of Building Constructions

## 3. Terminology

3.1 *Definitions:*

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.20 on General Test Methods.

Current edition approved Nov. 1, 2017. Published November 2017. DOI: 10.1520/C1815-17.

3.1.1 For definitions of terms used in this practice, refer to Terminologies E631 and C717.

## 4. Summary of Practice

4.1 This practice consists of monitoring the dimensional change of a sealant for a period of time required to establish dimensional stability.

4.2 The motivation for this practice is to monitor the dimensions of a sealant at any time, but especially after a period of extended tension or compression to establish the stable dimensions of that sealant. The latter is used in application of a standard, such as Test Method C1735, by using the accurate dimensions determined by this practice after dimensional stability is attained.

4.3 This practice will enable determination of the stable dimensions of a sealant. It will also allow the reporting of the time scale over which the sealant dimensions are changing.

## 5. Significance and Use

5.1 Many sealants have been observed to dimensionally change following a period of compression or tension, such as occurs during exposure in accordance with Practice C1589. It has been shown that for some sealants, increasing exposure to weathering increases the time required for dimensional stability and decreases the magnitude of dimensional change. Dimensional stability and knowledge of the stable sealant dimensions are critical to the accurate measurement of the sealant's modulus by a test such as Test Method C1735.

5.2 This practice will find application in improving the accuracy of the modulus determined by a standard such as Test Method C1735 by using the accurate dimensions determined by this practice after stability is attained.

## 6. Apparatus

6.1 *Dimensional Measuring Tool*—A micrometer, such as digital calipers, capable of measuring the dimensions of aluminum substrate and sealant to an accuracy of at least  $\pm 0.05$  mm ( $\pm 0.002$  in.), is required. An accurate measurement of the geometry is critical. For example, for a 12.5 mm thick sealant that will experience a 15 % strain when tested in accordance with Test Method C1735, the total deflection is