



Designation: C1643 – 08

Standard Test Method to Measuring the Post Dispensing Volumetric Expansion of Aerosol Foam Sealants¹

This standard is issued under the fixed designation C1643; 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 measures the volumetric expansion of aerosol foam sealants after dispensing.

1.2 This test method provides a means for estimating the quantity of initial material required to dispense in order to fill a cavity.

1.3 Aerosol foam sealants are used for a variety of applications intended to reduce airflow through the building envelope.

1.4 This test method applies to two types of single component aerosol foam sealants: polyurethane and latex.

1.5 There are no other known standard test methods to measure aerosol foam sealants post dispensing expansion.

1.6 Values are reported in SI units only. Certain apparatus and supply items are referenced in inch-pound units for purchasing purposes.

1.7 *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

C717 Terminology of Building Seals and Sealants

C1620 Specification for Aerosol Polyurethane and Aerosol Latex Foam Sealants

3. Terminology

3.1 *Definitions:*

3.1.1 Refer to Terminology C717 for definitions of the following terms used in this test method: aerosol foam sealant, post dispensing contraction, post dispensing expansion.

¹ This test method is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.61 on Aerosol Foam Sealants

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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 *Procedure A*—For single component polyurethane aerosol foam sealants.

4.1.1 Aerosol foam sealant is dispensed into aluminum channels.

4.1.2 Post dispensing volumetric expansion is determined by the volume of the foam expanded from the channel.

4.1.3 Post dispensing volumetric expansion factor is calculated by measuring the volumetric displacement of the cured foam.

4.2 *Procedure B*—For single component latex aerosol foam sealants.

4.2.1 Aerosol foam sealant is dispensed onto aluminum panels.

4.2.2 Post dispensing volumetric expansion is measured by the change of the foam height.

4.2.3 Post dispensing volumetric expansion factor is calculated by measuring the height of the foam.

5. Significance and Use

5.1 Post dispensing volumetric expansion factor \bar{F} indicates the ratio of the fully cured foam sealant volume and the initially dispensed foam sealant volume. For example, if the expansion factor \bar{F} were 2, the fully cured foam would double its initial volume; therefore, one should fill 50 % of the cavity uniformly to anticipate the full coverage upon curing.

5.2 Post dispensing volumetric expansion factor \bar{F} does not predict the performance capability of the foam sealants of the suitability for the intended applications.

5.3 This test method is intended to lend guidance in product selection as related to the post dispensing expansion characteristics of the aerosol foam sealants.

5.4 This test method recognizes that the results are reflective of controlled laboratory conditions. Post dispensing expansion in field applications may vary according to temperature, humidity, and surfaces that the aerosol foam sealants are in contact with.

6. Apparatus

6.1 *Aluminum channels*, External dimensions: length = 15.25 cm (6 in.), width = 1.91 cm ($\frac{3}{4}$ in.), height = 1.91 cm ($\frac{3}{4}$ in.)