



Designation: C1183—91 (Reapproved 1997) Designation: C 1183 – 04 (Reapproved 2008)

Standard Test Method for Extrusion Rate of Elastomeric Sealants¹

This standard is issued under the fixed designation C 1183; 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 covers two laboratory procedures for determining the extrusion rate of elastomeric sealants for use in building construction.

1.2 The values stated in metric units are to be regarded as the 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 and health practices and determine the applicability of regulatory limitations prior to use.*

1.4 There is no known ISO equivalent to this test method.

2. Referenced Documents

2.1 *ASTM Standards:*²

C 717 Terminology of Building Seals and Sealants

D 1475 Test Method for Density of Liquid Coatings, Inks, and Related Products

D 2452 Test Method for Extrudability of Oil- and Resin-Base Caulking Compounds

3. Terminology

3.1 *Definitions*—See Terminology C 717 for applicable definitions of the following terms: caulking, compound, elastomeric and nonsag sealant, sealant, latex sealant.

4. Significance and Use

4.1 Sealants are supplied with various rheological properties ranging from pourable liquids to nonsagging pastes. Single-component sealants are supplied ready for use upon opening the container. Multicomponent sealants are supplied as a base component(s) and a curing agent separately packaged. After mixing the two or more parts, the sealant is ready for application. This test method is intended to provide a means to measure the extrusion rate spanning the range of rheological properties.

4.2 This test method measures the volume of sealant extruded in 1 min at a given pressure (kPa or psi).

4.2 This test method also covers the option of measuring the freeze-thaw and heat stability of such sealants.

4.3 This test method provides for an option of either a metal or plastic nozzle. It is intended that the metal nozzle be used when greater precision is required, such as in ASTM specifications. The plastic nozzle may be used for general screening of sealant properties or for developmental purposes when a large number of test specimens are being tested.

4.4 This test method measures the volume of sealant extruded in 1 min at a given pressure (kPa or psi).

5. Classification of Sealants

5.1 The sealant shall be classified by type as follows:

5.1.1 *Type S*—single-component sealant, and

5.1.2 *Type M*—multi-component sealant.

6. Apparatus

6.1

¹This test method is under the jurisdiction of ASTM Committee C-24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.32 on Chemically-Curing Sealants.

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²This test method 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.

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³For 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* Vol 04.07 volume information, refer to the standard's Document Summary page on the ASTM website.

5.1 *High Density Polyethylene Cartridge*, with plunger and cap, 177 mL (6 fluid oz) capacity, with the front end having an inside diameter of 13.7 ± 0.05 mm (0.540 ± 0.002 in.).

6.2

5.2 *Nozzle*.

5.2.1 *Metal Nozzle*, threaded to fit threaded end of polyethylene cartridge with the dimensions given in Fig. 1.

6.3

5.2.2 *Polyethylene Cartridge Nozzle*, 64 mm ($2 \frac{1}{2}$ in.) in length with 3-mm ($\frac{1}{8}$ in.) orifice

5.3 *Air Supply*, to provide 280 ± 7 kPa (40 ± 1 psi) pressure with appropriate fittings and air lines to attach to an air powered gun for convenience of use.

6.4

5.4 *Caulking Gun*, 177 mL (6 fluid oz) capacity, air powered.

6.5

5.5 *Freezer*, capable of maintaining $-17 \pm 1^\circ\text{C}$ ($0 \pm 2^\circ\text{F}$).

5.6 *Circulating Air Oven*, capable of maintaining $50 \pm 1^\circ\text{C}$ ($122 \pm 2^\circ\text{F}$).

5.7 *Time Device*, a clock or stop-watch graduated in seconds.

6.6

5.8 *Small Container*, can, cup, and so forth, as receiver for extruded sealant.

6.7

5.9 *Balance*, accurate to ± 0.1 g (0.035 oz).

6.8

5.10 *Pycnometer*, or suitable apparatus to obtain a specific gravity.

6.9

5.11 *Thermometer*.

6.10

5.12 *Spatula*.

7.

6. Test Conditions

7.1 Unless otherwise specified by those authorizing the tests, standard conditions for all tests are $23 \pm 2^\circ\text{C}$ ($73.4 \pm 3.6^\circ\text{F}$) and $50 \pm 5\%$ relative humidity.

8. Procedure

8.1 *Type S (Single-Component)*

8.1.1 Condition the unopened container of sealant for at least 16 h at standard conditions.

8.1.2 Determine the specific gravity of the sealant as described in Test Method D2452 or D1475, or use another scientifically correct technique.

8.1.3 Place a sufficient amount of sealant into the polyethylene cartridge to fill it completely with the plunger in place, and level with the back of the cartridge.

6.1 Unless otherwise specified by those authorizing the tests, standard conditions as defined by Terminology C 717 shall be used.

7. Procedure A

7.1 Condition the unopened container of sealant for at least 16 h at standard conditions.

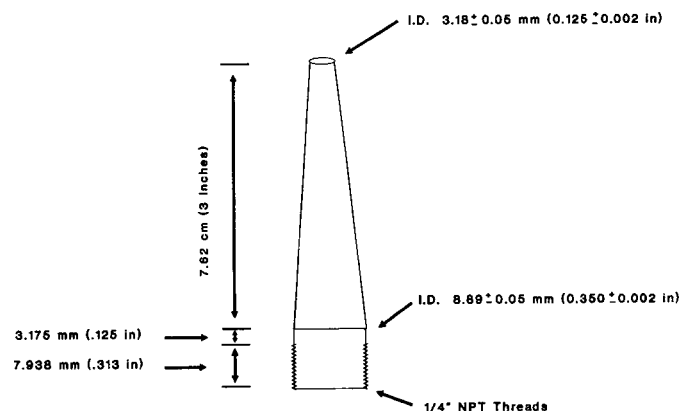


FIG. 1 Metal Nozzle Dimensions