



Designation: C1367 – 19

# Standard Test Method for Dead Load Resistance of a Sealant in Elevated Temperatures<sup>1</sup>

This standard is issued under the fixed designation C1367; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

## 1. Scope

1.1 This test method covers a laboratory procedure for determining the heat resistance of sealants. This test method is conducted under dead load in a shear mode. This test method was previously written to include only hot applied sealants.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information purposes 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 The subcommittee with jurisdiction of this standard is not aware of any similar or equivalent ISO standard.

1.5 *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:*<sup>2</sup>

[B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate](#)

[C717 Terminology of Building Seals and Sealants](#)

[C1036 Specification for Flat Glass](#)

[C1375 Guide for Substrates Used in Testing Building Seals and Sealants](#)

<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 Jan. 1, 2019. Published February 2019. Originally approved in 1997. Last previous edition approved in 2012 as C1367–06 (2012). DOI: 10.1520/C1367-19.

<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.

## 3. Terminology

3.1 *Definitions*—Definitions of the following terms used in this test method are found in Terminology C717, 4.1: adhesive failure, cohesive failure, hot-applied sealant, sealant, standard conditions, and substrate.

3.2 *Definitions of Terms Specific to This Standard*—Definitions of the following terms used in this test method are found in Terminology C717, 4.2: applicator and specified temperature.

## 4. Summary of Test Method

4.1 The sealant is placed between glass and aluminum substrates. The specimen conditioning time is recorded. The specimen is heated in shear mode with a weight suspended from the specimen. The weight applied and the time that it takes for the specimen to fail is recorded.

## 5. Significance and Use

5.1 Sealants are generally subjected to stresses in end-use applications. This test method measures the heat resistance of sealants when subjected to dead load shear stresses while under heat.

## 6. Apparatus

6.1 *Sealant Applicator or Oven*, capable of maintaining the sealant within  $\pm 2.8^\circ\text{C}$  ( $\pm 5^\circ\text{F}$ ) of the specified temperature.

6.2 *Substrates:*

6.2.1 Annealed glass that is 25.4 mm wide by 76.2 mm long and 6.35 mm thick (1 in. by 3 in. by 0.25 in.). (See Specification C1036.)

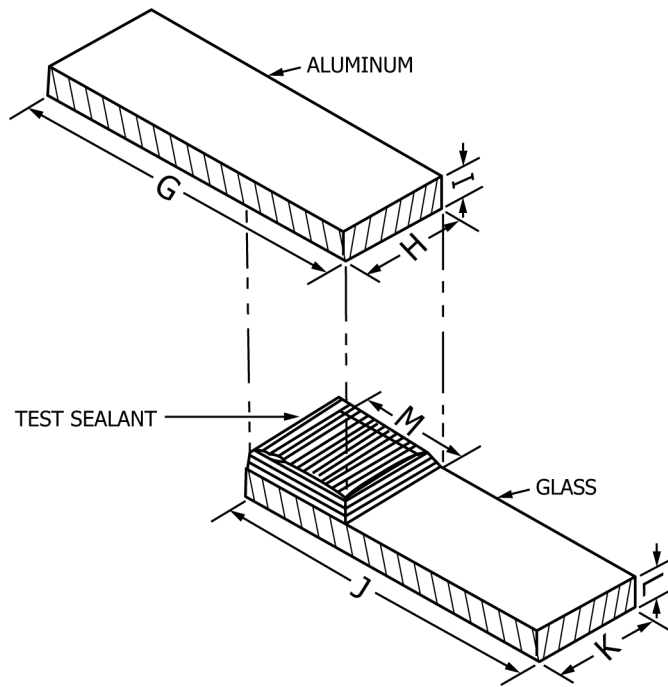
6.2.2 Aluminum alloy 5052-H32 that is 25.4 mm wide by 76.2 mm long and 0.508 mm thick (1 in. by 3 in. by 0.020 in.). (See Specification B209.)

6.2.3 Other substrates may be used when specified (Fig. 1).

6.3 *Template*, to provide 3.28-mm ( $1/8$ -in.) sealant thickness (Fig. 2).

6.4 *Hot Knife or Spatula*.

6.5 *Test Oven*, capable of maintaining specified temperature within  $\pm 2.8^\circ\text{C}$  ( $\pm 5^\circ\text{F}$ ). This oven must contain some apparatus for suspending the specimens in shear mode during testing.



Dimension	Length	
	mm	in.
G, J	76.2 ± 0.25	(3.00 ± 0.01)
H, K, M	25.4 ± 0.25	(1.00 ± 0.01)
I	0.635 ± 0.127	(0.025 ± 0.005)
L	6.35 ± 0.76	(0.250 ± 0.030)

FIG. 1 Assembly of Test Sealant on Substrates

## 7. Sampling

7.1 Sealant shall be free of external surface contaminants such as talc, oil, dust, and moisture. Handling of the sealant surfaces in contact with the substrate shall be minimized.

7.2 Condition not less than 250 g of sealant (and sufficient portion of other components, if a multicomponent) in a closed container for 24 h at standard conditions.

## 8. Test Specimens

8.1 Prepare five test specimens from the bulk sample by using the applicator or oven method.

### 8.1.1 Applicator Method:

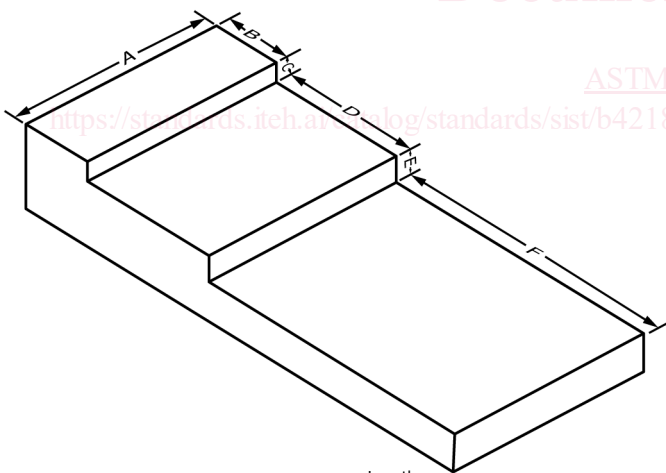
8.1.1.1 Clean the glass and aluminum surfaces according to the procedures set forth in Guide C1375.

8.1.1.2 Using the appropriate die or nozzle, apply a 25.4 by 25.4-mm (1 by 1-in.) layer of sealant onto one end of the glass surface at a thickness that when compressed will comply with 8.1.1.4. All substrates shall be at a temperature of  $23 \pm 2^\circ\text{C}$  ( $73.4 \pm 3.6^\circ\text{F}$ ). Apply the sealant at the temperature specified by the sealant manufacturer.

8.1.1.3 Immediately after sealant application, place the aluminum substrate onto the sealant to form an overlap of 6.45  $\text{cm}^2$  (1  $\text{in.}^2$ ) (Fig. 1).

8.1.1.4 Using a template (Fig. 2), compress the overlaid sealant to form a 3.18-mm ( $\frac{1}{8}$ -in.) thick overlap (Fig. 3).

8.1.1.5 Remove excess sealant from the specimen with a hot knife or spatula.



Dimension	Length	
	mm	in.
A	76.2 ± 5	(3.00 ± 0.20)
B	over 12.7	(over 0.50)
C	6.35 ± 0.25	(0.25 ± 0.01)
D	50.8 ± 0.25	(2.00 ± 0.01)
E	8.89 ± 1.02	(0.35 ± 0.84)
F	over 76.2	(over 3.00)

NOTE 1—The template shall be made of a material of low thermal conductivity, such as wood or fiberglass.

FIG. 2 Template

Automatic timing devices and recorders may be used to record the time it takes for the test specimens to shear apart.