



Designation: **C1369 – 07 C1369 – 07 (Reapproved 2014)**

Standard Specification for Secondary Edge Sealants for Structurally Glazed Insulating Glass Units¹

This standard is issued under the fixed designation C1369; 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 specification describes the properties of cold, liquid-applied, single or multi-component, chemically curing, elastomeric sealants used as the secondary seal of sealed insulating glass units, hereinafter referred to as the “sealant” (see Fig. 1). These sealants are intended to be a structural component of sealed insulating glass (IG) units used in structural sealant glazing (hereinafter referred to as SSG). Typical designs and considerations can be found in Guide C1249. Presently only certain silicone sealants are recognized as having the necessary durability for use as secondary sealant in IG units in SSG applications.

1.2 This specification does not describe all of the necessary properties of the sealant. Only those properties for which there are ASTM test methods and industry-agreed-upon minimum acceptable test requirements are described by this specification. Additional properties will be added as ASTM test methods for these properties become available.

1.3 This specification only addresses the durability of the secondary edge sealants for structurally glazed insulating glass units. Durability of sealed insulating glass units can be found in specifications and guides that reside within ASTM Committee E06.

1.4 The committee with jurisdiction for this standard is not aware of any comparable standard published by other organizations.

1.5 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information purposes only.

2. Referenced Documents

2.1 *ASTM Standards*:²

C603 Test Method for Extrusion Rate and Application Life of Elastomeric Sealants

C639 Test Method for Rheological (Flow) Properties of Elastomeric Sealants

C661 Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer

C679 Test Method for Tack-Free Time of Elastomeric Sealants

C717 Terminology of Building Seals and Sealants

C792 Test Method for Effects of Heat Aging on Weight Loss, Cracking, and Chalking of Elastomeric Sealants

C1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants

C1184 Specification for Structural Silicone Sealants

C1249 Guide for Secondary Seal for Sealed Insulating Glass Units for Structural Sealant Glazing Applications

C1265 Test Method for Determining the Tensile Properties of an Insulating Glass Edge Seal for Structural Glazing Applications

3. Terminology

3.1 *Definitions*—Refer to Terminology C717 for definitions of the following terms used in this specification: chemically curing sealant, compatibility, cure, cured, elastomeric, hardness, non-sag sealant, sealant, shelf life, silicone sealant, and substrate.

4. Classification of Sealants

4.1 A sealant qualifying under this specification shall be classified as to type and use as follows:

4.1.1 *Type S*—A single-component sealant.

¹ This specification is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.10 on Specifications, Guides and Practices.

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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.

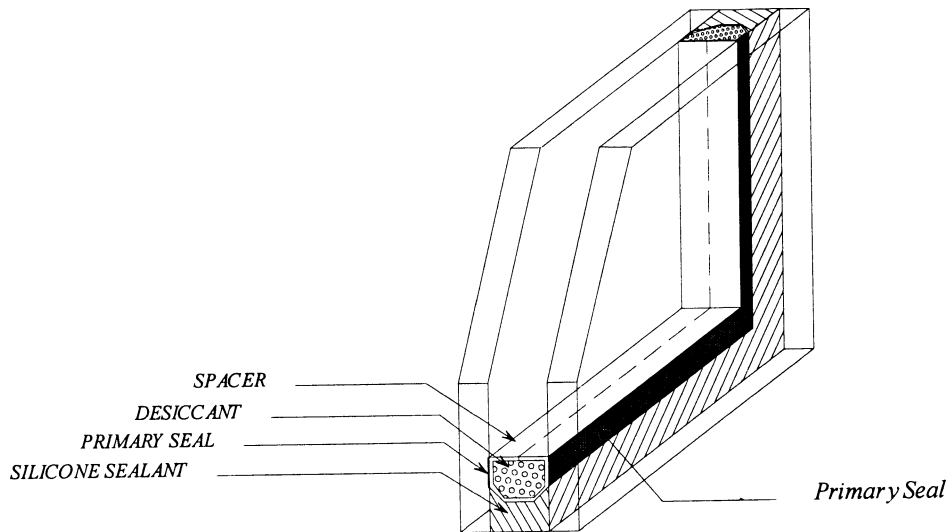


FIG. 1 Cutaway Section of IG Unit Edge Seal

4.1.2 *Type M*—A multi-component sealant.

4.1.3 *Use G*—A sealant that meets the requirements of this specification when tested on clear, uncoated float glass substrates.

4.1.4 *Use O*—A sealant that meets the requirements of this specification when tested on coatings³ such as reflective and low-emissivity metallic materials applied to glass substrates.

5. Materials and Manufacture

5.1 Sealant:

5.1.1 Furnish single-component sealants as a homogeneous mixture of a consistency suitable for application. Apply the sealant in strict accordance with the written recommendations of the sealant manufacturer. The cured sealant shall be an elastomeric solid.

5.1.2 Multi-component sealants shall be mixed in the correct ratio⁴ of components and delivered by appropriate equipment as specified by the sealant manufacturer.

6. Requirements

6.1 The physical, mechanical, and performance properties of the sealant shall conform to the requirements described in Table 1. <https://standards.iteh.ai/catalog/standards/sist/4420b7a1-5f7b-42bf-834f-ba0343107ebf/astm-c1369-072014>

³ Reflective and low-emissivity metallic materials are typical coatings applied to the glass substrate. If the coatings are edge deleted for actual production, they should be edge deleted for use in this specification.

⁴ If the mix ratio of multi-component sealant is not within the sealant manufacturers recommendations, the cure rate, tack free time, cohesive strength, and adhesive strength of the sealant can be adversely affected.

TABLE 1 Requirements for Physical, Mechanical, and Performance Qualities of the Sealant

Property	Requirements	Test Method
<i>Extrudability</i>	10 s, max	C603
<i>Rheological, max</i>		C639
Vertical	4.8 mm (3/16 in.)	
Horizontal	none	
<i>Hardness, Shore A</i>	20 to 60	C661
<i>Heat Aging</i>		C792
Weight Loss, max	10 %	
Cracking	none	
Chalking	none	
<i>Durability</i>		
<i>Tensile Value, min</i>		8.1.6
<i>Tensile Value, min</i>		8.1.6
Standard Conditions	345 kPa (50 psi)	
88°C (190°F)	345 kPa (50 psi)	
-29°C (-20°F)	345 kPa (50 psi)	
Water Immersion	345 kPa (50 psi)	
5000h Weathering	345 kPa (50 psi)	
<i>Shelf Life, min</i>	6 months	8.1.7
<i>Shelf Life, min</i>	6 months	8.1.7