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Standard Guide for Substrates Used in Testing Building Seals and Sealants¹

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1. Scope

1.1 This guide describes the recommended standard substrates and their recommended surface preparation for use in standard tests of building seals and sealants.

1.2 *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

C33 Specification for Concrete Aggregates

C150 Specification for Portland Cement

C305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

C566 Test Method for Total Evaporable Moisture Content of Aggregate by Drying

C717 Terminology of Building Seals and Sealants

C1036 Specification for Flat Glass

3. Terminology

3.1 *Definitions*—The terms used in this guide are in accordance with Terminology C717.

4. Significance and Use

4.1 The guide provides recommendations for substrates and methods of surface preparation to be used in comparative tests of building seals and sealants.

5. Comparison to Other Standards

5.1 The ASTM committee with jurisdiction over this standard¹ is not aware of any comparable standards published by other organizations.

¹ This guide 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.

6. Glass Substrate

6.1 The glass used shall be float glass, which conforms to Specification C1036, Type I, Class 1, q3. This corresponds to a glass that is formed on a float line, is transparent, clear, and intended for architectural fenestration applications.

6.2 Float glass has two surfaces, which are not necessarily identical in surface chemistry. There is a tin side, which was in contact with a batch of molten tin, and an air side, which did not have this intimate contact. These two surfaces may or may not have the same adhesion properties with a given sealant. It is best to test both surfaces for control of testing. If only one surface is to be tested, however, it is preferred to use the air side as this is likely a more consistent surface.

6.3 *Determination of Air Side Versus Tin Side:*

6.3.1 Clean the glass as described in 6.4.

6.3.2 Expose the substrate to the radiation from a short wavelength UV light source of approximately 254 nm. The tin side will fluoresce and display a hazy white reflectance. The air side will not show this effect under the same UV light. (**Warning**—Protect eyes and skin from exposure to UV light when using a UV light source.)

6.4 *Surface Preparation*—The substrate should be cleaned thoroughly with a solution of 50 % isopropyl alcohol (IPA) and 50 % deionized or distilled water and wiped with a clean, lint free, soft cloth or paper towel. Prepared specimens must be used within the same working day. Check surfaces for cleanliness by running distilled or deionized water over the glass surface held in a vertical position. Cleaned parts must pass water-break inspection as indicated by maintenance of a continuous film of water on the surface for not less than 30 s. Panels failing the water-break inspection should be recleaned until the surface can maintain the continuous film of water.

7. Aluminum Substrates

7.1 The aluminum shall be one of two materials, depending on the test sample configuration:

7.1.1 For tests requiring a sheet, less than 6 mm thick, the sheet shall be made of aluminum alloy 5005-H34.

7.1.2 For tests requiring a thicker plate, 6 mm or greater, the plate shall be made of aluminum alloy 6063-T5.

7.2 The aluminum for either a sheet or plate shall have a clear, Class II anodized finish conforming to AA-M12C22A31