Designation: ~~C661 – 06 (Reapproved 2011)~~ C661 – 15

Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer[1]

This standard is issued under the fixed designation C661; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method describes a laboratory procedure for determining indentation hardness of joint sealing compounds, (single- and multicomponent), intended for use in building construction.

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

1.3 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

1.4 *This standard does not purport to address 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

D2240 Test Method for Rubber Property—Durometer Hardness

3. Terminology

3.1 *Definitions*—See Terminology C717 for applicable definitions of the following terms: compound; elastomeric; hardness; joint; sealant, non-sag; sealant, ~~self-levling.~~ self-leveling, and standard conditions.

4. Significance and Use

4.1 The results obtained by this test method are simply a measure of the indentation into the sealant material of the indentor under load; they are not generally considered a measure of abrasion or wear resistance of the sealant.

5. Apparatus

5.1 *Durometer, Type A-2,* with a dial graduated in units from 0 to 100. (See Test Method D2240 for a description of the indentor and a method of calibration of the durometer.)

5.2 *Rectangular Brass Frame,* with inside dimensions 130 by 40 by 6 mm (approximately 5 by 1½ by ¼ in.).

5.3 *Aluminum Plates,* two 16 to 24 gage, 80 by 150 mm (approximately 3 by 6 in.).

5.4 *Thin-Bladed Knife.*

5.5 *Chamber,* capable of maintaining 38 ± 2°C (100 ± 3.5°F) and 95 % relative humidity.

5.6 *Metal Straightedge.*

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[1] This test method is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.20 on General Test Methods.

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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. Standard Test Conditions

6.1 Unless otherwise specified by those authorizing the tests, ~~standard conditions for test are room~~testing is conducted under standard conditions as defined in Terminology C717~~temperature: 23 ± 2°C (73.4 ± 3.6°F) and 50 ± 5 % relative humidity.~~ .

7. Procedure

7.1 *Test for Hardness of Multicomponent Sealants:*

7.1.1 Condition at least 250 g of base compound and appropriate amounts of curing agent for at least 24 h at standard conditions; then mix the components thoroughly for 5 min.

7.1.2 Fill the brass frame, after centering it on the aluminum plate, with a portion of the conditioned compound and strike it off flat with a metal straightedge. Lift the frame from the sealant after separating it by running a thin-bladed knife along the inside of the frame. Prepare two such specimens and cure them for 14 days at standard conditions.

NOTE 1—In the case of a self-leveling sealant or compound, do not lift the brass frame until the sealant is sufficiently cured so that it will not spread on the plate.

7.1.3 At the end of the curing period, take three hardness readings on each specimen at standard conditions. Hold the durometer on the surface of the specimen and press it firmly against the surface using a force of about 1.3 kgf (3 lbf). Keep the pressure foot parallel to the surface of the specimen. Take the instantaneous indentation reading immediately after making firm contact between the pressure foot and the specimen. After taking the first reading, shift the durometer (or specimen) to a new position in order to avoid errors due to fatigue and surface effects from the previous indentation. Take readings on smooth portions of the surface no closer than 13 mm (½ in.) from the edges of the sealant pat and also no closer than 25 mm (1 in.) from each other. Note the individual values, each rounded off to the nearest unit on the scale.

NOTE 2—The highest precision in this test can be obtained when the durometer is supported by a rigid stand and a dead weight is fastened directly to the instrument with the center of gravity of the weight acting in line of the indentor point. A freely acting total deadweight load of approximately 1.3 kgf (3 lbf) has been found satisfactory for the testing of various sealants (Fig. 1).

NOTE 3—The values obtained in the test method described in 7.1.3 are known as "instantaneous" values. Occasionally a purchaser may request "delayed" values such as these taken after a 5 or 10-s delay. To obtain a delayed value the same procedure is followed, except that the pressure foot is allowed to rest on the surface of the sealant under the fixed load for the additional time requested and a reading is taken at the specified time, for example,

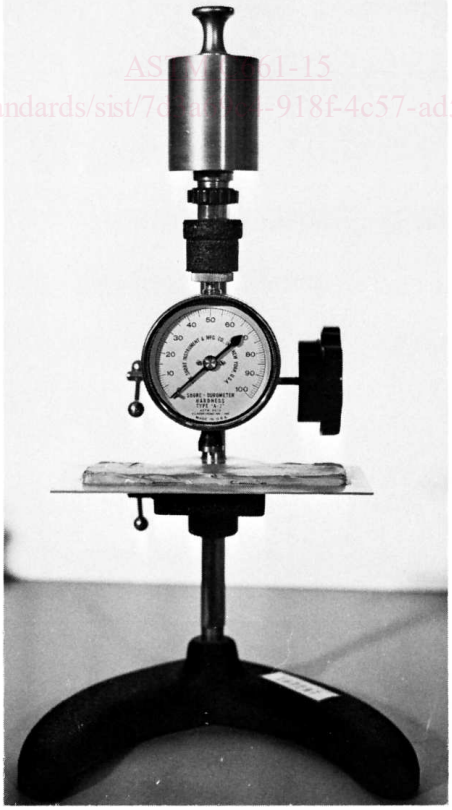

FIG. 1 Type of Durometer Used to Measure Indentation Hardness of Joint Sealants