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.

Designation: C734 – 15 (Reapproved 2019)

Standard Test Method for Low-Temperature Flexibility of Latex Sealants After Artificial Weathering[1]

This standard is issued under the fixed designation C734; 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 a laboratory procedure for the determination of low-temperature flexibility of latex sealants after 500 h artificial weathering.

1.2 The values stated in metric (SI) units are to be regarded as the standard. The values given 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—Currently there is no ISO standard similar to this test method.

1.4 *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:*[2]

C717 Terminology of Building Seals and Sealants

C1442 Practice for Conducting Tests on Sealants Using Artificial Weathering Apparatus

3. Terminology

3.1 *Definitions*—Refer to Terminology C717 for definitions of the following terms used in this test method: adhesive failure, latex sealant, sealant, substrate, and standard conditions.

4. Summary of Test Method

4.1 A slab of the sealant is exposed, after drying, for a minimum of 500 h in an artificial weathering unit, after which it is conditioned and flexed at −17 ± 1 °C (0 ± 2 °F).

5. Significance and Use

5.1 This test evaluates the flexibility of artificially weathered latex sealants in a low-temperature environment.

6. Apparatus

6.1 *T3 Temper Alclad Aluminum Panels,* three, each 76 by 153-mm (3 by 6-in.) of 16 to 24 gauge (1.29 to 0.511 mm).

6.2 *Accelerated Weathering Device*—One of the units as described in Practice C1442. Because of differences in spectral power distributions of the exposure sources and exposure parameters used in the different types of devices described in Practice C1442, test results may differ with the type of accelerated weathering device. Choice of type of device shall be by mutual agreement among the interested parties.

6.3 *Cold Box or Freezer.*

6.4 *Mandrel, Wood or Metal*, 25 mm (1 in.) in diameter.

6.5 *Template,* consisting of a 3.2-mm (⅛-in.) thick brass plate with a rectangular opening 38 by 127 mm (1½ by 5 in.).

6.6 *Spatula,* metal.

7. Sampling

7.1 Take the sealant to be tested directly from the container as commercially supplied by the manufacturer.

8. Test Specimens

8.1 Prepare three test specimens as follows:

8.1.1 Center the template on an aluminum panel, fill it to excess with the sealant, and strike the excess off flush with the surface of the template with the metal spatula.

8.1.2 Cut around the perimeter of the sealant, next to the template, with the spatula, and carefully remove template.

9. Conditioning

9.1 Condition the three specimens for 2 days at standard conditions.

[1] This test method is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.40 on Weathering.

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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.

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10. Procedure

10.1 Place the conditioned specimens in the artificial weathering unit and cycle them for a minimum of 500 h, beginning with the start of the light cycle. Refer to Practice C1442 for the artificial weathering unit operating conditions. Expose specimens in the xenon arc device for a minimum of 500 h at an irradiance level of 0.51 W(m^2 · nm) at 340 nm. The radiant exposure for this is 918 kJ/(m^2 · nm) at 340 nm. To determine the exposure time required to obtain the same radiant exposure at other irradiance levels specified in Practice C1442, see Annex A1 in C1442.

10.2 Following artificial weathering exposure, place the specimens and the mandrel in a cold box maintained at −17 ± 1 °C (0 ± 2 °F) for 4 h.

10.3 While still in the cold box, place each specimen in turn on the mandrel, with the aluminum plate next to the mandrel, and, without holding the sealant, bend the specimen 90° around the mandrel within 1 s.

10.4 Visually examine the specimens after bending, for cracking of the sealant or adhesive failure to the aluminum, or both.

11. Report

11.1 Report the type and description of the laboratory accelerated weathering device, the length of time the test specimens were exposed in the artificial weathering device and whether the sealant cracks through to the substrate, or fails adhesively to the aluminum panel.

12. Precision and Bias

12.1 No statement is made about either the precision or bias of this test method for measuring low temperature flexibility since the result states merely whether there is conformance to the criteria for success specified in the procedure.

13. Keywords

13.1 artificial weathering; flexibility; latex sealant

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