



Standard Test Method for Aging Effects of Artificial Weathering on Latex Sealants¹

This standard is issued under the fixed designation C732; 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 covers a laboratory procedure for the determination of aging effects of artificial weathering on latex sealants.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

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

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:*

3.1.1 Definitions of the following terms are found in Terminology C717: adhesive failure (loss of adhesion); latex sealant; sealant.

4. Summary of Test Method

4.1 The sealant is placed in a specially constructed wood-and-aluminum fixture (referred to as a “channel panel”) and exposed for intervals of 500 h to specified alternate wet and dry cycles in an accelerated weathering unit, then periodically examined for evidences of deterioration.

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.

5. Significance and Use

5.1 Accelerated weathering exposure serves to indicate long-term exterior durability of the sealant. In this test method, durability is tested when the sealant is used with wood or aluminum.

6. Apparatus

6.1 *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.

6.2 *Channel Panel attached to a Sample Holder* as shown in Fig. 1.

6.3 *Knife*, for tooling.

7. Sampling

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

8. Test Specimens

8.1 Prepare two 25 by 70 by 175-mm (1 by 2¾ by 7-in.) wood-and-aluminum channel panels as shown in Fig. 1, using the following materials:

8.1.1 *Exterior Fir Plywood*, with a water-resistant thermoset glue such as urea or melamine-formaldehyde type.

8.1.2 *Ponderosa Pine Sapwood*, white kiln dried and free of knots or imperfections.

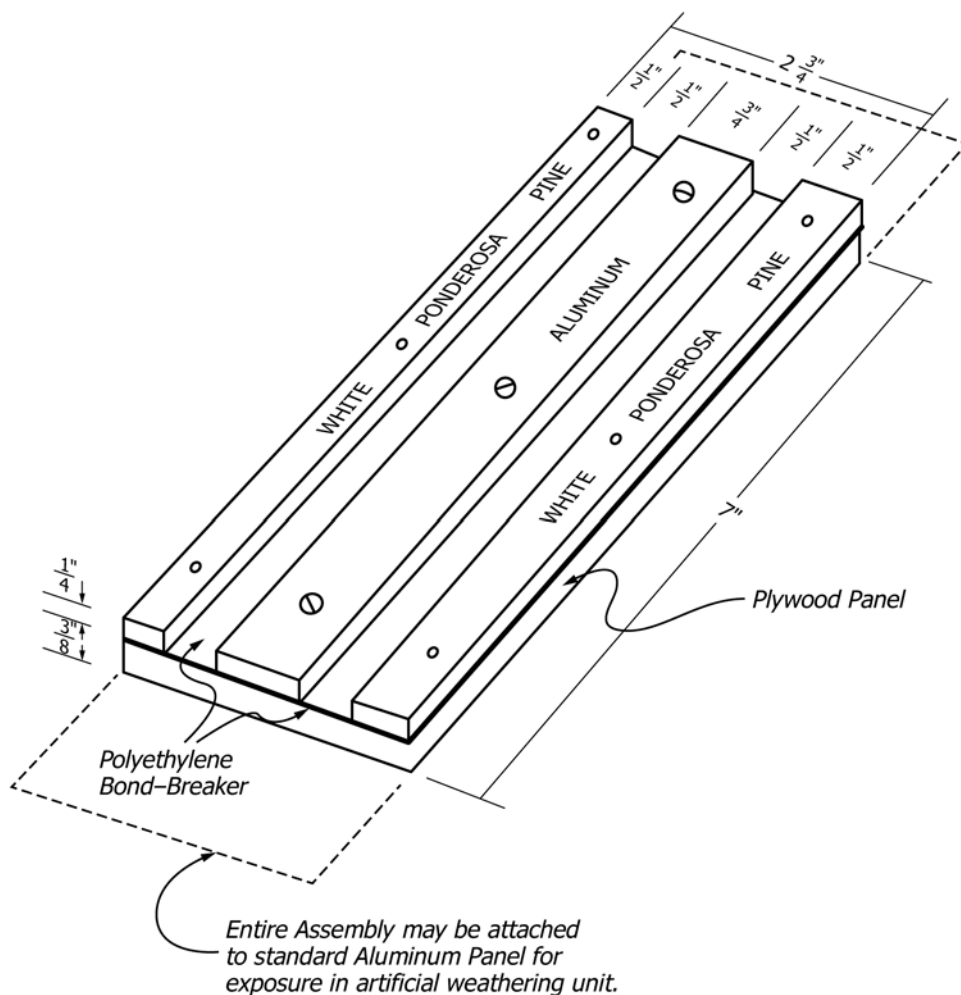
8.1.3 *Aluminum Alloy 6063-T5 or 6061-T6*, clear, anodized a minimum of 30 min over a scale-free finish.

8.1.4 *Polyethylene Spacer* of low-density film approximately 5 mils (0.13 mm) thick.

8.1.5 *Screws and Nails*, zinc-coated or nonrusting type.

8.2 Using a gun or knife, completely fill the two 7 by 13-mm (¼ by ½-in.) channels in both panels with sealant, striking off the excess from the top and ends so that it is flush with the panel surfaces.

NOTE 2—The length dimension of the channel may be reduced as needed to accommodate the specimen holder requirements of the artificial



Metric Equivalents			
in.	mm	in.	mm
1/4	6.4	3/4	19.1
3/8	9.5	2 3/4	69.9
1/2	12.7	7	177.8

Materials:

- 1—3/8 by 2 3/4 by 7-in. plywood
- 1—1/4 by 3/4 by 7-in. aluminum
- 2—1/4 by 1/2 by 7-in. ponderosa white pine
- 1—2 3/4 by 7-in. sheet untreated polyethylene
- 3 Screws
- 6 Nails
- 1 Aluminum Panel

FIG. 1 Channel Panel attached to a Sample Holder

weathering device available for use.

9. Conditioning

9.1 Condition both specimens for 7 days at $23 \pm 1^\circ\text{C}$ ($73.4 \pm 2^\circ\text{F}$) and $50 \pm 5\%$ relative humidity.

10. Procedure

10.1 Secure one or more test specimen(s) in the artificial weathering unit and cycle for intervals 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 $0.51 \text{ W}/(\text{m}^2 \cdot \text{nm})$ at 340 nm. The radiant exposure for this is $918 \text{ kJ}/(\text{m}^2 \cdot \text{nm})$ 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 Maintain an unexposed file specimen at standard conditions until the accelerated weathering exposure is complete.

10.3 After the test specimen has been exposed as specified in 10.1, remove it, allow it to cool to $23 \pm 1^\circ\text{C}$ ($73.4 \pm 2^\circ\text{F}$). Examine it visually for wash-out, slump, cracking, loss of adhesion to the wood or aluminum, and discoloration.

11. Report

11.1 Report the type and description of the laboratory accelerated weathering device and the length of time the test

specimen(s) was/were exposed in the artificial weathering device. Compare the exposed specimen with the unexposed file specimen, and report any changes in wash-out, slump, cracking, loss of adhesion, or discoloration.

12. Precision and Bias

12.1 No statement is made about either the precision or the bias of this test method for measuring wash-out, slump,

cracking, or loss of adhesion since the result merely states whether there is conformance to the criteria for success specified in the procedure.

13. Keywords

13.1 artificial weathering; latex sealant

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