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StandardPractice for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Fluorescent UV, Water Spray, and Condensation Method)[1]

This standard is issued under the fixed designation D4799; 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 practice describes test conditions and procedures for fluorescent UV and condensation exposures conducted according to Practices G151 and G154 for bituminous roofing and waterproofing materials that have a minimum softening point of approximately 95°C (200°F) as determined by Test Method D36. (Also see Terminology G113.)

1.2 The values stated in 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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)

D1669 Practice for Preparation of Test Panels for Accelerated and Outdoor Weathering of Bituminous Coatings

D1670 Test Method for Failure End Point in Accelerated and Outdoor Weathering of Bituminous Materials

G113 Terminology Relating to Natural and Artificial Weathering Tests of Nonmetallic Materials

G141 Guide for Addressing Variability in Exposure Testing of Nonmetallic Materials

G147 Practice for Conditioning and Handling of Nonmetallic Materials for Natural and Artificial Weathering Tests

G151 Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources

G154 Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

3. Summary of Test Method

3.1 Thin films of bitumen are uniformly applied to aluminum panels. Shingles and similar materials are cut to size and exposed to specified cycles of temperature, light, and water. A choice of three test cycles is given along with options for determining the period of exposure and evaluating results.

4. Significance and Use

4.1 This weathering apparatus is used for comparing the weathering characteristics of bituminous materials against a control material for which the outdoor weathering characteristics are known. It is not possible to establish a precise correlation between accelerated and natural weathering because (*1*) there are geographical climatic variations, local weather variations, and variations in local pollutants, and (*2*) the relation between accelerated and natural weathering is material dependent. Acceleration factors differ between materials as well as between formulations of the same material. Guide G141 provides guidance regarding this issue.

NOTE 1—This practice can be used for other than bituminous materials, but the significance and use have not been evaluated.

5. Apparatus

5.1 The fluorescent UV and condensation apparatus used shall conform to the requirements defined in Practices G151 and G154.

5.2 *Lamps*—Unless otherwise specified, the lamps shall be fluorescent UVA-340 lamps as described in 6.1.3.1 of Practice G154.

5.2.1 Other fluorescent UV lamps meeting the size and electrical characteristics in 5.2 may be used if mutually agreed upon and provided that the lamp and spectral energy distribution are reported in conformance with Section 9.

5.3 *Moisture*—It is permitted to expose the test specimens to moisture in the form of water spray, condensation, or high humidity.

[1] This practice is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.02 on Prepared Roofings, Shingles and Siding Materials.

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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.