



Standard Test Method for Color Stability of Building Construction Sealants as Determined by Laboratory Accelerated Weathering Procedures¹

This standard is issued under the fixed designation C 1501; 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 describes laboratory accelerated weathering procedures using either fluorescent ultraviolet or xenon arc test devices for determining the color stability of building construction sealants.

1.2 Color stability rankings provided by these two procedures may not agree.

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

1.4 There is no equivalent ISO standard for this test method.

1.5 *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:

C 717 Definitions of Terms Relating to Building Seals and Sealants²

C 1442 Practice for Conducting Tests on Sealants using Artificial Weathering Apparatus²

D 1729 Practice for Visual Evaluation of Color Differences of Opaque Materials³

D 2244 Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates³

G 113 Terminology Relating to Natural and Artificial Weathering tests for Nonmetallic Materials⁴

G 147 Practice for Conditioning and Handling of Nonmetallic Materials for Natural and Artificial Weathering⁴

G 151 Practice for Exposing Nonmetallic Materials in Accelerated Test Devices That Use Laboratory Light Sources⁴

G 154 Practice for Operating Fluorescent Light Apparatus

for UV Exposure of Nonmetallic Materials⁴

G 155 Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials⁴

2.2 CIE Documents:

CIE Publication Number 85: 1989, Technical Report-Solar Spectral Irradiance⁵

3. Terminology

3.1 *Definitions*—Definitions of the following terms are found in ASTM standard C 717: compound, cure, sealant, and substrate. Definitions of the following terms are found in ASTM standard G 113: sample, file specimen, control material, fluorescent ultraviolet lamps, xenon arc, irradiance, radiant exposure, spectral power distribution, solar radiation-ultraviolet, solar radiation-visible.

4. Summary of Test Method

4.1 Specimens for this procedure are prepared in which the sealant to be tested adheres to flat aluminum panels. While any surface can be specified and used, this test method was developed with aluminum panels. At least four replicates of each sealant being tested are required. After curing, one replicate of each sealant being tested is retained as a file specimen and at least three replicates are exposed to actinic radiation, heat and moisture. At the end of the exposure period, the test sealant is examined for color change by comparison to the unexposed file specimen.

4.2 As recommended in ASTM G 151 Section 4.2, unless several test sealants are exposed to determine their relative color stabilities, one or two control sealants of similar composition and construction to the test specimen and having known color stability should be exposed simultaneously with the test specimen to rank the color stability of the latter compared with the color stability of the control(s).

5. Significance and Use

5.1 This test method is intended to induce color changes in sealants, as well as their constituent pigments, associated with end-use conditions, including the effects of sunlight, moisture,

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.

Current edition approved June 10, 2001. Published August 2001.

² *Annual Book of ASTM Standards*, Vol 04.07.

³ *Annual Book of ASTM Standards*, Vol 06.01.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

⁵ CIE Central Bureau, Vienna, Kegelgasse 27, A-1030 Wien, Austria