Designation: C510 – 05a

Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants[1]

This standard is issued under the fixed designation C510; 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 an accelerated laboratory procedure to determine if a sample of a joint sealant will stain the substrate when in contract with masonry, concrete, or stone (such as marble, limestone, sandstone, and granite). This test method also is intended to determine whether the sealant itself will change in color when exposed to the weather.

1.2 The values stated in SI units are to be regarded as the standard. The value 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]

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

C150 Specification for Portland Cement

C207 Specification for Hydrated Lime for Masonry Purposes

C717 Terminology of Building Seals and Sealants

C1442 Practice for Conducting Tests on Sealants Using Artificial Weathering Apparatus

D2203 Test Method for Staining from Sealants

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

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method, see Terminology C717 for terms relating to building seals and sealants, and Terminology G113 for terms relating to natural and artificial weathering tests.

4. Significance and Use

4.1 Staining of a building is an aesthetically undesireable occurance. This test method evaluates the likelihood of a sealant causing early stain on a porous substrate due to certain chemical exudations from the sealant.

4.1.1 This test method may not predict staining caused by such factors as residue run-down or dirt pick-up by a sealant exudate.

4.2 This test method is useful to predict potential color changes in the sealant itself after weathering.

4.3 This test method measures color change in a sealant and staining of substrate by the sealant under conditions of artificial weathering. See also Test Method D2203, which measures staining by a sealant due to gross exudations from the sealant; it does not subject the sealant to artificial weathering.

5. Apparatus

5.1 The exposure apparatus shall be one of the three types of laboratory accelerated weathering devices described in Practice C1442, that use either xenon arc, fluorescent UV or open flame carbon arc radiation. Consult Practice C1442 for the differences in test parameters among the devices. Because of differences in test conditions, test results may differ with the type of device used. The choice of device shall be by mutual agreement among the interested parties.

6. Materials

6.1 *Portland Cement*, white, nonstaining, conforming to Type I of Specification C150.

6.2 *Hydrated Lime*, conforming to Type S of Specification C207.

6.3 *Ottawa Sand*, graded, white, conforming to the requirements of Section 4 of Test Method C109/C109M.

6.4 *Aluminum Plates*, three 152 by 70-mm (6 by 2¾-in.), No. 16 gage.

6.5 *Metal Frames*, two rectangular noncorrosive, designated as *A* and *B*; frame *A* shall be 6 mm (¼ in.) thick with the inside opening slightly larger than an aluminum plate described in 6.4; frame *B* shall have inside dimensions of 127 by 38 by 6 mm (5 by 1½ by ¼ in.) thick.

[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 May 1, 2005. Published June 2005. Originally approved in 1963 as C510 – 63 T. Last previous edition approved in 2005 as C510 – 05. DOI: 10.1520/C0510-05A.

[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.