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Standard Specification for Latex Sealants¹

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This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers one component latex sealants used for sealing joints in building construction.

1.2 A sealant meeting the requirements of this specification shall be classified by the manufacturer to be one of the types and grades defined in Section 4.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound in parenthesis are provided for information purposes only.

1.4 The following precautionary caveat pertains only to the test method portion, Section 10, of this Specification: *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 specification.

2. Referenced Documents

2.1 *ASTM Standards*:²

C717 Terminology of Building Seals and Sealants

C732 Test Method for Aging Effects of Artificial Weathering on Latex Sealants

C734 Test Method for Low-Temperature Flexibility of Latex Sealants After Artificial Weathering

C736 Test Method for Extension-Recovery and Adhesion of Latex Sealants

C1183 Test Method for Extrusion Rate of Elastomeric Sealants

C1193 Guide for Use of Joint Sealants

C1241 Test Method for Volume Shrinkage of Latex Sealants During Cure

D2202 Test Method for Slump of Sealants

D2203 Test Method for Staining from Sealants

D2377 Test Method for Tack-Free Time of Caulking Compounds and Sealants

3. Terminology

3.1 *Definitions*—Definitions of the following terms apply to this specification and are found in Terminology C717: adhesive failure (adhesion loss), cure, joint, latex sealant, sealant, shrinkage (volume), standard conditions, and substrate.

4. Classification of Sealants

4.1 A sealant qualifying under this specification shall be classified by type and grade as follows:

4.1.1 *Type OP*—An opaque sealant containing color pigments or extender pigments, or both, that has no more than 30 % volume shrinkage (see 10.1.3).

4.1.2 *Type C*—A clear or translucent sealant that has no more than 50 % volume shrinkage (see 10.1.3).

4.1.3 *Grade –18°C*—A sealant that meets the requirements for low temperature flexibility (see 7.1) when tested at –18°C (0°F).

4.1.4 *Grade 0°C*—A sealant that meets the requirements for low temperature flexibility (see 7.1) when tested at 0°C (32°F).

4.1.5 *Grade NF*—A sealant that does not meet the requirements for low temperature flexibility of Grade 0°C (see 4.1.4).

5. Materials and Manufacture

5.1 The sealant shall be composed of latex formulated with appropriate fillers, pigments, and chemical additives to result in conformance to this specification.

5.2 All material and workmanship shall be in accordance with good commercial practice. The producer is permitted a wide latitude in choice of raw materials for making these products. Consequently, there is no implication that the compounds are equivalent in all physical properties.

5.3 The manufacturing process shall be such as will ensure a homogeneous mix, free of defects that would affect serviceability, and provide a consistency suitable for immediate application.

¹ This specification is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.10 on Specifications, Guides and Practices.

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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.

6. General Requirements

6.1 The shelf life of this sealant shall be determined by its manufacturer. When establishing the shelf life, the manufacturer should also identify acceptable conditions of storage for the sealant.

6.2 After 21 days cure at standard conditions, the color of the sealant shall be that color that has been agreed upon between the purchaser and the supplier.

6.3 The sealant is intended for application to clean substrate surfaces only.

7. Physical Properties

7.1 The sealant shall conform to the physical requirements specified in Table 1 according to type and grade.

8. Significance and Use

8.1 This specification covers two types and three grades of latex sealants as described in Section 4 that are formulated for general caulking and sealing operations in building construction. It should be recognized by the user that not all sealants meeting this specification are suitable for all applications and all substrates. It is essential, therefore, that the type and grade be specified for proper description of a sealant. Test methods relate to special standard substrates of glass, wood and aluminum. If tests are required using substrates in addition to or other than standard, they should be so specified for testing.

TABLE 1 Physical Requirements

Test	Requirements	ASTM Test Method
Extrudability	2 g/s, minimum	C1183, Procedure B
Artificial weathering:	500 h	C732
Wash-out	none, after weathering	
Slump	none, after weathering	
Cracking	none, after weathering	
Discoloration	as acceptable to purchaser	
Adhesion loss	25 % max (estimated on the basis of a total possible bond area of 45.16 cm ² (7 in. ²))	
Volume shrinkage:		
Type OP	30 % max	C1241
Type C	50 % max	
Low-temperature flex- ibility:	After 500 h Artificial Weathering exposure	
Grades –18° and 0°	no cracking through to substrate or adhesion loss	C734 ^A
Grade NF	none	
Recovery	75 % min (average of all specimens)	C736
Adhesion loss	25 % or 19.35 cm ² (3 in. ²) max (of total bond area of all specimens)	C736
Slump	4 mm (0.15 in.) max (on each specimen)	D2202 ^B
Stain index	3 max	D2203
Tack-free time	no material adhering to plastic strip	D2377 ^C
Color	as acceptable to purchaser	6.2

^ASee 10.1.4 for modification of this test method for 0°C.

^BSee 10.1.6 for modification to this test method.

^CSee 10.1.8 for modification to this test method.

8.2 Refer to Guide C1193 for information on the proper use of sealants meeting this specification.

9. Sampling

9.1 The sealant to be tested for conformance to this specification shall be taken directly from a randomly selected container as commercially supplied by the manufacturer.

10. Test Methods

10.1 Perform all of the following tests at standard conditions. Condition sealant samples for at least 5 h at standard conditions before any tests are conducted.

10.1.1 *Extrudability After Aging*—Test Method C1183, Procedure B.

10.1.2 *Artificial Weathering*—Test Method C732 (500 h exposure).

10.1.3 *Volume Shrinkage*—Test Method C1241.

10.1.4 *Low-Temperature Flexibility*—Test Method C734 (500 h Artificial Weathering exposure). For 0°C sealants, the test method is modified to perform the bend at 0 ± 1°C (32 ± 2°F).

NOTE 2—The exposure times for the accelerated weathering tests used in this specification are meant to ensure a minimum level of performance and cannot be used to estimate service life in any particular location.

10.1.5 *Extension-Recovery and Adhesion*—Test Method C736.

10.1.6 *Slump*—Test Method D2202 modified to advance the plunger to its maximum extent, leaving a solid cylinder of sealing compound 38 mm (1½ in.) in diameter and 10 mm (¾ in.) thick, ready to flow down the face of the instrument.

10.1.7 *Staining*—Test Method D2203.

10.1.8 *Tack-Free Time*—Test Method D2377 modified to expose the specimen for 1 h before applying polyethylene strip for Type OP and modified to expose the specimen for 24 h before applying the polyethylene strip for Type C sealants.

11. Packaging

11.1 Unless otherwise specified in the contract or order, the material shall be packaged in standard commercial containers so constructed as to ensure acceptance by common or other carrier for safe transportation at the lowest rate to the point of delivery.

11.2 Shipping containers shall be marked with the name, grade, and quantity of the material contained therein, as defined by the contract or order under which shipments are made. The name of the manufacturer, the lot and batch number of the contract order, and the date of manufacture shall also be shown.

12. Keywords

12.1 latex sealant

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