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Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course[1]

This standard is issued under the fixed designation C836/C836M; 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 specification describes the required properties and test methods for a cold liquid-applied elastomeric-type membrane, one- or two-component, for waterproofing building decks and walls subject to hydrostatic pressure in building areas to be occupied by personnel, vehicles, or equipment. This specification applies only to a membrane system that will be covered with a separate wearing course, traffic course, or backfill.

NOTE 1—See Guide C898 and Guide C1471 for proper application of membrane.

1.2 There are no ISO standards similar or equivalent to this ASTM standard.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *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]

C794 Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

C898 Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Separate Wearing Course

C1305 Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane

C1375 Guide for Substrates Used in Testing Building Seals and Sealants

C1471 Guide for the Use of High Solids Content Cold Liquid-Applied Elastomeric Waterproofing Membrane on Vertical Surfaces

C1522 Test Method for Extensibility After Heat Aging of Cold Liquid-Applied Elastomeric Waterproofing Membranes

D1079 Terminology Relating to Roofing and Waterproofing

D2240 Test Method for Rubber Property—Durometer Hardness

D6511 Test Methods for Solvent Bearing Bituminous Compounds

3. Terminology

3.1 *Definitions*—Refer to Terminology D1079 for definitions of the terms used in this specification.

4. Classification

4.1 *Types:*

4.1.1 *Type I*—A one-component, cold liquid-applied waterproofing material suitable for immediate application after mixing. Type I products may be used with an accelerator that is beneficial but not essential for curing of the membrane.

4.1.2 *Type II*—A two-component, cold liquid-applied waterproofing material. Combining two components is essential for curing of the membrane.

5. Physical Requirements

5.1 *Material*—Membrane materials shall cure, after application by spreading or spraying, to form an elastomeric film capable of maintaining a seal against liquid water.

5.2 The physical, mechanical, and performance properties of the membrane shall conform to the requirements described in Table 1.

[1] This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.22 on Waterproofing and Dampproofing Systems.

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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.

TABLE 1 High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane Physical Requirements

Property	Requirement	Test Method[A]
Hardness, Type 00, min	50	D2240 as modified in section 6.5
Weight loss, max, %	20	D6511 as modified in 6.6.1
Nonvolatile, min, %	80	
Low temperature crack bridging	no cracking	C1305
Film thickness (vertical surface), min, mm [mils]	1.5 ± 0.1 [60 ± 5]	See section 6.8
Adhesion-in-Peel after water immersion, N [lbf]	4.4 [1]	C794 as modified in section 6.9
Extensibility after heat aging, min, mm [in.]	6.4 [¼], no cracking	C1522
Stability, min, months	6	See section 6.11

[A] Numbers refer to portions of the Test Methods section, Section 6, of this specification.

6. Test Methods

6.1 *Standard Conditions*—Standard conditions for all tests shall be 23 ± 2°C [73.4 ± 3.6°F] and 50 ± 5 % relative humidity.

6.2 *Conditioning/Mixing:*

6.2.1 Store all membrane materials to be tested in an unopened container at standard conditions for at least 24 h before any test specimens are prepared.

6.2.2 Follow the manufacturer's instructions for mixing and preparing membrane materials for testing. Thoroughly mix one-component samples before using. Mix two-component compounds in the ratio recommended by the manufacturer.

6.3 *Test Surfaces*—In addition to the mortar test surfaces specified, use other test surfaces when required by the specifier.

6.4 *Primer*—When required by the manufacturer, use a primer as directed by the manufacturer on all substrate materials in test assemblies.

6.5 *Hardness:*

6.5.1 Following the manufacturer's instructions, apply a film of membrane, 1.5 ± 0.1 mm [60 ± 5 mils] thick, on a 100 by 150-mm [4 by 6-in.] piece of polyethylene film-coated paper and allow the membrane to cure for 14 days at standard conditions. If more than one application is required, the total time for film application shall not exceed 48 h.

6.5.2 After curing, strip the film from the coated paper, cut into pieces, and lay the pieces one upon another to provide a test specimen meeting the requirements of Test Method D2240.

6.5.3 Using a Type 00 hardness gauge, obtain an instantaneous reading of the film hardness as specified in Test Method D2240.

6.6 *Weight Loss:*

6.6.1 Test in compliance with the requirements of Test Method D6511, Section 7; utilize a forced draft oven controlled to 70 ± 2°C [158 ± 3.6°F] for 72 hours. Remove the specimens from the oven and allow to cool at standard conditions for 30 minutes prior to weighing samples.

6.7 *Low-Temperature Crack Bridging:*

6.7.1 Test in compliance with the requirements of Test Method C1305.

6.8 *Film Thickness on Vertical Surface:*

6.8.1 Prepare mortar test blocks 152 by 76 by 25 mm [6 by 3 by 1 in.] as described in Guide C1375.

6.8.2 Prepare the test assembly by covering one cut face of a mortar slab with a film of membrane material 1.5 ± 0.1 mm [60 ± 5 mils] in thickness, mixed and applied in accordance with the manufacturer's directions. Install the film in one application unless manufacturer's application instructions require application in several coats. If applied in several coats, the test substrate shall be set in a vertical position between applications, and the complete film thickness shall be accomplished in 48 h in accordance with the manufacturer's instructions.

6.8.3 Immediately after applying the film, place the coated slab on its end, in a vertical position, and let remain in this position for 24 h at standard conditions.

6.8.4 Using a vernier caliper, measure the thickness of the total assembly at five points within 25 mm [1 in.] of the top end of the slab. Cover the film at each point of measurement with a 25-mm [1 in.] square piece of aluminum, 0.5 mm [0.002 in.] thick, to prevent point indentation on the film.

6.8.5 Cut a 25-mm [1-in.] wide band of film from across the top of the mortar strip. Measure the thickness of the test mortar in approximately the same five locations that measurements were made in 6.8.4. Determine the average.

6.8.6 Determine the film thickness by subtracting the average test mortar thickness from the average total assembly thickness (test mortar and film).

6.9 *Adhesion-in-Peel After Water Immersion:*

6.9.1 Perform the test as specified in Test Method C794 with the following qualifications:

6.9.1.1 Mortar shall be the test substrate. Other substrates may be tested when specified.

6.9.1.2 The cure conditions shall be 14 days at standard conditions, followed by 7 days at 70 ± 2°C [158 ± 3.6°F].

6.9.1.3 After the specimen has cured for about 7 days, coat the cloth with a layer of the compound about 2.5 mm [0.1 in.] thick to help minimize cloth failure.

6.10 *Extensibility After Heat Aging:*

6.10.1 Test in compliance with the requirements of Test Method C1522.

6.11 *Stability*—When stored at a temperature not exceeding 27°C [80°F] in a dry environment, or kept protected from moisture, or both, the membrane material shall be capable of meeting the requirements of this specification for at least 6 months from the time of delivery.

7. Precision and Bias

7.1 *Precision*—No information is presented about either the precision or bias of the procedure in 6.8 for measuring film thickness on a vertical surface.

8. Rejection and Resubmittal

8.1 Failure to conform to any one of the requirements prescribed in this specification shall constitute grounds for rejection. The seller shall have the right to reinspect the rejected shipment and resubmit the lot after removal of those packages not conforming to the specified requirements.

9. Packaging and Product Marking

9.1 Shipping containers shall be labeled to indicate compliance with this specification including classification.

9.2 The date of production shall be marked on each package.

9.3 The material shall be packaged in standard commercial containers constructed so as to ensure acceptance by common or other carrier for safe transportation to the point of delivery. Shipping containers shall be marked with the name, type, and quantity of the material contained therein, as defined by the contract or order under which the shipments are made.

10. Keywords

10.1 crack bridging; membrane; waterproofing