



Designation: D 3747 – 79 (Reapproved 2000)^{ε1}

Standard Specification for Emulsified Asphalt Adhesive for Adhering Roof Insulation¹

This standard is issued under the fixed designation D 3747; 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.

^{ε1} NOTE—Editorially switched from English dominant to SI dominant.

1. Scope

1.1 This specification covers emulsified asphalt adhesive for use in adhering preformed roof insulation to steel roof decks with inclines up to 33 %. When applied as a continuous film over an acceptable deck surface, the emulsion functions as both an adhesive and a vapor retarder.

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

1.3 The following precautionary caveat pertains only to the test method portion, Section 5, 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.*

2. Referenced Documents

2.1 ASTM Standards:

C 208 Specification for Cellulosic Fiber Insulating Board²

D 244 Test Methods for Emulsified Asphalts³

D 312 Specification for Asphalt Used in Roofing⁴

D 2939 Test Methods for Emulsified Bitumens Used as Protective Coatings⁴

E 96 Test Methods for Water Vapor Transmission of Materials²

3. Classification

3.1 *Type I*—Suitable for use at temperatures above 4°C (40°F).

3.2 *Type II*—Suitable for use at temperatures above –7°C (20°F).

4. Physical Requirements

4.1 The emulsion shall be homogeneous. There shall be no separation of water or coagulation of the asphalt base, and no

settling or packing in the container that cannot be overcome by hand stirring at temperatures above 10°C (50°F).

4.2 The consistency of the emulsion shall permit application at a rate of 0.8 to 1.0 L/m² (2 to 2½ gal/100 ft²) with a brush, long-napped roller, or spray at the minimum temperature for each type. For the application of a continuous film, a spray application is recommended.

4.3 The material shall conform to the physical properties prescribed in Table 1.

5. Sampling and Test Methods

5.1 Sample the material and determine the properties enumerated in this specification in accordance with Test Methods D 2939.

5.2 *Water Vapor Permeance*—Test Methods E 96, Procedure E. Prepare specimen in accordance with Test Methods E 96, except for the following modifications:

5.2.1 *Specimen Preparation*—On a silicone-treated sheet of aluminum foil,⁵ cast a film of the emulsified asphalt at the rate of 0.8 to 1.0 L/m² (2 to 2½ gal/100 ft²) using a draw bar and suitable template. Allow to dry at room temperature for 24 h. After drying, remove the specimen from the silicone-treated aluminum foil and trim to a suitable diameter to fit the test dish.

5.2.2 *Test Cell Assembly*—Fill the test dish with desiccant as prescribed and insert a circular wire grid of 1.18 to 2.00-mm (10 by 10 to 16 by 16-mesh) openings and equal to the size of the specimen under test. Lay the test specimen on the grid and seal as prescribed.

NOTE 1—The specimen may be dusted with talc to facilitate handling.

5.3 Adhesive Strength:

5.3.1 *Scope*—This method covers a simple procedure to determine if the cured adhesive strength is adequate.

5.3.2 Apparatus and Materials:

5.3.2.1 *Ring Stand*, 225 mm (9 in.) high with 125-mm (5-in.) diameter ring.

5.3.2.2 *Sheet Metal*, 1.27 mm (18 gage) thick cold-rolled steel, 150 by 150 mm (6 by 6 in.). Steel shall be clean and free of rust and oil.

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.09 on Bituminous Emulsions.

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² *Annual Book of ASTM Standards*, Vol 04.06.

³ *Annual Book of ASTM Standards*, Vol 04.03.

⁴ *Annual Book of ASTM Standards*, Vol 04.04.

⁵ Available from Daubert Chemical Co., 4700 South Central Ave., Chicago, IL 60638.