



Designation: D 1187 – 97

Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal¹

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1. Scope

1.1 This specification covers emulsified asphalt suitable for application in a relatively thick film as a protective coating for metal surfaces.

1.2 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

C 150 Specification for Portland Cement²

D 2939 Test Methods for Emulsified Bitumens Used as Protective Coatings³

3. Classification

3.1 *Type I*—Quick-setting emulsified asphalt suitable for continuous exposure to water within a few days after application and drying.

3.2 *Type II*—Emulsified asphalt suitable for continuous exposure to the weather, only, after application and drying.

4. Materials and Manufacture

4.1 Emulsified asphalt used as a protective coating for metal shall consist of asphalt, water, and emulsifying agents.

5. Composition

5.1 Emulsified asphalt complying with this specification shall conform to the requirements in Table 1.

6. Performance Requirements

6.1 *Uniformity*—The emulsion shall be homogeneous. After a thoroughly stirred sample has been held at 50°F (10°C) in a closed container for 48 h, there shall be no separation of water, coagulation of the asphalt base, settling, or packing in the container that cannot be overcome by moderate hand stirring.

6.2 *Consistency*—The emulsion shall be of a consistency that will spread readily and permit application by brush, mop,

TABLE 1 Composition Requirements

	Type I	Type II
Density, min, lb/gal U.S. (g/L)	8.4 (1010)	8.3 (990)
Residue by evaporation, mass %	52.5 ± 2.5	62.5 ± 2.5
Nonvolatile matter soluble in trichloroethylene, min, mass %	85	94
Ash content, max, mass %	14.5	3.8
Water content mass %	47.5 ± 2.5	37.5 ± 2.5

or trowel at the rate of 2.5 gal U.S./100 ft² (1.0 L/m²) to vertical metal surfaces at ambient temperatures above 50°F (10°C). See Section 17 of Test Methods D 2939.

6.3 *Stability*—There shall be no coagulation during the cement addition or at the conclusion of the 1-min mixing period.

6.4 The emulsion shall conform to the additional requirements prescribed in Table 2.

7. Sampling and Test Methods

7.1 Sample the material, and determine the properties enumerated in this specification in accordance with Test Methods D 2939, except for stability and flexibility.

7.2 Stability:

7.2.1 *Material*—High-early-strength portland cement conforming to the requirements for Type III of Specification C 150, and having a minimum specific surface area of 133 556 in²/lb (1900 cm²/g).

7.2.2 Procedure:

7.2.2.1 Place about 200 g of emulsion in a tared 500-mL round-bottom porcelain dish, and weigh.

7.2.2.2 Add 25 mass % portland cement based on the weight of the emulsion, in small portions while stirring constantly with a stiff spatula.

7.2.2.3 Add small amounts of distilled water if the mixture becomes too stiff to be workable.

7.2.2.4 After addition of all the cement, stir the mixture thoroughly for 1 min.

7.2.2.5 Watch for any sign of coagulation of the asphalt base during addition of the portland cement and after the 1-min stirring period.

7.3 Flexibility:

7.3.1 Use the same test panel that was subjected to the heat test. After cooling for 1 h at 77 ± 4°F (25 ± 2°C), bend the

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² *Annual Book of ASTM Standards*, Vol 04.01.

³ *Annual Book of ASTM Standards*, Vol 04.04.