



# Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing<sup>1</sup>

This standard is issued under the fixed designation D 1227; 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.

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

## 1. Scope

1.1 This specification covers emulsified asphalt suitable for use as a protective coating for built-up roofs and other exposed surfaces with inclines of not less than 4 % or 42 mm/m (½ in./ft).

1.2 *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:

D 2939 Test Methods for Emulsified Bitumens Used as Protective Coatings<sup>2</sup>

## 3. Classification

3.1 *Type I, Class 1*—Emulsified asphalt prepared with mineral colloid emulsifying agents and containing asbestos fibers.

3.2 *Type I, Class 2*—Emulsified asphalt prepared with chemical emulsifying agents and containing fillers or fibers including asbestos.

3.3 *Type II, Class 1*—Emulsified asphalt prepared with mineral colloid emulsifying agents and containing fibers other than asbestos.

3.4 *Type II, Class 2*—Emulsified asphalt prepared with chemical emulsifying agents and containing fillers or fibers other than asbestos.

3.5 *Type III, Class 1*—Emulsified asphalt prepared with mineral colloid emulsifying agents, without fibrous reinforcement.

3.6 *Type III, Class 2*—Emulsified asphalt prepared with chemical emulsifying agents, without fibrous reinforcement.

## 4. Physical Requirements

4.1 The emulsion shall be of suitable consistency for appli-

cation above freezing, in relatively thick films by brush, mop, or suitable spray equipment without thinning with water or heating, and shall bond to either damp or dry surfaces.

4.2 The emulsion shall be of smooth, uniform consistency without separation or settlement in storage to the extent that it cannot be readily dispersed by ordinary stirring.

4.3 Types I and II emulsions, after stirring to homogeneity, shall be suitable for application by brush or mop in single coats of not less than 1.0 L/m<sup>2</sup> (2½ U.S. gal/100 ft<sup>2</sup>) without rundown on inclines up to and including vertical.

4.4 Types I and II emulsions, after stirring to homogeneity, shall be suitable for application by proper spray equipment to produce a substantially self-leveling film of not less than 1.0 L/m<sup>2</sup> (2½ U.S. gal/100 ft<sup>2</sup>) without rundown on inclines up to and including 50 % or 500 mm/m (6 in./ft).

4.5 Type III emulsion, after stirring to homogeneity, shall be suitable for application by brush or proper spray equipment at a rate of not less than 1.0 L/m<sup>2</sup> (2½ U.S. gal/100 ft<sup>2</sup>) without rundown on vertical concrete surfaces with open-mesh fabric reinforcement.

4.6 The emulsion shall conform to the physical properties prescribed in Table 1.

## 5. Sampling and Test Methods

5.1 Sample the material and determine compliance with these specifications in accordance with Test Methods D 2939.

## 6. Inspection

6.1 Inspection of the material shall be made as agreed upon between the purchaser and the supplier as part of the purchase contract.

## 7. Rejection and Rehearing

7.1 If the results of any test do not conform to the requirements of this specification, retesting to determine conformity may be performed as agreed upon between the purchaser and the supplier.

## 8. Certification

8.1 Upon request of the purchaser in the contract or order, a manufacturer's certification that the material was manufactured and tested in accordance with this specification together with a report of the test results shall be furnished at the time of shipment.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.09 on Bituminous Emulsions.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.04.

**TABLE 1 Physical Properties of Emulsified Asphalt**

| Property                         | Type I Class 1 |      | Type II Class 1 |      | Type III Class 1 |      | Type I Class 2                      | Type II Class 2 | Type III Class 2 |
|----------------------------------|----------------|------|-----------------|------|------------------|------|-------------------------------------|-----------------|------------------|
|                                  | min            | max  | min             | max  | min              | max  | min                                 | max             |                  |
| Weight per U.S. gallon, lb       | 8.2            | 8.7  | 8.2             | 9.0  | 8.2              | 8.7  | 9.2                                 | 9.5             |                  |
| Weight per litre, g              | 980            | 1040 | 980             | 1080 | 980              | 1040 | 1100                                | 1140            |                  |
| Residue by evaporation, %        | 45             | 55   | 45              | 55   | 47               | 53   | 40                                  | 60              |                  |
| Ash content of residue, %        | 5              | 20   | 5               | 25   | ...              | 8    | 30                                  | 50              |                  |
| Water content, % <sup>A</sup>    | 45             | 55   | ...             | 55   | ...              | 53   | 40                                  | 60              |                  |
| Flammability                     |                |      |                 |      |                  |      | no tendency to flash or ignite      |                 |                  |
| Firm set, h                      | ...            | 24   | ...             | 24   | ...              | 24   | ...                                 | 24              |                  |
| Heat test, 100 ± 3°C (212 ± 5°F) |                |      |                 |      |                  |      | no blistering, sagging, or slipping |                 |                  |
| Flexibility 0 ± ½°C (32 ± 1°F)   |                |      |                 |      |                  |      | no cracking or flaking              |                 |                  |
| Resistance to water              |                |      |                 |      |                  |      | no blistering or reemulsification   |                 |                  |
| Direct flame test                |                |      |                 |      |                  |      | coating shall char in place         |                 |                  |

<sup>A</sup> Water content shall be within 2 percentage points of the difference between 100 = and the percent residue by evaporation.

## 9. Packaging and Marking

9.1 Emulsion shall be suitably packaged to permit acceptance by the carrier and to afford adequate protection from the normal hazards of handling and shipment.

9.2 Each container shall be plainly marked with the name and brand of the manufacturer or supplier, the type of product, and the manufacturer's production code or lot number.

9.3 Each container shall be marked to indicate that the

product was manufactured in accordance with Specification D 1227.

## 10. Keywords

10.1 asphalt; emulsified; emulsified asphalt; roof coating

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