



# Standard Specification for Asphalt Used in Dampproofing and Waterproofing<sup>1</sup>

This standard is issued under the fixed designation D 449; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

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

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<sup>ε1</sup> NOTE—Editorially switched from English dominant to SI dominant.

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## 1. Scope

1.1 This specification covers three types of asphalt suitable for use as a mopping coat in dampproofing; or as a plying or mopping cement in the construction of membrane waterproofing systems with felts conforming to Specification D 226; fabrics conforming to Specifications D 173 or D 1668 (asphalt types); asphalt-impregnated glass mat conforming to Specifications D 2178; and with primer conforming to Specification D 41.

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

1.3 *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 5 Test Method for Penetration of Bituminous Materials<sup>2</sup>
- D 41 Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing<sup>3</sup>
- D 92 Test Method for Flash and Fire Points by Cleveland Open Cup<sup>4</sup>
- D 113 Test Method for Ductility of Bituminous Materials<sup>2</sup>
- D 140 Practice for Sampling Bituminous Materials<sup>2</sup>
- D 173 Specification for Bitumen-Saturated Cotton Fabrics Used in Roofing and Waterproofing<sup>3</sup>
- D 226 Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing<sup>3</sup>

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 04.04.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 05.01.

D 1668 Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing<sup>3</sup>

D 2042 Test Method for Solubility of Asphalt Materials in Trichlorethylene<sup>2</sup>

D 2178 Specification for Asphalt Glass Felt Used in Roofing and Waterproofing<sup>3</sup>

D 2398 Test Method for Softening Point of Bitumen in Ethylene Glycol (Ring-and-Ball)<sup>5</sup>

## 3. Classification

3.1 Asphalts covered by this specification include three types:

3.1.1 *Type I*—A soft, adhesive, “self-healing” asphalt that flows easily under the mop and is suitable for use below grade under uniformly moderate temperature conditions both during the process of installation and during service.

NOTE 1—Type I asphalt is suitable for foundations, tunnels, subways, etc.

3.1.2 *Type II*—A somewhat less susceptible asphalt than Type I, with good adhesive and “self-healing” properties, suitable for use above grade where it will not be exposed to temperatures exceeding 50°C (122°F).

NOTE 2—Type II asphalt is suitable for railroad bridges, culverts, retaining walls, tanks, dams, conduits, spray decks, etc.

3.1.3 *Type III*—An asphalt less susceptible to temperature than Type II, with good adhesive properties, and suitable for use above grade on vertical surfaces exposed to direct sunlight or temperatures above 50°C (122°F).

## 4. Materials and Manufacture

4.1 The asphalt shall be prepared from crude petroleum by suitable refining processes to conform to the applicable physical requirements for each type.

## 5. Physical Requirements

5.1 The asphalt shall be homogeneous and free of water.

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<sup>5</sup> Discontinued—See 1984 *Annual Book of ASTM Standards*, Vol 04.04.

5.2 Each type shall conform to the appropriate requirements prescribed in Table 1.

## 6. Sampling and Test Methods

6.1 Sample the material and determine the properties enumerated in this specification in accordance with the following methods:

- 6.1.1 *Sampling*—Practice D 140.
- 6.1.2 *Softening Point*—Test Method D 2398.
- 6.1.3 *Flash Point*—Test Method D 92.
- 6.1.4 *Penetration*—Test Method D 5.
- 6.1.5 *Ductility*—Test Method D 113.
- 6.1.6 *Solubility in Trichloroethylene*—Test Method D 2042.

## 7. Inspection and Certification

7.1 Inspection and certification of the material shall be as agreed upon between the purchaser and the seller. Specific requirements shall be made part of the purchase contract.

## 8. Rejection and Rehearing

8.1 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 seller.

## 9. Packaging and Marking

9.1 The material 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 seller.

## 10. Keywords

10.1 asphalt; dampproofing; fabrics; waterproofing

**TABLE 1 Physical Requirements of Asphalt Used in Dampproofing and Waterproofing**

	Type I		Type II		Type III	
	Min	Max	Min	Max	Min	Max
Softening point (ring-and-ball), °C (°F)	46 (115)	60 (140)	63 (145)	77 (170)	82 (180)	93 (200)
Flash point (Cleveland open cup), °C (°F)	232 (450)	...	232 (450)	...	246 (475)	...
Penetration:						
0°C (32°F), 200 g, 60 s; 0.1 mm	5	...	10	...	10	...
25°C (77°F), 100 g, 5 s; 0.1 mm	50	100	25	50	20	40
46°C (115°F), 50 g, 5 s; 0.1 mm	100	...	...	130	...	100
Ductility at 25°C (77°F), cm	30	...	10	...	2	...
Solubility in trichloroethylene, %	99	...	99	...	99	...

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