



# Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction<sup>1</sup>

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

## 1. Scope

1.1 This specification covers asphalt cement for use in the construction of pavements.

1.2 This specification covers the following penetration grades:

40–50,	120–150, and
60–70,	200–300.
85–100,	

## 2. Referenced Documents

### 2.1 ASTM Standards:

- D 5 Test Method for Penetration of Bituminous Materials<sup>2</sup>
- D 92 Test Method for Flash and Fire Points by Cleveland Open Cup<sup>3</sup>
- D 113 Test Method for Ductility of Bituminous Materials<sup>2</sup>
- D 140 Practice for Sampling Bituminous Materials<sup>2</sup>
- D 1754 Test Method for Effect of Heat and Air on Asphaltic

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

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 05.01.

Materials (Thin-Film Oven Test)<sup>2</sup>

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

## 3. Manufacture

3.1 Asphalt cement shall be prepared by the refining of crude petroleum by suitable methods.

## 4. Properties

4.1 The asphalt cement shall be homogeneous and shall not foam when heated to 347°F (174°C).

4.2 The various grades of asphalt cement shall conform to the requirements prescribed in Table 1.

## 5. Methods of Sampling and Testing

5.1 The material shall be sampled and the properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

5.1.1 *Sampling*—Practice D 140.

5.1.2 *Penetration*—Test Method D 5.

5.1.3 *Flash Point*—Test Method D 92.

5.1.4 *Ductility*—Test Method D 113.

5.1.5 *Thin Film Oven Test*—Test Method D 1754.

5.1.6 *Solubility in Trichloroethylene*—Test Method D 2042.

**TABLE 1 Requirements for Asphalt Cement for Use in Pavement Construction**

	Penetration Grade									
	40–50		60–70		85–100		120–150		200–300	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Penetration at 77°F (25°C) 100 g, 5 s	40	50	60	70	85	100	120	150	200	300
Flash point, °F (Cleveland open cup)	450	...	450	...	450	...	425	...	350	...
Ductility at 77°F (25°C) 5 cm/min, cm	100	...	100	...	100	...	100	...	100 <sup>A</sup>	...
Solubility in trichloroethylene, %	99.0	...	99.0	...	99.0	...	99.0	...	99.0	...
Retained penetration after thin-film oven test, %	55 +	...	52 +	...	47 +	...	42 +	...	37 +	...
Ductility at 77°F (25°C) 5 cm/min, cm after thin-film oven test test	...	...	50	...	75	...	100	...	100 <sup>A</sup>	...

<sup>A</sup>If ductility at 77°F (25°C) is less than 100 cm, material will be accepted if ductility at 60°F (15.5°C) is 100 cm minimum at the pull rate of 5 cm/min.

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