
Standard Specification for Penetration-Graded Asphalt Cement

AASHTO Designation: M 20-70 (2004)



**American Association of State Highway and Transportation Officials
444 North Capitol Street N.W., Suite 249
Washington, D.C. 20001**

Standard Specification for

Penetration-Graded Asphalt Cement

AASHTO Designation: M 20-70 (2004)



1. SCOPE

- 1.1. This specification covers the following five penetration grades of asphalt binder for use in highway construction: 40 to 50, 60 to 70, 85 to 100, 120 to 150, and 200 to 300. For asphalt binders graded by viscosity, see AASHTO M 226.
- 1.2. The values stated in SI units are to be regarded as the standard.

2. MANUFACTURE

- 2.1. Asphalt binder shall be prepared by the refining of crude petroleum by suitable methods.

3. PROPERTIES

- 3.1. The asphalt binder shall be homogeneous, free from water, and shall not foam when heated to 175°C (347°F).
- 3.2. The various grades of asphalt binder shall conform to the requirements given in Table 1.

Table 1—Requirements for Asphalt Binder

	Penetration Grade									
	40–50		60–70		85–100		120–150		200–300	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Penetration at 25°C (77°F), 100 g, 5 s	40	50	60	70	85	100	120	150	200	300
Flash point, Cleveland Open Cup, °C (°F)	232 (450)	—	232 (450)	—	232 (450)	—	218 (425)	—	177 (350)	—
Ductility at 25°C (77°F), 5 cm/min, cm	100	—	100	—	100	—	100	—	—	—
Solubility in trichloroethylene, percent	99.0	—	99.0	—	99.0	—	99.0	—	99.0	—
Thin-film oven test, 3.2 mm (1/8 in.), 163°C (325°F), 5 hour	—	0.8	—	0.8	—	1.0	—	1.3	—	1.5
Penetration of residue, percent of original	58	—	54	—	50	—	46	—	40	—
Ductility of residue at 25°C (77°F), 5 cm/min, cm	—	—	50	—	75	—	100	—	100	—
Spot test (when and as specified with) ^a :										
Standard naphtha solvent	Negative for all grades									
Naphtha-xylene solvent, percent, xylene	Negative for all grades									
Heptane-xylene solvent, percent, xylene	Negative for all grades									

^a The use of spot test is optional. When it is specified, the engineer shall indicate whether the standard naphtha solvent, the naphtha-xylene solvent, or the heptane-xylene solvent will be used in determining compliance with the requirement, and also, in the case of the xylene solvents, the percentage of xylene to be used.