
Standard Specification for Viscosity-Graded Asphalt Binder

AASHTO Designation: M 226-80 (2021)

Technically Revised: 1980

Reviewed but Not Updated: 2021

Technical Subcommittee: 2b, Liquid Asphalt



**American Association of State Highway and Transportation Officials
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1. SCOPE

- 1.1. This specification covers asphalt binders graded by viscosity at 60°C (140°F) for use in pavement construction. Three sets of limits are offered in this specification. The purchaser shall specify the applicable table of limits. In the event the purchaser does not specify limits, Table 1 shall apply.
- 1.2. The values stated in SI units are to be regarded as the standard.

2. MANUFACTURE

- 2.1. The asphalt binder shall be prepared for crude petroleum by suitable methods.

3. REQUIREMENTS

- 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 asphalt binders shall conform to the requirements given in Tables 1, 2, or 3, as specified by the purchaser.

Table 1—Requirements for Asphalt Binder Graded by Viscosity at 60°C (140°F) (Grading Based on Original Asphalt)

Test	Viscosity Grade				
	AC-2.5	AC-5	AC-10	AC-20	AC-40
Viscosity, 60°C (140°F), Pa•s (P)	25 ± 5 (250 ± 50)	50 ± 10 (500 ± 100)	100 ± 20 (1000 ± 200)	200 ± 40 (2000 ± 400)	400 ± 80 (4000 ± 800)
Viscosity, 135°C (275°F), mm ² /s—min	80	100	150	210	300
Penetration, 25°C (77°F), 100 g, 5 s—min	200	120	70	40	20
Flash point, COC, °C (°F)—min	163 (325)	177 (350)	219 (425)	232 (450)	232 (450)
Solubility in trichloroethylene, percent—min	99.0	99.0	99.0	99.0	99.0
Tests on residue from thin-film oven test:					
Viscosity, 60°C (140°F), Pa•s (P)—max	100 (1000)	200 (2000)	400 (4000)	800 (8000)	1600 (16000)
Ductility, 25°C (77°F), 5 cm/min, cm—min	100 ^a	100	50	20	10
Spot test (when and as specified) ^b with:					
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 If ductility is less than 100 cm, material will be accepted if ductility at 15.6°C (60°F) is 100 cm minimum.

^b The use of the 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 xylene solvents, the percentage of xylene to be used.