
Standard Specification for

**Joint Sealants, Hot-Poured, for Concrete
and Asphalt Pavements**

AASHTO Designation: M 301-01

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AASHTO M 301-01 is identical to ASTM D 3405-97.



Standard Specification for Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements¹

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1. Scope

1.1 This specification covers joint sealants of the hot-poured type intended for use in sealing joints and cracks in portland cement concrete and asphaltic concrete pavements.

1.2 This standard does not purport to cover the properties required of sealants for use in areas of portland cement concrete pavement subject to jet fuel or other fuel spillage, such as aircraft refueling and maintenance areas.

1.3 The values stated in inch-pound units are the standard.

2. Referenced Documents

2.1 ASTM Standards:

D 5167 Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation²

D 5249 Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints²

D 5329 Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland-Cement Concrete Pavements²

3. General Requirements

3.1 The joint sealant shall be composed of a mixture of materials that will form a resilient and adhesive compound capable of effectively sealing joints and cracks in concrete and asphaltic pavements against the infiltration of moisture and foreign material throughout repeated cycles of expansion and contraction with temperature changes, and that will not, at ambient temperatures, flow from the joint or be picked up by vehicle tires. The material shall be capable of being brought to a uniform pouring consistency suitable for completely filling the joints without inclusion of large air holes or discontinuities and without damage to the material. It shall remain relatively unchanged in application characteristics for at least 6 h at the recommended pouring temperature in the field (see Appendix).

4. Physical Requirements

4.1 **Safe Heating Temperature**—The safe heating temperature is the highest temperature to which the sealant can be heated and still conform to all the requirements specified

herein. For purposes of testing as specified hereinafter, the pouring temperature shall be the same as safe heating temperature. The safe heating temperature shall be set forth by the manufacturer and shall be shown on all containers and shall be provided to the testing agency before any laboratory tests are begun.

4.2 **Cone Penetration, Non-Immersed**—at 77°F (25°C), 150 g, 5 s shall not exceed 90.

4.3 **Flow**—at 140°F (60°C) shall not exceed 3.0 mm when tested for 5 h.

4.4 **Bond, Non-Immersed**—The sealant shall be tested at -20°F (-29°C) for three complete cycles. The development at any time during the test procedure of a crack, separation, or other opening that at any point is over 1/4 in. (6.4 mm) deep, in the sealant or between the sealer and concrete block, shall constitute failure of the test specimen. The depth of the crack, separation, or opening shall be measured perpendicular to the side of the sealant showing the defect. All three specimens must meet this requirement for bond.

4.5 **Resilience**—When tested at 77°F (25°C), the recovery shall be a minimum of 60 %.

4.6 **Asphalt Compatibility**—There shall be no failure in adhesion, formation of an oily exudate at the interface between the sealant and the asphaltic concrete, or softening or other deleterious effects on the asphaltic concrete or sealant when tested at 140°F (60°C).

5. Sampling and Heating

5.1 Sampling:

5.1.1 Samples may be taken at the plant or warehouse prior to delivery or at the time of delivery, at the option of the purchaser. If sampling is done prior to shipment, the inspector representing the purchaser shall have free access to the material to be sampled. The inspector shall be afforded all reasonable facilities for inspection and sampling which shall be conducted so as not to interfere unnecessarily with the operation of the works.

5.1.2 Samples shall consist of one of the manufacturer's original sealed containers selected at random from the lot or batch of finished material. A batch or lot shall be considered as all finished material that was manufactured simultaneously or continuously as a unit between the time of compounding and the time of packaging or placing in shipping containers.

5.1.3 Obtain the sealant portion for testing from the selected manufacturer's original sealed container in accordance with Practice D 5167. The sample portion added to and heated in the melter shall weigh 800 $\pm$ 50 g.

5.2 **Heating**—Heat the material in accordance with Practice D 5167.

¹ This specification is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.33 on Formed-In-Place Sealants for Joints and Cracks in Pavements.

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² Annual Book of ASTM Standards, Vol 04.03.