Designation: D 1190 – 97

Standard Specification for Concrete Joint Sealer, Hot-Applied Elastic Type[1]

This standard is issued under the fixed designation D 1190; 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 (ε) indicates an editorial change since the last revision or reapproval.

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

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 in inch-pound units are the standard.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1985 Practice for Preparing Concrete Blocks for Testing Sealants, for Joints and Cracks[2]

D 5167 Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation[2]

D 5249 Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints[2]

D 5329 Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland-Cement Concrete Pavements[2]

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 in concrete against the infiltration of moisture and foreign material throughout repeated cycles of expansion and contraction with temperature changes, and that will not flow from the joint or be picked up by vehicle tires at summer temperature. The material shall be capable of being brought to a uniform application consistency suitable for completely filling the joints without inclusion of large air holes or discontinuities and without damage to the material.

4. Physical Requirements

4.1 *Pour Point* shall be at least 20°F (11°C) lower than the safe-heating temperature, which is the maximum temperature to which the material may be heated and still conform to this specification's requirements.

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 5 mm when tested for 5 h.

4.4 *Bond, Non-immersed*—The sealant shall be tested at 0°F (−17.8°C) for five complete cycles. The development at any time during the test procedure of a crack, separation, or other opening that at any point is over ¼ in. (6.4 mm) deep, in the sealant or between the sealant and the 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. At least two test specimens in a group of three representing a given sample of sealant shall meet this requirement for bond.

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 ± 50 g.

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

5.2.1 The oil bath in the melter shall be heated to a temperature between the sealant's safe heating temperature and 75°F (41.7°C) above the sealant's safe heating temperature. (Never allow the oil temperature to exceed 550°F (288°C)).

[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.