



## Standard Specification for Joint Sealant, Hot-Applied, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements<sup>1</sup>

This standard is issued under the fixed designation D 3581; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers one type of thermoplastic, hot-applied, jet-fuel-resistant joint sealant for use in sealing joints and cracks in pavements.

1.2 *Units*—The values stated in SI units are to be regarded as standard. The values in parentheses are for information only. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance to the standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific precaution statements are given in the Appendix.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 5167 Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation<sup>2</sup>

D 5249 Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland Cement Concrete and Asphalt Joints<sup>2</sup>

D 5329 Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements<sup>2</sup>

### 3. Physical Properties

3.1 *Maximum Heating Temperature*—The maximum heating temperature is the highest temperature to which the sealing compound 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 maximum heating temperature. The maximum 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 (see Appendix).

3.2 *Penetration*—At  $25 \pm 0.1^\circ\text{C}$  ( $77 \pm 0.2^\circ\text{F}$ ), 150 g, 5 s:

3.2.1 *Nonimmersed*—The penetration shall not exceed 130.

3.2.2 *Immersed*—The penetration shall not exceed 155 and the increase shall be not more than 25 over the nonimmersed penetration.

3.3 *Flow*—The flow shall not exceed 30 at  $60 \pm 1^\circ\text{C}$  ( $140 \pm 2^\circ\text{F}$ ) for 5 h.

3.4 *Bond*—At  $-18 \pm 1^\circ\text{C}$  ( $0 \pm 2^\circ\text{F}$ ) for three complete cycles:

3.4.1 *Nonimmersed*—When the joint sealant is tested for bond, not more than one specimen out of three shall develop any crack, separation, or other opening in the sealing compound or between the sealing compound and the concrete blocks.

3.4.2 *Fuel-Immersed*—When the joint sealant is fuel-immersed and tested for bond, not more than one specimen out of three shall evidence a complete cohesive failure of the material, or the gross area of bare concrete exposed on the face of any one concrete block shall not exceed an area of  $160\text{ mm}^2$  ( $\frac{1}{4}\text{ in.}^2$ ).

3.4.3 *Water-Immersed*—When the joint sealant is water-immersed and tested for bond, not more than one specimen out of three shall develop any cracks, separation, or other opening in the joint sealant or between the sealant and the concrete blocks.

3.5 *Solubility*—The dry weight of material shall not vary more than  $\pm 2.0\%$ , and there shall be no defects that will affect the material as a joint sealant.

### 4. General Requirements

4.1 The joint sealant shall be composed of a mixture of materials with or without rubber that will form an adhesive compound resistant to the solvent actions of jet fuels and lubricating oils. The joint sealant shall effectively seal cracks and joints in pavements against the infiltration of moisture and jet fuel throughout repeated cycles of expansion and contraction and shall not flow from the joint or be picked up by vehicle tires. The joint sealant shall have a uniform pouring consistency suitable for completely filling the joints without inclusion of large air holes or discontinuities. The pouring temperatures shall not exceed  $230^\circ\text{C}$  ( $450^\circ\text{F}$ ). The pouring temperature and

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