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Standard Specification for Asphaltic Plug Joints for Bridges¹

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1. Scope

1.1 This specification covers the material, testing and application requirements for a field molded asphaltic plug joint (APJ) used in expansion joint sealing on asphalt concrete overlay and portland cement concrete decks. The scope of this specification is limited to field molded APJ. This molded element can consist of multilayer, or single layer, or both, application systems depending upon individual manufacturing requirements. The details of this specification are limited to the materials used in the application of APJ. It is recommended that a practical means of testing the watertightness aspects of the individual systems, either in the field or at the testing laboratory, be developed. When used on highway bridges, limits on maximum joint movements shall be specifically identified for each type of APJ. APJs should not be used for movement applications exceeding ± 25 mm from the installation width.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

- A36/A36M Specification for Carbon Structural Steel
- D5 Test Method for Penetration of Bituminous Materials
- D36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
- D113 Test Method for Ductility of Bituminous Materials

¹ This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.32 on Bridges and Structures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- D217 Test Methods for Cone Penetration of Lubricating Grease
- D5167 Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation
- D5249 Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
- D5329 Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements

3. Terminology

3.1 *Acronyms:*

- 3.1.1 *APJ*—Asphaltic Plug Joint.
- 3.1.2 *AB*—Asphaltic Binder.

4. Material

4.1 The AB shall be a thermoplastic polymeric-modified asphalt conforming to the physical properties in [Table 1](#).

4.2 Type of aggregate shall be one of the following: granite, basalt, gabbro, porphyry or gritstones. The specified aggregate shall be crushed, washed, and dried. Specific size and gradations of aggregate shall be agreed upon by the purchaser and APJ manufacturer. The aggregate shall be preweighed and packaged to avoid confusion on the jobsite. It shall be noted that specific sizes of aggregate may be proprietary to certain manufacturers.

4.3 The closed cell foam expansion joint filler shall be nongassing and capable of withstanding the elevated installation temperature (199°C) of the AB and meet Specification [D5249](#).

4.4 The steel bridging plate shall conform to Specification [A36/A36M](#) for mild steel.

5. Physical Properties

5.1 The thermoplastic polymeric modified asphalt samples shall be melted for sample preparation in accordance to Practice [D5167](#).

5.2 The thermoplastic polymeric modified asphalt shall conform to the physical properties prescribed in [Table 1](#).