



Standard Specification for Preformed Thermoplastic Vulcanizate Elastomeric Joint Seals for Bridges¹

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1. Scope

1.1 This specification covers the material requirements for preformed thermoplastic vulcanizate (TPV) elastomeric joint seals for bridges. The seal consists of a multiple-web design composed of a TPV and functions only by compression of the seal between the faces of the joint with the seal folding inward at the top to facilitate compression. The seal is installed with a lubricant adhesive and is designed to seal the joint and reject incompressibles.

NOTE 1—This specification may not be applicable for seals whose height is less than 90 % of its nominal width.

1.2 The values stated in inch-pound 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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 395 Test Methods for Rubber Property—Compression Set²
- D 412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension²
- D 518 Test Method for Rubber Deterioration—Surface Cracking²
- D 573 Test Method for Rubber—Deterioration in an Air Oven²
- D 575 Test Methods for Rubber Properties in Compression²
- D 1149 Test Method for Rubber Deterioration—Surface Ozone Cracking in a Chamber²
- D 2240 Test Method for Rubber Property—Durometer Hardness²
- D 4483 Practice for Determining Precision for Test Method

¹ This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.34 on Preformed Joint Fillers and Sealers.

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² *Annual Book of ASTM Standards*, Vol 09.01.

Standards in the Rubber and Carbon Black Industries²
D 6338 Classification System for Highly Crosslinked Thermoplastic Vulcanizates (HCTPVs)³

3. Marking and Ordering Information

3.1 Each lot of seal shall be marked with characters of not less than 0.25 in. (6.35 mm) in height on the top of the seal at a maximum of 4 ft (1.22 m) intervals showing the lot number, date of manufacture, and the manufacturing seal designation.

3.2 The purchaser shall specify the anticipated required minimum acceptable joint movement, and either the minimum joint opening, or the nominal width of seal.

4. Materials and Manufacture

4.1 The seals shall be preformed, and the material shall be vulcanized elastomeric compound using a thermoplastic vulcanizate as the compound. A thermoplastic vulcanizate is a blend of a crosslinked rubber and a thermoplastic polymer that can be processed on conventional thermoplastic processing machinery and has the properties of a crosslinked elastomer. Highly crosslinked thermoplastic elastomers are classified according to Classification System D 6338. TPV materials are made in the dynamic vulcanization process. One example of a typical TPV is crosslinked ethylene propylene diene rubber blended with polypropylene. The TPV material can also contain processing oils, antioxidants, fillers, or other additives.

5. Physical Requirements

5.1 The materials shall conform to the physical properties prescribed in Table 1.

5.2 In the applicable requirements of Table 1 and the test methods, all deflection shall be based on the nominal width.

6. Dimensions and Working Parameters

6.1 The size, shape and dimensional tolerances shall be as outlined in 6.1.1.

6.1.1 Measurements used for laboratory testing shall be taken to the nearest 0.01 in. (0.3 mm) and reported/recorded to the nearest 0.1 in. (3 mm) as the average of three measurements. The measured width shall be greater than or equal to the nominal width. The seal height shall not be less than 90 % of

³ *Annual Book of ASTM Standards*, Vol 08.03