



# Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)<sup>1</sup>

This standard is issued under the fixed designation D1751; 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.

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

<sup>e1</sup> NOTE—Editorially corrected 5.5 in September 2013.

## 1. Scope

1.1 This specification covers preformed expansion joint filler having relatively little extrusion and substantial recovery after release from compression.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

NOTE 1—Attention is called to Specification D1752 and to Specification D994.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

D545 Test Methods for Preformed Expansion Joint Fillers for Concrete Construction (Nonextruding and Resilient Types)

D994 Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)

D1752 Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

## 3. Ordering Information

3.1 Products conforming to this specification are manufactured in sheet form to a range of thicknesses; namely 1/4, 3/8, 1/2, 3/4, and 1 in. Sheet sizes may be 3 or 4 ft in width and standard length of 10 ft. Purchaser must specify sheet sizes when ordering.

<sup>1</sup> 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, Sealers and Sealing Systems.

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<sup>2</sup> 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.

3.2 Joint filler in strip form is cut from the sheets as manufactured. When ordering joint filler strips, the purchaser must specify thickness, width, and length; strip widths are available from 2 in. in increments of one half inch.

## 4. Material

4.1 This product shall consist of preformed sheets or strips made from cane or other suitable fibers of a cellulosic nature securely bound together and then uniformly saturated with asphalt; or strips formed from clean granulated cork securely bound together by a suitable asphalt binder and encased between two layers of saturated felt or two layers of glass-fiber felt.

4.2 Preformed strips of expansion joint filler shall be of such character as not to be deformed or broken by twisting, bending, or other ordinary handling when exposed to atmospheric conditions.

## 5. Requirements

5.1 *Test Specimen*—The sample to be tested shall be cut from the sheet, as manufactured, and shall be representative of the sheet stock.

5.2 *Compression*—The stress required to compress the test specimen to 50 % of its thickness before test shall be not less than 100 and not more than 750 psi (689 to 5171 kPa). If the nominal thickness of the specimen is less than 1/2 in. (13 mm), a maximum stress of 1250 psi (8618 kPa) will be permitted. The sample after compression, shall show a loss of not more than 3 % of its original weight.

5.3 *Extrusion*—Test specimen shall be compressed to 50 % of its thickness before test with three of its edges restrained. The amount of extrusion of the free edge shall not exceed 0.25 in. (6.4 mm).

5.4 *Recovery*—The test specimen shall be compressed to 50 % of its thickness before test. The load shall be released immediately after application. At the end of 10 min after

release of the applied load, the specimen shall have recovered to at least 70 % of its thickness before test.

5.4.1 In case of failure to comply with the above requirements, the test specimen shall be given three applications of a load sufficient to compress the material 50 % of its thickness before test. The load shall be released immediately after each application. At the end of 1 h after the third application, the specimen shall have recovered to at least 70 % of its thickness before test.

5.5 *Density*—For fiber joint only, oven dry the specimen at  $220^{\circ} \pm 5^{\circ}\text{F}$  ( $104^{\circ} \pm 3^{\circ}\text{C}$ ) for 2 h. after oven drying, cool the specimen to room temperature in a covered desiccator, and weigh to nearest 0.1 g. The density of air dried filler material shall not be less than 19 lb/cu. ft. (304 kg/cu. m). The density of oven dried fiber filler shall not be less than 18 lb/cu. ft. (288 kg/cu. m).

5.6 *Water Absorption*—A standard expansion joint filler test specimen with four square cut edges, when submerged horizontally under 1 in. (25 mm) of water at  $70^{\circ} \pm 5^{\circ}\text{F}$  ( $21.1^{\circ} \pm 3^{\circ}\text{C}$ ) shall absorb not more than 15 volume % in 24 h for nominal thickness of  $\frac{1}{2}$  in. (13 mm) and over, and 20 volume % for all other thicknesses.

5.7 *Asphalt Content*—At least 35.0 weight % of the finished product shall be asphalt uniformly distributed throughout the cross section of the material.

## 6. Dimensions and Permissible Variations

6.1 The preformed strips shall conform to the dimensions specified or shown on plans. Strips of joint filler that do not conform to the specified dimensions within the permissible variations of  $\pm\frac{1}{16}$  in. ( $\pm 1.6$  mm) in thickness,  $\pm\frac{1}{8}$  in. ( $\pm 3.2$  mm) in depth, and  $\pm\frac{1}{4}$  in. ( $\pm 6.4$  mm) in length shall be rejected.

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## 7. Sampling

7.1 *Size and Number of Samples*—Each sample shall consist of sufficient material to provide at least five test specimens measuring  $4\frac{1}{2}$  by  $4\frac{1}{2}$  in. (114 by 114 mm). One representative sample, approximately two square feet, shall be selected from each shipment of 1000 square feet or fracture thereof.

7.2 Individual samples are to be taken from separate sheets of preformed expansion joint filler.

7.3 Samples shall be packaged for transportation in such a manner that there will be no distortion or breakage of the material.

## 8. Test Methods

8.1 Determine the properties prescribed in this specification in accordance with Method **D545**.

## 9. Rejection and Retest

9.1 Material that fails to conform to the requirements of this specification shall be rejected. Rejection should be reported to the manufacturer and supplier promptly and in writing. In case of dissatisfaction with the test results, the manufacturer or supplier may request retesting.

## 10. Packaging

10.1 Preformed expansion joint filler in sheets or strips should be stored and transported on pallets or suitable flat surface to prevent breakage and permanent deformation.

## 11. Keywords

11.1 bituminous; expansion joint; filler; joint; preformed