



Designation: D7174 – 05 (Reapproved 2022)

Standard Specification for Preformed Closed-Cell Polyolefin Expansion Joint Fillers for Concrete Paving and Structural Construction¹

This standard is issued under the fixed designation D7174; 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.

1. Scope

1.1 This specification covers preformed expansion joint fillers made from closed-cell polyolefin materials having suitable compressibility and nonextruding characteristics.

1.1.1 Type I, closed-cell polyethylene or blended polyethylene.

1.2 These joint fillers are intended for use in concrete pavements in full-depth joints. There are several variations in size. A typical size measures 0.5 in. (12.7 mm) in thickness, 4.0 in. (101.6 mm) in width, and 10 ft (3.048 m) in length and will relieve stress or avoid potential distress in adjacent structures or pavements.

1.3 The values stated in inch-pound units are to be regarded as the standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

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

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, Sealers and Sealing Systems.

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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.

3. Materials and Manufacture

3.1 *Type I, Closed-Cell Polyethylene or Blended Polyethylene*—These fillers shall be made from foamed polyethylene or blended polyethylene, and their preformed cross section shall be closed-cell.

4. Physical Properties

4.1 *Compressive Strength:*

4.1.1 *Minimum*—Load required to compress test specimen by 25 % (to 75 % of original thickness) shall not be less than 5 psi (35 kPa).

4.1.2 *Maximum*—Load required to compress test specimen by 85 % (to 15 % of original thickness) shall not be greater than 300 psi (2070 kPa).

4.2 *Recovery*—After compressing the test specimen to 50 % of its thickness before test, the load shall be released; 10 min after release of the load, the specimen shall have recovered to at least 95 % of its thickness before test.

4.3 *Extrusion*—When a 1.0 in. (25.4 mm) thick test specimen is compressed to 50 % of its original thickness with three of its edges restrained, the free edge shall extrude not more than 0.5 in. (12.7 mm).

4.4 *Structural Characteristics*—Closed-cell expansion joint filler units shall have sufficient strength and resiliency to withstand on-the-job handling without breakage or permanent deformation.

5. Dimensions, Mass, and Permissible Variations

5.1 Expansion joint filler units shall conform to dimensions as specified:

5.1.1 *Thickness*, +10, –0 %.

5.1.2 *Width*, +0.8, –0 in. (+20.3, –0 mm).

5.1.3 *Length*, +3.0, –0 in. (+76.2, –0 mm).

6. Sampling

6.1 *Size of Samples*—Each sample shall consist of sufficient material to provide at least ten test specimens measuring 4.5 by 4.5 in. (114.3 by 114.3 mm), or as required by the user agency. Unless otherwise specified under applicable test method, test specimens shall be the same thickness as the expansion joint filler units to be installed.

6.2 *Number of Samples*—Select one representative sample from each shipment of material capable of filling 5000 linear ft (1524 m) of expansion joint filler.

7. Test Methods

7.1 *Scope*—Determine the physical requirements prescribed in this specification under 4.2 and 4.3, in accordance with Test Methods D545.

7.2 *Compressive Strength* (see 4.1)—Determine in accordance with Test Methods D545 with the following exception: The compressive strength shall be determined at deflections of 25 and 85 %.

8. Inspection

8.1 Inspection of the material and selection of sample or samples to be tested may be made either at the point of shipment or at the point of delivery, as agreed upon.

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9. Rejection and Rehearing

9.1 If a selected sample fails to conform to any of the requirements of this specification, select two additional samples from the same lot and test. Both retest samples shall meet the requirements of this specification or the lot will be rejected.

10. Precision and Bias

10.1 Precision and bias statements for the tests in 4.2 and 7.2 have not been developed at this time. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

11. Keywords

11.1 cellular plastic; closed-cell; expansion joint; filler; joint; polyethylene; polyolefin; preformed

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