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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Specification for Preformed Cellular Plastic Joint Fillers for Relieving Pressure[1]

This standard is issued under the fixed designation D 3204; 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 pressure-relief joint fillers of the following two types made from cellular plastic materials having suitable compressibility and nonextruding characteristics.

1.1.1 Type I, closed cell polyethylene, and

1.1.2 Type II, open cell polyurethane.

1.2 These joint fillers are intended for use in concrete pavements in full-depth joints measuring approximately 4.0 in. (102 mm) in width to 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.

2. Referenced Documents

2.1 *ASTM Standards:*

D 545 Test Methods of Testing Preformed Expansion Joint Fillers for Concrete Construction (Nonextruding and Resilient Types)[2]

3. Terminology

3.1 *Definition of Term Specific to This Standard:*

3.1.1 *pressure-relief joints*—those joints formed by the removal of a full-depth section of existing pavement to relieve distress or avoid potential distress in adjacent structures or pavements.

4. Manufacture

4.1 *Type I, Closed-Cell Polyethylene*—These fillers shall be made from foamed polyethylene material, and their preformed cross section shall be closed cell and homogeneous without laminations.

4.2 *Type II, Open-Cell Polyurethane*—These fillers shall be made from foamed polyurethane material, and their preformed cross section shall be semi-open cell, homogeneous without laminations.

5. Physical Requirements

5.1 *Compressibility:*

5.1.1 *Minimum*—Load required to compress test specimen by 25 % (to 75 % of original thickness) shall not be less than 3 psi (21 kPa).

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

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

5.3 *Extrusion*—When a 1.0-in. (25-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. (13 mm).

5.4 *Structural Characteristics*—Preformed pressure relief joint filler units shall have sufficient strength and resiliency to withstand on-the-job handling without breakage or permanent deformation.

6. Dimensions and Permissible Variations

6.1 Preformed Type I pressure-relief joint filler units shall conform to dimensions as specified.

6.1.1 *Thickness:* + 10, − 0 %.

6.1.2 *Depth:* + 0.8, − 0 in. (+ 20, − 0 mm).

6.1.3 *Length:* + 3.0, − 0 in. (+ 80, − 0 mm).

6.2 Preformed Type II pressure-relief joint filler units shall conform to dimensions as specified.

6.2.1 *Thickness:* ±5 %.

6.2.2 *Depth:* ±0.4 in. (±10 mm).

6.2.3 *Length:* + 3.0, − 0 in. (+ 80, − 0 mm).

7. Shape

7.1 The cross-section shape shall be as agreed between purchaser and supplier.

8. Sampling

8.1 *Size of Samples*— Each sample shall consist of sufficient material to provide at least ten test specimens measuring 4.5 by 4.5 in. (115 by 115 mm), or as required by the user agency. Unless otherwise specified under applicable test method, test

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[2] *Annual Book of ASTM Standards,* Vol 04.03.

specimens shall be the same thickness as the joint filler units to be installed.

8.2 *Number of Samples*—Select one representative sample from each shipment of material capable of filling 5000 linear ft (1500 m) of pressure relief joint.

9. Test Methods

9.1 Determine the physical requirements prescribed in this specification under 5.2 and 5.3, in accordance with Test Method D 545.

9.2 *Compressive Strength* (5.1)—Determine in accordance with Method D 545 with the following exception: The compressive strength shall be determined at deflections of 25 and 85 %.

10. Inspection and Rejection

10.1 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.

10.2 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.

11. Keywords

11.1 cellular plastic; joint fillers; pressure relief joints