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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Method for Adhesion of Asphalt-Roof Cement to Damp, Wet, or Underwater Surfaces[1]

This standard is issued under the fixed designation D 3409; 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 test method covers the determination of the adhesion of asphalt roofing cements to damp, wet, or underwater surfaces.

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

1.3 *This standard does not purport to address all of the safety problems, 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. Summary of Test Method

2.1 A metal lid is covered with a coating of asphalt roofing cement and immersed in water. A similar metal lid which has been flamed and wet with water is pressed on the asphaltic surface. The degree of adhesion is evaluated by estimating the percentage of area covered by the cement on the water-wet flamed metal lid.

3. Significance and Use

3.1 This test method offers a means of evaluating the adhesive properties of asphalt roofing cements used to repair roofs under adverse conditions. Weathered roof surfaces are easily coated with asphalt roofing cements when they are dry, however when wet or during a rain, asphalt roofing cements may not adhere readily to water-wet surfaces such as metal flashings or asphalt roll roofing. The flamed metal lids used in this test method simulate weathered roof surfaces.

4. Apparatus

4.1 *Metal Lids*[2]—Slip-on covers supplied with 3-fluid oz capacity seamless metal containers, approximately 55 mm in diameter and with a raised rim 1 mm high and 3 mm wide.

4.2 *Water Bath*—A bath with a flat bottom surface having a capacity of at least 1 qt. which can be filled with tap water to a minimum depth of 2 in. and maintained at 68 ± 5°F (20 ± 3°C).

5. Sampling

5.1 Stir the sample thoroughly to ensure homogeneity before removing a portion for testing.

5.2 If the size of the sample is 1 gal (4 L) or over, a portion may be removed and stored in a 1 qt (1-L) triple-seal, friction-top can.

6. Procedure

6.1 Spread 5 g of the cement on the top surface of each of three metal lids and place them in the water bath.

6.2 Flame three other metal lids in an open gas flame until each entire lid has an oxidized blue-gray surface and place them in the water bath after they have cooled to room temperature.

6.3 After 5 min, place a flamed lid on top of each cement-covered lid, and press only on the rim of the flamed lid for 1 min or until the flow of the cement stops.

NOTE 1—Covers that have a raised rim (1 mm) on the top surface are intended for this test. When the two lids are pressed together, approximately 4 g of the 5-g sample will be contained between the surfaces. If lids with raised rims are not available, smooth lids may be used except that care should be exercised in pressing the lids together to prevent squeezing out all of the sample.

6.4 Remove each set of lids from the water bath and scrape off the excess cement around the edges with a spatula or knife.

6.5 Separate the lids without twisting and estimate the percentage of area covered by the cement on each of the flamed lids.

7. Report

7.1 Report the average of the three estimates on coverage of the cement on the flamed lids as the adhesion, in percent, at 68°F (20°C).

NOTE 2—There may be a need for testing at lower temperatures. Committee D-8 would welcome data supporting suitable modifications.

8. Precision

8.1 The precision of this test method has not yet been determined.

9. Keywords

9.1 adhesion; asphalt cement; wet surface

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[1] This test method is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.05 on Solvent-Bearing Bituminous Compounds for Roofing and Waterproofing.

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[2] Deep Style 22 Seamless Cans, available from Ellisco Inc., Myers Div., 6850 River Rd., Pennsauken, NJ 08110, have been found satisfactory for this purpose.