



Standard Test Method for Bitumen and Aggregate Content of Bitumen-Aggregate Mixtures From Roofing Samples¹

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^{ε1} NOTE—Footnote 1 was changed editorially in July 1996.

1. Scope

1.1 This test method covers the determination of the bitumen content of adhered aggregate surfacing on a roof, and the approximate mass per unit area of the flood coat and adhered aggregate.

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 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 and regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 71 Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method)²

D 2829 Practice for Sampling and Analysis of Built-Up Roofs²

3. Summary of Test Method

3.1 The proportions of bitumen and aggregate in a mixture are determined from their relative densities and the relative density of their mixture.

4. Significance and Use

4.1 This test method offers a convenient alternative to solvent extraction for the approximate determination of top-coating bitumen and adhered aggregate in roofing samples, particularly when the bitumen is coal tar pitch.

5. Apparatus

5.1 *Beaker*, 500-mL capacity, without a pour spout.³

5.2 *Glass Cover Plate*, 5 × 5 × 0.12 in. (127 by 127 by 3 mm).

5.3 *Balance*, 1000 ± 0.1-g capacity.

6. Materials

6.1 *Isopropyl Alcohol*, (CH₃)₂CHOH, commercial grade.

6.2 *Paper Cups*, paraffin-coated, 2.4 in. (61 mm) in diameter by 3 in. (76 mm) high, 5-oz (150-mL) capacity.

7. Sampling

7.1 Obtain samples in the field in accordance with Practice D 2829.

8. Procedure

8.1 Cut either a 5½-in. or a 100-mm square specimen from the roofing sample and collect any associated loose, bitumen-free aggregate in a tared paper cup.

8.2 Add additional loose, bitumen-free aggregate to the cup from the remaining sample, if necessary, to obtain a 100 to 200-g specimen of the aggregate. Weigh the aggregate to the nearest 0.1 g and record as M_a .

8.3 Place the roofing specimen on aluminum foil or release paper and carefully remove the adhered aggregate and top coating with a hot knife or scraper without damaging the top felt.

NOTE 1—This will usually leave 4 to 8 lb/100 ft² (200 to 400 g/m²) of bitumen on the surface of the roofing felt.

8.4 Collect the adhered aggregate and top coating removed in 8.3 in a tared paper cup and add any associated loose, bitumen-coated aggregate. Weigh to the nearest 0.1 g and record as M_m .

8.5 Overfill the clean 500-mL beaker with isopropyl alcohol and carefully slide the glass cover plate over the top so as to exclude air. Blot the excess alcohol from the exterior of the beaker. Weigh the assembly to the nearest 0.1 g and record as T .

8.6 Remove the glass cover plate and place the aggregate specimen from 8.2 in the beaker. Again, overfill the beaker with alcohol, and carefully replace the cover plate. Blot the excess alcohol from the exterior of the beaker. Weigh the assembly to the nearest 0.1 g and record as W_a .

8.7 Discard the contents of the beaker and rinse with alcohol. Place the adhered aggregate and top coating specimen

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 D08.20 on Roof Membrane Systems.

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² *Annual Book of ASTM Standards*, Vol 04.04.

³ Catalog No. 1040 500-mL beaker, available from Corning Glass Works, Houghton Park, Corning, NY 14830, may be used if the glass nub extending above the lip of the beaker is removed with emery cloth.