



Designation: D4074/D4074M – 11 (Reapproved 2015)

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

This standard is issued under the fixed designation D4074/D4074M; 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 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 either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with 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:*²

D71 Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method)

D2829 Practice for Sampling and Analysis of Existing Built-Up Roof Systems

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 minimum capacity, without a pour spout.³

5.2 *Glass Cover Plate*, 127 by 127 by 3 mm [5 by 5 by 0.12 in.].

5.3 *Balance*, 1000 \pm 0.1-g capacity.

6. Materials

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

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

7. Sampling

7.1 Obtain samples in the field in accordance with Practice D2829.

8. Procedure

8.1 Cut a 100-mm [5 $\frac{5}{8}$ -in.] 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 200 to 400 g/m² [4 to 8 lb/100 ft²] of bitumen on the surface of the roofing felt.

¹ This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.20 on Roofing Membrane 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 The sole source of supply of the beaker, Kimble Chase, part #14020-600 Kimax 600 mL without spout, known to the committee at this time is Fisher Scientific, 1022 Spruce St., P.O. Box 1502, Vineland, NJ 08362-1502. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.