Designation: D1865/D1865M – 09 (Reapproved 2023)

Standard Test Method for Hardness of Mineral Aggregate Used on Built-Up Roofs[1]

This standard is issued under the fixed designation D1865/D1865M; 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 hardness of all types of mineral surfacing for use on built-up roofs and is intended to provide an index of their ability to withstand physical breakdown in handling.

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

1.4 *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]

D75/D75M Practice for Sampling Aggregates

D451/D451M Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Summary of Test Method

3.1 Mineral aggregate is empirically evaluated for degree of breakdown into smaller pieces. The procedure calls for a sample, free of fines, to be dropped a nominal distance of 1.2 m [4 ft] 400 times while inside a standardized test apparatus.

4. Significance and Use

4.1 This test method measures the resistance to physical breakdown in handling of built-up roofing aggregates.

5. Apparatus

5.1 A 1.2 m [4 ft] length of clean 50 mm [2 in.] iron pipe fitted with a removable screw cap on both ends, and mounted on a suitable stand so that it can be rotated about an axis perpendicular to the long dimension of the pipe.

5.2 *Balance,* 500 g [1 lb] capacity, sensitive to 0.01 % of the capacity.

5.3 *Sample Splitter,* riffle-type.

5.4 *Sieves*—A series of square-opening sieves, 8 in. in diameter, conforming to the requirements prescribed in Specification E11 and consisting of the following:

Sieve Designation	
9.5 mm	[⅜ in.]
6.3 mm	[¼ in.]
3.35 mm	(No. 6)

A solid collecting pan shall be fitted to the bottom of the stack of sieves.

5.5 *Mechanical Sieve Shaker,* conforming to the requirements prescribed in Test Method D451/D451M.

6. Sampling

6.1 Sample aggregates received in bulk in accordance with Practice D75/D75M.

6.2 For aggregates received in bags or small containers, select a number of bags or small containers at random equivalent to the cube root of the total number in the shipment.

7. Procedure

7.1 Fractionate the aggregate, previously dried at 110 °C [230 °F] utilizing the riffle-type sample splitter, until a fraction is obtained that will permit the recovery, after hand sieving, of about 227 g [0.5 lb] of aggregate passing through the 9.5 mm [⅜ in.] sieve and retained on the 6.3 mm [¼ in.] sieve.

[1] This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.03 on Surfacing and Bituminous Materials for Membrane Waterproofing and Built-up Roofing.

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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.