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StandardTest Methods for Absorption and Bulk Specific Gravity of Dimension Stone[1]

This standard is issued under the fixed designation C97/C97M; 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 These test methods cover the tests for determining the absorption and bulk specific gravity of all types of dimension stone, except slate.

1.2 *Units*—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 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 of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C119 Terminology Relating to Dimension Stone

3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C119.

4. Significance and Use

4.1 These test methods are useful in indicating the differences in absorption between the various dimension stones. These test methods also provide one element in comparing stones of the same type.

5. Sampling

5.1 The sample shall be selected to represent a true average of the type or grade of stone under consideration and shall be of the quality supplied to the market under the type designation to be tested. The sample may be selected by the purchaser or his authorized representative from the quarried stone or taken from the natural ledge and shall be of adequate size to permit the preparation of at least five test specimens. When perceptible variations occur, the purchaser may select as many samples as are necessary for determining the range in properties.

6. Test Specimens

6.1 The specimens may be cubes, prisms, cylinders, or any regular form with least dimension not under 2 in. [50 mm] and greatest dimension not over 3 in. [75 mm] but the ratio of volume to surface area shall not be less than 0.3 nor greater than 0.5 when measuring in inches [8 and 12.5 when measuring in millimetres]. All surfaces shall be reasonably smooth. Saw or core drill surfaces are considered satisfactory, but rougher surfaces shall be finished with No. 80 abrasive. No chisels or similar tools shall be used at any stage of preparing the specimens.

6.2 Prepare at least five specimens from each sample.

6.3 The same specimens may be used to determine both water absorption and bulk specific gravity. In this case, follow the procedures in 7.1 – 7.3 and 10.1, and issue a single report containing all information required in 9 and 13. Alternatively, separate specimens may be prepared from the same or different samples. In this case, follow the applicable procedure for separate determination and reporting of water absorption or bulk specific gravity, or both.

7. Procedure

7.1 Dry the specimens for 48 h in a ventilated oven at a temperature of 140 ± 4°F [60 ± 2°C]. At the 46th, 47th, and 48th hour, weigh the specimens to ensure that the weight is the same. If the weight continues to drop, continue to dry the specimens until there are three successive hourly readings with the same weight.

7.2 After drying, cool the specimens in the room for 30 min and weigh. When the specimens cannot be weighed immediately after cooling, store them in a desiccator. Determine the weights to the nearest 0.0005 oz [0.01 g].

7.3 Immerse the specimens completely in filtered or distilled water at 72 ± 4°F [22 ± 2°C] for 48 h. At the end of this

[1] These test methods are under the jurisdiction of ASTM Committee C18 on Dimension Stone and are the direct responsibility of Subcommittee C18.01 on Test Methods.

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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.