



Designation: C 97 – 96^{e1}

Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone¹

This standard is issued under the fixed designation C 97; 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.

This standard has been approved for use by agencies of the Department of Defense.

^{e1} NOTE—Two editorial changes were made in 6.1 in July 2000.

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 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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:*

C 119 Terminology Relating to Dimension Stone²

3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C 119.

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.

ABSORPTION

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 three 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 50.8 mm (2 in.) and greatest dimension not over 76.2 mm (3 in.) but the ratio of volume to surface area shall not be less than 8.5 nor greater than 12.7 when measuring in millimetres (0.3 and 0.5 when measuring in inches). 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. At least three specimens shall be prepared from each sample.

7. Procedure

7.1 Dry the specimens for 48 h in a ventilated oven at a temperature of $60 \pm 2^\circ\text{C}$ ($140 \pm 4^\circ\text{F}$). 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 0.02 g.

7.3 Immerse the specimens completely in filtered or distilled water at $22 \pm 2^\circ\text{C}$ ($72 \pm 4^\circ\text{F}$) for 48 h. At the end of this period remove them from the water bath one at a time, surface dry with a damp cloth, and weigh to the nearest 0.02 g.

8. Calculation and Report

8.1 Calculate the weight percentage absorption (Note 1) for each specimen as follows:

$$\text{Absorption, weight \%} = [(B - A)/A] \times 100 \quad (1)$$

¹ These test methods are under the jurisdiction of ASTM Committee C-18 on Dimension Stone and are the direct responsibility of Subcommittee C18.01 on Test Methods.

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² *Annual Book of ASTM Standards*, Vol 04.07.