Designation: C1943 – 24

Standard Test Method for Grout Retention Properties of Ceramic Tile[1]

This standard is issued under the fixed designation C1943; 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 testing and evaluation of grout retention on glazed and unglazed ceramic tile surfaces and is intended to give the user a uniform procedure to make a comparative assessment of specific tile and grout systems.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values in parentheses are for information only.

1.3 This qualitative method is intended to be used to visually detect abnormal grout retention for a specific tile and installation material system installed in a specified way.

1.4 This method is intended to evaluate the specific grout and tile system specified and is not intended for test results to encompass other tile and grout combinations.

1.5 *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.*

1.6 *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 *ANSI Documents:*[2]

ANSI A137.1 American National Standard Specifications for Ceramic Tile

3. Terminology

3.1 *Definitions:*

3.1.1 *grout retention, n*—residual grout remaining on a tile surface after normal clean up procedures have been completed This can be related to surface texture or porosity of the surface, grout formulation, and/or installation practices. Fig. 1 is an example of a tile that retained grout after testing.

3.1.2 *installation system protocol, n*—the set of instructions describing the conditions used to achieve requirements of the test.

3.1.2.1 *Discussion*—Typically based on, but not limited to, the instructions provided by the manufacturers of the components used in the test. The complete set of procedures shall determine the overall method for preparing tile, mixing grout, applying grout, and subsequent grout clean up. This can vary based on the specific products selected or the outcome being investigated using the test.

4. Significance and Use

4.1 This test method provides a means for testing combinations of tile, grout, installation materials and installation practices to determine grout retention behavior. This method can be used by installers to determine if installation materials and techniques are synergetic; by tile and grout manufacturers to evaluate product performance and as a forensic tool to determine if an installation system was appropriate.

4.2 It is acceptable for other (mainly unglazed) ceramic tile surfaces to have some grout retention if it is light and evenly distributed.

5. Apparatus

5.1 A solid rubber or silicone grout float appropriate for the type of grout being utilized,

5.2 Mixing container for the grout,

5.3 Masking tape,

5.4 Sponge, of the type typically sold for grout clean up, and

5.5 Stiff bristled brush or scrub pad for textured surfaces.

6. Test Specimens

6.1 The tile product, type of grout, method of preparing the tile, method of preparing the grout, drying time after grout application, and clean-up method may be varied with the requirements of the test.

6.2 At least three tile specimens that are free of facial defects and representative of the tile component of the installation system of interest. Test specimens shall be representative

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[2] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

FIG. 1 Tile That Has Retained Grout After Testing

of the sample. Where tiles have different colors of decorative effects, take care to include all distinctive parts and more test specimens as necessary to incorporate all surface features.

6.3 One grout specimen that is representative of the grout component of the installation system of interest. Grout specimen shall be representative of the sample. If a specific grout color is not defined in the installation system of interest, use of a contrasting grout color to the tile being evaluated is recommended (for example, black for light colored tiles or white for very dark tiles).

6.4 If installation system of interest includes use of materials to prepare the tile, such as grout release or sealer, a representative specimen of each component is needed.

6.5 Installation system protocol describing details of installation system of interest including: tile preparation steps, grout preparation, drying time, and clean-up method. (See Table 1 and Table 2 below.)

7. Test Procedure

7.1 Prepare the tile sample according to the installation system protocol defined for the test.

7.2 Mask off ⅓ to ½ of the tile surface area with painter type masking tape.

7.3 Prepare the grout according to installation system protocol.

7.4 Using the grout float spread grout evenly, at an approximate 45° angle, while applying a firm pressure to the float.

7.5 Leave a thin coating of grout as shown in Fig. 2.

7.6 Allow the grout to dry per the installation system protocol defined for the test.

7.7 Attempt to clean up and remove the dried grout residue according to the installation system protocol defined for the test, example in Fig. 3.

7.8 Remove the mask from the sample after cleaning.

7.9 Dry the sample.

7.10 Visually inspect the sample to determine if the installation system of interest produced an acceptable result. Rate the sample as “Affected” or “Not Affected” based on comparison of the exposed section of the sample to the masked section. If found to be “Affected,” rate the sample as “Acceptable” or “Not Acceptable” based on subjective requirements of the test.