



Designation: ~~C484 – 99 (Reapproved 2014)~~ C484 – 20

Standard Test Method for Thermal Shock Resistance of Glazed Ceramic Tile¹

This standard is issued under the fixed designation C484; 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 resistance to thermal shock of glazed ceramic tiles under normal conditions of use.

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 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

~~C242 Terminology of Ceramic Whitewares and Related Products~~

~~C373 Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products~~

3. Terminology

3.1 ~~Definitions~~ *Definitions:*—For

3.1.1 For the definitions of terms used on this test method, refer to Terminology ~~C242~~, the definitions of terms used on this test method, refer to Terminology ~~C242~~.

4. Summary of Test Method

4.1 This test method consists of determining the thermal shock resistance of ceramic tiles by cycling a sample ten times between the temperatures of $15 \pm 5^\circ\text{C}$ ($59 \pm 9^\circ\text{F}$) and $145 \pm 5^\circ\text{C}$ ($293 \pm 9^\circ\text{F}$). This test method includes two procedures, with and without immersion, for tiles with a water absorption less than or equal to 10 % and tiles with a water absorption greater than 10 %, respectively. After completing ten cycles, the tiles are inspected for any damage as a result of the cycling.

5. Significance and Use

5.1 This test method is intended for testing glazed ceramic tile that are to be used in areas in which they may be subjected to rapid or severe temperature changes.

6. Apparatus

6.1 *Water Bath*, for testing with immersion, through which $15 \pm 5^\circ\text{C}$ ($59 \pm 9^\circ\text{F}$) water flows at a rate of 1 gal/min. The bath shall hold at least 5 gal (19 L) of water and shall be of dimensions such that ~~five whole tiles are~~ the test sample is immersed completely when placed in the bath vertically.

¹ This test method is under the jurisdiction of ASTM Committee C21 on Ceramic Whitewares and Related Products and is the direct responsibility of Subcommittee C21.06 on Ceramic Tile.

Current edition approved Dec. 1, 2014 April 1, 2020. Published December 2014 April 2020. Originally approved in 1961. Last previous edition approved in 2009 2014 as C484 – 99 (2009) (2014). DOI: 10.1520/C0484-99R14:10.1520/C0484-20.

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.