PORCELAIN TILE CERTIFICATION
AND THE PORCELAIN TILE CERTIFICATION AGENCY (PTCA)

Ceramic tile is defined as a ceramic surfacing unit, usually relatively thin in relation to facial area, having either a glazed or unglazed face and fired above red heat in the course of manufacture to a temperature sufficiently high to produce specific physical properties and characteristics according to the ANSI A137.1 standard. This relatively broad definition encompasses different types of ceramic tile, all of which collectively make up what is commonly known as the "ceramic tile family."

The ceramic tile family includes:

- Porcelain tile
- Pressed floor tile
- Quarry tile
- Wall tile
- Mosaic tile
- Gauged porcelain tile (GPT)
- Specialty tile

While each of these tile subsets is ceramic tile and thus shares ceramic tile's general benefits, they are each produced differently and may consequently have additional advantages that lend themselves to specific applications.

Porcelain tile, which according to census bureau data and estimates from the Tile Council of North America (TCNA), accounts for more than 50% of U.S. ceramic tile sales, has emerged as a popular type of ceramic tile.

What is TRUE Porcelain?

What defines and differentiates porcelain tile from non-porcelain tile is its extremely low water absorption. Porcelain tile is a ceramic tile with a water absorption less than or equal to 0.5%.

This definition of porcelain is supported by both the International Standards Organization (ISO) and the American National Standards Institute (ANSI):

ISO definition of porcelain (ISO 13006): Fully vitrified tile with a water absorption coefficient less than or equal to a mass fraction of 0.5%, belonging to groups AIa and BIa

ANSI definition of porcelain (ANSI A137.1): A ceramic tile that has a water absorption of 0.5% or less that is generally made by the pressed or extruded method; Does not include materials with very little or no crystallinity, such as glass tile (Class P1, E1, or O1)

Manufacturing tiles that meet this standard—true porcelain—requires porcelain-grade clays and other unique raw materials, plus precision milling processes and kilns set to extremely high firing temperatures (2100˚F to 2500˚F). The required raw materials, energy, and manufacturing equipment needed to produce such low porosity, high density tiles are why real porcelain is typically more expensive than non-porcelain tiles (for tiles with the same decorative elements).

Porcelain Tile Certification Agency

As classified by the ANSI A137.1 ceramic tile standard, porcelain tile is a ceramic tile with a very low water absorption (0.5% or less), as tested per ASTM C373.

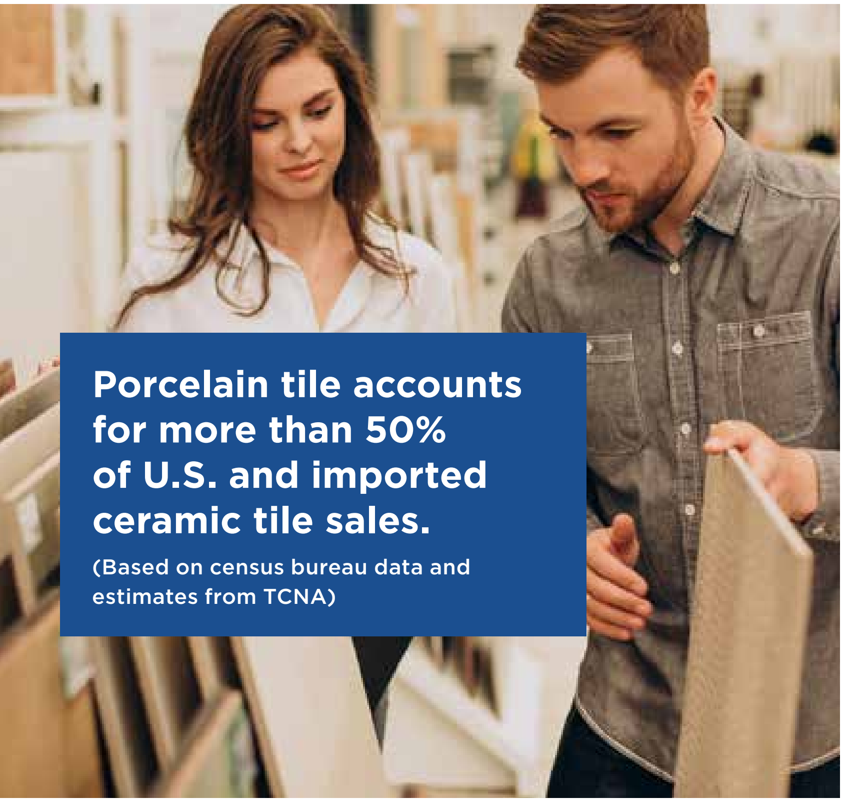
While the criteria for porcelain tiles have been well-defined for several decades in North America, the term “porcelain” was undefined in international standards until relatively recently, and the testing method used internationally for measuring water absorption was less rigorous than the ASTM C373 method used in North America.

This led to some tiles being mislabeled as porcelain, whether intentionally or through testing differences. Although the testing standards used worldwide have now been harmonized to the strict requirements in North America, the practice of mislabeling tiles as porcelain continues. In freeze/thaw and wet environments, that can result in costly failures.

In response, TCNA and the Ceramic Tile Distributors Association (CTDA) jointly established the Porcelain Tile Certification Agency (PTCA) to provide a means for manufacturers and distributors to establish that their products comply with the water absorption criteria for porcelain tile.

PTCA certification was developed to independently evaluate if the program participant understands North American water absorption criteria and can meet such.

For each series being evaluated for porcelain tile certification, five commercially available samples (selected by the participant) are sent for testing once every three years by manufacturing participants and annually by non-manufacturing participants.



Porcelain tile accounts for more than 50% of U.S. and imported ceramic tile sales.

(Based on census bureau data and estimates from TCNA)

The Certification Mark

The Porcelain Tile Certification Agency permits manufacturers whose products meet porcelain certification requirements to label those products with the **Porcelain Tile Certification Agency certification mark.**

By looking for the Porcelain Tile Certification Agency certification mark, distributors, retailers, and consumers can have greater confidence that the products meet the stringent 0.5% or less water absorption requirement defining porcelain tile.

PORCELAIN TILE CERTIFICATION
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By participating in the PTCA certification program, the program participant (i.e., the manufacturer and/or seller) is stating that the tiles it produces or sells, labeled with the PTCA mark, meet the ANSI A137.1 porcelain tile water absorption requirements.

Non-manufacturing participants are further required to obtain a written assurance from the actual manufacturer that it will immediately notify the participant of any changes in the conforming porcelain tiles or any manufacturing variances that may affect the certification.

PTCA certification does not mean the tiles tested met all ANSI A137.1 or ISO 13006 criteria, which would require testing for other physical properties such as dimensions, warpage, breaking strength, etc. Variance from those properties has not been an issue in general, and the criteria are well understood.

Importance of Porcelain Tile Certification

The difference between real and false porcelain cannot be detected by eye—the only way to know with certainty is to have a laboratory verify the tile's water absorption is 0.5% or less. To illustrate the extent of the problem, through its lab, Tile Council has identified hundreds of series from international manufacturers that did not meet the PTCA water absorption criteria necessary to be certified as porcelain.

The Porcelain Tile Certification mark provides an easy way for both distributors and consumers to identify real porcelain tiles. This is crucial for several reasons:

- **Trust**
  Porcelain Certification allows consumers to confidently identify porcelain products. Purchasing products falsely identified as porcelain may lead to failed applications, the need for repairs, and additional costs.
- **Cost**
  When lower-cost products are mislabeled and sold at a higher price as porcelain, the consumers who purchased such did not receive what they were paying for.
- **Success**
  PTCA certification helps manufacturers and distributors participate in a recognized standard to deliver a consistent product to consumers, paving the way for successful tile installations.

How to Certify Porcelain

Manufacturers that want to have their products PTCA-certified must take the following steps:

1. Apply for Porcelain Tile Certification by filling out the Program Participation Agreement and the Order Form on the PTCA website. The application involves submitting samples of each tile series to be tested.
2. Pay the cost of testing the tile samples at an authorized testing lab, as well as the initial and annual licensing fees.
3. Once a participant receives confirmation of their product's compliance, they can use the PTCA certification mark on product packaging and marketing materials and to help guide the consumer toward a confident purchase of porcelain tile.

Benefits of the PTCA program

The PTCA program is designed to directly benefit consumers purchasing porcelain tiles and, indirectly, everyone involved in the supply chain.

How the PTCA tests porcelain

When tile is tested to determine its water absorption (the test for porcelain), laboratories follow the American

Because porcelain tile is difficult — if not impossible — to identify by sight, a test for a tile's porosity (water absorption) will determine if a tile can be called "porcelain."

Society for Testing and Materials (ASTM) test procedure C373: "Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products."

ASTM C373 involves testing samples by subjecting them to a strong vacuum while water is drawn into the pores of the tile. The water absorption rate is calculated as a percentage of water weight gained over the dry weight.

Passing the certification testing establishes that the participant understands and can meet North American water absorption criteria. It is not a test of the tile being sold but rather an assessment of the manufacturer. The PTCA certification mark also does not assure fitness of the tile for any particular purpose. The suitability of any tile for specific applications requires an analysis of the project conditions by a qualified individual, as well as proper installation.

For more details on the PTCA program, the PTCA Program Participation Agreement is publicly available and can be found at www.ptcaonline.org/PTCA_Participation_Agreement.pdf.

If a question arises about whether a tile sold as PTCA-certified truly meets the water absorption criteria for porcelain tiles, PTCA is authorized to acquire further samples and test such for compliance. The board of PTCA then reviews the available data and relevant actions taken by the program participant to decide whether to withdraw PTCA certification and use of the mark.

Anyone who suspects a non-porcelain tile is being sold as PTCA-certified tile is encouraged to notify PTCA at 630-942-6588 or info@ptcaonline.org.

ASTM C373 Water Absorption Test

For ceramic tile, water absorption refers to the maximum amount of water that a tile can be made to absorb. In the lab test ASTM C373, water is drawn into the deepest pores of the tile by a strong vacuum.

So, measuring water absorption can also be looked at as measuring available tile porosity—the more water that can be absorbed, the more porous (less dense) the tile.

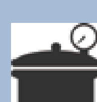
STEP 1

Tile sample is dried in an oven to ensure accurate dry weight.

STEP 2

Dried tile sample is weighed using a digital scale accurate to 0.001 gram.

STEP 3



Water is drawn into the tile sample by a vacuum and soaking it.

STEP 4

Saturated tile sample is weighed to determine the amount of weight gain due to absorption of water.

STEP 5

Water absorption is calculated.

The change in weight is expressed as the percentage of the tile's dry weight.

Assurance.

Porcelain certified products can use the PTCA certification mark on product packaging, marketing materials, and more to help guide the consumer toward a confident purchase of porcelain tile.

CERTIFIED PORCELAIN® TILE
0.5% or less water absorption

ilac-MRA

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17025
TESTING LABORATORY

The Certified Porcelain Tile logo means the tile tested met the American National Standard ANSI A137.1 requirement of 0.5% or less water absorption for porcelain tile.

International Product Assurance Laboratories is the only authorized U.S. lab that performs porcelain certification for PTCA.

IPA℠
International Product Assurance
LABORATORIES

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