



Ceramic tiles

Method 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density



AS ISO 10545.3:2020

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- Association of Consultants in Access Australia
- Australian Ceramic Society
- Australian Industry Group
- Australian Institute of Waterproofing
- Australian Stone Advisory Association
- Australian Tile Council
- CSIRO
- Master Builders Australia
- Surface Coatings Association Australia
- Swimming Pool and Spa Association of Australia
- TAFE NSW
- Tiles and Tiling Industry Association Australia

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Preface

This Test Method was prepared by the Standards Australia Committee BD-044, Fixing of Ceramic, Natural and Reconstituted Stone Tiles to supersede AS 4459.3—1999, *Methods of sampling and testing ceramic tiles — Method 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density*.

The objective of this Test Method is to specify a method for determining water absorption, apparent porosity, apparent relative density and bulk density of ceramic tiles. This method is applicable to classification of tiles and product specifications.

This Test Method is identical with, and has been reproduced from, ISO 10545-3:2018, *Ceramic tiles — Part 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density*.

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 189, *Ceramic tiles*.

This second edition cancels and replaces the first edition (ISO 10545-3:1995 which has been technically revised. It also incorporates ISO 10545-3:1995/Cor.1:1997.

The main changes compared to the previous edition are as follows:

- The impregnation of the samples is now only done by vacuum.
- The boiling method for impregnation of the samples has been removed.
- Sampling guidelines according to the dimension of tiles are provided.

A list of all parts in the ISO 10545 series can be found on the ISO website.

Introduction

For ceramic tiles, water absorption is used to classify products. This document outlines the procedures for the measurement of water absorption and related properties using classical Archimedean techniques. Impregnation of the open porosity is achieved by a vacuum method only. Accommodations are provided for large or irregularly shaped ceramic tile.

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Australian Standard®

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Method 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density

1 Scope

This document specifies a method for determining water absorption, apparent porosity, apparent relative density and bulk density of ceramic tiles. This method is applicable to classification of tiles and product specifications.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Principle

Impregnation of dry tiles with water and their suspension in water. Calculation of the listed properties using the relationships between dry, saturated and suspended masses.

5 Apparatus

5.1 Drying oven, capable of being operated at least at (110 ± 5) °C. Microwave, infrared, or other drying systems may be used provided that it has been determined that the same results are obtained.

5.2 Balance, accurate to 0,01 % of the mass of a test specimen.

5.3 Deionised or distilled water

5.4 Dessicator

5.5 Microfibre cloth

5.6 Wire loop, halter or basket, capable of supporting specimens under water for making suspended mass measurements.

5.7 Glass beaker, or similar container of size and shape such that the sample, when suspended from the balance (5.2) by the wire loop (5.6), is completely immersed in water, with the test specimen and the wire loop being completely free of contact with any part of the container.