STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 4459.12—1999
Methods of sampling and testing ceramic tiles
Method 12: Determination of frost resistance

RECONFIRMATION NOTICE

Technical Committee BD-044 has reviewed the content of this publication and, in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 21 January 2016.

The following are represented on Technical Committee BD-044:

Australian Industry Group
Australian Stone Advisory Association
Australian Tile Council
Ceramic Tile Manufacturers Association of Australia
Institute of Building Consultants
Master Builders Australia
Master Glazed Wall & Floor Tile Layers Association of SA
Plastics and Chemicals Industries Association
Property Council of Australia
Surface Coatings Association Australia

NOTES

AS 4459.12—1999
ISO 10545-12:1995
ISO 10545-12:1995/Cor.1:1997
Reconfirmed 2017

Australian Standard™

Methods of sampling and testing ceramic tiles

Method 12: Determination of frost resistance

[ISO title: Ceramic tiles, Part 12: Determination of frost resistance]

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD/44, Fixing of Ceramic Tiles.

This Standard is technically equivalent to and reproduced from ISO 10545-12:1995, *Ceramic tiles*, Part 12: *Determination of frost resistance*, and Technical Corrigendum No. 1:1997.

This Standard is the result of a consensus among the representatives on the Joint Committee that it be produced as an Australian Standard.

Appendix ZA details variations to ISO 10545-12:1995 for Australian conditions. Explanations for the basis of these variations are as follows:

(a) A note has been added to Clause 4.2 to reflect normal prudent laboratory practice.

(b) Clause 6 has been modified to permit longer freezing periods where automated freezing equipment is unavailable.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

The changes to ISO 10545-12:1995 are indicated as follows:

(i) Technical Corrigendum No.1—by a single marginal bar.

(ii) Appendix ZA—by a double marginal bar.

For the purpose of this Australian Standard, the ISO/IEC text should be modified as follows:

(A) *Terminology* The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

(B) *Decimal marker* A full point should be substituted for a comma where it appears as a decimal marker.

METHOD

1 Scope

This part of ISO 10545 specifies a method for determining the frost resistance of all ceramic tiles intended for use in freezing conditions in the presence of water.

2 Principle

After impregnation with water, submission of the tiles to a cycle between + 5 °C and − 5 °C all the sides of the tiles being exposed to freezing during a minimum of 100 freeze-thaw cycles.

3 Apparatus and materials

3.1 Drying oven, capable of being operated 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.

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

3.3 Apparatus for impregnation with water after evacuation, by means of a vacuum pump capable of lowering the air pressure by (60 ± 4) kPa in a tank containing the tiles.

3.4 Freezer, capable of freezing at least 10 tiles having a minimum total surface area of 0,25 m^2, supported in such a manner that the tiles shall be separated.

3.5 Chamois leather.

3.6 Water, maintained at a temperature of (20 ± 5) °C.

3.7 Thermocouple, or another suitable temperature measuring device.

4 Test specimens

4.1 Sample

A minimum area of 0,25 m^2 and not less than 10 whole tiles shall be used. The tiles shall be free from defects. Relevant defects are cracks, crazing, holes, nipped edges and nipped corners.

If tiles with defects have to be tested, the defects shall be marked with a permanent stain prior to the test and these defects shall be examined after testing.

4.2 Preparation of test specimens

The tiles shall be dried in the oven (3.1) adjusted to (110 ± 5) °C until constant mass is reached, i.e. until the difference between two successive weighings at intervals of 24 h is less than 0,01 %. The dry mass of each tile (m_1) shall be recorded.

5 Impregnation with water

5.1 After cooling to ambient temperature, place the tiles vertically in the dry vacuum tank (3.3) with no contact between them and no contact with the vacuum tank.