



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 14617-6:2005

ICS 91.100.15

**AGGLOMERATED STONE - TEST METHODS -
PART 6: DETERMINATION OF THERMAL
SHOCK RESISTANCE**

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*This Irish Standard was
published under the
authority of the National
Standards Authority of
Ireland and comes into
effect on:
June 3, 2005*

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14617-6

March 2005

ICS 91.100.15

English version

**Agglomerated stone - Test methods - Part 6: Determination of
thermal shock resistance**

Pierre agglomérée - Méthodes d'essai - Partie 6:
Détermination de la résistance au choc thermique

Künstlich hergestellter Stein - Prüfverfahren - Teil 6:
Bestimmung der Temperaturwechselbeständigkeit

This European Standard was approved by CEN on 3 February 2005.

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Foreword

This document (EN 14617-6:2005) has been prepared by Technical Committee CEN/TC 246 “Natural stones”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

Test methods for agglomerated stones consist of the following:

EN 14617-1, *Agglomerated stone - Test methods – Part 1: Determination of apparent density and water absorption*

EN 14617-2, *Agglomerated stone – Test methods – Part 2: Determination of flexural strength (bending)*

prEN 14617-3, *Agglomerated stone - Test methods – Part 3: Determination of slipperiness*

EN 14617-4, *Agglomerated stone - Test methods – Part 4: Determination of the abrasion resistance*

EN 14617-5, *Agglomerated stone - Test methods – Part 5: Determination of freeze and thaw resistance*

EN 14617-6, *Agglomerated stone - Test methods – Part 6: Determination of thermal shock resistance*

prEN 14617-7, *Agglomerated stone – Test methods – Part 7: Determination of ageing*

prEN 14617-8, *Agglomerated stone – Test methods – Part 8: Determination of resistance to fixing (dowel hole)*

EN 14617-9, *Agglomerated stone - Test methods – Part 9: Determination of impact resistance*

EN 14617-10, *Agglomerated stone – Test methods – Part 10: Determination of chemical resistance*

EN 14617-11, *Agglomerated stone – Test methods – Part 11: Determination of linear thermal expansion coefficient*

EN 14617-12, *Agglomerated stone – Test methods – Part 12: Determination of dimensional stability*

EN 14617-13, *Agglomerated stone – Test methods – Part 13: Determination of electrical resistivity*

prEN 14617-14, *Agglomerated stone – Test methods – Part 14: Determination of surface hardness*

EN 14617-15, *Agglomerated stone – Test methods – Part 15: Determination of compressive strength*

EN 14617-16, *Agglomerated stone – Test methods – Part 16: Determination of dimensions, geometric characteristics and surface quality of modular tiles*

prEN 14617-17, *Agglomerated stone – Test methods – Part 17: Determination of biological resistance*

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EN 14617-6:2005 (E)

1 Scope

This document specifies a method to assess possible modifications of agglomerated stones under the effect of sudden changes in temperature (thermal shock) by immersion in hot water.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 14617-2:2004, *Agglomerated stone – Test methods – Part 2: Determination of flexural strength (bending)*

3 Principle

After drying at $(70 \pm 5)^{\circ}\text{C}$ until constant mass is attained, the specimens are subjected to successive cycles, each formed by drying at $(70 \pm 5)^{\circ}\text{C}$ followed by immediate immersion in water at $(15 \pm 5)^{\circ}\text{C}$. After 20 cycles the specimens are then visually inspected, compared with the reference specimen and all visible alterations recorded. Finally, the mass and flexural strength changes of specimens after 20 cycles will be determined in comparison with the values of the same quantities of reference specimens.

NOTE The selected test temperature of 70°C is for flooring and wall applications. The test temperature of 105°C is for kitchen tops and special uses (industries, laboratories, etc.).

4 Symbols and definitions

For the purposes of this document, the following symbols and definitions apply.

m_0 Mass of the dried specimen before the test, g,

m_f Mass of the dried specimen after the test, g,

Δm % Change in the mass of the dried specimens, as a percentage,

R_f flexural strength average value of dried, reference specimens in MPa;

R_{sf} flexural strength average value of specimens after 20 cycles MPa;

$\Delta R_{f, 20}$ coefficient of thermal shock resistance as change in flexural strength (% , after 20 cycles);

5 Apparatus

5.1 A ventilated oven capable of maintaining a temperature of $(70 \pm 5)^{\circ}\text{C}$.

5.2 A tank equipped with a cooling system capable of maintaining a temperature of $15^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and a flat base comprising small non-oxidising and non-absorbent supports for the specimens.

5.3 A weighing instrument with an accuracy of at least 0,01% of the mass to be weighed.

5.4 A desiccator.

5.5 Demineralised water

5.6 A linear measuring device with an accuracy of 0,5 mm (for the flexural measurement).

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