

Natural stone test methods - Determination of sensitivity to changes in appearance produced by thermal cycles

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Natural stone test methods - Determination of sensitivity to changes in appearance produced by thermal cycles

Méthodes d'essai pour pierres naturelles - Détermination de la sensibilité aux changements d'aspect induits par des cycles thermiques

Prüfverfahren für Naturwerkstein - Bestimmung der Empfindlichkeit gegen Änderungen des äußeren Erscheinungsbildes durch thermische Zyklen

This European Standard was approved by CEN on 13 February 2011.

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Foreword

This document (EN 16140:2011) 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of an identical text or by endorsement, at the latest by September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This draft standard is one of the series of draft standards for tests on natural stone.

Test methods for natural stone consist of the following standards:

- EN 1925, *Natural stone test methods — Determination of water absorption coefficient by capillarity*;
- EN 1926, *Natural stone test methods — Determination of uniaxial compressive strength*;
- EN 1936, *Natural stone test methods — Determination of real density and apparent density, and of total and open porosity*;
- EN 12370, *Natural stone test methods — Determination of resistance to salt crystallisation*;
- EN 12371, *Natural stone test methods — Determination of frost resistance*;
- EN 12372, *Natural stone test methods — Determination of flexural strength under concentrated load*;
- EN 12407, *Natural stone test methods — Petrographic examination*;
- EN 13161, *Natural stone test methods — Determination of flexural strength under constant moment*;
- EN 13364, *Natural stone test methods — Determination of the breaking load at dowel hole*;
- EN 13373, *Natural stone test methods — Determination of geometric characteristics on units*;
- EN 13755, *Natural stone test methods — Determination of water absorption at atmospheric pressure*;
- EN 13919, *Natural stone test methods — Determination of resistance to ageing by SO₂ action in the presence of humidity*;
- EN 14066, *Natural stone test methods — Determination of resistance to ageing by thermal shock*;
- EN 14146, *Natural stone test methods — Determination of the dynamic modulus of elasticity (by measuring the fundamental resonance frequency)*;
- EN 14147, *Natural stone test methods — Determination of resistance to ageing by salt mist*;
- EN 14157, *Natural stone test methods — Determination of the abrasion resistance*;
- EN 14158, *Natural stone test methods — Determination of rupture energy*;

- EN 14205, *Natural stone test methods — Determination of Knoop hardness*;
- EN 14231, *Natural stone test methods — Determination of the slip resistance by means of the pendulum tester*;
- EN 14579, *Natural stone test methods — Determination of sound speed propagation*;
- EN 14580, *Natural stone test methods — Determination of static elastic modulus*;
- EN 14581, *Natural stone test methods — Determination of linear thermal expansion coefficient*.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies a method to assess possible alterations of natural stones (mainly visible sensitivity to oxidation processes) under the effect of sudden changes in temperature (thermal shock).

2 Normative references

Not applicable.

3 Symbols and abbreviations

e Thickness of the test specimens, in mm

4 Principle

The specimens are subjected to successive cycles, each formed by drying at (105 ± 5) °C followed by immediate immersion in water at (20 ± 5) °C.

5 Apparatus

5.1 A ventilated oven capable of maintaining a temperature of (105 ± 5) °C.

5.2 A covered tank with a flat base, comprising small non-oxidising and non-absorbent supports for the specimens.

5.3 A digital camera of 2.5 MPixels, or scanner, with a sufficient resolution.

5.4 A magnifying glass of at least five increases.

6 Preparation of specimens

6.1 Sampling

The sampling is not the responsibility of the test laboratory except where specially requested. At least seven specimens shall be selected from a homogeneous batch. One of these specimens is used as reference specimen and is not subjected to any tests.

6.2 Test specimens

6.2.1 Surface finish

As a standard reference (identification test) surface finish of the faces of the specimens shall be sawn.

In case of necessity as required for application (technological test), other surface finishes (e.g. honed, polished, flamed, sandblasted, splitting) may be tested.

6.2.2 Dimensions

As a standard reference (identification test) the test specimens shall be (200×200) mm \pm 10 mm \times *e*.