

Natural stone test methods - Determination of frost resistance

Natural stone test methods - Determination of frost
resistance

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12371:2002 sisaldab Euroopa standardi EN 12371:2001 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 19.04.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12371:2002 consists of the English text of the European standard EN 12371:2001.</p> <p>This document is endorsed on 19.04.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala: The European Standard specifies a method to assess the effect of freeze/thaw cycles on natural stones - refer to prEN 12670 for terminology, and EN 12440 for denomination.</p>	<p>Scope: The European Standard specifies a method to assess the effect of freeze/thaw cycles on natural stones - refer to prEN 12670 for terminology, and EN 12440 for denomination.</p>
--	--

ICS 73.020, 91.100.15

Võtmesõnad: assessment, building stones, construction, determination, freezing, frost resistance, materials testing, natural stones, resistance, stone, symbols, testing, thawing, weathering resistance

ICS 73.020; 91.100.15

English version

Natural stone test methods - Determination of frost resistance

Méthodes d'essai pour pierres naturelles - Détermination
de la résistance au gel

Prüfverfahren für Naturstein - Bestimmung des
Frostwiderstandes

This European Standard was approved by CEN on 17 August 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents	page
Foreword	3
1 Scope	4
2 Normative references	4
3 Principle	4
4 Symbols	4
5 Apparatus	5
6 Preparation of the specimens	5
7 Test procedure	7
8 Expression of the results	10
9 Test report	10
Annex A (informative)	12

Foreword

This European Standard has been prepared by Technical Committee TC 246 "Natural Stone", 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 April 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

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

Test methods for natural stone consist of the following parts:

EN 1925	Natural stone test methods – Determination of water absorption coefficient by capillarity
EN 1926	Natural stone test methods – Determination of compressive strength
EN 1936	Natural stone test methods – Determination of real density and apparent density and of total porosity and open porosity.
EN 12370	Natural stone test methods – Determination of resistance to salt crystallisation
EN 12372	Natural stone test methods – Determination of flexural strength under concentrated load
EN 12407	Natural stone test methods – Petrographic examination
prEN 13161	Natural stone test methods – Determination of flexural resistance (under constant moment).
prEN 13364	Natural stone test methods – Determination of the breaking load at dowel hole
prEN 13373	Natural stone test methods – Determination of geometric characteristics on units
prEN 13755	Natural stone test methods – Determination of water absorption at atmospheric pressure
prEN 13919	Natural stone test methods – Determination of resistance to ageing by SO ₂ action in the presence of humidity
prEN 14066	Natural stone test methods – Determination of resistance to ageing by thermal shock
prEN 14146	Natural stone test methods - Determination of the dynamic modulus of elasticity (by measuring the fundamental resonance frequency)
prEN 14147	Natural stone test methods – Determination of resistance to ageing by salt mist
prEN 14157	Natural stone test methods – Determination of abrasion resistance
prEN 14158	Natural stone test methods – Determination of rupture energy
prEN 14205	Natural stone test methods – Determination of Knoop hardness
prEN ...(WI 00246011)	Natural stone test methods – Determination of thermal dilatation coefficient
prEN ...(WI 00246012)	Natural stone test methods – Determination of sound – speed propagation
prEN ...(WI 00246017)	Natural stone test methods – Determination of slip coefficient
prEN ...(WI 00246018)	Natural stone test methods – Determination of static elastic modulus

It is intended that other ENs should call up this European Standard as the basis of evaluation of conformity. (Nevertheless it is not intended that all natural stones products should be subjected regularly to all the listed tests. Specifications in other standards should call up only relevant test methods).

This European Standard contains Annex A (informative).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method to assess the effect of freeze/thaw cycles on natural stones – refer to prEN 12670 for terminology, and EN 12440 for denomination -. The standard contains provision for both a shorter technological test (Test A) to assess the effect of freeze/thaw cycles on the relevant performance characteristics and an identification test (Test B).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the last edition of the publication referred to applies (including amendments).

EN 1926	<i>Natural stone test methods – Determination of compressive strength.</i>
EN 12372	<i>Natural stone test methods. Determination of flexural strength under concentrated load.</i>
EN 12440	<i>Natural stone - Denomination criteria.</i>
prEN 12670	<i>Terminology of natural stone.</i>
prEN 13161	<i>Natural stone test methods - Determination of flexural resistance (under constant moment).</i>
prEN 13364	<i>Natural stone test methods - Determination of the breaking load at dowel hole.</i>
prEN 14066	<i>Natural stone test methods - Determination of resistance to ageing by thermal shock.</i>
prEN 14146	<i>Natural stone test methods - Determination of the dynamic modulus of elasticity (by measuring the fundamental resonance frequency).</i>

3 Principle

The frost resistance of natural stone units is determined by a test comprising cycles of freezing in air and thawing in water.

4 Symbols

M_{d0}	mass of the dry specimen before immersion in water and before freezing, in grams
M_{s0}	mass of the saturated specimen after immersion in water and before freezing, in grams
M_{h0}	apparent mass of the specimen in water before freezing, in grams
M_{dn}	mass of the dry specimen at n cycles, in grams
M_{sn}	mass of the saturated specimen at n cycles, in grams
M_{hn}	apparent mass of the specimen in water at n cycles, in grams
V_{b0}	apparent volume of the specimen before freezing, in millilitres