

Natural stone test methods - Determination of the abrasion resistance

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14157:2004 sisaldab Euroopa standardi EN 14157:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.12.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14157:2004 consists of the English text of the European standard EN 14157:2004.</p> <p>This document is endorsed on 21.12.2004 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>
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<p>Käsitlusala: This European standard specifies three test methods to determine the abrasion resistance of natural stones used for flooring in buildings. One of the methods – the 'wide wheel abrasion method' is defined as the reference method.</p>	<p>Scope: This European standard specifies three test methods to determine the abrasion resistance of natural stones used for flooring in buildings. One of the methods – the 'wide wheel abrasion method' is defined as the reference method.</p>
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ICS 73.020

Võtmesõnad: abrasion resistance, abrasion tests, construction, loss of mass, materials testing, natural stones, resistance, testing

ICS 73.020; 91.100.15

English version

Natural stone test methods - Determination of the abrasion resistance

Méthodes d'essai pour pierres naturelles - Détermination
de la résistance à l'usure

Prüfverfahren für Naturstein - Bestimmung des
Widerstandes gegen Verschleiß

This European Standard was approved by CEN on 9 July 2004.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 14157:2004) 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 April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

This draft document is one of the series of draft documents 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 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 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 14147, *Natural stone test methods - Determination of resistance to ageing by salt mist*
- EN 14231, *Natural stone test methods - Determination of the slip resistance by means of the pendulum tester*
- EN 14158, *Natural stone test methods - Determination of rupture energy*
- EN 14205, *Natural stone test methods - Determination of Knoop hardness*
- prEN 14579, *Natural stone test methods - Determination of sound speed propagation*
- prEN 14580, *Natural stone test methods - Determination of static elastic modulus*
- prEN 14581, *Natural stone test methods - Determination of linear thermal expansion coefficient*

It is intended that other ENs should call up this EN 14157 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 documents should call up only relevant test methods.

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

1 Scope

This document specifies three test methods to determine the abrasion resistance of natural stones used for flooring in buildings. One of the methods – the ‘wide wheel abrasion method’ is defined as the reference method.

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 10025, *Hot rolled products of structural steels - Technical delivery conditions*

EN 13373, *Natural stone test methods: Determination of geometric characteristics on units*

EN ISO 4288, *Geometrical Product Specifications (GPS) -- Surface texture: Profile method -- Rules and procedures for the assessment of surface texture (ISO 4288:1996)*

EN ISO 6506-1, *Metallic materials -- Brinell hardness test -- Part 1: Test method (ISO 6506-1:1999)*

FEPA 42F1984, FEPA Fédération des Fabricants de Produits Abrasifs. *Corundum*

3 Method A – Wide Wheel Abrasion Test

3.1 Principle

The test is carried out by abrading the face of a specimen which will be exposed in use with an abrasive material under standard conditions.

3.2 Abrasive material

The abrasive required for this test is corundum (white fused alumina) with grit size of 80 in accordance with standard FEPA 42 F 1984. It shall not be used for more than three times.

3.3 Apparatus

3.3.1 The ‘wearing’ machine

The wearing machine (see Figure 1) is essentially made of a wide abrasion wheel, a storage hopper with one or two control valves to regulate the output of the abrasive material, a flow guidance hopper, a clamping trolley and a counterweight.

When two valves are used, one shall be used to regulate the rate of flow and can be permanently set while the other is used to turn the flow on and off.