

Natural stone test methods - Determination of Knoop hardness

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14205:2004 sisaldab Euroopa standardi EN 14205:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 20.02.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 14205:2004 consists of the English text of the European standard EN 14205:2003. This document is endorsed on 20.02.2004 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This European Standard specifies a method of determining the hardness of natural stone using the Knoop indenter.	Scope: This European Standard specifies a method of determining the hardness of natural stone using the Knoop indenter.
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ICS 73.020, 91.100.15

Võtmesõnad:

ICS 73.020; 91.100.15

English version

Natural stone test methods - Determination of Knoop hardness

Méthodes d'essai pour les pierres naturelles -
Détermination de la dureté KnoopPrüfverfahren für Naturstein - Bestimmung der Härte nach
Knoop

This European Standard was approved by CEN on 1 September 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 14205:2003) 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 May 2004, and conflicting national standards shall be withdrawn at the latest by May 2004.

This standard is one of the series of 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 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 13755, *Natural stone test methods – Determination of water absorption at atmospheric pressure*

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

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*

prEN 14147, *Natural stone test methods – Determination of resistance to ageing by salt mist*

prEN 14157, *Natural stone test methods – Determination of the abrasion resistance*

prEN 14158, *Natural stone test methods – Determination of rupture energy*

prEN 14231, *Natural stone test methods – Determination of the slip resistance by means of the pendulum tester*

prEN 14581, *Natural stone test methods – Determination of thermal expansion coefficient*

prEN 14579, *Natural stone test methods – Determination of sound speed propagation*

prEN 14580, *Natural stone test methods – Determination of the static elastic modulus*

No existing European Standard is superseded.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method of determining the hardness of minerals in natural stone using the Knoop indenter. This method is especially useful for carbonate rock.

2 Principle

After carrying out a series of indentations by means of a Knoop indenter, the corresponding values of Knoop microhardness are calculated and the microhardness distribution is given.

3 Symbols

P - load on the indenter, in newtons

L - length of the largest diagonal of the indentation, in millimetres

HK - Knoop microhardness, in Megapascals

HK25 - Knoop microhardness corresponding to a cumulative frequency of 25% ("lower quartile"), in Megapascals

HK50 - Knoop microhardness corresponding to a cumulative frequency of 50% ("median value")

HK75 - Knoop microhardness corresponding to a cumulative frequency of 75% ("upper quartile")

4 Apparatus

A microdurimeter essentially made of the following parts:

- sample holder with a mechanism for horizontal movement in two orthogonal directions by means of adjustable screws which also measure the amount of movement;
- Knoop indenter (see Figure 1);
- set of interchangeable weights from (0,1 to 5,0) Newtons;
- device for applying the load on the indenter at different speeds;
- microscope with a micrometer for measuring the indentation width and length with an accuracy of 0,5 micrometres.

5 Preparation of the specimens

5.1 Sampling

The sampling is not the responsibility of the test laboratory except where specially requested.

5.2 Number of specimens

At least one polished section shall be prepared approximately 20 mm width, 30 mm length and 10 mm thickness. Other sizes may be used provided that there is enough space on the polished face to carry out the necessary sequence of indentations.