SLOVENSKI STANDARD
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Metode preskuġanja za meġanice za estrih ï 6. del: Doloļ evanje trdote povrġine

Methods of test for screed materials - Part 6: Determination of surface hardness

Prüfverfahren für Estrichmörtel und Estrichmassen - Teil 6: Bestimmung der Oberflächenhärte

Méthodes d'essai des matériaux pour chapes - Partie 6: Détermination de la dureté superficielle

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ICS:

91.100.10 Cement. Mavec. Apno. Malta Cement. Gypsum. Lime. Mortar

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EUROPEAN STANDARD

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Prüfverfahren für Estrichmörtel und Estrichmassen - Teil 6: Bestimmung der Oberflächenhärte

This European Standard was approved by CEN on 9 October 2002.

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

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

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Foreword

This document (EN 13892-6:2002) has been prepared by Technical Committee CEN/TC 303, "Floor screeds and in-situ floorings in buildings", the secretariat of which is held by DIN.

It was prepared by Working Group 2 ”Screed materials and floor screeds -Test-methods“ taking into account the proposals submitted by Working Group 1 ”Screed materials and floor screeds - Definitions, properties and requirements“.

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of an identical text or by endorsement, at the latest by May 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European standard specifies a method for determining the surface hardness of moulded mortar specimens made from magnesite screed material or from cementitious screed-, calcium sulphate screed-, magnesia screed- and synthetic resin screed material. This method is only suitable for screed materials having aggregates of size less than 4 mm.

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 latest edition of the publication referred to applies (including amendments).

EN 13813, *Screed material and floor screeds - Screed material - Properties and requirements*

EN 13892-1, *Test methods for screed materials – Part 1: Sampling, making and curing specimens for test.*

3 Principle

The surface hardness is determined by measuring the permanent depth of indentation produced by a steel ball placed on the surface under a standard load. The surface hardness is calculated as the load on the ball devided by the surface area of indentation.

NOTE: On completion of the measurement of surface hardness, the flexural and compressive strength may be measured on the same specimens.

4 Symbols and abbreviations

d is the diameter of the steel ball

t is the indentation depth

F_V is the initial load of (10 ± 0,1) N

F is the main load of (500 ± 5) N

SH is the surface hardness in N/mm^2, as determined from the test parameters

5 Apparatus

Hardness tester capable of applying vertically an initial and a main load on to a (10 ± 0,01) mm steel ball with precise measurement of the vertical movement using a dial gauge with 0,001 mm scale intervals.

NOTE The steel ball may be embedded in the end of a steel bar, through which the loads are applied.

6 Procedure

The surface hardness shall be measured on 3 specimens made in accordance with EN 13892-1. Each specimen shall be weighed, the width and depth of the specimen shall be measured mid way along its length, and the density shall be calculated.

A polished steel ball of 10 mm diameter, d, shall be placed on the upper surface of the specimen, as prepared.

The initial load, F_V, of (10 ± 0,1) N (preload) shall be applied to the steel ball, carefully and without impact. The initial value shall be measured with a dial gauge or the dial gauge shall be put to zero.

Then the main load, F, of (500 ± 5) N shall be applied to the steel ball carefully and without impact, and it shall be maintained for a period of 1 min.

After this period, the steel ball shall be unloaded to the preload level of (10 ± 0,1) N. After a period of 1 min the indentation depth, t, in excess of the initial value shall be measured with a dial gauge to the nearest of 0,01 mm.

The surface hardness, SH, shall be calculated, in N/mm^2, using the following equation:

$$SH = \frac{F}{d \cdot \pi \cdot t}$$

The surface hardness shall be recorded to the nearest 0,1 N/mm^2 as the arithmetic mean of 3 measurements on each specimen, and also as the arithmetic mean for the 3 specimens.

7 Test report

The test report shall include the following information:

a) number, title and date of issue of this European Standard;

b) name and address of the laboratory carrying out the tests and name and address of the laboratory preparing the samples (if different);

c) identification number of the test report;

d) name and address of the manufacturer or supplier of the product;

e) name and identification marks or batch number of the product;

f) date of supply of the product;

g) method of sampling (by reference to EN 13892-1 and by which organisation);

h) place, date and time of sampling;

i) identification of the screed samples, including type, origin and designation of the screed material by reference to the relevant product standard EN 13813;

j) preparation (mixing, casting) and storage (curing) conditions by reference to EN 13892-1;

k) date and time of preparing samples for test (i. e. date and time of any mixing, casting, moulding or demoulding procedure, if appropriate);

l) age of screed material when tested;

m) density of each individual test sample;

n) test method used (reference manual or alternative method, if appropriate), and details of test specimens including number, dimensions, mass, etc. if appropriate;

o) date of test and the identification number of the apparatus or details of the test equipment used, including the make, type and capacity and the calibrations details;

p) test results (individual values to the nearest 0,05 N/mm^2, and corresponding mean value stated to the nearest 0,1 N/mm^2);

q) remarks;

r) date of test report and signature.