BRITISH STANDARD

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Corrigendum No. 1

Method of test for smoothing and/or levelling compounds — Determination of dimensional change

The European Standard EN 13872:2004 has the status of a British Standard

ICS 91.100.99

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 13872:2004.

CEN letter of correction May 2004 made a correction to the title.

The UK participation in its preparation was entrusted to Technical Committee PRI/52, Adhesives, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 19 February 2004

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13872

February 2004

ICS 91.100.99

English version

Methods of test for hydraulic setting floor smoothing and/or levelling compounds - Determination of dimensional change

Méthode d'essai pour les mortiers de lissage et/ou d'égalisation à prise hydraulique - Détermination des variations des dimensions

Prüfverfahren für hydraulisch erhärtende Boden-Spachtelmassen - Bestimmung der Maßänderung

This European Standard was approved by CEN on 10 December 2003.

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

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

Ref. No. EN 13872:2004: E

Contents

Foreword

This document (EN 13872:2004) has been prepared by Technical Committee CEN /TC 193, "Adhesives", the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by August 2004, and conflicting national standards shall be withdrawn at the latest by August 2004.

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 European Standard specifies the measurement of dimensional change of a hydraulic setting smoothing and/or levelling compound which is referred to in the following as "smoothing and/or levelling compound".

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 196-1, *Methods of testing cement - Part 1: Determination of strength.*

EN 1937:1999, *Test method for hydraulic setting floor smoothing and/or levelling compounds - Standard mixing procedures*

ISO 554, *Standard atmospheres for conditioning and/or testing - Specifications.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1937:1999 and the following apply.

3.1
dimensional change
difference in length of a test specimen of a smoothing and/or levelling compound after specified time and conditions.

3.2
shrinkage
negative dimensional change.

3.3
expansion
positive dimensional change.

4 Principle

This test method is carried out to assess the shrinkage and expansion properties of smoothing and levelling compounds by measuring the dimensional changes in length of test specimens 10 mm x 40 mm x 160 mm at predetermined storage times and conditions.

5 Safety

The users of this standard shall be familiar with the normal laboratory practice.

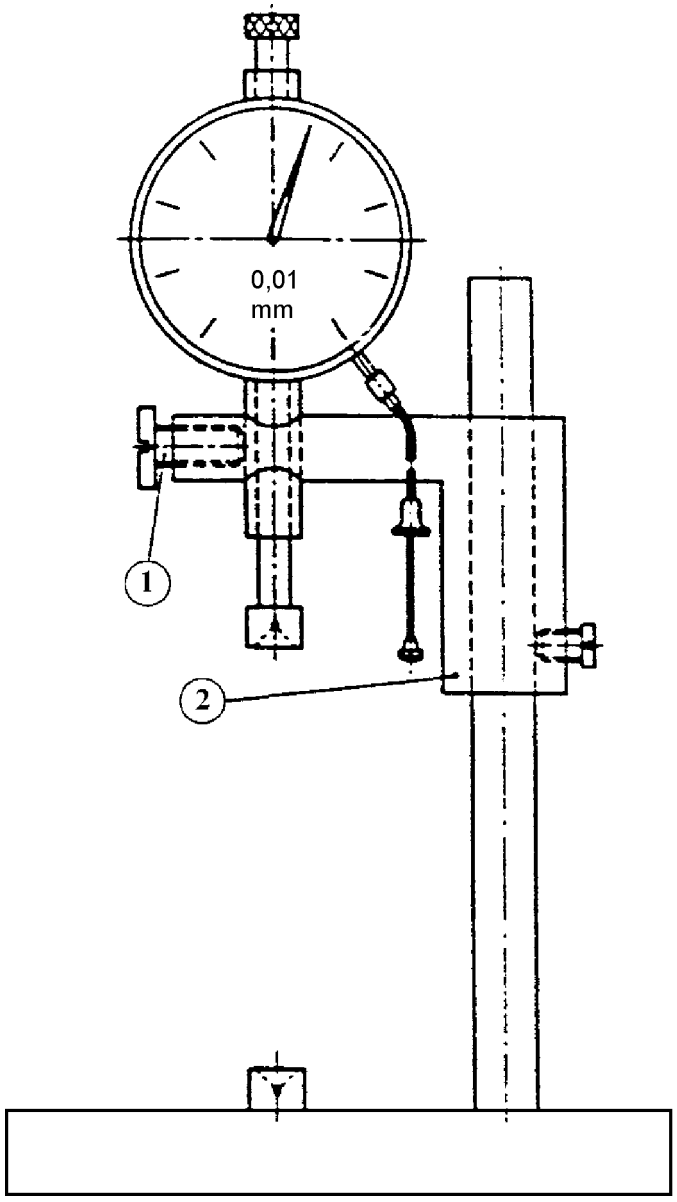
This standard does not purport to address all safety problems, if any, associated with its use.

It is the responsibility of the user to establish safety and health practices and to ensure compliance with any European and national regulatory conditions.

6 Apparatus and material

6.1 Measuring apparatus for the determination of dimensional change, capable of measuring the test specimen with an accuracy of ± 0,005 mm.

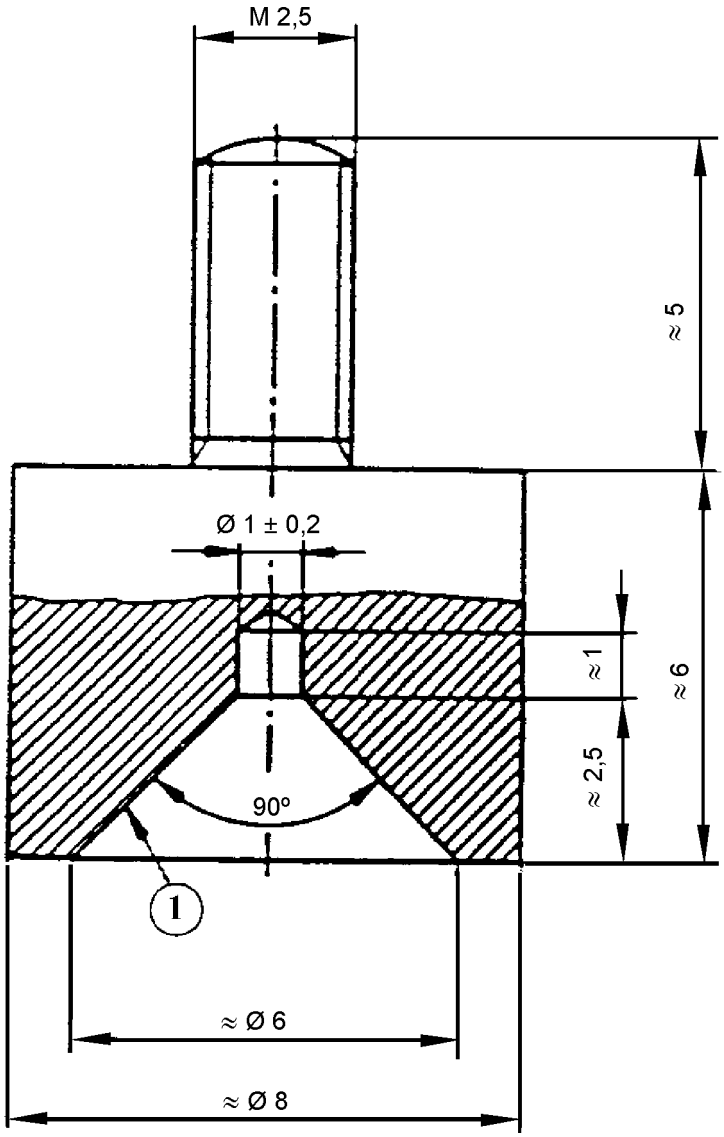
An example of a measuring device is shown in Figure 1 with a suitable cup and peg shown in Figure 2 and Figures 5 to 8 respectively. An alternative device is shown in Figure 3.



Key
1 locking device
2 holder

Figure 1 —Example of measuring apparatus for a test specimen in the vertical position

Dimensions in millimetres

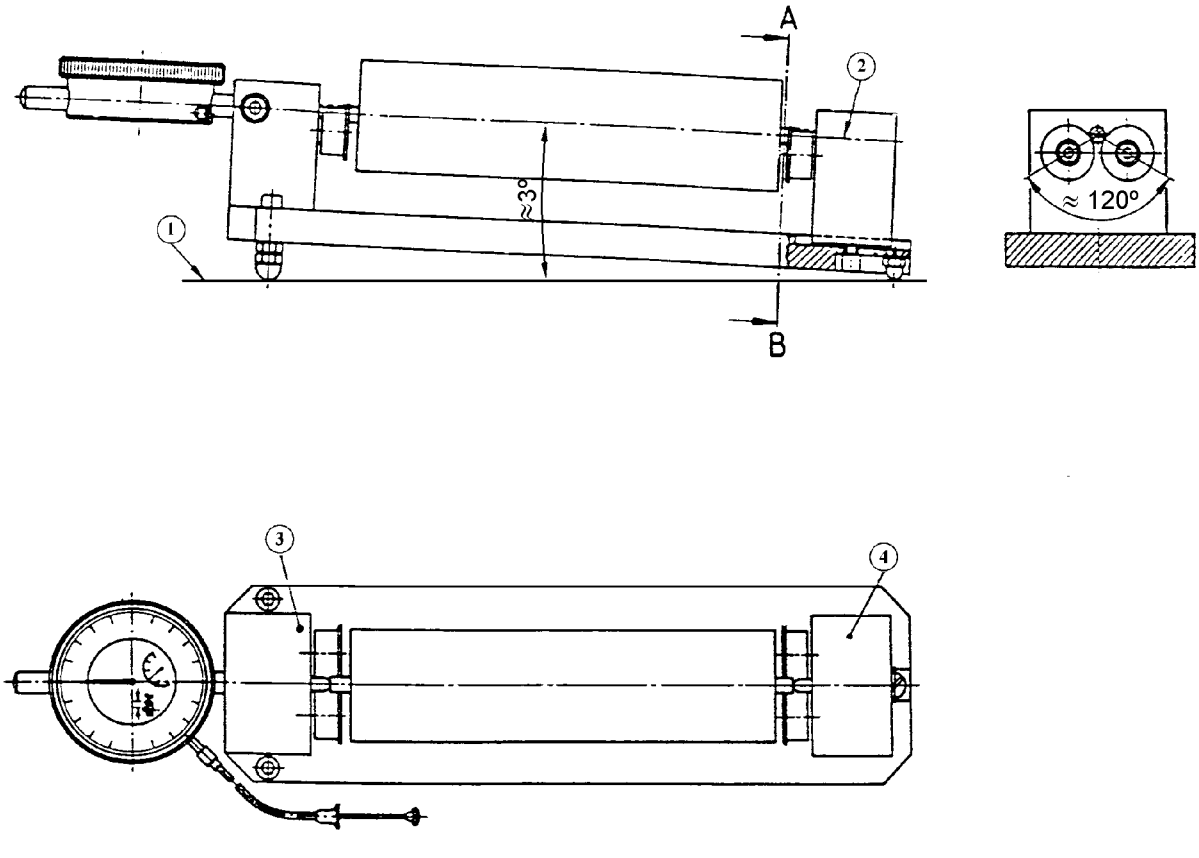


Key
1 hardened and polished

Figure 2 —Example of lower measurement cup for measuring apparatus shown in Figure 1

Dimensions in millimetres

Section A-B



Adjustment range 164 to 170

Key

1 horizontal line

2 measurement axis

3 bearing block 1

4 bearing block 2

Figure 3 — Example of measuring apparatus for a test specimen in the horizontal position

6.2 Moulds provided with internal dimensions (10 ± 0,5) mm width, (40 ± 0,5) mm depth and (160 ± 1,0) mm length to enable three test specimens to be prepared simultaneously;

either

a) moulds with horizontal compartments 10 mm x 40 mm x 160 mm (see EN 196-1 in principle)

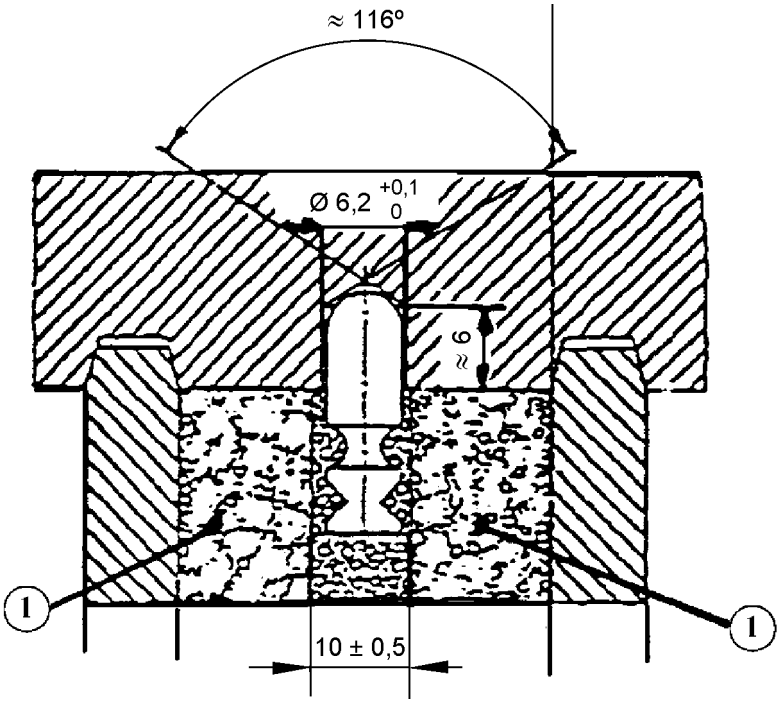
or

b) moulds in accordance with EN 196-1 with horizontal compartments 40 mm x 40 mm x 160 mm and width reducing plastic or metal inserts,

two for each mould.

If shape A or B measuring pegs are to be used, a hole shall be provided centrally in both ends of the mould (see Figure 4).

Dimensions in millimetres



Key

1 width reducing inserts

Figure 4 —Example of mould end detail; end face of the specimen mould with details of the hole for receiving a shape A peg

6.3 Jolting apparatus for testing a mixture of a smoothing and/or levelling compound with poor flow, a jolting apparatus in accordance with EN 196-1 may be used.

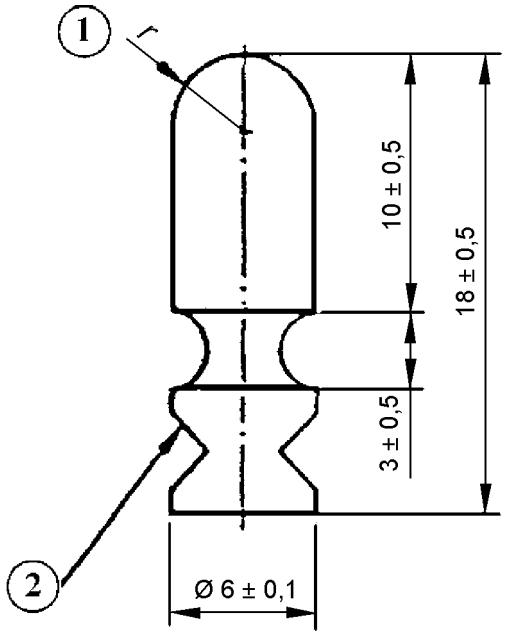
6.4 Measuring pegs either embedded in the test specimens or bonded securely on the ends after demoulding. They shall provide the contact between the test specimen and the measuring device.

The embedded pegs shall be designed to ensure that they remain secure whilst being removed from the mould.

The bonded pegs shall use a rapid setting structural adhesive also capable of with standing the 28 day water immersion test if required.

Examples of suitable measuring pegs are shown in Figures 5 to 8.

Dimensions in millimetres



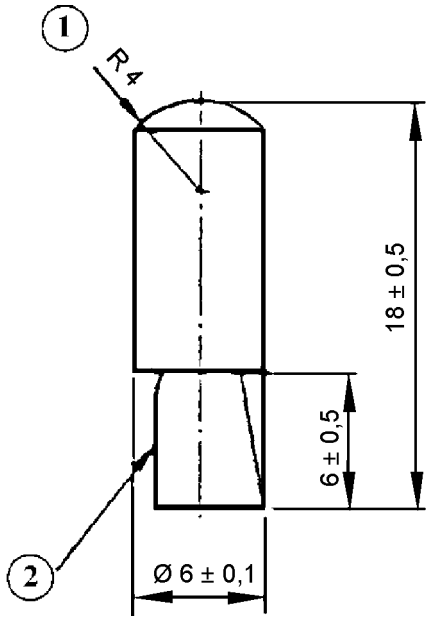
Key

1 Sphere

2 Lateral notch

Figure 5 — Example for measuring peg, shape A peg

Dimensions in millimeters



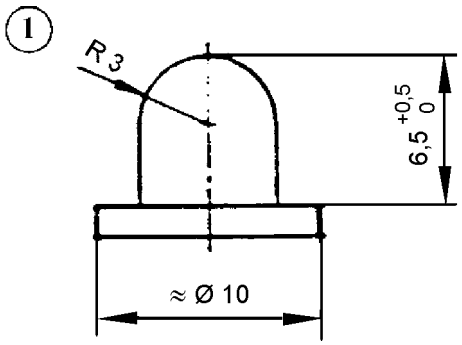
Key

1 Sphere

2 Ground at side

Figure 6 — Example for measuring peg, shape B peg
Alternative design to shape A peg

Dimensions in millimetres

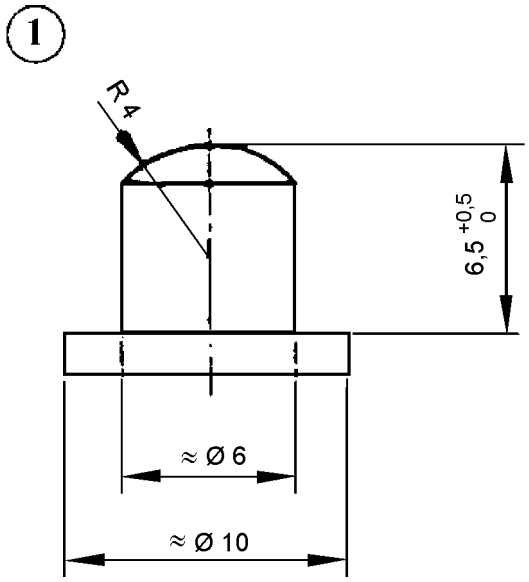


Key

1 Sphere

Figure 7 — Example for measuring peg, shape C peg
Example of a measuring peg to be bonded on to the test specimen

Dimensions in millimetres



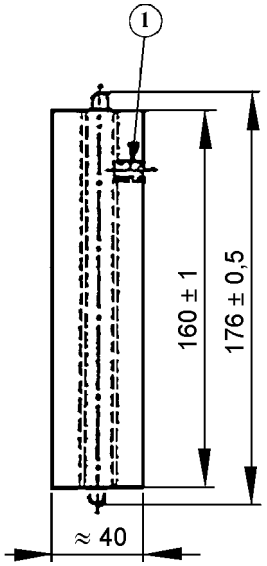
Key

1 Sphere

Figure 8 — Example of measuring peg, shape D peg
Alternative design to shape C peg

6.5 Reference specimen made of steel with a low coefficient of thermal expansion and which can expand freely along its longitudinal axis. For handling it shall be protected with wood or other thermal insulating material. A typical design to match the shape A measuring pegs is shown in Figure 9.

Dimensions in millimetres



Key

1 Locking screw

Figure 9 — Typical reference specimen to match shape A measuring pegs

6.6 Coverplate of glass, plastic or other impermeable material of suitable dimensions to cover the mould.

6.7 Smoothing and/or levelling compound mixture in accordance with EN 1937.

7 Standard test conditions

The standard test atmosphere shall be (23 ± 2) °C and (50 ± 5) % relative humidity in accordance with ISO 554.

8 Procedure

8.1 Preparation of the moulds

In assembling the cleaned mould ready for use, a suitable sealing material, such as butyl rubber putty, shall be used to coat the joints of the mould. A thin film of mould oil shall be applied to the internal faces of the mould.

Precondition the moulds for at least 24 h in the standard test atmosphere.

A minimum of three test specimens is required. The corresponding number of width reducing inserts, pegs, and covers as appropriate shall be prepared.

8.2 Test procedure

Measurements are carried out using the measuring devices as described in 6.1. Place the mould horizontally and, if required, insert the pegs according to 6.2.

Fill the mixture into the moulds immediately after mixing without any further treatment. If compacting is necessary, e.g. if the mixture does not flow sufficiently, use the jolting apparatus in accordance with EN 196-1. Remove the surplus of the mixture with a metal float in order to obtain completely filled moulds with an even surface. Cover the filled moulds with a cover plate in order to avoid preliminary drying of the specimen's surface. Store the filled moulds in the standard test conditions.

Remove the specimens from the moulds 24 h after mixing. If the shape "B" or "D" pegs are to be used immediately, bond them centrally on the ends of the test specimen. Insert the reference specimen in the measuring device using the spring force of the dial gauge and without additional pressure to locate the specimen. Set the gauge to zero.

Insert the specimen in the measuring device, rotate and note the length l_1. Reinsert the reference specimen.

If the values during rotation or between reference measurements exceeds 0,01 mm discard the result, check the cleanliness, fit and alignment of the specimen in the apparatus and repeat the test.

Record the initial length of l_1 of the three specimens within 30 min following removal from the mould. Any time deviations to the procedure are to be noted in the report.

Store the specimens at least 20 mm apart on the area 10 mm x 160 mm in the standard test conditions on two non-corrodible round or triangular rods to enable free air circulation. Further measurements shall be carried out after 3, 7, 14 and 28 days after mixing (storage A).

8.3 Dimensional change after water immersion

Optional test: Following the 28 days in the standard test atmosphere, the test specimens may be immersed in clean water for a further 28 days and measured whilst wet (storage B).

The initial length is the length immediately prior to immersion, i. e. the 28 days measurement in 8.2.

NOTE The results of this test should not be used to imply water resistance because this is dependant on several other factors.

With the results note any samples which curl, twist or show other signs of distortion.

9 Evaluation and expression of results

Dimensional change of a test specimen shall be stated as the negative (shrinkage) or positive (expansion) difference in length after storage in relation to the reference length in per cent immediately after demoulding, using the equations for Δl_A and Δl_B:

$$\Delta l_A = \frac{l_t - l_1}{160} x\,100$$

$$\Delta l_B = \frac{l_t - l_{28}}{160} x\,100$$

where:

l_t is the length at storage time t in millimetres

l_1 is the length at one day in millimetres

l_{28} is the length in millimetres at day twenty-eight

Δl_A and Δl_B are the dimensional changes of the test specimen in per cent for storage A and storage B respectively.

The test results are expressed as the arithmetic mean of the three individual values and given in per cent rounded to the nearest 0,01 %.

10 Test report

The test report shall include:

a) reference to this European Standard;

b) designation of the smoothing and/or levelling compound under test, the date of manufacture and/or batch number if known;

c) method of mixing the smoothing and/or levelling compound and the total time in minutes in accordance with EN 1937;

d) dimensional change values in accordance with clause 9;

e) report of any indications of curl, twist or distortion;

f) any factors that may have affected the test result;

g) date of the test.

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