BRITISH STANDARD

BS EN
13409:2002

Methods of test for hydraulic setting floor smoothing and/or levelling compounds — Determination of setting time

The European Standard EN 13409:2002 has the status of a British Standard

ICS 91.100.99

National foreword

This British Standard is the official English language version of EN 13409:2002.

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 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.

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This British Standard, having been prepared under the direction of the Materials and Chemicals Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 15 April 2002

Summary of pages

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English version

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

Méthodes d'essai pour les mortiers de lissage et/ou d'égalisation à prise hydraulique - Détermination du temps de prise

Prüfverfahren für hydraulisch erhärtende Boden-Spachtelmassen - Bestimmung der Abbindezeit

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This document EN 13409:2002 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of an identical text or by endorsement, at the latest by September 2002, and conflicting national standards shall be withdrawn at the latest by September 2002.

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 the measurement of setting time of a hydraulic setting smoothing and/or levelling compound which is referred to as "smoothing and/or levelling compound", after mixing.

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 196-3, *Methods of testing cement - Part 3: Determination of setting time and soundness*.

EN 1937, *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 following term and definition and those given in EN 1937 apply.

3.1
setting
process of transition from plastic to solid state characterised by the initial and final penetration times

4 Principle

The setting time is determined by observing the penetration of a needle into the smoothing and/or levelling compound mixture and recording the time for a given penetration value.

5 Safety

Persons using this standard shall be familiar with normal laboratory practice.

This standard does not purport to address all the 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 or national regulatory conditions.

6 Standard test conditions

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

All test materials and apparatus shall be stored under these conditions for the duration of the test.

The tests shall be carried out in an area where the air circulation is less than 0,2 m/s.

7 Apparatus and materials

7.1 Vicat apparatus, in accordance with EN 196-3 (see Figure 1) with a steel needle, length (50 ± 1) mm, diameter (1,13 ± 0,05) mm, and attachment made from corrosion resistant metal.

The total mass of the moving parts shall be (300 ± 1) g. Their movement shall be truly vertical on an axis coincident with the steel needle and without significant friction.

7.2 Mould (see Figure 1a)), containing the mixture under test shall be made of hard rubber. It shall be of truncated conical form (40,0 ± 0,2) mm deep and shall have internal diameters at top and bottom of (70 ± 5) mm and (80 ± 5) mm respectively.

The apparatus shall be sufficiently rigid and placed on a plane glass plate larger than the mould and at least 2,5 mm thick.

Moulds of metal or plastics or of cylindrical form can be used provided they are of the specified depth and that they can be shown to give the same test results as the specified hard rubber mould of truncated conical form.

7.3 Timer, accurate to 1 s.

7.4 Smoothing and/or levelling compound, in accordance with EN 1937.

8 Procedure

8.1 Calibration

Calibrate the Vicat apparatus (7.1) with the needle (see Figure 1b)), attached in advance of the test by lowering the needle to rest on the base plate to be used. Adjust the pointer to zero. Raise the needle to the stand-by position.

8.2 Determination of initial setting time

Lightly grease the glass plate and the mould. When the standard mixing procedure is completed in accordance with EN 1937, fill the mould immediately without undue compaction or vibration and start the timer. Using a straight edge implement remove the excess with a gentle sawing action to leave a flat smooth surface.

Place the test specimen centrally under the needle.

When the smoothing and/or levelling compound mixture is showing signs of setting lower the needle gently until it is in contact with the surface. Pause in that position for between 1 s and 2 s in order to avoid initial velocity or forced acceleration of the moving parts.

Then release quickly and allow the needle to penetrate vertically into the smoothing and/or levelling compound.

Read the scale when penetration has ceased or after 30 s after the release of the needle whichever is earlier.

Record the scale reading which indicates the distance between the end of the needle and the base plate together with the time from zero.

Remove and clean the needle.

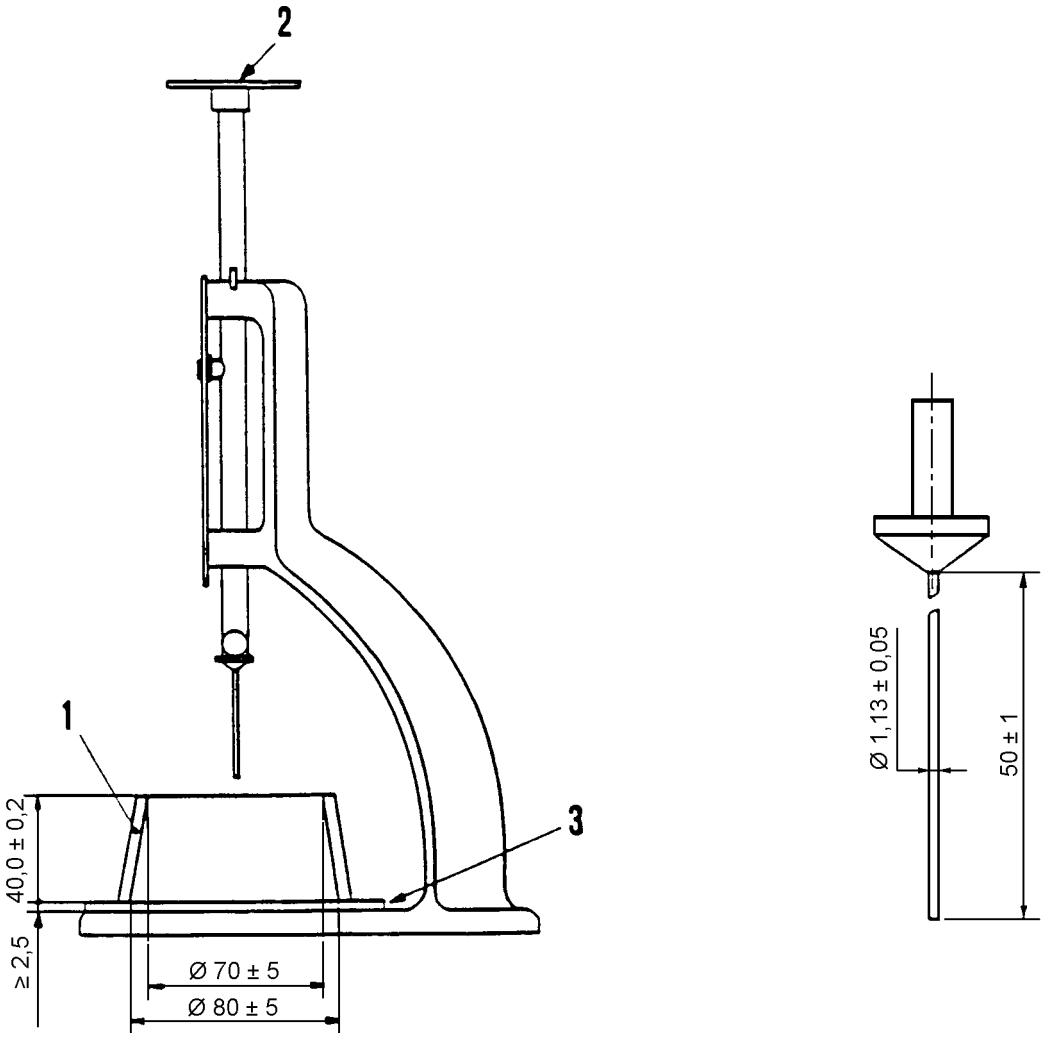
Reposition the test specimen so that the next point of penetration is at a distance greater than 10 mm from the edge or of any previous test.

Repeat at conveniently spaced time intervals, e. g. 5 min. until the scale reading is (4 ± 1) mm.

Time intervals near the end point should be reduced to ensure that successive test results do not vary excessively.

Record to the nearest minute the time at which this occurs together with any abnormalities such as separation.

Dimensions in millimetres



Key

1 Hard rubber mould

2 Platform for correcting weights

3 Glass plate

a) Side view with mould for setting time determinations

b) needle for determination of setting time

Figure 1 — Vicat apparatus for determining setting times

8.3 Determination of final setting time

Continue with the procedure in 8.2 until the needle penetrates the compound by 0,5 mm.

Time intervals near the end point should be reduced to ensure that successive test results do not vary excessively.

Record to the nearest minute the time measured from zero at which the needle first penetrates only 0,5 mm into the test specimen.

9 Expression of results

9.1 Express the initial setting time as the elapsed time between the end of the mixing procedure to prepare the mixture to when the reading is (4 ± 1) mm on the scale, rounded to the nearest minute.

9.2 Express the final setting time as the elapsed time between the end of the mixing procedure to prepare the mixture to when the needle first penetrates only 0,5 mm into the mixture, rounded to the nearest minute.

10 Test report

The test report shall include:

a) a reference to this European Standard;

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

c) the proportions of the liquid components by mass in relation to 100 parts of powder component;

d) the method of mixing the compound and the total time in minutes in accordance with EN 1937;

e) the initial and final setting times, in minutes;

f) any deviations from the specified test methods;

g) date of test.

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