BRITISH STANDARD

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1015-2:1999
Incorporating amendment no. 1

Methods of test for mortar for masonry —

Part 2: Bulk sampling of mortars and preparation of test mortars

The European Standard EN 1015-2:1998, incorporating amendment A1:2006, has the status of a British Standard

ICS 91.100.10

BSI
British Standards

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 1015-2:1998, incorporating amendment A1:2006. It is included in a package of standards that supersedes BS 4551-1, *Methods of testing mortars, screeds and plasters — Part I: Physical testing*, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1⟩ ⟨A1]. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by [A1⟩ ⟨A1].

The UK participation in its peparation was entrusted by Technical Committee B/519, Masonry and associated testing, to Subcommittee B/519/2, Mortar.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 February 1999

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English version

Methods of test for mortar for masonry — Part 2: Bulk sampling of mortars and preparation of test mortars

Méthodes d'essai des mortiers pour maçonnerie — Partie 2: Echantillonage global des mortiers et préparation des mortiers d'essai

Prüfverfahren für Mörtel für Mauerwerk — Teil 2: Probenahme von Mörteln und Herstellung von Prüfmörteln

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CEN

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Comité Européen de Normalisation
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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 125, Masonry, the Secretariat of which is held by BSI.

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 1999, and conflicting national standards shall be withdrawn at the latest by September 2000.

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

Foreword to amendment A1

This document (EN 1015-2:1998/A1:2006) has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

This Amendment to the European Standard EN 1015-2:1998 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This European Standard specifies methods for taking a bulk sample of fresh mortar, and the preparation of a bulk test sample from this. It also specifies a procedure for producing test mortars from dry constituents and water.

2 Normative references

[A1] 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. [A1]

EN 196-1, *Method of testing cement — Part 1: Determination of strength.*

[A1]EN 998-1, [A1]*Specification for mortar for masonry — Part 1: Rendering and plastering mortar with inorganic binding agents.*

[A1]EN 998-2, [A1]*Specification for mortar for masonry — Part 2: Masonry mortar.*

[A1]EN 1015-3, [A1] *Methods of test for mortar for masonry — Part 3: Determination of consistence of fresh mortar (by flow table).*

3 Definitions

For the purposes of this standard the following definitions apply.

3.1

lot

quantity of mortar produced under conditions presumed uniform. After specified tests this quantity is regarded as a whole "conforming" or "not conforming" to the specifications

3.2

increment

quantity of mortar taken in a single operation of the sampling equipment used

[A1] *Text deleted*

3.3 [A1]

bulk sample

the aggregation of sample increments meant to represent the lot sampled

[A1] **3.4** [A1]

bulk test sample

the reduced sample taken from the bulk sample which is used for the testing purposes of this standard

4 Minimum bulk test sample size

The minimum bulk test sample size shall be 10 kg.

5 Preparation of the bulk test sample and individual test samples

5.1 Apparatus

5.1.1 *Metal or rigid plastics receptacle or scoop*[1)], of not less than 1 l capacity.

5.1.2 *Clean, dry containers*, with close-fitting lids.

5.1.3 *Trowel or palette knife.*

5.1.4 *Flat shovel.*

5.2 Procedure

5.2.1 ***General***

Obtain the bulk sample by taking uniformly distributed increments (preferably from material in motion, provided this can be carried out in safety), and mix thoroughly.

Reduce the bulk sample in accordance with **5.3** to obtain the bulk test sample.

5.2.2 ***Sampling from batch mixers***

Sample the mortar at the discharge point of a batch from the mixer. Take not less than three increments spaced evenly through the batch at the discharge point of the mixer. Take increments by passing the receptacle across the stream of mortar in such a manner as to collect a representative sample of mortar.

5.2.3 ***Sampling from conveyors, pipelines etc.***

Sample the mortar at the discharge point of the conveyor or pipeline. Pass the receptacle across the stream of mortar, if possible so as to cross the whole of the stream, until it is filled. If it is not possible to catch the whole stream at once, pass the receptacle through the stream at a uniform rate so that consecutive increments are taken from different parts of the stream. Where it is not possible to sample at the discharge point of the conveyor, stop the conveyor and use the scoop (**5.1.1**) to take increments from the full width and thickness of the stream of mortar on the conveyor.

Take not less than three increments at regularly spaced time intervals during the passage of the whole of the quantity of the mortar that is being sampled.

5.2.4 ***Sampling from large hoppers, bins, or heaps being moved***

Sample the mortar when hoppers etc. are being filled or emptied or when heaps are being moved, in accordance with **5.2.3**.

[1)] According to the method being used (see **5.2.3**).

5.2.5 *Sampling from small hoppers, bins, static heaps, or bags*

Sample the mortar by means of the scoop. Take increments from material not less than 100 mm below the surface in at least three different places, distributed in a regular manner throughout the mass, so as to ensure, when mixed, a thoroughly representative combined sample.

5.2.6 *Bulk transport vehicles*

Sample the contents of bulk transport containers either during filling or emptying in accordance with **5.2.3** or, when this is not practical, by taking increments in accordance with **5.2.5**.

5.3 Reduction of the bulk sample

Immediately after collecting, using a flat shovel (**5.1.4**) combine and thoroughly mix the increments, taken in accordance with any of the methods described, on a flat, impervious rigid surface. ⟩A1⟨ Care should be taken when lightweight or fibrous components are present in order to avoid segregation. ⟩A1⟨ Complete the mixing within 5 min of placing the increments upon the surface. Reduce the bulk sample to produce a bulk test sample of not less than 10 kg by taking sufficient scoopfuls from random positions throughout the mixed material. Place the bulk test sample in one or more containers (**5.1.2**) with close-fitting lids. The sampling operation shall not take longer than 3 min.

5.4 Packing and certificate of sampling

Each bulk test sample to be despatched to a laboratory in the containers shall be suitably labelled so that its origin can be identified at the laboratory. The bulk test sample shall be accompanied by a certificate from the person responsible for taking the samples stating that sampling was carried out in accordance with the requirements of this European Standard.

This certificate shall include the following information:

a) the name and address of the body responsible for sampling;

b) the name and address of the customer;

c) the place, date and time and method of producing the bulk test sample;

d) identification of the mortar sample, including type, origin and designation by reference to the relevant Part of ⟩A1⟨ EN 998;⟩A1⟨

e) the quantity of the lot, or the period of production represented by the bulk sample;

f) the number of increments and the mass of the original bulk sample;

g) age of mortar when sampled;

h) identification mark on sample container;

i) remarks.

In addition it is recommended that the following be added, if known:

— mixing procedure, i.e. mixer type and length of mixing period.

5.5 Laboratory examination of bulk test samples

Each bulk test sample received at the laboratory for test shall be examined visually to ascertain whether setting, leakage, or evaporation has occurred. If so, the bulk test sample shall be rejected for further tests, other than sieve analysis (assuming the sample has not hardened). If none of the above factors is apparent, the whole of the sample, with any liquid that has separated, or has condensed on the inside of the container, shall be removed completely and mixed without loss of water to render it homogeneous.

Where practicable, the temperature of the bulk test sample shall be adjusted to 20 °C ± 5 °C, without loss of water. In all cases the temperature of the sample at the time of test shall be recorded.

5.6 Time of testing

Bulk test samples despatched to a laboratory for testing shall be tested immediately after arrival at the laboratory, and within the specified workable life of the mortar.

Test ready to use mortars (factory made wet mortars which are retarded), and pre-batched air-lime/sand wet mortars when not gauged with hydraulic binders, within their specified workable life.

6 Preparation of test mortars from dry constituents and water or pre-batched mixes and binders

6.1 Amount of mortar for test samples

The solid content of a prepared mortar mix, or the volume of the fresh mortar mix, shall be within the range given in Table 1.

Table 1 — Solid content and volume of the mortar mix

Fresh mortar mix	Mixer according to EN 196-1	Pan mixer
Solid content (kg)	1,8 to 3,0	30 to 50
Volume (dm^3)	0,5 to 2,5	25 to 75

6.2 Mixing the mortar

6.2.1 *General*

Fresh mortar used for the purpose of testing and preparing specimens for tests shall, as far as possible, have the consistence appropriate for its use. Unless otherwise specified, bring the fresh mortar sample to a defined flow value as specified in Table 2, and determined in accordance with ⟩A1⟨ EN 1015-3.⟩A1⟨ The water content needed to achieve this consistence is determined by the use of trial mixes.

Table 2 — Defined flow value for various types of mortar related to the bulk density of fresh mortar

Bulk density of fresh mortar kg/m^3	Flow value mm
>1 200	175 ± 10
>600 to ≤1 200	160 ± 10
>300 to ≤ 600	140 ± 10
≤300	120 ± 10

Carry out mixing according to the mortar manufacturer's instructions. If such instructions are not available, follow the mixing procedure described in **6.2.2** or **6.2.3**. Mix with the amount of water expected to give a mortar with the intended consistence.

Measure the length of the mixing period from the moment all constituents are introduced into the mixer.

Record any deviation from the mixing procedure prescribed.

6.2.2 ***Mixer according to EN 196-1***

After the predetermined amount of water has been introduced into the mixer, add the solid content of the dry mortar mix, as given in Table 1, over a period of [A1]30 s[A1] with the mixer running at low speed. For lightweight mortars correspondingly reduce the amount and take from a vessel as an average sample. Then complete mixing at the same speed for a further [A1]60 s[A1] unless otherwise specified by the manufacturer[2)].

Follow the same procedure also for factory made mortars to which only water is to be added.

For pre-batched mortars to which binders are also to be added, mix the additional proportion of binder into the water over a period of 15 s before adding the pre-batched constituents and with the mixer running at low speed. Then follow the same procedure as described above to complete mixing.

6.2.3 ***Pan mixer***

Carry out the mixing process in the same way as described in **6.2.2**, the solid content of the dry mortar mix, as given in Table 1, being added over a period of 15 s with the mixer running. Then complete the process by mixing for a further 120 s to 180 s, the latter preferred for lightweight mortars and for high lime-based mortars.

[2)] Some admixtures may not be activated within the specified time and particular attention should be paid to the manufacturer's instructions.

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British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

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