BRITISH STANDARD

BS EN
480-4:2005

Admixtures for concrete, mortar and grout — Test methods —

Part 4: Determination of bleeding of concrete

The European Standard EN 480-4:2005 has the status of a British Standard

ICS 91.100.30

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 480-4:2005. It supersedes BS EN 480-4:1997 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee B/517, Concrete, to Subcommittee B/517/3, Admixtures, 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 UK interests informed;

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

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

The UK has drawn the attention of CEN to an error in the definition of w in clause **4**; it is a ratio not a percentage. The words "in percent" should be ignored.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 5 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 November 2005

ISBN 0 580 47320 1

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 480-4

October 2005

ICS 91.100.30

Supersedes EN 480-4:1996

English Version

Admixtures for concrete, mortar and grout - Test methods - Part 4: Determination of bleeding of concrete

Adjuvants pour béton, mortier et coulis - Méthodes d'essai - Partie 4: Détermination du ressuage du béton

Zusatzmittel für Beton, Mörtel und Einpressmörtel - Prüfverfahren - Teil 4: Bestimmung der Wasserabsonderung des Betons (Bluten)

This European Standard was approved by CEN on 28 July 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of 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.

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

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

Ref. No. EN 480-4:2005: E

Contents

Foreword

This European Standard (EN 480-4:2005) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by DIN.

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 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

It has been drafted by Subcommittee 3 (SC 3) of TC 104 "Admixtures for concrete, mortar and grout".

This document is part of the series EN 480 "Admixtures for concrete, mortar and grout – Test methods" which comprises the following

Part 1 *Reference concrete and reference mortar for testing*

Part 2 *Determination of setting time*

Part 4 *Determination of bleeding of concrete*

Part 5 *Determination of capillary absorption*

Part 6 *Infrared analysis*

Part 8 *Determination of the conventional dry material content*

Part 10 *Determination of water soluble chloride content*

Part 11 *Determination of air void characteristics in hardened concrete*

Part 12 *Determination of the alkali content of admixtures*

Part 13 *Reference masonry mortar for testing mortar admixtures*

Part 14 *Admixtures for concrete, mortar and grout - Test methods - Part 14: Measurement of corrosion susceptibility of reinforcing steel in concrete - Potentiostatic electro-chemical test method* [1)]

This document is applicable together with the other standards of the EN 480 series.

This document supersedes EN 480-4:1996.

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) This part is under preparation

1 Scope

This document describes a method to determine the relative quantity of mixing water that will bleed from a sample of freshly mixed concrete. This method applies to concrete mixes with aggregates having a maximum size up to 50 mm.

2 Apparatus

2.1 A rigid cylindrical vessel of inside diameter of (250 ± 10) mm and inside height of (280 ± 10) mm with a removable lid. The vessel shall be made from non-absorbent material that will not react with the binder and the inside shall be smooth and free from corrosion, coatings or lubricants;

2.2 Balance of sufficient capacity to weigh the load required with an accuracy of 0,1 %;

2.3 Pipette, or other similar instrument, to draw off the free water from the surface of the test specimen;

2.4 Graduated 100 ml measuring cylinder to collect and measure the amount of water withdrawn;

2.5 Cylindrical steel tamper, approximately 16 mm in diameter and 600 mm long with a hemispherical end;

2.6 Scoop;

2.7 Stopwatch;

2.8 Flat rounded steel float with a diameter of (100 ± 10) mm.

3 Procedure

The vessel (2.1) shall be filled with a representative sample of the concrete to be tested to a height of (250 ± 10) mm as follows:

— using the scoop (2.6), fill the container in three layers, each corresponding to a third of the whole volume, and compact each layer with 25 strokes of the tamper (2.5).

— The tamper strokes shall be distributed uniformly over the whole section and the different layers shall be compacted so that the tamper penetrates each layer as far as the surface of underlying layer, but not beyond.

— The compaction of the concrete may be completed by vibration except when testing for declaration of conformity and certification purposes.

— Level the top of the concrete to a reasonably smooth surface by a minimum amount of troweling using the float (2.8).

— Determine the weight of the sample.

The room in which the test is carried out shall have a temperature of (20 ± 2) °C and a relative humidity not less than 65 %. Place the vessel on a level platform or floor free of vibration and cover it with a suitable lid. Keep this lid in place throughout the test except when drawing off the water.

Using a pipette (2.3) (or similar instrument), draw off the water that has accumulated on the surface at 10 min intervals during the first 40 min and at 30 min intervals thereafter until cessation of bleeding.

To facilitate the collection of the bleed water, the container may be tilted carefully, by placing a small block not more than 50 mm high under one side of the container, 2 min before the water is withdrawn. In this case, after removing the water, return the container to the vertical position carefully, without jarring.

After each withdrawal, transfer the water to the measuring cylinder (2.4) and record the accumulated quantity of water.

4 Results

The bleeding B is expressed as a percentage of the total water in the concrete as follows:

$$B = \frac{m_w}{w \times m_s} \times 100 \quad (1)$$

where

m_w is the mass of the bleed water, in grams

m_s is the mass of the sample, in grams

w is the proportion of water in the fresh concrete by mass in percent

It is assumed that the density of the bleed water is 1 kg/l.

5 Test report

The bleeding shall be recorded as a percentage of the total amount of water to the nearest 0,1 %.

The test report shall contain:

— Date of test,

— Bleeding water recorded as a percentage of the total amount of water to the nearest 0,1 %,

— Details of concrete tested, including maximum size of aggregate,

— Details of the admixture used in the concrete mix,

Person who performed the test.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

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

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001. Email: orders@bsi-global.com. Standards are also available from the BSI website at http://www.bsi-global.com.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: +44 (0)20 8996 7111. Fax: +44 (0)20 8996 7048. Email: info@bsi-global.com.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002. Fax: +44 (0)20 8996 7001. Email: membership@bsi-global.com.

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsi-global.com/bsonline.

Further information about BSI is available on the BSI website at http://www.bsi-global.com.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL