

SLOVENSKI STANDARD

SIST EN 197-4:2004/oprA1:2006

01-november-2006

**Cement - 4. del: Sestava, zahteve in merila skladnosti za žlindre cimente z nizko
zgodnjo trdnostjo - Dopolnilo A1**

Cement - Part 4: Composition, specifications and conformity criteria for low early strength
blastfurnace cements; Amendment A1

Zement - Teil 4: Zusammensetzung, Anforderungen und Konformitätskriterien von
Hochofenzement mit niedriger Anfangsfestigkeit; Änderung A1

Ciment - Partie 4 : Composition, spécification et critères de conformité des ciments de
haut fourneau et a faible résistance a court terme; Amendement A1

[https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-
ce1ea2b46533/sist-en-197-4-2004-oprA1-2006](https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-oprA1-2006)

Ta slovenski standard je istoveten z: EN 197-4:2004/prA1

ICS:

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

SIST EN 197-4:2004/oprA1:2006 en

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 197-4:2004/oprA1:2006

<https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006>

English Version

Cement - Part 4: Composition, specifications and conformity
criteria for low early strength blastfurnace cements; Amendment
A1

Ciment - Partie 4 : Composition, spécification et critères de
conformité des ciments de haut fourneau et à faible
résistance à court terme; Amendement A1

Zement - Teil 4: Zusammensetzung, Anforderungen und
Konformitätskriterien von Hochofenzement mit niedriger
Anfangsfestigkeit; Änderung A1

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 51.

This draft amendment A1, if approved, will modify the European Standard EN 197-4:2004. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 Management Centre 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

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

Foreword

This document (EN 197-4:2004/prA1:2006) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by IBN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This Amendment extends the European Standard EN 197-4:2004 to cover the optional property of sulfate resistance for low early strength blastfurnace cement. The further technical content of EN 197-4:2004 has not been changed.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 197-4:2004/prA1:2006
<https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006>

The numbering of the clauses refers to EN 197-4:2004.

Amendment 1

Foreword

Add (modification is underlined):

3rd paragraph:

The amendment A1:2006 contained the sulfate resisting low early strength blastfurnace cements.

9th paragraph:

The requirements in EN 197-4 are based on the results of tests on cement in accordance with EN 196-1, -2, -3, -5, -6, -7, -8, and -9. The scheme for the evaluation of conformity of low early strength blastfurnace cements and low early strength blastfurnace cements with adequate sulfate resistance is specified in EN 197-2.

10th paragraph:

In order to find out whether cement with high sulfate resistance should be taken into account in EN 197, there was an investigation within CEN/TC 51 comprising all national specifications and recommendations in the European Union. The review of these investigations led to the following results:

- A wide variety of cements are classified in the EU Member States. This is due to the different geographical and climatic conditions under which sulphate attacks on mortar and concrete occur at the place of use and the traditionally different rules governing the production and use of sulphate resistant mortars and concretes.

- Sulfate resistance is an additional property and therefore sulfate resisting cements have first to comply with the requirements of the standards which define the product, e.g. EN 197-4 low early strength blastfurnace cements.

- The additional requirements to be met by the nationally specified sulfate resisting cements refer to selected characteristics for which the required limit values are more stringent than those for low early strength blastfurnace cements.

- Having satisfied the local requirements for various cement types many countries apply further restrictions to the production of concrete to be used in a sulfate environment, such as minimum cement contents and/or maximum water/cement ratio that vary depending on the cement type and the type and intensity of the sulphate conditions.

Based on the above results low early strength blastfurnace cements types to be harmonized on European level on a consensual basis have been chosen. The predominant part of the low early strength blastfurnace cements with high sulfate resistance in the market is covered by this selection. It was not possible to take into account national local particularities the use of which is laid down within national application rules and regulations/provisions.

1 Scope

Add (modification is underlined):

This EN 197-4 defines and gives the specifications of 3 distinct low early strength blastfurnace cement products and 2 sulfate resisting low early strength blastfurnace cements and their constituents. The definition of each cement includes the proportions in which the constituents are to be combined to produce these distinct products in a range of three strength classes. The definition also includes requirements the constituents have to meet and the mechanical, physical and chemical, including where appropriate, heat of hydration, requirements and strength classes. This EN 197-4 also states the conformity criteria and the related rules. Necessary durability requirements are also given.

In addition to those sulphate resisting cements defined in the present document, other cements conforming either to EN 197-1 or to national standards have been locally demonstrated to have sulphate resisting properties. These cements may be used in sulphate aggressive environments if permitted in national provisions valid in the place of the construction site. These cements may not bear the CE Marking for their sulphate resistance property.

NOTE 1 In addition to the specified requirements, an exchange of additional information between the cement producer and user can be helpful. The procedures for such an exchange are not within the scope of EN 197-4 but should be dealt with in accordance with national standards or regulations or can be agreed between the parties concerned.

NOTE 2 The word “cement” in EN 197-4 is used to refer only to common cements unless otherwise indicated.

3 Definition

Add:

3.4 Sulfate resisting low early strength blastfurnace cement

Low early strength blastfurnace cement which fulfills the requirements to sulfate resisting properties according to this amendment of EN 197-4

6 Composition and notation

Add (the title):

6.1 Composition and notation of low early strength blastfurnace cements

Add:

6.2 Composition and notation of sulfate resisting low early strength blastfurnace cements (SR-Cements)

The 2 products in the family of the sulfate resisting low early strength blastfurnace cements, covered by EN 197-4 are given in Table 1.1.

[SIST EN 197-4:2004/oprA1:2006](https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ccfca3b46533/sist-en-197-4-2004-oprA1-2006)

The composition of each of the 2 products in the family of the sulfate resisting low early strength blastfurnace cements shall be in accordance with Table 1.1. The cement type notation shall be in accordance with the requirements of EN 197-4 with additionally notation by SR S.

Table 1.1 — The 2 products in the family of sulfate resisting low early strength blastfurnace cements

| Main Types | Notation of the 2 products (types of sulfate resisting low early strength blastfurnace cement) | | Composition (percentage by mass ^(a)) | | |
|--|---|-------------------|--|---------------------------|-------------------------------------|
| | | | Main constituents | | Minor Additional Constituents |
| | | | Clinker K | Blastfurnace Slag S | |
| CEM III | Sulfate resisting low early strength blastfurnace cements | CEM III/B...-SR S | 20 – 34 | 66 – 80 | 0 – 5 |
| | | CEM III/C...-SR S | 5 – 19 | 81 – 95 | 0 – 5 |
| (a) The values of the table refer to the sum of the main and minor additional constituents | | | | | |

8 Standard designation

Add (1st paragraph):

Sulfate resisting low early strength blastfurnace cement shall be identified additionally by the notation SR S.

NOTE The designation of sulfate resisting cements on a national level may not be marked by SR S.

Add:

And for sulfate resisting low early strength blastfurnace cements:

EXAMPLE 3

Blastfurnace cement, conforming to EN 197-4, containing between 66 % and 80 % by mass of granulated blastfurnace slag (S) of strength class 42,5 with on low early strength and a low heat of hydration and high sulfate resistance is identified by:

Blastfurnace cement EN 197-4 – CEM III/B 42,5L – LH/SR S

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 197-4:2004/opra1:2006](https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006)
<https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006>

Annex ZA (informative)

ZA.1 Clauses of EN 197-1 addressing the provisions of EU Construction Products Directive

Add (modification is underlined):

3rd paragraph

Compliance with these clauses confers a presumption of fitness of low early strength blastfurnace cements and sulfate resisting low early strength blastfurnace cements covered by EN 197-4 for the intended use(s) under consideration in table ZA.2.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 197-4:2004/oprA1:2006
https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-
ce1ea2b46533/sist-en-197-4-2004-opra1-2006](https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006)

Table ZA.1 — Harmonised clauses

Add (modification is underlined):

| | | | | |
|--|--|-----------------------------|---|-------|
| Construction Products: 3 different low early strength blastfurnace cement <u>and/or 2 sulfate resisting low early strength blastfurnace cement products</u> | | | | |
| Intended use(s): Preparation of concrete, mortar, grout and other mixes for construction and for the manufacture of construction products (see notes in this table) | | | | |
| Requirements/performance characteristics | Harmonised clauses ^a in EN 197-1 | | CPD Article 3.2 level(s) and/or class(es) | Notes |
| | Clauses ^a | Outline of the requirements | | |

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 197-4:2004/prA1:2006
<https://standards.iteh.ai/catalog/standards/sist/73b1e7aa-04da-4d3a-8f00-ce1ea2b46533/sist-en-197-4-2004-opra1-2006>