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Cement - 2. del: Ocenjevanje in preverjanje nespremenljivosti lastnosti

Cement - Part 2: Assessment and verification of constancy of performance

Zement - Teil 2: Bewertung und Überprüfung der Leistungsbeständigkeit

Ciment - Partie 2: Evaluation et vérification de la constance de la performance

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EUROPEAN STANDARD
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**Cement - Part 2: Assessment and verification of constancy
of performance**

Ciment - Partie 2: Evaluation et vérification de la
constance de la performance

Zement - Teil 2: Bewertung und Überprüfung der
Leistungsbeständigkeit

This European Standard was approved by CEN on 27 October 2019.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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EN 197-2:2020 (E)**European foreword**

This document (EN 197-2:2020) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 197-2:2014.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Compared to the version EN 197-2:2014, the following major changes have been made in this document:

- a) use of the terminology given by the Delegated Regulation (EU) No 568/2014 amending Annex V to Regulation (EU) No 305/2011 (Construction Products Regulation), in particular adoption of the tasks defined in the Delegated Regulation for AVCP system 1+ for a re-arrangement of the clauses of this document;
- b) numbering of the clauses according to the order of the tasks specified in this Delegated Regulation;
- c) removal of the rules for dispatching centres;
- d) clarification/specification of the rules for depots;
- e) replacement of the term “Works’ quality manual” by “Works’ quality documentation”;
- f) replacement of the term “management representative” by “quality manager”;
- g) deletion of informative Annex C “Comparison of terminology according to the CPD and the CPR” as this annex was considered to be no longer necessary;
- h) editorial revision of the document.

EN 197, *Cement*, is currently composed of the following parts:

- *Part 1: Composition, specifications and conformity criteria for common cements*
- *Part 2: Assessment and Verification of Constancy of Performance*

Annex A of this document is normative, Annex B is informative.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies the scheme for the assessment and verification of constancy of performance (AVCP) of cements, including certification of constancy of performance.

The document provides technical rules for factory production control, further testing of samples taken at the manufacturing plant (autocontrol testing) and assessment of the performance of the cement, initial inspection of the manufacturing plant and of factory production control, continuing surveillance, assessment and evaluation of factory production control and audit-testing of samples. It also provides rules for actions to be followed in the event of non-conformity and requirements for depots.

In this document, the word “cement” is used to refer both to common cements as defined in EN 197-1 and to other cements and binders for which the relevant product specification standard makes reference to this document and which are submitted for certification. Such a cement is produced at a given factory and belongs to a particular type and a particular strength class, as defined and specified in the relevant product specification standard.

The guidelines given in the Technical Report CEN/TR 14245 [1] contain information for the application of this document.

This document is linked with the Annexes ZA of European Standards covering cements and binders, i.e. EN 197-1, EN 14216, EN 14647, EN 413-1 and EN 15743.

NOTE The reason for having drafted this separate document is that the provisions it includes are applicable to different products covered by different European Standards.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 196-7, *Methods of testing cement — Part 7: Methods of taking and preparing samples of cement*

EN 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

EN 413-1, *Masonry cement — Part 1: Composition, specifications and conformity criteria*

EN 14647, *Calcium aluminate cement — Composition, specifications and conformity criteria*

EN 15743, *Supersulfated cement — Composition, specifications and conformity criteria*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

NOTE In the context of this document the term “construction product” refers to cement.

3.1

AVCP

abbreviation for assessment and verification of constancy of performance

EN 197-2:2020 (E)**3.2****certificate of constancy of performance of the product**

document issued under the rules of the scheme for the AVCP indicating that adequate confidence is provided that the cement conforms to the performance(s) declared in accordance with the relevant product standard

3.3**initial period**

immediate period starting after the first issuing of the certificate of constancy of performance of the product for a cement and at the latest from the first dispatching of cement

3.4**factory production control**

documented, permanent and internal control of production in a factory, in accordance with the relevant harmonized technical specifications

[SOURCE: Regulation (EU) No 305/2011, Article 2 (Construction Product Regulation)[4]]

3.5**factory**

facility used by a manufacturer for the production of cement using equipment which is suitable for continuous mass production of cement including, in particular, equipment for adequate grinding and homogenization and the necessary silo capacity for the storage and dispatch of each cement produced

Note 1 to entry: This equipment and the production control applied allow the control of production with sufficient accuracy.

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3.6**new factory**

factory which is not already producing cement(s) certified using EN 197-2

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3.7**existing factory**

factory which is already producing cement(s) certified using EN 197-2

3.8**depot**

bulk cement handling facility not located at the factory used for the dispatch of cement, whether in bulk or bagged, after transfer or storage where the manufacturer has full responsibility for all aspects of the quality of the cement

3.9**distributor**

natural or legal person in the supply chain, other than the manufacturer or the importer, who makes a construction product available on the market

[SOURCE: Regulation (EU) No 305/2011, Article 2 (Construction Product Regulation)]

3.10**importer**

natural or legal person established within the European Union, who places a construction product from a third country on the European Union market

[SOURCE: Regulation (EU) No 305/2011, Article 2 (Construction Product Regulation)]

3.11**assessment of the performance**

determination of the essential characteristics of a construction product, on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product

3.12**product certification body**

body notified in accordance with Chapter VII of Regulation (EU) No 305/2011 to carry out constancy of performance certification

3.13**works' quality documentation**

documentation that provides information on the factory production control which is applied by a manufacturer at a particular factory to ensure constancy of performance of the cement

4 Factory production control**4.1 General requirements****4.1.1 Concept**

Factory production control means the permanent internal control of cement production and consists of internal quality control (see 4.2) complemented by autocontrol testing of samples of cement taken at the point of release¹ (see 4.3).

NOTE 1 The requirements of this document as regards factory production control apply to factories and their depots.

NOTE 2 The requirements of this document in regards to factory production control take into account the clauses of EN ISO 9001 [2] which are relevant to the production, process control and testing of cement.

4.1.2 Works' quality documentation

The manufacturer's documentation and procedures for factory production control shall be described in a Works' quality documentation, which shall adequately describe, amongst other things, for each factory and depot:

- a) the quality aims and the organizational structure, responsibilities and powers of the management with regard to product quality and the means to monitor the achievement of the required product quality and the effective operation of the internal quality control (see 4.1.3 and 4.2);
- b) the manufacturing and quality control techniques, processes and systematic actions that will be used (see 4.2.1, 4.2.3 and 4.3.2);
- c) the inspections and tests that will be carried out before, during and after manufacture, and the frequency with which they will be carried out (see 4.2.2, 4.3.1 and 4.3.3).

The Works' quality documentation shall include an adequate system of documentation (see 4.1.4 and 4.3.4).

1 This testing corresponds also to the "further testing of samples taken at the manufacturing plant" mentioned in Delegated Regulation (EU) No 568/2014 amending Annex V to Regulation (EU) No 305/2011 (Construction Products Regulation) [5].

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The Works' quality documentation shall address and document the procedures operated to ensure that the manufactured cement conforms to the performance(s) declared in accordance with the relevant product standard. The documentation may reference associated documents which provide further details of the autocontrol testing of samples and the internal quality control. For the purpose of this scheme, the term Works' quality documentation shall be considered to include these associated documents.

In the case of an existing quality management system according to EN ISO 9001, the corresponding quality documentation may also be applied for product certification if it meets all the requirements of this document which are relevant to the factory production control of cement.

4.1.3 Quality management system**4.1.3.1 Quality policy statement**

The Works' quality documentation shall include a statement by management defining its quality policy, objectives and commitments to the attainment of product quality.

4.1.3.2 Quality manager

A quality manager shall be appointed who, irrespective of other responsibilities, shall have defined and adequate authority and responsibility for ensuring that the requirements of this document for the AVCP are implemented and maintained.

4.1.3.3 Internal audits and management review

In order to ensure the continuing suitability and effectiveness of the Work's quality documentation to meet the requirements of this document:

- a) internal audits covering the scope of this Clause 4;
- b) a management review of the functioning and the results of the factory production control, taking into account records of the internal audits

shall be performed at least once a year.

4.1.3.4 Training

The Works' quality documentation shall describe the measures taken to ensure that all the personnel involved in operations that can affect internal quality control and product quality have appropriate experience or training. Appropriate records shall be retained.

4.1.4 System of documentation**4.1.4.1 Document control**

All documents and data related to factory production control and to this scheme for the AVCP shall be controlled.

This control shall ensure that the appropriate issues of all documents are available at essential locations, that obsolete documents are withdrawn and that changes or modifications to any document are effectively introduced.

A system shall be established to identify the current version of documents in order to prevent the use of non-applicable documents.

4.1.4.2 Quality records

Records shall be retained to provide evidence of factory production control for at least the period required.

4.2 Internal quality control

4.2.1 Process control

4.2.1.1 General

The Works' quality documentation shall describe the parameters for process planning, process control and testing, inspection, corrective action, verification, dispatch and the associated records for each factory and depot.

4.2.1.2 Constituents and composition of cement

Documented procedures and appropriate test methods shall be established to ensure that the constituents meet the specifications in the relevant product specification standard and are suitable to enable cement to be produced meeting the targets and control limits.

The Works' quality documentation shall describe the methods used by the manufacturer to ensure that the composition of the cement produced conforms to the performance(s) declared in accordance with the relevant product standard, including appropriate test methods.

4.2.1.3 Control of off-specification production or non-conformity

The Works' quality documentation shall contain procedures for the review and adjustment of the factory production control in case of off-specification production or non-conformity.

The actions taken in the event of non-conformity shall be recorded in a report subject to inspection during the management review.

4.2.2 Measuring and testing (standards.iteh.ai)

4.2.2.1 Inspection, measuring and test equipment

The equipment for in-process inspection and testing shall be regularly checked and calibrated in accordance with the procedures and frequencies laid down in the Works' quality documentation.

4.2.2.2 Inspection and test status

Procedures for the inspection and test status through the stages of manufacture shall be detailed in the Works' quality documentation. These shall include procedures for the control of off-specification intermediate materials.

4.2.3 Handling, storage, packaging and delivery

The Works' quality documentation shall describe the precautions taken for the protection of the quality of the cement while under the responsibility of the manufacturer for the factory and each depot. Delivery documentation shall allow traceability to the producing works.

4.3 Autocontrol testing of samples

4.3.1 Sampling and testing

A system of autocontrol testing shall be operated for each certified cement. This system shall be used to demonstrate constancy of performance of the cement in accordance with the clause entitled "Assessment and verification of constancy of performance – AVCP" in the relevant product specification standard. The characteristics to be tested, the testing methods, the minimum frequency of autocontrol testing during routine testing and initial period testing and the AVCP criteria including the statistical evaluation of the autocontrol testing results shall be in accordance with the clause entitled "Assessment and verification of constancy of performance – AVCP" in the relevant product specification standard.