



SLOVENSKI STANDARD
SIST-TP CEN/TR 14245:2014

01-december-2014

Nadomešča:
SIST-TP CR 14245:2004

Cement - Smernice za uporabo EN 197-2, Ovrednotenje skladnosti

Cement - Guidelines for the application of EN 197-2 Conformity Evaluation

Zement - Leitlinien für die Anwendung von EN 197-2 Konformitätsbewertung

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: CEN/TR 14245:2014

<https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568d13fd14/sist-tp-cen-tr-14245-2014>

ICS:

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

SIST-TP CEN/TR 14245:2014

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TP CEN/TR 14245:2014](#)

<https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014>

English Version

Cement - Guidelines for the application of EN 197-2 Conformity Evaluation

Ciment - Lignes directrices pour l'application de l'EN 197-2 -
Evaluation de la conformité

Zement - Richtlinien für die Anwendung von EN 197-2
Konformitätsbewertung

This Technical Report was approved by CEN on 18 August 2014. It has been drawn up by the Technical Committee CEN/TC 51.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TP CEN/TR 14245:2014](https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014)

<https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014>



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
Foreword.....	4
Introduction to this Guidelines Document.....	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Factory production control by the manufacturer	11
4.1 General requirements	11
4.1.1 Concept	11
4.1.2 Works' quality manual	11
4.1.3 Management systems	13
4.1.4 System of documentation	14
4.2 Internal quality control	15
4.2.1 Process control	15
4.2.2 Measuring and testing	17
4.2.3 Handling, storage, packaging and delivery	18
4.3 Autocontrol testing of samples	18
4.3.1 Sampling and testing	18
4.3.2 Corrective action	19
4.3.3 Measuring and test equipment for autocontrol testing	20
4.3.4 Quality records	21
5 Tasks for the product certification body	21
5.1 General	21
5.2 Continuous surveillance, assessment and evaluation of the factory production control	21
5.2.1 Inspection tasks	21
5.2.2 Frequency of inspections	22
5.2.3 Reports	22
5.3 Evaluation of the results of autocontrol testing of samples	23
5.3.1 Evaluation tasks	23
5.3.2 Number and timing of evaluations	23
5.3.3 Control period	23
5.3.4 Evaluation of test results	24
5.3.5 Reports	27
5.4 Audit testing of samples taken at the factory/depot and determination of the product-type by testing	27
5.4.1 Sampling	27
5.4.2 Number of samples	27
5.4.3 Properties and test methods	28
5.4.4 Testing	28
5.4.5 Evaluation of test results	28
5.4.6 Reports	29
5.4.7 Proficiency testing	29
5.5 Initial inspection of the factory and the factory production control	30
5.5.1 Inspection of a new factory	30
5.5.2 Inspection of an existing factory	31
5.5.3 Criteria for the assessment of the production equipment	31
5.5.4 Criteria for the assessment of laboratories	31
5.5.5 Reports	32
5.6 Evaluation of test results during the initial period	32

5.6.1	Initial period	32
5.6.2	Evaluation of test results	32
5.6.3	Reports	32
6	Actions in the event of non-conformity	33
6.1	Actions to be taken by the manufacturer.....	33
6.2	Actions to be taken by the product certification body	33
6.2.1	Following continuous surveillance, assessment and evaluation of the factory production control (see 5.2) and evaluation of the results of autocontrol testing (see 5.3)	33
6.2.2	Following evaluation of the results of the audit testing of samples taken at the factory/depot (see 5.4 and Annex A)	34
7	Procedure for third party certification of constancy of performance of the product	35
8	Certificate of constancy of performance of the product and conformity mark	36
8.1	Indication of constancy of performance of the product.....	36
8.2	Certificate of constancy of performance of the product	36
9	Requirements for dispatching centres.....	38
9.1	General requirements	38
9.2	Tasks for the intermediary.....	38
9.2.1	Measures to maintain the cement quality	38
9.2.2	Confirmation autocontrol testing of samples taken at the dispatching centre	39
9.3	Tasks for the third party	39
9.3.1	Continuous surveillance, assessment and evaluation of the measures to maintain the cement quality and of the confirmation autocontrol	39
9.3.2	Audit testing of samples taken at the dispatching centre	39
9.3.3	Decisions to be taken.....	39
Annex A	(normative) Evaluation of the representativeness and the accuracy of the 28 day strength test results	42
A.1	General	42
A.2	Sets of results considered	42
A.3	Evaluation procedure	42
A.3.1	Introduction.....	42
A.3.2	Symbols.....	42
A.3.3	Evaluation of whether set A and set B belong to the same population (sampling error check)	43
A.3.4	Comparison between set B and set C in order to check the accuracy of the autocontrol testing (testing error check)	44
A.3.5	Masonry cement	44
A.3.6	Calcium aluminate cement	44
Annex B	(informative) Procedure for certification of constancy of performance of cement	45
Annex C	(informative) Comparison of terminology according to the CPD and the CPR.....	46

Foreword

This document (CEN/TR 14245:2014) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by NBN.

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

This document supersedes CR 14245:2001.

Compared with CR 14245:2001, the following changes have been made:

- Guidelines harmonized with EN 197-2:2014 and standard text of EN 197-2:2014 included.

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

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TP CEN/TR 14245:2014](https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014)

<https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014>

Introduction to this Guidelines Document

Purpose

The purpose of this Guidelines Document is to provide explanatory detail on points not fully elaborated in EN 197-2. It is intended for use by manufacturers and by product certification bodies involved in the certification of cement following EN 197-2, in particular for the issuing of an EC certificate of constancy of performance.

This document does not deal with the necessary internal procedures that the product certification bodies will have.

It is an objective of this Guidelines Document that its use will assist in the establishment of equivalent procedures for certification of cement. It is expected that, following this document, traditional good procedures and practices that may be different can continue to be used, provided that they are not in contradiction with EN 197-2 and the relevant product specification standard. Such existing good procedures and practices, applied in conjunction with these Guidelines, are not considered to be an impediment to the achievement of the uniform level of certification throughout Europe, and by different product certification bodies, that is expected from the application of EN 197-2 together with these Guidelines.

This Guidelines Document is based on existing situations for production, evaluation of conformity and certification of cements. It may happen that product certification bodies be confronted by a situation different to those included in this document. In such a case, specific procedures should be elaborated on a case by case situation and be approved and fully recorded by the product certification body. These specific procedures should always fulfil the requirements of EN 197-1 and EN 197-2 and lead to the same level of confidence in product conformity that would be achieved by application of this Guidelines Document.

Arrangement

The clause numbering system of EN 197-2 is followed. The text of each of the clauses of the European Standard is reproduced in full and is followed by guidance, which is provided only for those clauses where clarification or elaboration is needed.

Clauses of EN 197-2

Foreword

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Factory production control by the manufacturer
- 5 Tasks for the product certification body
- 6 Actions in the event of non-conformity
- 7 Procedure for third party certification of constancy of performance of the product
- 8 Certificate of constancy of performance of the product and conformity mark
- 9 Requirements for dispatching centres

Tables 1 and 2

Annexes A, B, and C.

Foreword

This document (EN 197-2:2014) 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 July 2014, and conflicting national standards shall be withdrawn at the latest by July 2014.

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

This document supersedes EN 197-2:2000.

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 197-2:2000, the following major changes have been made in this document:

- use of the terminology given by the Construction Products Regulation (Regulation (EU) No 305/2011) and comparison with the earlier terminology according to the Construction Products Directive (Directive 89/106/EEC) (Annex C);
- link between this European Standard and Annexes ZA of European Standards covering cements;
- guidance concerning the uncertainty of measurements in the evaluation of test results;
- numerical criteria for the evaluation procedure for calcium aluminate cement conforming to EN 14647, (Annex A);
- figure describing the procedure for certification of constancy of performance of cement in a new factory or of a new type of cement in an existing factory (Annex B).

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

1 Scope

This European Standard specifies the scheme for the assessment and verification of constancy of performance (AVCP) of cements to their corresponding product specification standards, including certification of constancy of performance by a product certification body.

The standard provides technical rules for factory production control by the manufacturer, including autocontrol testing of samples, and for the tasks of the product certification body. It also provides rules for actions to be followed in the event of non-conformity, the procedure for the AVCP and requirements for dispatching centres.

In this European Standard, 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 European Standard 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]¹⁾ should be used for the application of this European Standard.

This European Standard should be linked with Annexes ZA of European Standards covering cements and binders, i.e. EN 197-1, EN 14216, EN 14647, EN 413-1, EN 15743, in particular for the assignments of tasks to the manufacturer and to the product certification body.

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.

Guidance

EN 197-2 deals with the evaluation of conformity of cements and binders that are submitted for certification. It deals in particular with cases where “further testing” of the product is undertaken, as is the case for attestation system 1+ under the Construction Products Regulation. The products for which EN 197-2 is applicable are: the common cement products and the low heat cements and the sulfate resisting cements, refer to EN 197-1, the very low heat special cements, refer to EN 14216, the supersulfated cements, refer to EN 15743, the calcium aluminate cements, refer to EN 14647, and the masonry cements, refer to EN 413-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 413-1, *Masonry cement - Part 1: Composition, specifications and conformity criteria*

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

ISO 2854, *Statistical interpretation of data — Techniques of estimation and tests relating to means and variances*

¹⁾ CEN/TR 14245 is currently in preparation and will revise CR 14245:2001.

3 Terms and definitions

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

- 3.1**
AVCP
abbreviation for assessment and verification of constancy of performance
- 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 cement is in conformity with the relevant product specification standard
- Guidance**
- The term “certificate of constancy of performance of the product” refers to certificates of constancy of performance of the product issued by a product certification body under the rules of EN 197-2. This includes an EC certificate of constancy of performance of the product issued in relation to the CPR.
- 3.3**
conformity mark
protected mark applied on the basis of the certificate of constancy of performance of the product (see 3.2)
- Guidance**
- The term “protected mark” includes registered mark, regulated mark and CE marking.
- 3.4**
certified cement
cement for which a certificate of constancy of performance of the product (see 3.2) has been issued
<https://standards.iteh.ai/catalog/standards/sist/93a3a0b2-d417-4fcf-854a-568f913fd14/sist-tp-cen-tr-14245-2014>
- 3.5**
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
- 3.6**
product certification body
impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out AVCP according to given rules of procedure and management
- 3.7**
factory production control
documented, permanent and internal control of production in a factory, in accordance with the relevant harmonized technical specifications
- 3.8**
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 to ensure that the requirements of the relevant product specification standard are met.

Guidance

According to EN 197-1:2014, Clause 4, common cements (CEM cements) consist of different materials and are statistically homogeneous in composition resulting from quality assured production and material handling processes. A high degree of uniformity in all cement properties is obtained through continuous mass production processes, in particular, adequate grinding and homogenization processes. Similar considerations apply for other cements.

Three categories of “factory” are recognized:

- traditional full cement factories, where clinker and cement are produced on the same site;
- grinding plants, where cement is produced by grinding supplied cement constituents;
- blending plants, where ground cement constituents, which may be received already combined as cement, are blended to produce finished cement.

The following operating steps, which apply for all of these types of factory, are essential in the manufacturing process. These steps are needed to ensure the necessary uniformity, continuity and suitability of the cement properties as well as the ability to meet the other requirements of the relevant product specification standard:

- use of separate and adequate storage for the cement constituents;
- Controlling the cement constituents – including, where relevant, their fineness and particle size distribution, and therefore their grinding – to achieve a performance of the cement compatible with the requirements of the product specification standard;
- proportioning the cement constituents in order to achieve the target composition of the cement;
- homogenization of the cement constituents by grinding, or by mixing, where relevant;
- storage of finished product, in silos of adequate capacity, allowing proper identification of mass quantities of product and giving the possibility of taking spot samples at any time without prior notice.

Factories can only be operated by manufacturers which have personnel with sufficient experience and knowledge in all operating steps important for cement quality and which have the people, test procedures and test equipment to test, evaluate and correct the cement being produced. The definition of factory in EN 197-2 takes it, therefore, for granted that all operating steps listed above are carried out in effect under the same quality responsibility.

3.9**new factory**

factory which is not already producing cement(s) certified using this European Standard

3.10**existing factory**

factory which is already producing cement(s) certified using this European Standard

3.11**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

Guidance

It is important to point out the difference between a depot and a dispatching centre. The difference consists essentially of the linkage to the factory and the responsibility for the quality of the cement. In the case of a depot the facility is strictly linked to the factory and is included in the factory Works' quality manual. The manufacturer has full responsibility for the quality of the cement released from the depot. In a dispatching centre, in contrast, the facility is not at all linked to the factory and it is an intermediary (an entity taking certified cement, acting independently and operating between the manufacturer and a subsequent customer) who has full responsibility for the quality of the cement dispatched. A dispatching centre, being independent from the factory cannot be included in a Works' quality manual, but it has to ensure, using appropriate rules, that the quality of an already certified cement does not undergo any change.

Depots are included in the Works' quality manual. An entity other than the manufacturer may own and operate the depot but it does this on behalf of and under the strict quality management responsibility of the manufacturer.

3.12 dispatching centre

facility (not located at the factory) for handling and dispatching of cement (received in bulk or in any other condition) by activities that shall not modify the characteristics or the integrity of the product received from the manufacturer, where an intermediary has full responsibility for all aspects of the quality of the cement

Guidance

See guidance under 3.11 and 9.1.

3.13 intermediary

natural or legal person who takes from the manufacturer or the importer cement certified using this European Standard and bearing the conformity mark, taking full responsibility for maintaining in a cement handling facility all aspects of the quality of the cement and who supplies the cement onwards to a further person

3.14 determination of the product-type

determination of the set of representative performance levels or classes of a construction product, in relation to its essential characteristics, on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product

3.15 confirmation autocontrol testing

continual testing carried out by an intermediary which consists of testing of samples taken by the intermediary at the point(s) of release from the dispatching centre

3.16 works' quality manual

document that provides information on the factory production control which is applied by a manufacturer at a particular factory to ensure conformity of the cement with the requirements of this European Standard and the relevant product specification standard

ITh STANDARD PREVIEW
(standards.iteh.ai)

SIST-TP CEN/TR 14245:2014
https://standards.iteh.ai/catalog/standards/sist/932a0b9-441-4901-832a-56891311d14/sist-tp-cen-tr-14245-2014

4 Factory production control by the manufacturer

4.1 General requirements

4.1.1 Concept

Factory production control means the permanent internal control of cement production exercised by the manufacturer and consists of internal quality control (see 4.2) complemented by autocontrol testing of samples of cement taken at the point of release²⁾ (see 4.3).

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

Guidance

The purpose of factory production control is to ensure that the cement is manufactured in a controlled way to meet all of the requirements of the relevant product specification standard. In order that a product certification body can verify such a system it has to be documented in a structured way. This is carried out in a Works' quality manual supported and cross-referenced by a series of procedures, work instructions and other associated and relevant documents. These need to be clear, concise and adopt recommended good practices where applicable. The factory production control system may form part of a wider, integrated management system provided it can be demonstrated that all applicable EN 197-2 requirements are addressed. See also the Note in 4.1.1 of the standard.

As depots are under the direct responsibility of the cement manufacturer, the factory production control system shall include them and appropriate procedures should be produced, where relevant.

4.1.2 Works' quality manual

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

- 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);
- 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 manual prepared by the manufacturer for each factory shall include an adequate system of documentation (see 4.1.4 and 4.3.4).

The Works' quality manual shall address and document the procedures operated to ensure that the manufactured cement conforms to the technical specifications. The manual 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 manual shall be considered to include these associated documents.

In the case of an existing quality management system according to EN ISO 9001, the product certification body may examine if the corresponding quality manual meets all the requirements of this European Standard

²⁾ This testing corresponds also to the "further testing of samples" mentioned in Annex V Section 1.1 point (a) (ii) of the Construction Products Regulation (Regulation (EU) No 305/2011).