



SLOVENSKI STANDARD

SIST ENV 197-2:% - +

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Cement - 2. del: Ovrednotenje skladnosti

Cement - Part 2: Conformity evaluation

Zement - Teil 2: Bewertung der Konformität

Ciment - Partie 2: Evaluation de la conformité

Ta slovenski standard je istoveten z: **ENV 197-2:1995**

[SIST ENV 197-2:2000](https://standards.iteh.ai/catalog/standards/sist/26d14115-6519-4090-bcc6-592a3bf70fa3/sist-env-197-2-2000)

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ICS:

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

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EUROPEAN PRESTANDARD

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PRÉNORME EUROPÉENNE

EUROPÄISCHE VORNORM

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English version

Cement - Part 2: Conformity evaluation

Ciment - Partie 2: Evaluation de la conformité Zement - Teil 2: Bewertung der Konformität

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Prestandard has been prepared by the Technical Committee CEN/TC 51 "Cement and building limes", of which the secretariat is held by IBN.

Reference is made to ENV 197-1:1992. However, a revised version of clause 9 "Conformity criteria" of ENV 197-1:1992 has been prepared by CEN/TC 51 and references made in this prestandard to clause 9 of ENV 197-1 are to this revised version of the clause. The revised version of the clause is included in this prestandard in normative annex C.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to announce this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Prestandard describes the scheme for the evaluation of conformity of cement complying with ENV 197-1¹⁾.

NOTE: During the prestandard stage this document is intended to assist in the convergence of existing national schemes for conformity evaluation.

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2 Normative references

SIST ENV 197-2:2000

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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|-----------------|--|
| EN 196 - 1 | Methods of testing cement - Part 1: Determination of strength. |
| EN 196 - 2 | Methods of testing cement - Part 2: Chemical analysis of cement. |
| EN 196 - 3 | Methods of testing cement - Part 3: Determination of setting time and soundness. |
| EN 196 - 5 | Methods of testing cement - Part 5: Pozzolanicity test for pozzolanic cements. |
| EN 196 - 7 | Methods of testing cement - Part 7: Methods of taking and preparing samples of cement. |
| EN 196 - 21 | Methods of testing cement - Part 21: Determination of the chloride, carbon dioxide and alkali content of cement. |
| ENV 197-1: 1992 | Cement - Composition, specifications and conformity criteria - Part 1: Common cements ¹⁾ . |

¹⁾ The normative reference to ENV 197-1: 1992 does not apply to clause 9 "Conformity criteria". For this clause, Annex C (normative) of this European Prestandard applies.

EN ISO 9002	Quality systems - Model for quality assurance in production, installation and servicing.
EN 45001	General criteria for the operation of testing laboratories.
EN 45011	General criteria for certification bodies operating product certification.
ISO 2854: 1976	Statistical interpretation of data - Techniques of estimation and tests relating to means and variances.

3 Definitions

3.1 Specific definitions

3.1.1 certificate of conformity: Document issued under the rules of this scheme for the evaluation of conformity indicating that adequate confidence is provided that cement is in conformity with ENV 197-1¹⁾.

3.1.2 conformity mark: Protected mark applied on the basis of the certificate of conformity (see 3.1.1). Cements bearing the conformity mark are considered fit for their intended use, i.e. they have such characteristics that the works in which they are incorporated can, if properly designed and built, satisfy the essential requirements given in the Construction Products Directive.

3.1.3 certified cement: Cement which is produced at a particular factory and for which a certificate of conformity (see 3.1.1) has been issued.

3.1.4 factory: Facility used by a manufacturer for the production of cement using equipment which is suitable for continuous mass production of cement, in particular for adequate grinding and homogenization, allowing control of production with sufficient accuracy to ensure that the requirements of ENV 197-1¹⁾ are met.

3.1.5 new factory: Factory which is not already producing cement(s) certified under this scheme.

3.1.6 existing factory: Factory which is already producing cement(s) certified under this scheme.

3.1.7 depot: Bulk cement handling facility (not located at the factory) used for the storage and dispatch of cement (whether in bulk or bagged) where the manufacturer has full responsibility for all aspects of the quality of the cement. The depot may be operated either by the manufacturer or by a person (natural or legal) approved by the manufacturer.

¹⁾ See page 3.

3.1.8 dispatching centre: Bulk cement handling facility (not located at the factory) used for the storage and dispatch of cement (whether in bulk or bagged) where an intermediary has full responsibility for all aspects of the quality of the cement.

3.1.9 intermediary: Person who takes from the manufacturer bulk cement certified according to this scheme and bearing the conformity mark, who complies with additional requirements specified in clause 10 and who supplies the cement onwards to a further person.

3.1.10 confirmation autocontrol testing: Autocontrol 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.

3.1.11 Works' quality manual: Document that provides information on the factory production control and quality control applied by a manufacturer at a particular factory to ensure conformity of the cement with the requirements of ENV 197-1¹⁾.

3.2 General definitions: See annex B (informative).

4 Principles

Attestation of conformity shall be based on the system described in Section 2 (i) of Annex III of the Construction Products Directive and shall lead to certification of the cement and use of the conformity mark by the manufacturer. The scheme for the evaluation of conformity shall include the following tasks:

a) Tasks for the manufacturer

- 1) The manufacturer shall demonstrate that he operates factory production control, which takes account of those requirements of EN ISO 9002 which are relevant to this scheme, to ensure that the manufactured cement conforms to the technical specifications in ENV 197-1¹⁾ (see 5.1).
- 2) Conformity with the specifications in ENV 197-1¹⁾ shall be continuously assessed by means of autocontrol testing of samples taken at the factory and/or depot by the manufacturer and described in annex C (see 5.2).

b) Tasks for the approved body

The tasks which shall normally be carried out by the approved body are:

- 1) Surveillance, assessment and acceptance of the factory production control (see 6.2).
- 2) Evaluation of the results of autocontrol testing of samples (see 6.3).
- 3) Audit testing of samples taken at the factory/depot (see 6.4).

¹⁾ See page 3.

In the case of a new factory or a new type/strength class of cement:

- 4) Initial inspection of the factory and the factory production control (see 6.5).
- 5) Initial testing of the cement (see 6.6).

5 Tasks for the manufacturer

5.1 Factory production control

5.1.1 General requirements

The manufacturer's documentation and procedures shall describe in a Works' quality manual (see 5.1.2) the factory production control taking account of those clauses of EN ISO 9002 which are relevant to the production and process control of cement, and shall, amongst other things, adequately describe:

- a) The quality aims and the organisational 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 factory production control (see 5.1.3).
- b) The manufacturing and quality control techniques, processes and systematic actions that will be used (see 5.1.4 and 5.1.5).
- c) The examinations and tests that will be carried out before, during and after manufacture, and the frequency with which they will be carried out (see 5.1.6).

To meet the above requirements, the Works' quality manual prepared by the manufacturer for each factory shall also include an adequate system of documentation (see 5.1.7).

5.1.2 Works' quality manual

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 factory production control. For the purpose of this scheme, the term Works' quality manual shall be considered to include these associated documents.

5.1.3 Management systems

5.1.3.1 Quality policy

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

5.1.3.2 Management representative

The manufacturer shall appoint a management representative who, irrespective of other responsibilities, shall have defined authority and responsibility for ensuring that the requirements of this scheme for the evaluation of conformity are implemented and maintained.

5.1.3.3 Management review

The manufacturer shall review the factory production control at appropriate intervals as specified in the Works' quality manual at least once every two years in order to ensure its continuing suitability and effectiveness to meet the requirements of this scheme for the evaluation of conformity.

NOTE: Internal audits may be of assistance in this regard.

5.1.3.4 Training

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

5.1.4 Process control

5.1.4.1 Process control - General

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

5.1.4.2 Cement - Constituents and composition

The manufacturer shall establish documented procedures to ensure that the constituents meet the requirements in clause 4 of ENV 197-1¹⁾ and are suitable to enable cement to be produced meeting the technical specification.

The Works' quality manual shall describe the methods used by the manufacturer to ensure that the composition of the cement produced conforms to ENV 197-1¹⁾.

5.1.4.3 Control of off-specification production

The Works' quality manual shall contain procedures to ensure that off-specification production is adequately managed.

5.1.5 Handling, storage, packaging and delivery

The Works' quality manual shall describe the precautions taken for the protection of the quality of the cement while under the responsibility of the manufacturer. It shall include a description of the procedures used at depots. Delivery documentation shall allow traceability to the producing Works.

5.1.6 Measuring and testing

5.1.6.1 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 manual.

¹⁾ See page 3.

5.1.6.2 Inspection and test status

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

5.1.7 System of documentation

5.1.7.1 Document control

The management representative shall be responsible for the control of all documents and data related to factory production control and to this scheme for the evaluation of conformity.

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 master list shall be established to identify the current revision of documents in order to prevent the use of non-applicable documents.

5.1.7.2 Quality records

The manufacturer shall retain records of factory production control for at least the period required to comply with relevant legislation.

5.2 Autocontrol testing of samples

5.2.1 Sampling and testing SIST ENV 197-2:2000

The manufacturer shall operate a system of autocontrol testing. The conformity criteria and the sampling plan shall be in accordance with the basic rules given in annex C. The frequency of autocontrol testing shall not be less than that shown in column 4 of table 1 or, during the initial period of a new type of cement, column 6. The properties to be tested shall be as in columns 1 and 2 of table 1 and the test methods used shall be as indicated in column 3 of the table. For cements not being dispatched continuously, the frequency of testing and the point of sampling shall be as specified in the Works' quality manual.

All test data shall be documented and made available for subsequent review by the inspection body.

5.2.2 Corrective action

The following rules apply:

- (a) The manufacturer shall demonstrate conformity with the requirements in annex C. The Works' quality manual shall document procedures for the review and adjustment of the factory production control in case of non-conformity with these requirements. The actions taken shall be recorded in a management review.

(b) In the event of cement yielding a test result not conforming to 9.2.3 of C.2, the manufacturer shall immediately determine the affected quantity, take appropriate action to prevent the dispatch of this quantity and inform the affected customer if such cement has been released. In addition the manufacturer shall immediately determine the causes of such non-conformity, take corrective actions and undertake a management review of all factory production control procedures. All such actions and findings shall be appropriately recorded.

NOTE: The certification body may ask to be kept informed of these actions and findings.

5.2.3 Measuring and test equipment for autocontrol testing

The equipment used for autocontrol testing shall be regularly checked and calibrated in accordance with procedures and frequencies laid down in the Works' quality manual. These procedures may include comparison of compressive strength test results by proficiency testing with another laboratory designated in the Works' quality manual.

The Works' quality manual shall document procedures to ensure that all personnel involved in autocontrol testing have appropriate experience and training. Appropriate records shall be retained.

5.2.4 Quality records

The manufacturer shall retain records of the autocontrol test results and appropriate records on test equipment for at least the period required to comply with relevant legislation on product liability.

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6. Tasks for the approved body

6.1 General

The manufacturer shall co-operate with the certification body, the inspection body and the testing laboratory to allow them to carry out the tasks described in 6.2 to 6.6. The tasks described shall be carried out without undue delay with emphasis and priority placed on the control of the product (autocontrol and audit testing). The procedures adopted by the certification body, the inspection body and the testing laboratory shall comply with Annex IV of the Construction Products Directive and be based on those clauses of EN 45001 and EN 45011 which are relevant to this scheme for the evaluation of conformity.

6.2 Surveillance, assessment and acceptance of the factory production control

6.2.1 Inspection tasks

The inspection body shall carry out surveillance, assessment and acceptance of the factory production control operated by the manufacturer. Any major change in the Works' quality manual shall be reported to the certification body by the manufacturer within one month of its implementation.

The inspection body shall verify that the factory production control complies with the requirements of clause 5 of this prestandard and has been carried out according to the Works' quality manual.

6.2.2 Frequency of inspections

The inspections shall normally be carried out once per year and the inspection body shall inform the manufacturer in advance when an inspection is to be made.

6.2.3 Reports

Following each inspection, the inspection body shall prepare a confidential report and send this to the manufacturer.

The manufacturer shall, if appropriate, advise the inspection body of any corrective actions taken or planned to be taken following receipt of the report.

The inspection body shall then report on its final assessment to the certification body.

6.3 Evaluation of the results of autocontrol testing of samples

6.3.1 Against statistical criteria

The inspection body shall check that the test results of the manufacturer's autocontrol testing conform to 9.2.2 of C.2.

The number of statistical evaluations, by the inspection body, of the data of the control period shall be 1 to 3 per year.

The control period shall be 12 months, as a rule, or equal to the initial period in the case of a new type of cement. Each evaluation shall be made on the totality of the autocontrol test results obtained during the 12 months preceding the date of the evaluation or during the initial period respectively. The timing of the evaluations should be decided in advance. The evaluations may normally be carried out by correspondence and each evaluation shall lead, for the property examined, to a single conclusion in respect of the set of test results as a whole.

In the case of managed step changes in product properties the resulting separate data populations may be assessed separately.

The inspection body shall report on its evaluation to the certification body on a regular basis as in 6.2.3.

6.3.2 Against limit value criteria

Evaluation shall be made on the basis of individual autocontrol test results against the limit values given in 9.2.3 of C.2, and reported to the certification body.