



SLOVENSKI STANDARD
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Vrednotenje skladnosti agregatov - Začetno preskušanje tipa in kontrola proizvodnje v obratu

Evaluation of conformity of aggregates - Initial Type Testing and Factory Production Control

Bestimmung der Konformität von Gesteinskörnungen - Werkseigene Produktionskontrolle

Évaluation de la conformité des granulats - Contrôle de la production en usine

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EUROPEAN STANDARD

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English Version

Evaluation of conformity of aggregates - Initial Type Testing and Factory Production Control

Évaluation de la conformité des granulats - Contrôle de la
production en usine

Bewertung der Konformität von Gesteinskörnungen -
Erstprüfung und werkseigene Produktionskontrolle

This European Standard was approved by CEN on 5 February 2013.

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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Contents

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Evaluation of conformity.....	6
4.1 General.....	6
5 Initial type tests.....	6
6 Factory production control.....	6
6.1 General.....	6
6.2 Organisation.....	7
6.2.1 Responsibility and authority	7
6.2.2 Management representative for factory production control	7
6.2.3 Management review.....	7
6.3 Control procedures.....	7
6.3.1 FPC manual	7
6.3.2 Document and data control	7
6.3.3 Sub-contract services	7
6.3.4 Knowledge of the raw material.....	7
6.3.5 Management of production.....	8
6.4 Inspection and tests.....	8
6.4.1 General.....	8
6.4.2 Equipment	8
6.4.3 Frequency and location of inspection, sampling and tests	9
6.5 Records.....	9
6.6 Control of non-conforming product.....	10
6.7 Handling, storage and conditioning in production areas.....	10
6.8 Transport and packaging.....	10
6.8.1 Transport	10
6.8.2 Packaging	10
6.9 Training of personnel.....	11

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SIST EN 16236:2013

<https://standards.iteh.ai/catalog/standards/sist/027c2c08-a400-409e-8067->

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Foreword

This document (EN 16236:2013) has been prepared by Technical Committee CEN/TC 154 "Aggregates", the secretariat of which is held by BSI.

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 November 2013, and conflicting national standards shall be withdrawn at the latest by November 2013.

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 European Standard is one of a series of standards as listed below.

EN 12620, *Aggregates for concrete*;

EN 13043, *Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas*;

EN 13139, *Aggregates for mortar*;

EN 13242, *Aggregates for unbound and hydraulic bound materials for use in civil engineering work and road construction*;

EN 13383-1, *Armourstone — Part 1: Specification*;

EN 13450, *Aggregates for railway ballast*.

This European Standard replaces Annex H (normative) of EN 12620:2002+A1:2008, Annex B (normative) of EN 13043:2002, Annex E (normative) of EN 13139:2002, Annex C (normative) of EN 13242:2002+A1:2007, Annex D (normative) of EN 13383-1:2002 and Annex I (normative) of EN 13450:2002.

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, 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.

Introduction

This European Standard has been written as the system for the evaluation of conformity of aggregates. It is designed to be used in conjunction with the aggregate product standards: EN 12620, EN 13043, EN 13139, EN 13242, EN 13383-1 and EN 13450 and is called up by these standards.

Evaluation of conformity comprises initial type testing (ITT) and factory production control (FPC).

This standard has been compiled from the ITT and FPC clauses, annexes and tables previously found in the aggregate product standards. It does not introduce any new requirements compared with the original, 2002 versions of those standards. A new, separate Evaluation of Conformity standard is currently in preparation, which will provide more detailed ITT procedures and clear, detailed requirements for product conformity (e.g. statistical conformity criteria, number of samples, tolerances, time limits of validity etc). For the time being, when assessing aggregates within a system of factory production control, at least 90% of gradings taken on different batches within a maximum period of 6 months should fall within the limits specified in the product standards for tolerances on suppliers' typical declared gradings.

The initial type testing and factory production control procedures are designed to be applied to European Standards for aggregates. When the appropriate "conformity" clauses are applied, it forms part of the system for attestation of conformity as required by the Construction Products Directive. It provides the minimum level of ITT and FPC for CE Marking.

The testing procedures, using the reference test methods, have the function of providing assurance that a particular aggregate product complies with each of the selected specified requirements in the product standard. The type testing procedure is designed to be applied to all harmonised elements of European Harmonised Standards for aggregates. The system can also be extended to non-harmonised elements.

The factory production control system describes control of the sourcing and processing of the aggregate combined with routine sampling and testing to provide ongoing assurance that the aggregates product continues to conform to those properties determined through ITT. Testing within FPC may use either the standard reference tests called up by the aggregate product standards or other test procedures which have been shown to correlate with those tests.

For commercial and/or contractual reasons, the manufacturer can choose to perform more testing and inspection than the minimum specified.

1 Scope

This European Standard specifies both initial type testing and factory production control requirements for use during the evaluation and production of aggregates.

Additional testing carried out within contracts is beyond the scope of this standard.

This European Standard is applicable to European Standards for aggregates if regulatory marking of conformity is to be applied. It is also applicable to European Standards for aggregates where regulatory marking does not apply.

This European Standard is applicable to the control of aggregates within the scope of EN 12620, EN 13043, EN 13242, EN 13139, EN 13383-1 and EN 13450.

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 932-1, *Tests for general properties of aggregates — Part 1: Methods for sampling*

EN 932-5, *Tests for general properties of aggregates — Part 5: Common equipment and calibration*

EN 13383-2, *Armourstone — Part 2: Test methods*

3 Terms and definitions

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

3.1

initial type tests

complete set of tests or other procedures, determining the performance of samples of aggregates representative of the product type

3.2

factory production control

permanent internal control of production exercised by the manufacturer where all the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures

This documentation of the factory production control system should ensure a common understanding of quality assurance and enable the achievement of the required product characteristics and the effective operation of the production control system to be checked.

3.3

technical specifications

harmonised European Standards and European Technical Approvals (for aggregate)

EN 16236:2013 (E)**4 Evaluation of conformity****4.1 General**

The compliance of aggregates within the scope of EN 12620, EN 13043, EN 13242, EN 13139, EN 13383-1 and EN 13450 with the requirements of those standards and with the declared values (including classes) shall be demonstrated by:

- Initial Type Testing;
- factory production control by the manufacturer.

The manufacturer shall always retain overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance.

NOTE The assignment of tasks to the notified body and the manufacturer is shown in Annex ZA, Table ZA.3 of EN 12620:2013, EN 13043:2013, EN 13242:2013, EN 13139:2013, EN 13383-1:2013 and EN 13450:2013.

5 Initial type tests

The aggregates shall be subject to initial type tests relevant to the intended end use to show conformity with the relevant product standard in the following circumstances:

- a) a new source of aggregates is to be used;
- b) there is a major change in the nature of the raw materials or in the processing conditions that may affect the properties of the aggregates.

All samples used for initial type testing shall be representative of the material in question and shall be taken in accordance with EN 932-1 or in the case of armourstone EN 13383-2. The results of the initial type tests shall be documented as the starting point of the factory production control for that material. This shall include the data from the test reports from the test methods associated with all the requirements that have been verified.

The documentation shall specifically include the identification of any components likely to emit radiation above normal background levels and, any components likely to release polyaromatic hydrocarbons or other dangerous substances. If the content of any of these components exceeds the limits in force according to the provisions valid in the place of use of the aggregate, the results of the initial type tests shall be declared.

6 Factory production control**6.1 General**

The manufacturer shall have in place a system of factory production control that complies with the requirements of this clause.

The records held by the manufacturer shall indicate what quality control procedures are in operation during the production of the aggregate.

The performance of the factory production control system shall be assessed according to the principles used in this clause.

NOTE The form of control applied to any aggregate depends upon its intended use and the regulations relating to that use.

6.2 Organisation

6.2.1 Responsibility and authority

The responsibility, authority and the interrelation between all personnel who manage, perform and check work affecting quality shall be defined, including personnel who need organisational freedom and authority to:

- a) initiate action to prevent the occurrence of product non-conformity;
- b) identify, record and deal with any product quality deviations.

6.2.2 Management representative for factory production control

For every aggregate producing plant, a person with appropriate authority to ensure that the requirements given in this European Standard are implemented and maintained shall be appointed.

NOTE The management representative can be responsible for several production facilities.

6.2.3 Management review

The factory production control system adopted to satisfy the requirements of this European Standard shall be audited and reviewed at appropriate intervals by management to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained.

6.3 Control procedures

6.3.1 FPC manual

The manufacturer shall establish and maintain a factory production control manual setting out the procedures by which the requirements for factory production control are satisfied.

6.3.2 Document and data control

Document and data control shall include those documents and data that are relevant to the requirements of this European Standard covering purchasing, processing, inspection of materials and the factory production control system documents.

A procedure concerning the management of documents and data shall be documented in the production control manual covering procedures and responsibilities for approval, issue, distribution and administration of internal and external documentation and data; and the preparation, issue and recording of changes to documentation.

6.3.3 Sub-contract services

If any part of the operation is sub-contracted by the manufacturer, a means of control shall be established. The manufacturer shall retain overall responsibility for any parts of the operation sub-contracted.

6.3.4 Knowledge of the raw material

There shall be documentation detailing the nature of the raw material, its source and, where appropriate, one or more maps showing the location and extraction plan. Maps are not appropriate for manufactured or recycled aggregates, or for natural aggregate raw materials arising from less closely defined locations, such as marine aggregates.

The manufacturer shall ensure that if any dangerous substances are identified, they do not exceed the limits in force according to the provisions valid in place of use of the aggregate.

EN 16236:2013 (E)

NOTE 1 Most of the dangerous substances defined in Council Directive 76/769/EEC are not usually present in most sources of aggregates of mineral origin. However, the attention of the user of this standard is drawn to the contents of Note 2 in ZA.1 of Annex ZA of the product standards. Attention is drawn to the existence of local legislation in the place of use of the aggregate regarding the limits of content of dangerous substances.

In addition, for recycled aggregates, there shall be a documented input control of raw material to be recycled.

The input control procedures for recycling should identify:

- nature of the raw material;
- source and place of origin;
- supplier and transporting agent.

NOTE 2 For recycled aggregates, the processing depot will suffice for the source.

6.3.5 Management of production

The factory production control system shall fulfil the following requirements:

- a) there shall be procedures to identify and control the materials;

NOTE 1 These can include procedures for maintaining and adjusting processing equipment, inspection or testing material sampled during processing, modifying the process during bad weather, etc.

- b) there shall be procedures to identify and control hazardous materials identified in 6.3.4;

NOTE 2 Attention is drawn to the existence of local legislation in the place of use of the aggregate regarding the limits of content of dangerous substances.

- c) there shall be procedures to ensure that material is put into stock in a controlled manner and the storage locations and their contents are identified;

- d) there shall be procedures to ensure that material taken from stock has not deteriorated in such a way that its conformity is compromised;

- e) the product shall be identifiable up to the point of sale as regards source and type.

6.4 Inspection and tests**6.4.1 General**

All the necessary facilities, equipment and trained personnel to perform the required inspections and tests shall be made available.

6.4.2 Equipment

The manufacturer shall be responsible for the control, calibration and maintenance of inspection, measuring and test equipment.

Accuracy and frequency of calibration shall be in accordance with EN 932-5.

Equipment shall be used in accordance with documented procedures.

Equipment shall be uniquely identified.

Calibration records shall be retained.

6.4.3 Frequency and location of inspection, sampling and tests

The production control document shall describe the frequency and nature of inspections. The frequency of sampling and the tests shall be performed for the required relevant characteristics as specified in Tables 1 to 3. All samples used in factory production control shall be representative of the material in question and shall be taken in accordance with EN 932-1 or in the case of armourstone EN 13383-2.

NOTE 1 Test frequencies are generally related to periods of production. A period of production is defined as a full week, month or year of production working days.

NOTE 2 The minimum test frequencies in Tables 1 to 3 are only applicable if required in accordance with the product standards.

NOTE 3 The requirements for factory production control can introduce visual inspection. Any deviations indicated by these inspections can lead to increased test frequencies.

NOTE 4 When the measured value is close to a specified limit, the frequency might need to be increased.

NOTE 5 Under special conditions the test frequencies can be decreased below those given in Tables 1 to 3. These conditions could be:

- highly automated production equipment;
- long-term experience with consistency of special properties;
- sources of high conformity;
- running a Quality Management System with exceptional measures for surveillance and monitoring of the production process.

The manufacturer shall prepare a schedule of test frequencies taking into account the minimum requirements of Tables 1 to 3. <https://standards.iteh.ai/catalog/standards/sist/027c2c08-a400-409e-8067-fc02195612fb/sist-en-16236-2013>

Reasons for decreasing the test frequencies shall be stated in the factory production control document.

6.5 Records

The results of factory production control shall be recorded including sampling locations, dates and times and product tested.

NOTE 1 Some characteristics can be shared by several products, in which case the manufacturer, based on his experience, could find it possible to apply the results of one test to more than one product. This is particularly the case when a product is the combination of two or more different sizes. The particle size distribution or the cleanliness should be checked in case the intrinsic characteristics might have changed.

Where the product inspected or tested does not conform to the relevant requirement specified in the product standard, a note shall be made in the records of the steps taken to deal with the situation.

NOTE 2 Such a note could report carrying out of a new test and/or putting measures in place to correct the production process.

Please note the possible existence of local legislation regarding the length of time that such records are kept. "Statutory period" is the period of time records are required to be kept in accordance with regulations applying at the place of production.