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Ovrednotenje skladnosti za elektrofitrski pepel - Smernice za uporabo EN 450-2

Evaluation of conformity of fly ash for concrete - Guidelines for the application of EN 450-2

Bewertung der Konformität von Flugasche für Beton - Leitlinien für die Anwendung von EN 450-2

Evaluation de la conformité de cendres volantes pour béton - Guide pour l'application de EN 450-2

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ICS:

91.100.30	Beton in betonski izdelki	Concrete and concrete products
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**Evaluation of conformity of fly ash for concrete - Guidelines for
the application of EN 450-2**

Evaluation de la conformité de cendres volantes pour le
béton - Guide pour l'application de l'EN 450-2

Bewertung der Konformität von Flugasche für Beton -
Leitlinien für die Anwendung von EN 450-2

This Technical Report was approved by CEN on 18 November 2008. It has been drawn up by the Technical Committee CEN/TC 104.

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Foreword

This document (CEN/TR 15840:2009) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by DIN.

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.

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Introduction

The purpose of this Guidelines Document is to provide explanatory detail on points not fully elaborated in EN 450-2:2005 "Fly ash for concrete – Part 2: Conformity evaluation". It is intended for use by producers and by certification bodies involved in the certification of fly ash following EN 450-1 and EN 450-2, in particular for the issuing of an EC Certificate of Conformity.

This document does not deal with the necessary internal procedures that the 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 fly ash. 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 450-1:2005 and EN 450-2. 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 certification bodies that is expected from the application of EN 450-2 together with these Guidelines.

This Guidelines Document is based on existing situations for production, evaluation of conformity and certification of fly ashes. It may happen that 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 Certification Body. These specific procedures should always fulfil the requirements of EN 450-1:2005 and EN 450-2 and lead to the same level of confidence in product conformity that would be achieved by application of this Guidelines Document.

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The clause numbering system of EN 450-2 is followed. The text of each of the clauses of the Standard is reproduced in full and is followed by guidance, which is provided only for those clauses where clarification or elaboration is needed.

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1 Scope

This document specifies the scheme for the evaluation of conformity of fly ash according to EN 450-1:2005.

The document provides technical rules for the production control by the producer, including autocontrol testing of samples. It also provides rules for actions to be followed in the event of non-conformity, the procedure for the certification of conformity and requirements for dispatching centres.

Guidance

EN 450-2 deals with the evaluation of conformity of fly ash 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 Directive. The product for which EN 450-2 applies is defined in EN 450-1:2005 as fly ash for the production of concrete which consists of a fine powder of mainly spherical, glassy particles, derived from burning of pulverised coal, with or without co-combustion materials, which has pozzolanic properties.

2 Normative references

The following referenced documents are indispensable for the application 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 196-1, *Methods of testing cement — Part 1: Determination of strength*

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

EN 450-1:2005, *Fly ash for concrete — Part 1: Definition, specifications and conformity criteria*

EN 450-2:2005, *Fly ash for concrete — Part 2: Conformity evaluation*

EN 451-2, *Method of testing fly ash — Part 2: Determination of fineness by wet sieving*

3 Terms and definitions

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

3.1 Specific definitions

3.1.1

certificate of conformity to EN 450-1:2005

document issued under the rules of a certain scheme for the evaluation of conformity indicating that adequate confidence is provided that fly ash is in conformity with EN 450-1:2005

Guidance

The term “certificate of conformity” refers to certificates of conformity issued by a certification body under the rules of EN 450-2. This includes an EC Certificate of Conformity issued in relation to the CPD.

3.1.2

conformity mark

protected mark applied on the basis of the certificate of conformity (see 3.1.1)

Guidance

The term “protected mark” includes registered mark, regulated mark and CE marking.

3.1.3**certified fly ash**

fly ash for which a certificate of conformity has been issued

3.1.4**initial period**

immediate period after the first issuing of the certificate of conformity for a fly ash

3.1.5**certification body**

impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out conformity certification according to given rules of procedure and management

3.1.6**production control**

permanent internal control of fly ash production exercised by the producer consisting of internal quality control and autocontrol testing

3.1.7**production plant**

facility used by a producer for the production of fly ash:

- a) power plant with one (several) boiler(s),
- b) processing plant, for example for the classification, selection, sieving, drying, blending, grinding and/or carbon reduction of fly ash(es).

In the production plant, equipment has to be used which is suitable for production of fly ash including the necessary silo capacity for the storage and dispatch of the fly ash produced, and equipment to test, evaluate and control the fly ash production. This equipment and the production control applied allow the control of production with sufficient accuracy to ensure that the requirements of EN 450-1:2005 are met

Guidance

Two categories of production plant are recognised:

- traditional power station facility where fly ash is produced as part of the production of electricity;
- processing plants that may or may not be on a power station facility, where ashes are altered in some manner.

3.1.8**new production plant**

production plant which is not already producing fly ash certified under this scheme

3.1.9**existing production plant**

production plant which is already producing fly ash certified under this scheme

CEN/TR 15840:2009 (E)**3.1.10****depot**

bulk fly ash handling facility (not located at the production plant) used for the dispatch of fly ash (whether in bulk or bagged) after transfer or storage, where the producer has full responsibility for all aspects of the quality of the fly ash

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

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

3.1.11**dispatching centre**

bulk fly ash handling facility (not located at the production plant) used for the dispatch of fly ash after transfer or storage where an intermediary has full responsibility for all aspects of the quality of the fly ash

Guidance

See guidance under 3.1.10 and 9.1.

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3.1.12**intermediary**

natural or legal person who takes from the producer fly ash certified according to EN 450-2 and bearing the conformity mark, who undertakes full responsibility for maintaining in a dispatching centre all aspects of the quality of the fly ash and who supplies the fly ash onwards to a further natural or legal person

3.1.13**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

3.1.14**works' quality manual**

document that provides information on the production control which is applied by a producer at a particular production plant to ensure conformity of the fly ash with the requirements of EN 450-1:2005

3.1.15**producer**

the operator of the production plant or a person (natural or legal) authorised by the production plant and named in the certificate of conformity

3.2 General definitions

See Annex B (informative).

4 Tasks for the producer

4.1 Factory production control

4.1.1 Concept

Production control means the permanent internal control of fly ash production exercised by the producer. It consists of internal quality control (see 4.2) and autocontrol testing² of samples of fly ash taken at the point of release (see 4.3).

NOTE The requirements of EN 450-2 as regards the production control take account of those clauses of EN ISO 9001 [6] which are relevant to the production, process control and testing of fly ash.

Guidance

The purpose of production control is to ensure that the fly ash is manufactured in a controlled way to meet all of the requirements of EN 450-1:2005. In order that a 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 production control system may form part of a wider, integrated management system provided it can be demonstrated that all applicable EN 450-2 requirements are addressed. See also the Note in 4.1.2 of the Standard.

4.1.2 Works' quality manual

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

- a) the quality aims and the organisational structure, responsibilities and powers of the responsible staff 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 production 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 production, 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 producer for each production plant shall include an adequate system of documentation (see 4.1.4 and 4.3.4). In case of suitability testing of fly ash from co-combustion of pulverised coal with certain co-combustion materials according to EN 450-1:2005, the procedure of sampling shall be documented in agreement with the certification body.

The Works' quality manual shall address and document the procedures operated to ensure that the fly ash conforms to the technical specifications. The manual may reference associated documents that 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.

NOTE In the case of an existing quality management system according to EN ISO 9001 [6], the certification body may examine if the corresponding quality manual meets all the requirements of EN 450-1:2005 which are relevant to the production control of fly ash. Provided all the requirements are included, the quality manual may also be applied for the product certification.

² This testing corresponds also to the 'further testing of samples' mentioned in Annex III Section 2 point (i) of the Construction Products Directive 89/106/EEC.

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Guidance

The Works' quality manual is the fundamental document that describes the production control system operated by the fly ash production plant. It should clearly state the scope of the production control system and must describe how each of the elements of the system, as outlined in Clauses 4.1 to 4.3.4, are controlled and maintained.

The Works' quality manual normally comprises a main document together with associated documents and technical procedures. All these documents are written in the current language of the production plant's country.

To ensure an effective production control system, there needs to be a well defined organisational structure within the fly ash production plant, showing very clearly the lines of reporting. This is best achieved by one or more simple diagrams. The manual should list all personnel who can affect quality within the manufacturing process together with their job titles and refer to a description of their tasks and responsibilities within the quality function. These should pay particular attention to the level of authority to check, assess, verify and pass conforming co-combustion materials and product.

Illustrative Example of Responsibilities - For Information Only**Quality Manager**

The Quality Manager has two overall responsibilities: to ensure that adequate quality procedures exist and to ensure that the procedures are carried out. The Quality Manager is responsible to the producer for:

- the co-ordination, monitoring and updating of the Works' quality manual procedures;
- ensuring that all personnel at every level are kept informed of working methods, procedures, specifications and quality targets;
- setting the requirements for process control and supervising their written transmission to the appropriate personnel;
- assessing the conformity of raw materials to the relevant specifications;
- controlling of off-specification fly ashes and criteria for co-combustion materials;
- the identification and resolution of non-conformities in the production control system;
- supervising the recording and processing of relevant data and consequent approval;
- provide senior personnel with periodic reports on the compliance status of the fly ash.

There needs to be a quality plan for the production of conforming fly ash and whilst it must be recognised that the plan can take on one of many forms and include such things as process flow charts and control tables, it must show how each of the parts of the process are connected. There must be a clear indication of where samples are taken and at what frequency, together with the tests to be applied. Targets and acceptability criteria should also be documented.

Regarding the Note at the end of 4.1.2, in the case of an existing quality management system in accordance with EN ISO 9001 [6], it should be clearly stated in the Works' quality manual that the system is also used for factory production control according to EN 450-2.

4.1.3 Management systems

4.1.3.1 Quality policy statement

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

4.1.3.2 Management representative

If the producer is a person authorized by the production plant (see 3.1.15), suitable relations between the producer and the production plant shall be established and documented in order to ensure that the requirements of this document are met.

Guidance

The Management Representative should be clearly shown to have the necessary dedication, time and authority to ensure that fly ash continues to conform to EN 450-1:2005 by the adoption of the requirements of the documented production control system. As he has the ultimate responsibility for the effective operation of production control, his responsibilities should at least include maintenance of the Works' quality manual, the operation of process and autocontrol and the evaluation of the fly ash data to EN 450-1:2005 requirements. Effective and unrestricted communication channels to other affected departments must be open to the management representative to discuss possible problems.

The authority and responsibility for the production control system and the quality assurance of fly ash are not necessarily held by the same person.

The Works' quality manual should state to whom the responsibility is transferred in the absence of the management representative.

4.1.3.3 Internal audits and management review

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In order to ensure the continuing suitability and effectiveness of the Work's quality manual to meet the requirements of EN 450-1:2005, the producer shall perform at least once per year:

- a) internal audits covering the scope of this Clause 4 and 6.1;
- b) producer's management review of the production control, taking into account records of the internal audits.

Guidance

For audits to be of value, there needs to be evidence that non-conformities raised are progressed to a satisfactory conclusion and this must be assessed by the management during the review. Reviews should be conducted to an established formal agenda by a management team and a record made of the findings, showing actions to be taken and relevant responsibilities. Reviews will need to take account of not only the internal audits but also of customer complaints.

Audits need to be carried out at an established frequency, procedures and plan, by trained personnel independent of the area to be audited.

It is essential that internal audits cover all aspects dealt with in the Works' quality manual.

4.1.3.4 Training

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