GNB-CPR SG02	Guidance from the Group of Notified Bodies for the Construction Products Regulation 305/2011/EU	NB-CPR/SG02/04/010r1 Issued: 6 December 2013 APPROVED – GUIDANCE

GNB-CPR position paper from SG02 - EN 12620, EN 13043, EN 13055-1, EN 13139, EN 13383-1, EN 13242 and EN 13450

Certification of FPC of aggregates

EN 12620:2002+A1:2008	**Aggregates for concrete**
EN 13043:2002/AC:2004	**Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas**
EN 13055-1:2002/AC:2004	**Lightweight aggregates – Part 1: Lightweight aggregates for concrete and mortar**
EN 13139:2002/AC:2004	**Aggregates for mortar**
EN 13242:2002+A1:2007	**Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction**
EN 13383-1:2002/AC:2004	**Armourstone – Part 1: Specification**
EN 13450:2002/AC:2004	**Aggregates for railway ballast**

General scope, limitations and aim of this guidance for notified bodies

The Construction Products Regulation (CPR) is based on the use of harmonised technical specifications, and these often require the involvement of a conformity assessment body to demonstrate compliance. Such bodies must be designated by the Member States as notified bodies (NBs). CPR Articles 43(11) and 55 require the formation of a group of notified bodies, and that NBs should participate in its work. Article 43(11) states that the notified body "shall apply as general guidance the administrative decisions and documents produced as a work result of that group". The GNB-CPR is the group referred to by Article 43(11).

The Group of Notified Bodies for the Construction Products Regulation (GNB-CPR) comprises an Advisory Group (AG) and subordinate horizontal and vertical sector groups. SG02 is the vertical sector group for 'Cement, aggregates, mortar and ancillary products for concrete'. One of the tasks of the SGs is to prepare position papers, such as this one, to assist in the assessment of construction products. Position papers must also be approved by AG.

This position paper contains guidance for notified bodies (NBs) involved in the assessment and verification of constancy of performance of FPC of aggregates according to EN 12620, EN 13043, EN 13055-1, EN 13139, EN 13383-1, EN 13242 and EN 13450. The purpose is to help NBs work equivalently and come to common judgments. This guidance contains informative material (which NBs should or may follow) and/or normative guidance (which NBs shall follow or at least work equivalently to as circumstances demand).

The primary document for NBs is the edition of the relevant harmonised technical specification that is currently cited in the Official Journal of the EU, or the European Technical Assessment, to which the manufacturer works. This guidance is thought necessary to provide clarity and completeness for NBs so that they can work equivalently. It **supplements and makes practical for NBs** the relevant harmonised technical specifications. This position paper should **not** contradict nor extend the scope of the work and role of a NB, nor impose additional burdens on the manufacturer, beyond those laid down in the CPR and the relevant harmonised technical specifications.

This guidance should be considered valid until the relevant standards are amended to include the guidance (as thought fit by the CEN/TC); or until guidance from the Commission, SCC or AG has changed on relevant matters. Whereupon, the paper should be considered for withdrawal/revision and be replaced by new guidance as necessary.

This position paper was approved in its original form by SG02 on 24 January 2004, and by Advisory Group on 2 February 2004, and in its revised form, for use under the CPR, by SG02 on 25 September 2013 and by Advisory Group on 18 November 2013.

Contents

1 Foreword

To maintain equivalent use and interpretation of this document by the NBs it is important that any questions are communicated to the chairman or secretary of GNB-CPR Sector Group SG02. Their addresses can be found on the CIRCABC web site, in Monitoring Report NB-CPR/M02 'GNB-CPR Officials'.

2 Scope and field of application

This document defines and describes the sequence of the main position papers to be followed by a notified factory production control certification body in granting and maintaining a certificate of conformity of the factory production control for aggregates on the basis of the requirements of Annex ZA of EN 12620:2002+A1:2008 and/or EN 13043:2002/AC:2004 and/or EN 13055-1:2002/AC:2004 and/or EN 13139:2002/AC:2004 and/or EN 13242:2002+A1:2007 and/or EN 13383-1:2002/AC:2004 and/or EN 13450:2002/AC:2004.

NBs should note that, for the purposes of CE marking, references in the harmonised standard must always be respected. The versions of the harmonised standards listed above do not refer to EN 16236:2013 '*Evaluation of conformity of aggregates - Initial Type Testing and Factory Production Control*', and thus EN 16236:2013 is not applicable.

3 Reference list

Construction Products Regulation 305/2011/EU

EN 12620:2002+A1:2008, *Aggregates for concrete*

EN 13043:2002/AC:2004, *Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas*

EN 13055-1:2002/AC:2004, *Lightweight aggregates – Part 1: Lightweight aggregates for concrete and mortar*

EN 13139:2002/AC:2004, *Aggregates for mortar*

EN 13242:2002+A1:2007, *Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction*

EN 13383-1:2002/AC:2004, *Armourstone – Part 1: Specification*

EN 13450:2002/AC:2004, *Aggregates for railway ballast*

Commission Guidance Paper B – The definition of Factory Production Control in Technical Specifications for construction products.

IAF MD 1, *IAF Mandatory Document for the Certification of Multiple Sites Based on Sampling*

AG Position paper NB-CPD/AG/03/001, *Numbering of notified body certificates*

AG Position paper NB-CPD/AG/03/002, *Guidance to notified bodies on the attestation of conformity under the Construction Products Directive 89/106/EEC*

AG Position paper NB-CPD/AG/03/003, *Generic forms for NB certificates*

AG Position paper NB-CPD/AG/03/004, *Checklists for initial inspection of factory and factory production control and continuous surveillance of factory production control*

AG Position paper NB-CPD/AG/07/008, *Guidance to Notified Bodies in certifying own brand labelled products and those involving significant subcontract manufacturing*

AG Position paper NB-CPD/AG/08/009, *The consequences for NB's of corrigenda, amendments and revisions to harmonized European standards*

4 Terminology

For terms used in this document that are not covered in the documents listed in clause 3, explanations are given below.

4.1 Factory

Production unit at a location identified by the manufacturer responsible for the final properties and composition of products.

4.2 Manufacturer / distributor / supplier / trader

The definition given in CPR Article 2 (19) is "*'manufacturer' means any natural or legal person who manufactures a construction product or who has such a product designed or manufactured, and markets that product under his name or trademark;*".

For aggregates, this organization must take responsibility for the quality of the delivered aggregates produced by one or more factories (production units) and the factory production control. Typical activities are selection of raw material, crushing, washing, sieving, mixing and filling of transport media and, if this is the responsibility of the manufacturer, transport.

Depending on the point of release, transport can also be part of the FPC.

The definition given in CPR Article 2 (20) is "*'distributor' means any natural or legal person in the supply chain, other than the manufacturer or the importer, who makes a construction product available on the market;*".

It is clear from Article 2 (19) and (20) that any organization selling aggregate under its own (brand) name must take responsibility for CE marking that aggregate. NB-CPD/AG/07/008 explains that the factory production control certification body must have a contract with each organization it certifies for the product.

When different aggregates are mixed to make a new aggregate, this is considered to be a new construction product and therefore the manufacturer has to take responsibility for the appropriate factory production control (including the tests) and affixing his own CE-marking on the product or accompanying documents.

5 Certification process

The scheme to be followed by the notified factory production control certification body to grant and maintain the certificate of conformity of the factory production control is divided into four main “operative phases”:

1. the application (see section 6);
2. the initial inspection of the manufacturing plant and of factory production control (see section 7);
3. the issuing of the certificate (see section 8), and;
4. the continuous surveillance, assessment and evaluation of factory production control (see section 10).

In the case where a notified factory production control certification body subcontracts any of its tasks, it remains nevertheless responsible for the whole certification process. All the contacts with the manufacturer have to be carried out through the notified factory production control certification body.

6 Application

For the application procedure, see NB-CPR/AG/03/002 section 4.3.

7 Initial inspection of the Factory and the Factory Production Control

General information on initial inspection is given in NB-CPR/AG/03/002 section 4.4.

Before carrying out the initial inspection of each factory and of the FPC the notified factory production control certification body shall verify whether all articles described in the annexes named "Factory Production Control" of the appropriate following standards EN 12620 and/or EN 13043 and/or EN 13055-1 and/or EN 13139 and/or EN 13242 and/or EN 13383-1 and/or EN 13450 and Annex A of this document are dealt with appropriately in the production control manual and related documents.

If this is not the case, the notified factory production control certification body shall inform the manufacturer about the non-compliances found and request corrective actions and an updated version of the documents.

When the documentation is accepted by the notified factory production control certification body a date for the initial inspection of the manufacturing plant and of factory production control will be agreed upon. During this initial inspection the notified factory production control certification body will investigate whether the documented system is implemented in accordance with the requirements of EN 12620 and/or EN 13043 and/or EN 13055-1 and/or EN 13139 and/or EN13242 and/or EN 13383-1 and/or EN 13450. A checklist, prepared by the notified factory production control certification body, should support the inspector in this task. Items found not to be in compliance are reported at the end of the initial inspection. See NB-CPR/AG/03/004 for further information about checklists. An indicative checklist is given in Annex B of this position paper.

The determination of the product-type is not part of the factory production control but must have been carried out by the manufacturer in accordance with the test methods described in the standard. The determination of the product-type shall comply with the list given in Annex C.

The content of the determination of the product-type is the responsibility of the manufacturer, and the notified factory production control certification body shall see evidence of determination of the product-type to check the results from the factory production control for similarity and credibility.

Test results from FPC must comply with the requirements of the appropriate part of EN 12620 and/or EN 13043 and/or EN 13055-1 and/or EN 13139 and/or EN 13242 and/or EN 13383-1 and/or EN 13450 and the product specification. The manufacturer's stated values and a procedure for the evaluation of the test results must therefore be part of the production control manual of the manufacturer. The manufacturer shall be aware that national provisions (concerning which properties mentioned in the harmonised standard must be tested, and conformity criteria) might apply.

Test methods used by the manufacturer should be the methods prescribed in the relevant standards. Alternative methods can be used if the results of those methods have a reliable correlation with the results of the reference method. This evidence is submitted for the agreement of the NB. Determination of the correlation of test results should be carried out on a regular basis using a procedure described in the production control manual. In case of doubt the method prescribed in the standard prevails.

Checks on proper functioning and reliability should be carried out on equipment used and/or mentioned in the relevant test methods and/or EN 932-5. As provided for in EN 932-5, alternative methods can be used for the calibration of the equipment. Those alternative methods can be described in national documents.

The results for the determination of the product-type of the aggregates mentioned in the application form must be available for at least one produced batch at the time of the initial inspection.

A report containing the results of the assessment of the works production control manual and related documents and the initial inspection of the factory shall be sent to the manufacturer within an agreed time after the initial inspection, normally not longer than 6 weeks.

The manufacturer shall inform the notified factory production control certification body about the corrective actions taken by him.

If the notified factory production control certification body classifies the corrective actions as not sufficient the notified factory production control certification body may cease the certification process and the applicant will be informed of this decision.

8 Issue of the certificate

The notified factory production control certification body shall issue a "certificate of conformity of the factory production control" in accordance with the requirements given in NB-CPR/AG/03/002 section 4.5, when the initial inspection has been conducted with a positive result. The applicant shall be informed about this as soon as possible.

In the case where non-compliances have been detected during the initial inspection, all nonconformities must be dealt with to the satisfaction of the notified factory production control certification body. The notified factory production control certification body will acknowledge this in

writing and a certificate of conformity of the factory production control will be issued by the notified factory production control certification body for the factories concerned.

A certificate may cover more than one type of aggregate, and more than one plant, as agreed between the notified factory production control certification body and the manufacturer, and as defined in the appropriate part of the relevant hEN or hENs, as long as the products are produced under the same system of factory production control (see NB-CPR/AG/03/002 section 4.5).

The format of the certificate of conformity of the factory production control should follow the latest version of the form given in NB-CPR/AG/003 for certificates for hENs at AVCP 2+.

Translations of the form into other languages can be found on CIRCABC.

The numbering system for certificates of conformity is set out in NB-CPR/AG/03/001.

9 Extension of a certificate

See NB-CPR/AG/03/002 section 4.5.

A manufacturer can use the application form to ask the notified factory production control certification body for an extension of the certificate for additional types of products complying with different technical specifications but manufactured under the same system of FPC in the same factory.

10 Continuous surveillance of FPC

For the surveillance procedure see NB-CPR/AG/03/002, section 4.6.

The notified factory production control certification body exercises the surveillance of the FPC on the basis of the requirements of the relevant harmonised standard and on the basis of the initial inspection of the manufacturing plant and FPC.

At least once per year an announced inspection of the factory production control shall be made.

If a company operates many manufacturing plants under the same FPC sampling, should be applied using the IAF rules (IAF MD 1: “IAF Mandatory Document for the Certification of Multiple Sites Based on Sampling”). All the manufacturing plants shall be visited within a period of 3 years. **Nevertheless, quarries producing aggregates with a PSV ≥ 58 must be inspected every year.**

The manufacturer is required to have informed the notified factory production control certification body of any changes to the factory production control, including modifications to the manufacturing plant. Failure to do so may result in a non-compliance being raised by the notified factory production control certification body.

It will be the decision of the notified factory production control certification body whether or not a further inspection visit is necessary at the time of the announcement of any such changes.

The notified factory production control certification body shall examine the frequencies and results of testing within the scope of the inspection of factory production control to verify that these are functioning effectively.

Autocontrol testing and the necessity to do so is the responsibility of the manufacturer.

The test equipment and test methods used also fall under the scope of factory production control and shall be assessed as part of the initial inspection of FPC and may be assessed also during each surveillance visit.

NOTE: Comparative testing could be a suitable means to verify the results of the manufacturer obtained under FPC.

The product technical specification shall include minimum frequencies of testing required by the manufacturer under the factory production control of the aggregates. Those frequencies can be decreased (as mentioned in the Factory Production Control annex of each standard) but the reasons shall be stated in the factory production control manual and the notified factory production control certification body shall check that these are documented appropriately.

Where the notified factory production control certification body determines that the manufacturer is not implementing the defined frequencies of continuous audit/batch testing, a non-compliance should be raised.

The notified factory production control certification body shall inform the manufacturer about the results of all surveillance visits and shall also inform the manufacturer of any non-compliances it has raised.

The notified factory production control certification body may decide to carry out further visits if serious deficiencies in the factory production control are identified.

Where a non-compliance is identified, it is the responsibility of the manufacturer to investigate the cause of the problem and report to the notified factory production control certification body effective corrective action measures appropriate to the nature of the non-compliance raised.

In the case of non-implementation of suitable corrective action or continuing non-compliance (nonconformities), the notified factory production control certification body should advise the manufacturer of the action it intends to take.

The notified factory production control certification body may decide to withdraw the certificate of conformity of the factory production control and, in such cases, the manufacturer will be informed as soon as this is practicable.

NOTE: The notified factory production control certification body must provide the possibility for appeals against its decisions.

Only in the case when the certificate of conformity of the factory production control is withdrawn as a result of continuing nonconformities, the notified factory production control certification body shall inform the competent authority in its Member State.

Annex A Guidance on the Factory Production Control annexes

A.1 Scope:

The object of this document is to complement the annexes "Factory Production Control" of the different standards listed in the normative references listed in section 3 of this position paper.

A.2 Introduction

The present guide defines and clarifies the "factory production control" in the context of CE marking and the normative annexes of the standards by considering the following activities.

- organization
- control procedures
- management of production
- inspection and tests
- records
- control of nonconforming products
- handling, storage and conditioning in production areas
- transport and packaging
- training of personnel

A.3 Organization

A.3.1 Responsibility, authority and abilities

The notified factory production control certification body shall check that the responsibility, authority and the interrelation between all personnel who manage, perform and check work affecting quality is defined.

A.3.2 Appointment of a management representative for factory production control

The management representative could have other duties in the factory. He can also be the management representative for more than one factory. He may have an assistant but he has overall responsibility.

A.3.3 Management review

The notified factory production control certification body should expect to see that the management reviews the system of production control at appropriate intervals to ensure it remains effective. During this review, any conformity or nonconformities should be examined and the need for modifying the system should be assessed. Records of such reviews should be maintained.

The following points should be considered during each review:

- analysis and synthesis of nonconformities
- analysis of customer complaints *in order to check if the FPC needs to be modified*
- analysis of corrective actions and their effectiveness
- suitability of the factory production control system
- conformity of the products

A.4 Control procedures

A.4.1 Documents and data control

The notified factory production control certification body should expect to see the manufacturer describe in his factory production control Manual (or in any other document) the modes and arrangements concerning the management of the different documents (preparation, codification, checking, approval, distribution, copying, archiving, withdrawal, …).

COMMENT: The factory production control manual can consist of different documents but all the documents asked for in the FPC annex of the standards are supposed to be included as parts of the factory production control manual.

A.4.2 Sub-contract services

In the event that the manufacturer decides on subcontracting one or more operations (see the list below), the notified factory production control certification body should expect to see suitable means of control defined (definition of the work, means of order, acceptance of the work, …).

For information, the following list of operations can be subcontracted:

- removal and disposal of the spoiled materials at the top of the quarry
- plan of mining
- drilling
- mining
- extraction
- conveyance of the raw material
- production
- storage
- loading
- transport
- tests

COMMENT: The contracts are part of the Factory Production Control system. The notified body has only to verify that those contracts exist and that suitable means of control exist and are applied.

A.4.3 Knowledge of the raw material

The notified factory production control certification body should expect the manufacturer to retain documentation detailing the nature of the raw material, its source and one or more maps showing the location and extraction plan.

The notified factory production control certification body shall verify that the manufacturer has a procedure to check what regulations are valid in the Member states where the product will be used. The manufacturer keeps the responsibility.

For information, the database on dangerous substances can be found on:
http://ec.europa.eu/enterprise/sectors/construction/cp-ds/index_en.htm

A.5 Management of production

The notified factory production control certification body should expect the manufacturer to ensure that the system of factory production control satisfies the following conditions:

- he shall have instructions for maintaining and adjusting processing equipment:
  - flow sheets of the processing equipment
  - instruction for using and/or controlling the processing equipment
  - daily reports (repairs, quantities produced, problems, ..)
- he shall have instructions for preservation of the storage
  - map of the storage area
  - identification, marking (at least size and any other indication necessary to identify the product)
  - separation of the different stocks

Samples have to be taken, when necessary, to ensure that the conformity at the point of delivery is maintained:

- the identification of the source is only:
  - the name of the manufacturer and the site (ex: quarry xxxx)
  - simplified petrographic description in accordance with EN 932-3 (for example: alluvial)
  - size
  - production mode (for example: crushed, …)

The term manufacturer is defined in section 4.2 of this position paper.

A.6 Inspection and test

A.6.1 General

When the manufacturer does not subcontract the inspection and tests, the notified factory production control certification body should expect him to undertake the following:

- make available the necessary facilities and material
- make the inspection and test in accordance with his quality manual

- respect points A.6.2 and A.6.3 of this document

If the manufacturer subcontracts partially or totally the tests, the notified factory production control certification body should expect him to provide evidence that the tests conform to the standards:

- either by using laboratories that have been accredited through EN 17025 for the scope of aggregates, or;
- for laboratories which do not have any accreditation, the manufacturer should demonstrate that the results of the laboratory are reliable (identification of the samples,…), and the notified factory production control certification body shall verify that the tests are carried out according to the Factory Production Control Manual and the standards.

A.6.2 Measuring and test equipment

Alternative methods to EN 932-5 can be applied.

A.6.3 Frequency and location of inspection, sampling and tests

The notified factory production control certification body should expect the manufacturer to give, for each sample:

- the location
- the batch concerned
- the date
- the name of the people who made the sampling
- the designation of the product.

Tests frequencies are given in a control plan

The notified factory production control certification body should expect sampling to be carried out as specified in EN 932-1.

Definitions concerning the **periods of production** to which test frequencies are related:

- 1 week of production: **5 days** of production in a period of 3 months *
- 1 month of production: **20 days** of production in a period of 6 months *
- 1 year of production: **at least one day** of production in the year.

** From the first day of production.*

A.7 Records

The notified factory production control certification body should expect the manufacturer's factory production control system to give location, duration, etc for recording, filing and archiving the documents listed below.

- management review report
- nonconformity records

- customers complaints records
- records concerning products sampling, tests, conformity controls and CE marking
- records concerning subcontracted activities
- daily production logs
- records concerning measuring and tests equipment
- records concerning the training of the employees.

A.8 Control of nonconforming products

The notified factory production control certification body should expect all cases of nonconforming products (including customer complaints concerning a nonconforming product) to be recorded by the manufacturer, investigated and if necessary corrective action shall be taken.

NOTE: In Commission Guidance Paper 'B' (§ 3.2.4: treatment of products which do not conform) it is also requested that "if products have been delivered before the results are available, a procedure and record should be maintained for notifying customers."

A.9 Handling, storage and conditioning in production areas

The notified factory production control certification body should expect the manufacturer to make the necessary arrangements to:

- ensure that the aggregates will not be polluted during handling inside the quarry
- ensure the stocks are protected from pollution
- use suitable methods to store the aggregates
- ensure the cleanliness of the stocking areas, the handling equipment and the circulating tracks
- ensure that measures are taken to limit segregation
- make available storage and handling procedures for employees responsible for handling and storage
- identification of the stocks.

A.10 Transport and packaging

A.10.1 Transport

For those aggregates delivered by the manufacturer, he remains responsible for the quality during the transportation.

For those aggregates that are sold at the production facility, the customer is responsible for the measures that are taken to prevent modification of the product.

A.10.2 Packaging

When the manufacturer packages aggregates, the notified factory production control certification body shall check that the manufacturer has printed on the packaging any precautions regarding storage.

A.11 Training of personnel

The notified factory production control certification body shall check that the manufacturer has established a training plan.

Annex B Indicative checklist for initial inspection and surveillance visits

CHECKLIST FOR INITIAL INSPECTION OF FACTORY AND FPC FOR AGGREGATES

	Questions to be considered	**Answers**
1	For which product/standard has factory production control been established and a determination of the product-type of the product been carried out? (only for products under system of attestation of conformity level 2+) Is there more than one factory covered by the same FPC system?	See table 1 on next page
2	Organization 2.1 Responsibility and authority Is the chain of responsibility of all personnel related to production work defined and effective? 2.2 Management representative for factory production control Is there a management representative for the factory? Has he authority to ensure that the requirements are implemented and maintained? 2.3 Management review Is the FPC system reviewed by the management at least once a year? Are there records of those reviews?	
3	Control procedures Has a factory production control manual been established? 3.1 Document and data control Is there a procedure concerning the management of documents and data relevant to the requirements of FPC? Are there described responsibilities for approval, issue, distribution, administration of internal and external documents and data and for preparation, issue and recording of changes? 3.2 Sub-contract services Are there operations covered by FPC which are subcontracted? Has the manufacturer stated a mean of control for all these subcontracted activities? Is it implemented? 3.3 Knowledge of the raw material Are there documents concerning the source and the nature of the raw material? Have maps of the location and extraction plans been established? Has the manufacturer identified any risk of presence of dangerous substances in the raw material (depending on the place of use)?	

TABLE 1: LIST OF AGGREGATES (AND STANDARDS) CONCERNED BY CE MARKING WITH LEVEL OF ATTESTATION OF CONFORMITY 2+ FOR WHICH DETERMINATION OF THE PRODUCT-TYPE HAS BEEN CARRIED OUT AND FPC ESTABLISHED

Size of the product	EN 12620	EN 13043	EN 13139	EN 13242	EN 13055-1	EN 13383-1	EN 13450	Comments
…/… mm								
…/… mm								
…/… mm								
…/… mm								
…/… mm								
…/… mm								
…/… mm								
…/… mm								
…/… mm								

For each product tick the standard(s) for which determination of the product-type has been carried out and FPC has been established

	Questions to be considered	Answers
4	Management of the production a) Are there procedures to identify and control the materials (incoming, in-process, finished) *(these can include procedures for maintaining and adjusting processing equipment, inspection or testing material sampled during processing, modifying the process during bad weather)*? Are they implemented? b) Are there procedures to identify and control any hazardous materials and to ensure that they do not exceed the limits valid in the place of use? Are they implemented? c) Are there procedures to ensure that material is put in stock in a controlled manner and the storage locations and their contents are identified? Are they implemented? d) Are there procedures to ensure that material taken from stock has not deteriorated? Are they implemented? e) Is the product identifiable up to the point of sale (source and type)?	
5	Inspection and test 5.1 General Are all the facilities, equipment and trained personnel to carry out the required inspections and tests available (including subcontracted tests)? 5.2 Equipment Are the frequencies of calibration in accordance with EN 932-5? Are there procedures for the use of the equipment? Does the personnel have written instructions to carry out the tests? Is the equipment uniquely identified? Are there records of the calibration? 5.3 Frequency and location of inspection, sampling and tests Is there a document describing the frequency and nature of inspections? Are the frequencies of sampling and tests in accordance with the relevant tables of the annex FPC of each standard concerned by CE marking? In case the tests frequencies are decreased, are the reasons for this decreasing stated in the FPC manual?	
6	Records Are the results of FPC recorded? Are the records kept at least the statutory period?	

	Questions to be considered	Answers
7	Control of nonconforming products Are all the cases of nonconforming products (including those related to customer complaints) recorded? Are all the cases of nonconforming products investigated? If necessary are corrective actions taken?	
8	Handling, storage and conditioning in production areas Have the manufacturer made the necessary arrangements to avoid: - contamination of product? - segregation? or to ensure cleanliness of handling equipment and stocking areas ?	
9	Transport and packaging 9.1 Transport Has the manufacturer identified in his FPC manual the extent of his responsibility in relation to storage and delivery? 9.2 Packaging Are the methods used for packaging suitable to avoid degrading the aggregate? If precautions are needed during handling and storage within customer's premises, are the packaged aggregate marked on the packaging or accompanying documents?	
10	Training of personnel Has the manufacturer established procedures for the training of all personnel involved in the FPC system? Are those procedures maintained? Are there records of that training?	

The following questions should be added for surveillance visits

	Questions to be considered	**Answers**
1	For which new product/standard has a factory production control been established and a determination of the product-type of the product been carried out? (only for products under system of attestation of conformity level 2+) Are there new factories covered by the same FPC system? Has the production and/or the technical specification changed since the previous inspection of FPC? (If yes)Has the manufacturer adapted the documentation accordingly? (If yes)Has the manufacturer advised the notified factory production control certification body of these changes?	
3	Does the manufacturer still apply a factory production control system that covers the certified products, and is there a valid certificate?	

Annex C Overview of minimum requirements and test frequencies

EN 12620: Aggregates for concrete							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4	**Geometrical requirements**						
4.2	Aggregate sizes	none	Y	Y	Designation d/D		
4.3	Grading Tolerances at mid-size sieves	EN 933-1	Y IR	Y	Tolerance/category		1/week
4.3.6	Grading of filler aggregates	EN 933-10	Y	Y	Tolerance/category		1/week
4.4	Shape of coarse aggregates	EN 933-3	IR	Y	Category	Test frequency applies to crushed aggregates. Test frequency for uncrushed gravel depends on the source and may be reduced	1/month
		EN 933-4	IR				
4.5	Shell content of coarse aggregate	EN 933-7	IR	Y	Category	Coarse aggregates of marine origin and mixtures	1/year
4.6	Fines content (passing the 0,063 mm test sieve)	EN 933-1	Y	Y	Category		1/week
4.7	Fines quality Fines content <3% sand equivalent value methylene blue test	 EN 933-1 EN 933-8 EN 933-9	IR			Only when required in accordance with the conditions specified in annex D	1/week

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.
The second part of the table (Determination of the product-type or ZA, notes) is taken from annex ZA of the standard
The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"
In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 12620: Aggregates for concrete							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
5	**Physical requirements**						
5.2	Resistance to fragmentation of coarse aggregates	EN 1097-2 cl. 5	IR	Y	Category	for high strength concrete	2/year
		EN 1097-2 cl. 6	IR				
5.3	Resistance to wear of coarse aggregates	EN 1097-1	IR	Y	Category	Aggregates for surface courses only	1/ 2years
5.4.1	Resistance to polishing	EN 1097-8	IR	Y	Category	Aggregates for surface courses only	1/ 2years
5.4.2	Resistance to surface abrasion	EN 1097-8, annex A	IR	Y	Category	Aggregates for surface courses only	1/ 2years
5.4.3	Resistance to abrasion from studded tyres	EN 1097-9	IR	Y	Category	Only in regions where studded tyres are used	1/ 2years
5.5	Particle density and water absorption	EN 1097-6	IR	Y	Declared value	Test method dependent on particle size	1/year
5.6	Bulk density	EN 1097-3	IR		Declared value		
5.7.1	Freeze/thaw resistance of coarse aggregate	EN 1367-1 or EN 1367-2	IR IR	Y	Categories		1/ 2years
5.7.2	Volume stability - drying shrinkage	EN 1367-4	IR	Y	Pass/fail threshold value		1/ 5years
		EN 1367-4, Annex A	IR	Y	Declared value	Recycled aggregates only	
5.7.3	Alkali-silica reaction	provisions valid in the place of use	IR	Y	Declared value	in accordance with the provision valid in the place of use	when required and in case of doubt
5.8	Classification of the constituents of coarse recycled aggregates	EN 933-11	Y	Y	Category	Coarse recycled aggregates only	1/month

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The second part of the table (Determination of the product-type or ZA, notes) is taken from annex ZA of the standard, if the property is not foreseen in annex ZA the notes are taken from the main part of the standard.

The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 12620: Aggregates for concrete							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
6	**Chemical requirements**						
6.2	Chlorides	EN 1744-1, cl. 7	IR	Y	Declared value	Landwon aggregates Aggregate of marine origin	1/ 2 years 1/week
6.3.1	Acid soluble sulfate	EN 1744-1, cl. 12	IR	Y	Category	Blastfurnace slags Other aggregates	2/year 1/year
6.3.2	Total sulfur	EN 1744-1 cl.11	IR	Y	Pass/fail threshold value		
6.3.3	Water soluble sulfate content	EN 17441	IR	Y	Category	Recycled aggregates only	1/month
6.4.1	Constituents which alter the rate of setting and hardening of concrete (Organic substances)	EN 1744-1 cl. 15.1 EN 1744-1 cl. 15.2 EN 1744-1 cl. 15.3 EN 1744-1 cl. 14.2	IR	Y	Pass/fail threshold value	humus content fulvo acid (when humus content is high) comparative strength test – stiffening time lightweight organic contaminators	1/year 1/year 1/year 2/year
		EN 17446	IR	Y	Category	Recycled aggregates only	2/year
6.4.2.1	Dicalcium silicate disintegration of air-cooled blastfurnace slag	EN 1744-1 cl. 19.1	Y	Y	Pass/fail threshold value	Blastfurnace slag only	2/year
6.4.2.2	Iron disintegration of air-cooled blastfurnace slag	EN 1744-1 cl. 19.2	Y	Y	Pass/fail threshold value	Blastfurnace slag only	2/year
6.5	Carbonate content of fine aggregates for concrete pavement surface courses	EN 196-21, cl.5 EN 1744-1 cl.12.3	IR	Y	Declared value	Fine aggregate for concrete surface courses	1/ 2years
8	**Designation and description**						
8.1	Type of aggregate (simplified petrographic description)	EN 932-3	Y		Identification		1/ 3years

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EN 12620: Aggregates for concrete							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
B	**Description of coarseness/fineness of fine aggregates**						
	Percentage passing the 0,5 mm sieve fineness modulus	EN 933-1 EN 933-1	IR				
H	**Dangerous substances**						
H.3.3 H.4	in particular: Emission of radioactivity Release of heavy metals Release of polyaromatic carbons		IR		See third paragraph of ZA.3	unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	when required and in case of doubt

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The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

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In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4.1	**Geometrical requirements**						
4.1.2	Aggregate sizes	none	Y	Y	Designation d/D		
4.1.3	Grading Overall limits and tolerances at mid-size sieves	EN 933-1	Y IR	Y	Tolerance/category		1/week
4.1.4	Fines content (passing the 0,063 mm test sieve)	EN 933-1	Y		Category		1/week
4.1.5	Fines quality	EN 933-9	if f>3%	Y	Categories	Only when the fines content of the fine or all-in aggregate with D<=8mm, exceeds the value specified in 4.1.5	2/year
4.1.6	Shape of coarse aggregates	EN 933-3	IR	Y	Categories	Test frequency only applies to crushed or broken aggregate. Test frequency for rounded gravel depends on the source and may be reduced	1/month
		EN 933-4	IR				
4.1.7	Percentage of crushed or broken or totally rounded particles in coarse aggregates	EN 933-5	IR	Y	Category	Only for gravel aggregate	1/month
4.1.8	Angularity of fine aggregates	EN 933-6 – cl. 8	IR		Category	Only for fine aggregate	1/month

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EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4.2	**Physical requirements**						
4.2.2	Resistance to fragmentation of coarse aggregates	EN 1097-2 cl. 5	IR	Y	Category		1/year
		EN 1097-2 cl. 6	IR				
4.2.3	Resistance to polishing of coarse aggregates for surface courses	EN 1097-8	IR	Y	Category	Aggregates for wearing courses only	1/year
4.2.4	Resistance to surface abrasion	EN 1097-8, annex A	IR	Y	Category	Aggregates for surface courses only	1/year
4.2.5	Resistance to wear of coarse aggregates	EN 1097-1	IR	Y	Category		1/year
4.2.6	Resistance to abrasion of studded tyres of coarse aggregates to be used for surface courses	EN 1097-9	IR	Y	Category	Aggregates for surface courses only	1/year
4.2.7.1	Particle density	EN 1097-6 clause 7, 8 or 9	Y	Y	Declared value	Test method dependent upon the particle size	1/ 2years
4.2.7.2	Water absorption	EN 1097-6 clause 7, 8 or 9	Y		Declared value	Test method dependent upon the particle size	
4.2.8	Bulk density	EN 1097-3	IR		Declared value		
4.2.9.1	Water absorption value as a screening test for freeze-thaw resistance	EN 1097-6 clause 7 or annex B	IR				1/ 2years
4.2.9.2	Resistance to freezing and thawing	EN 1367-1 or EN 1367-2	IR IR	Y	Category		
4.2.10	Resistance to thermal shock	EN 1367-5	IR	Y	Declared value		1/year
4.2.11	Affinity of coarse aggregates to bituminous binders	EN 12697-11	IR	Y	Declared value		1/year
4.2.12	"Sonnenbrand" of basalts	EN 1367-3 and EN 1097-2	if signs known	Y	Category	In cases of doubt where signs of "sonnenbrand" are known	2/year

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In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

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EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4.3	**Chemical requirements**						
4.3.2	Chemical composition	EN 932-3	IR	Y	Declared value		1/ 5years
4.3.3	Coarse lightweight contaminators >2mm	EN 1744-1 cl. 14.2 EN 196-2	IR		Category	Aggregates D>2mm in cases of doubt	1/year
4.3.4.1	Dicalcium silicate disintegration of air-cooled blastfurnace slag	EN 1744-1 cl.19.1	IR	Y	Pass/fail	air-cooled blastfurnace slags only	2/year
4.3.4.2	Iron disintegration of air-cooled blastfurnace slag	EN 1744-1 cl. 19.2	IR	Y	Pass/fail	air-cooled blastfurnace slags only	2/year
4.3.4.3	Volume stability of steel slag aggregate	EN 1744-1 cl. 19.3 or EN 196-2 for MgO-content	IR	Y	Categories	steel slag aggregate only	2/year

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EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
5	**Requirements for fillers aggregates**						
5.2.1	Grading	EN 933-10	Y for added filler	Y	Pass/fail threshold value		1/week
5.2.2	Harmful fines	EN 933-9	Y	Y	Category		2/year
5.3.1	Water content	EN 1097-5	Y for added filler				2/week
5.3.2	Particle density	EN 1097-7	Y	Y	Declared value		2/year
5.3.3.1	Voids of dry compacted filler (Rigden)	EN 1097-4	IR	Y	Category		2/year
5.3.3.2	"Delta ring and ball" of filler aggregate for bituminous mixtures	EN 13179-1	IR	Y	Category		
5.4.1	Water solubility	EN 1744-1 cl. 16	IR	Y	Category		1/ 2years
5.4.2	Water susceptibility	EN 1744-4	IR	Y	Declared value		1/ 2years
5.4.3	Carbonate content of limestone filler aggregate	EN 196-21	IR		Category		1/year
5.4.4	Calcium hydroxide content of mixed filler	EN 459-2	IR		Category		1/year
5.5.2	"Bitumen number" of added filler	EN 13179-2	IR the consistency of the production shall be measured on at least one of those properties	Y	Category		1/week
5.5.3	Loss on ignition of coal fly ash	EN 1744-1 cl. 17 or EN 196-2 for some cases		Y	Declared value with threshold value		
5.5.4	Particle density of added filler	EN 1097-7			Declared value with threshold value		
5.5.5	Loose bulk density in kerosene	EN 1097-3, annex B			Declared value with threshold value		
5.5.6	Blaine test	EN 196-6		Y	Declared value with threshold value		

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EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
B	**Dangerous substances**						
B.3.3 B.4	in particular: Emission of radioactivity Release of heavy metals Release of polyaromatic carbons		IR	Y	See third paragraph of ZA.3	unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	when required and in case of doubt

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.

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In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13055-1: Lightweight aggregates - Part 1: Lightweight aggregates for concrete, mortar and grout							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4	**Physical requirements**						
4.2.1	Loose bulk density	EN 1097-3	Y	Y	Declared value		1/day or 1/1000m³
4.2.2	Particle density	EN 1097-6 annex C	IR		Declared value with threshold value		1/month or 1/20000 m³
4.3	Aggregate size	none	Y				
4.4	Grading	EN 933-1	Y	Y	Declared value		1/week or 1/5000 m³
4.5	Shape of coarse aggregates	none	IR	Y	Description		
4.6	Fines	EN 933-1	IR		Declared value		1/week or 1/5000 m³
4.7	Grading of fillers	EN 933-10	IR	Y	Declared value		1/week
4.8	Water absorption	EN 1097-6 annex C	IR	Y	Declared value		1/month or 1/20000 m³
4.9	Water content	EN 1097-5	IR		Declared value		1/day or 1/1000 m³
4.10	Crushing resistance	annex A of EN 13055-1	IR	Y	Declared value		1/month or 1/20000 m³
4.11	Percentage of crushed particles	EN 933-5	IR	Y	Declared value		2/year
4.12	Resistance to disintegration	annex B of EN 13055-1	IR	Y	Declared value	Only to be determined in absence of long term experience	2/year
4.13	Freezing and thawing resistance	annex C of EN 13055-1	IR	Y	Declared value	Only to be determined in absence of long term experience	2/year

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The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13055-1: Lightweight aggregates - Part 1: Lightweight aggregates for concrete, mortar and grout							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
5	**Chemical requirements**						
5,2	Chlorides	EN 1744-1 cl. 7	Y	Y	Declared value		2/year
5.3.1	Acid-soluble sulfate	EN 1744-1 cl. 12	Y	Y	Declared value		2/year
5.3.2	Total sulfur	En 1744-1 cl. 11	Y	Y	Declared value		2/year
5.4	Loss on ignition (for ashes only)	EN 1744-1 cl. 17	Y	Y	Declared value		2/year
5.5	Organic contaminators	EN 1744-1 cl. 15.3	Y	Y	Declared value		2/year
5.6	Alkali-silica reactivity of natural lightweight aggregates	provisions valid in the place of use	IR	Y	Declared value	In accordance with the provisions valid in the place of use	When required and in case of doubt
F	**Dangerous substances**						
F.3.3 F.4	in particular: Release of heavy metals		IR		See third paragraph in ZA.3	Unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	When required and in case of doubt

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.
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The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

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In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13139: Aggregates for mortar							
Clause	**Property**	**Test method**	**required**	**ZA**	**Notes**	**Determination of the product-type**	**minimum test frequency**
5	**Geometrical requirements**						
5.2.1	Aggregate sizes	none	Y	Y	Designation d/D	x	
5.3.1 5.3.2	Oversize and undersize limits Typical grading and tolerances	EN 933-1	Y IR	Y	Pass/fail threshold value	x x	1/week
5.3.3	Filler aggregate	EN 933-10	Y	Y	Pass/fail threshold value	x	1/week
5.4.1	Shape of coarse aggregates	EN 933-3	IR	Y	Declared value		
5.4.2	Shell content	EN 933-7	IR	Y	Declared value		1/year
5.5.1	Fines content	EN 933-1	Y	Y	Pass/fail for category		
5.5.2	Fines quality Fines content <3% sand equivalent value methylene blue test	 EN 933-1 EN 933-8 EN 933-9	IR	Y	Pass/fail for category	 x x x	When necessary 1/week

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.
The second part of the table (ZA, notes) is taken from annex ZA of the standard
The third part of the table (Determination of the product-type, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"
In the column "ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.
In the column "Determination of the product-type" the letter "x" signifies that the characteristic is part of the determination of the product-type.
There are inconsistencies between the column "Determination of the product-type" and "ZA"

EN 13139: Aggregates for mortar							
Clause	**Property**	**Test method**	**required**	**ZA**	**Notes**	**Determination of the product-type**	**minimum test frequency**
6	**Physical requirements**						
6.2.1	Particle density	EN 1097-6	Y	Y	Declared value	x	when required and in case of doubt
6.2.2	Water absorption	EN 1097-6	Y	Y	Declared value	x	when required and in case of doubt
6.2.3	Resistance to freezing and thawing	EN 1367-1 or EN 1367-2	IR	Y	Declared value		when required and in case of doubt
7	**Chemical requirements**						
7.2	Chlorides for marine aggregates Chlorides for non-marine aggregates	EN 1744-1, cl. 7	IR	Y	Declared value	x	1/ 2years 1/week
7.3.1	Acid-soluble sulfate	EN 1744-1 cl.12	IR	Y	Category	x	1/year and in case of doubt
7.3.2	Total sulfur	EN 1744-1 cl. 11	IR	Y	Pass/fail threshold value	x	1/year and in case of doubt
7.4	Constituents which alter the rate of setting and gardening of mortar	EN 1744-1 cl. 15.1 EN 1744-1 cl. 15.2 EN 1744-1 cl. 15.3 EN 1744-1 cl. 14.2	IR	Y	Pass/fail threshold value	x x x x	In case of doubt: 1/week 1/week When necessary: 1/week When required for a particular end use

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.
The second part of the table (ZA, notes) is taken from annex ZA of the standard
The third part of the table (Determination of the product-type, minimum test frequency) is taken from the Factory Production Control annex.
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In the column "ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.
In the column "Determination of the product-type" the letter "x" signifies that the characteristic is part of the determination of the product-type.
There are inconsistencies between the column "Determination of the product-type" and "ZA"

EN 13139: Aggregates for mortar							
Clause	**Property**	**Test method**	**required**	**ZA**	**Notes**	**Determination of the product-type**	**minimum test frequency**
7	**Chemical requirements**						
7.5.1	Water soluble matter	EN 1744-1 cl. 16	Y	Y	Pass/fail threshold value	x	when necessary 1/week
7.5.2	Loss on ignition (for ashes only) (applicable to manufactured aggregates only)	EN 1744-1 cl. 17	IR	Y	Pass/fail threshold value	x	when nbecessary 1/week
7.6.1	Alkali-silica reactivity	Provisions valid in the place of use	IR	Y	Declared value		when required and in case of doubt
Clause	**Dangerous substances**						
E.3.3 E.4	in particular: Emission of radioactivity (for aggregates of radiactive sources intended for use in concrete buildings) Release of heavy metals Release of polyaromatic carbons Release of other dangerous substances		IR		See third paragraph of ZA.3		when required and in case of doubt

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.
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There are inconsistencies between the column "Determination of the product-type" and "ZA"

EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4	**Geometrical requirements**						
4.2	Aggregate sizes	none	Y	Y	Designation d/D		
4.3	Grading Tolerances at mid-size sieves)	EN 933-1	Y IR	Y	Tolerance/category		1/week
4.4	Shape of coarse aggregates	EN 933-3	IR	Y	Category	Test frequency applies to crushed or broken aggregate. Test frequency for rounded gravel depends on the source and may be reduced	1/month
		EN 933-4	IR				
4.5	Percentage of crushed or broken particles and of totally rounded particles in coarse aggregates	EN 933-5	IR	Y	Category	Only for coarse gravel	1/month
4.6	Fines content	EN 933-1	IR	Y	Category		1/week
4.7	Fines quality Fines content <3% sand equivalent value methylene blue test	EN 933-1 EN 933-8 EN 933-9	IR	Y	Pass/fail threshold value/Declared value		1/week

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.

The second part of the table (Determination of the product-type or ZA, notes) is taken from annex ZA of the standard

The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
5	**Physical requirements**						
5.2	Resistance to fragmentation of coarse aggregates	EN 1097-2 cl. 5	IR	Y	Category		2/year
		EN 1097-2 cl. 6	IR				
5.3	Resistance to wear of coarse aggregates	EN 1097-1	IR	Y	Category		2/year
5.4	Particle density	EN 1097-6 cl. 7,8 or 9	Y	Y	Declared value	Test method is dependent upon the particle size of the aggregate	1/year
5.5	Water absorption	EN 1097-6 cl. 7,8 or 9	Y	Y	Declared value	Test method is dependent upon the particle size of the aggregate	1/year
5.6	Classification of constituent contents of coarse recycled aggregates	EN 933-11	Y	Y	Category	Recycled aggregates	1/month

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EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
6	**Chemical requirements**						
6.2	Acid soluble sulfate	EN 1744-1	IR	Y	Category		
6.3	Total sulfur	EN 1744-1	IR	Y	Category		
6.4	Water-soluble sulfates	EN 1744-1	IR	Y	Category	Recycled aggregates	1/month
6.5.1	Constituents which alter the rate of setting and hardening of hydraulically bound mixtures	EN 1744-1	IR	Y	Pass/fail threshold value	Sodium hydroxide fulvo acid (when sodium hydroxide fails) comparative strength test-stiffening time	1/year 1/year 1/year
6.5.2.1	Volume stability of steel slags	EN 1744-1 or EN 196-2 for MgO content	IR	Y	Category	Steel slag aggregate only	2/year
6.5.2.2	Dicalcium silicate disintegration of air-cooled blastfurnace slag	EN 1744-1	IR	Y	Category	Air-cooled blast furnace slags only	2/year
6.5.2.3	Iron disintegration of air-cooled blastfurnace slag	EN 1744-1	IR	Y	Category	Air-cooled blast furnace slags only	2/year
6.5.3	Water soluble constituents	EN 1744-3	IR				
6.5.4	Impurities (wood, glass, plastic,…)	none	IR				
7	**Durability requirements**						
7.2	"Sonnenbrand" of basalt	EN 1367-3 and EN 1097-2	IR	Y	Category	In cases of doubt where signs of "Sonnenbrand" are known	2/year
7.3.2	Water absorption as a screening test for freeze-thaw resistance	EN 1097-6 cl. 7 or cl. 8 or annex B	IR	Y	Category		1/ 2 years
7.3.3	Resistance to freezing and thawing	EN 1367-1 or EN 1367-2	IR		Category		1/ 2 years
Clause	**Dangerous substances**						
C.3.4 C.4	in particular: Release of heavy metals		IR		See third paragraph of ZA.3	Unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	When required and in case of doubt

The first part of the table (clause, property, test method and required) is taken from the main part of the standard.

The second part of the table (Determination of the product-type or ZA, notes) is taken from annex ZA of the standard

The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13383-1: Armourstone - Part 1: Specification							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
4	**Geometrical requirements**						
4.2.1	Coarse gradings	EN 13383-2 cl.5	Y	Y	Pass/fail grading's distribution		1/20000 tons and immediately after a production break of at least 6 months
4.2.2	Light gradings	EN 13383-2 cl.6	Y	Y	Pass/fail mass distribution		1/20000 tons and immediately after a production break of at least 6 months
4.2.3	Heavy gradings	EN 13383-2 cl.6	Y	Y	Pass/fail mass distribution		1/20000 tons and immediately after a production break of at least 6 months
4.3.1	Length to thickness ratio	EN 13383-2 cl.7	Y	Y	Category		1/20000 tons and immediately after a production break of at least 6 months
4.4	Proportion of crushed or broken surfaces	none	IR			Only to armourstone for use in structures, in which rounded pieces of armourstone could lead to instability	1/20000 tons

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The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"
In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13383-1: Armourstone - Part 1: Specification							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
5	**Physical requirements**						
5.2	Particle density	EN 13383-2 cl.8	Y	Y	Declared value		1/year
5.3	Resistance to breakage	EN 1926 annex A	Y/IR	Y	Category	Compressive strength test	1/ 5years
5.4	Resistance to wear	EN 1097-1 cl. 7	IR	Y	Category	Only to armourstone for a top layer, which is kown to be subject to abrasion by sediment	1/ 2years
5.5	Requirements associated with grouting	none	IR				
5.6	Colour	none	IR				
6	**Chemical requirements**						
6.2	Impurities	none	Y				Each batch
6.3	Water soluble content	EN 1744-3	IR				

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The third part of the table (notes/reference, minimum test frequency) is taken from the Factory Production Control annex.

In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"
In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13383-1: Armourstone - Part 1: Specification							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
7	**Durability requirements**						
7.2.1	Dicalcium silicate disintegration of air-cooled blast furnace slag	EN 1744-1 cl. 19.1	IR	Y	Pass/fail	Blast furnace slag	2/year
7.2.2	Iron disintegration of air-cooled blastfurnace slag	EN 1744-1 cl. 19.2	Y	Y	Pass/fail	Blast furnace slag	2/year
7.2.3	Disintegration of steel slag	EN 13383-2 cl.10	IR	Y	Category	Steel slag	2/year
7.3	Water absorption as a screening test for resistance to freezing and thawing and to salt crystallization	EN 13383-2 cl.8	IR				1/ 2years
7.4	Resistance to freezing and thawing	EN 13383-2 cl.9	IR	Y	Category		1/ 2years
7.5	Resistance to salt crystallization	EN 13383-2 cl.8	IR	Y	Category		1/ 2years
7.6	Sonnenbrand	EN 13383-2 cl.10	IR	Y	Category	In cases of doubt where signs of sonnenbrand are possible in some basalts	2/year
9							
9.1	Simplified petrographic description	EN 932-3	IR			See annex C	1/ 5years
B	**Dangerous substances**						
B.3.3 B.4	in particular: Emission of radioactivity Release of heavy metals Release of polyaromatic carbons		IR	Y	See third paragraph in ZA.3	unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	when required and in case of doubt

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In the column "required", the letter "Y" signifies that the test has to be carried, the two letters "IR" signifies that there is a possibility of "No requirement"

In the column "Determination of the product-type or ZA" the letter "Y" signifies that the characteristic is given in one of the tables ZA1.a or ZA1.b and is part of the determination of the product-type and covered by the CE marking.

EN 13450: Aggregates for railway ballast							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
6	**Geometrical requirements**						
6.2	Railway ballast size	none	Y	Y	Designation d/D		
6.3	Grading	EN 933-1	Y	Y	Category		1/week
6.4	Fine particles	EN 933-1	Y/IR				1/week
6.5	Fines	EN 933-1	Y/IR	Y	Category		1/week
6.6	Shape of coarse aggregates	EN 933-3	IR	Y	Category		1/month
		EN 933-4	IR				
6.7	Particle length	none	Y/IR				1/month

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EN 13450: Aggregates for railway ballast							
Clause	**Property**	**Test method**	**required**	**Determination of the product-type or ZA**	**Notes**	**Notes/reference**	**minimum test frequency**
7	**Physical requirements**						
7.2	Resistance to fragmentation of coarse aggregates	EN 1097-2 cl. 5 (+annex B) EN 1097-2 cl. 6 (+annex B)	IR IR	Y	Category		2/year
7.3	Resistance to wear of coarse aggregates	EN 1097-1 (+ annex E)	IR	Y	Category		2/year
7.4.1	Resistance to freezing and thawing	EN 1367-1 (+annex F) or EN 1367-2 (+annex G)	IR	Y	Declared value		2/year
7.4.2	Particle density	EN 1097-6 annex B	IR	Y	Declared value		2/year
7.4.3	Water absorption	EN 1097-6 annex B	IR				2/year
7.5	Sonnenbrand	EN 1367-3	when signs are known	Y	Declared value		2/year
8	**Harmful components**	not allowed					
I	**Dangerous substances**						
I.3.3 I.4	in particular : Release of heavy metals		IR		At the end of § ZA.3	unless otherwise specified, only when necessary for CE marking purposes (see annex ZA)	when required and in case of doubt

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