

# SVENSK STANDARD

## SS-EN 12620+A1:2008

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### Ballast för betong

### Aggregates for concrete

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Denna standard ersätter SS-EN 12620, utgåva 1.

The European Standard EN 12620:2002+A1:2008 has the status of a Swedish Standard. This document contains the official English version of EN 12620:2002+A1:2008.

This standard supersedes the Swedish Standard SS-EN 12620, edition 1.

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EUROPEAN STANDARD

**EN 12620:2002+A1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2008

ICS 91.100.15; 91.100.30

Supersedes EN 12620:2002

English Version

## Aggregates for concrete

Granulats pour béton

Gesteinskörnungen für Beton

This European Standard was approved by CEN on 1 August 2002 and includes Corrigendum 1 issued by CEN on 26 May 2004 and Amendment 1 approved by CEN on 16 February 2008.

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**SS-EN 12620+A1:2008 (E)**

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## SS-EN 12620+A1:2008 (E)

### Foreword

This document (EN 12620:2002+A1:2008) 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of an identical text or by endorsement, at the latest by October 2008 and conflicting national standards shall be withdrawn at the latest by October 2008.

This document includes Amendment 1, approved by CEN on 2008-02-16.

This document supersedes EN 12620:2002.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags **AC** **AC**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

**A1** This amendment introduces clauses for recycled aggregates. The clauses call up new test methods, prEN 933-11, EN 1744-5, EN 1744-6 and EN 1367-4. These standards are at an advanced stage of preparation. **A1**

Annexes A, B, E, F and G are informative. Annexes C, D and H are normative.

This standard includes a Bibliography.

Requirements for other end uses of aggregates will be specified in the following European Standards:

EN 13043	Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas
EN 13055-1	Lightweight aggregates - Part 1 : Lightweight aggregates for concrete, mortar and grout
prEN 13055-2	Lightweight aggregates - Part 2 : Lightweight aggregates for unbound and bound applications
EN 13139	Aggregates for mortar
prEN 13242	Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction
EN 13383-1	Armourstone - Part 1: Specification
prEN 13450	Aggregates for railway ballast

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



## 1 Scope

This European Standard specifies the properties of aggregates and filler aggregates obtained by processing natural, manufactured or recycled materials and mixtures of these aggregates for use in concrete. It covers aggregates having an oven dried particle density greater than  $2,00 \text{ Mg/m}^3$  ( $2\,000 \text{ kg/m}^3$ ) for all concrete, including concrete in conformity with EN 206-1 and concrete used in roads and other pavements and for use in precast concrete products. <sup>A1</sup> It also covers recycled aggregate with densities between  $1,50 \text{ Mg/m}^3$  ( $1\,500 \text{ kg/m}^3$ ) and  $2,00 \text{ Mg/m}^3$  ( $2\,000 \text{ kg/m}^3$ ) with appropriate caveats and recycled fine aggregate (4 mm) with appropriate caveats. <sup>A1</sup>

It also specifies that a quality control system is in place for use in factory production control and it provides for the evaluation of conformity of the products to this European Standard.

This standard does not cover filler aggregates to be used as a constituent in cement or as other than inert filler aggregates for concrete.

<sup>AC</sup> NOTE 1 Aggregates used in construction should comply with all the requirements of this European Standard. As well as familiar and traditional natural and manufactured aggregates Mandate M/125 "Aggregates" included recycled aggregates and some materials from new or unfamiliar sources. Recycled aggregates are included in the standards and new test methods for them are at an advanced stage of preparation. For unfamiliar materials from secondary sources, however, the work on standardisation has only started recently and more time is needed to define clearly the origins and characteristics of these materials. In the meantime such unfamiliar materials when placed on the market as aggregates must comply fully with this standard and national regulations for dangerous substances (see Annex ZA of the standard) depending upon their intended use. Additional characteristics and requirements may be specified on a case by case basis depending upon experience of use of the product, and defined in specific contractual documents. <sup>AC</sup>

NOTE 2 Properties for lightweight aggregates are specified in <sup>A1</sup> EN 13055-1:2002 <sup>A1</sup>.

## 2 Normative references

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

<sup>A1</sup> *deleted text* <sup>A1</sup>

<sup>A1</sup> EN 196-2:2005, *Methods of testing cement — Part 2: Chemical analysis of cement* <sup>A1</sup>

EN 932-3, *Tests for general properties of aggregates — Part 3: Procedure and terminology for simplified petrographic description*

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

EN 933-1, *Tests for geometrical properties of aggregates — Part 1: Determination of particle size distribution - Sieving method*

EN 933-3, *Tests for geometrical properties of aggregates — Part 3: Determination of particle shape — Flakiness index*

EN 933-4, *Tests for geometrical properties of aggregates — Part 4: Determination of particle shape — Shape index*

EN 933-7, *Tests for geometrical properties of aggregates — Part 7: Determination of shell content — Percentage of shells in coarse aggregates*

EN 933-8, *Tests for geometrical properties of aggregates — Part 8: Assessment of fines — Sand equivalent test*

EN 933-9, *Tests for geometrical properties of aggregates — Part 9: Assessment of fines — Methylene blue test*

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EN 933-10, *Tests for geometrical properties of aggregates — Part 10: Assessment of fines — Grading of fillers (air jet sieving)*

<sup>A1</sup> prEN 933-11, *Tests for geometrical properties of aggregates — Part 11: Classification test for the constituents of coarse recycled aggregates* <sup>A1</sup>

EN 1097-1, *Tests for mechanical and physical properties of aggregates — Part 1: Determination of the resistance to wear (micro-Deval)*

EN 1097-2:1998, *Tests for mechanical and physical properties of aggregates — Part 2: Methods for the determination of resistance to fragmentation*

EN 1097-3, *Tests for mechanical and physical properties of aggregates — Part 3: Determination of loose bulk density and voids*

EN 1097-6, *Tests for mechanical and physical properties of aggregates — Part 6: Determination of particle density and water absorption*

EN 1097-8:1999, *Tests for mechanical and physical properties of aggregates — Part 8: Determination of the polished stone value*

EN 1097-9, *Tests for mechanical and physical properties of aggregates — Part 9: Determination of the resistance to wear by abrasion from studded tyres — Nordic test*

<sup>A1</sup> EN 1367-1:2007 <sup>A1</sup>, *Tests for thermal and weathering properties of aggregates — Part 1: Determination of resistance to freezing and thawing*

EN 1367-2, *Tests for thermal and weathering properties of aggregates — Part 2: Magnesium sulfate test*

EN 1367-4, *Tests for thermal and weathering properties of aggregates — Part 4: Determination of drying shrinkage*

EN 1744-1:1998, *Tests for chemical properties of aggregates — Part 1: Chemical analysis*

<sup>A1</sup> EN 1744-5, *Tests for chemical properties of aggregates — Part 5: Determination of acid soluble chloride salts*

EN 1744-6, *Tests for chemical properties of aggregates — Part 6: Determination of the influence of recycled aggregate extract on the initial setting time of cement* <sup>A1</sup>

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

### 3 Terms and definitions

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

#### 3.1

##### **aggregate**

granular material used in construction. Aggregate may be natural, manufactured or re-cycled

#### 3.2

##### **natural aggregate**

aggregate from mineral sources which has been subjected to nothing more than mechanical processing

#### 3.3

##### **all-in aggregate**

aggregate consisting of a mixture of coarse and fine aggregates

NOTE It can be produced without separating into coarse and fine fractions or it may be produced by combining coarse and fine aggregate.

### 3.4

#### **manufactured aggregate**

aggregate of mineral origin resulting from an industrial process involving thermal or other modification

### 3.5

#### **recycled aggregate**

aggregate resulting from the processing of inorganic material previously used in construction

### 3.6

#### **filler aggregate**

aggregate, most of which passes a 0,063 mm sieve, which can be added to construction materials to provide certain properties

NOTE See 3.12 for the definition of "fines".

### 3.7

#### **aggregate size**

designation of aggregate in terms of lower ( $d$ ) and upper ( $D$ ) sieve sizes expressed as  $d/D$

NOTE This designation accepts the presence of some particles which are retained on the upper sieve (oversize) and some which pass the lower sieve (undersize).

### 3.8

#### **fine aggregate**

designation given to the smaller aggregate sizes with  $D$  less than or equal to 4 mm

NOTE Fine aggregate can be produced from natural disintegration of rock or gravel and/or by the crushing of rock or gravel or processing of manufactured aggregate.

### 3.9

#### **coarse aggregate**

designation given to the larger aggregate sizes with  $D$  greater than or equal to 4 mm and  $d$  greater than or equal to 2 mm

### 3.10

#### **natural graded 0/8 mm aggregate**

designation given to natural aggregate of glacial and/or fluvial origin with  $D$  less than or equal to 8 mm

NOTE This aggregate can also be produced by blending processed aggregate.

### 3.11

#### **batch**

production quantity, a delivery quantity, a partial delivery quantity (railway wagon-load, lorry-load, ship's cargo) or a stockpile produced at one time under conditions that are presumed uniform

NOTE With a continuous process the quantity produced during a specified period should be treated as a batch.

### 3.12

#### **fines**

particle size fraction of an aggregate which passes the 0,063 mm sieve

### 3.13

#### **category**

level of a property of an aggregate expressed as a range of values or a limiting value

NOTE There is no relationship between the categories of different properties.

### 3.14

#### **grading**

particle size distribution expressed as the percentages by mass passing a specified set of sieves