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BS EN 13383-1:2013



BSI Standards Publication

Armourstone

Part 1: Specification

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This British Standard is the UK implementation of EN 13383-1:2013. It supersedes BS EN 13383-1:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/502, Aggregates.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Armourstone - Part 1: Specification

Enrochements - Partie 1: Spécifications

Wasserbausteine - Teil 1: Anforderungen

This European Standard was approved by CEN on 29 July 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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Foreword

This document (EN 13383-1:2013) has been prepared by Technical Committee CEN/TC 154 "Aggregates", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2013, and conflicting national standards shall be withdrawn at the latest by February 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13383-1:2002.

The most significant technical changes that have been made include:

- the removal of the previous minimum density requirement and a change in the method of declaring density;
- inclusion of a new coarse grading (32/90mm) and a new light grading (15 kg to 120 kg) and guidance on the declaration of non-standard heavy gradings;
- inclusion of a new category for resistance to wear $M_{DE}15$, to take account of the fact that very few armourstone sources meet the highest quality category $M_{DE}10$;
- requirements for sample preparation for the Micro-Deval test has been moved from EN 13383-1 to EN 13383-2.

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.

Requirements for initial type testing and factory production control (previously specified in a normative annex to this standard) are now given in a new standard EN 16236 on *Evaluation of conformity of aggregates*.

EN 13383 *Armourstone* consists of the following parts:

Part 1: Specifications

Part 2: Test methods

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

EN 12620, *Aggregates for concrete*

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

EN 13055, *Lightweight aggregates*

EN 13139, *Aggregates for mortar*

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

EN 13450, *Aggregates for railway ballast*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece,

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Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This European Standard specifies the properties of aggregates obtained by processing natural, manufactured or recycled materials and mixtures of these materials for use as armourstone.

A list of the source materials that have been considered and are within the scope of this European Standard is given in Annex A (normative).

Requirements for the evaluation of conformity of the products to this European Standard are given in EN 16236.

It incorporates a general requirement that armourstone shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the member state of destination.

Armourstone used in construction should comply with all the requirements of this European Standard. The standard includes specific requirements for natural armourstone, and armourstone made of blast furnace and steel making slag armourstone. For materials from some other secondary sources, however, work is ongoing and the requirements are incomplete. In the meantime, such materials, when placed on the market as armourstone, should comply fully with this European Standard but may also be required to conform to specific relevant additional requirements at the place of 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.

Finer aggregates than specified in this European Standard are used in hydraulic structures. For such aggregates, European Standards for other end uses of aggregates should be applied.

Requirements for the declaration of the potential of armourstone to release regulated dangerous substances are currently under development. Until such time as these are finalised, attention should be paid to requirements at the place of use.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 1097-1:2011, *Tests for mechanical and physical properties of aggregates — Part 1: Determination of the resistance to wear (micro-Deval)*

EN 1367-2:2009, *Tests for thermal and weathering properties of aggregates — Part 2: Magnesium sulfate test*

EN 1744-1:2009+A1:2012, *Tests for chemical properties of aggregates — Part 1: Chemical analysis*

EN 1744-3, *Tests for chemical properties of aggregates — Part 3: Preparation of eluates by leaching of aggregates*

EN 1926:2006, *Natural stone test methods — Determination of uniaxial compressive strength*

EN 13383-2:2013, *Armourstone — Part 2: Test methods*

EN 16236, *Evaluation of conformity of aggregates — Initial Type Testing and Factory Production Control*