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Konststen – Terminologi och klassifikation

Agglomerated stone – Terminology and classification

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This standard supersedes the Swedish Standard SS-EN 14618:2005, edition 1.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14618

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English Version

Agglomerated stone - Terminology and classification

Pierre agglomérée - Terminologie et classification

Künstlich hergestellter Stein - Terminologie und
Klassifizierung

This European Standard was approved by CEN on 21 May 2009.

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Foreword

This document (EN 14618:2009) has been prepared by CEN/TC JWG 229/246 “Agglomerated stones”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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1 Scope

This document specifies the terminology and classification of the agglomerated stone products. Agglomerated stone products are industrial products mainly made of hydraulic cement, resin or mixture of both, stones and other additions. They are industrially manufactured in geometrical shapes at fixed plants by moulding techniques. They are put on the market in the form of rough blocks, rough slabs, slabs, tiles, dimensional stone works, and any other cut to size products.

All other agglomerated stones products not intended to be used for flooring, wall finishes and similar uses (like drainage channels, structural elements, etc.) are excluded from the field of this standard.

This European Standard is not applicable to terrazzo tiles covered by EN 13748-1 [1] and EN 13748-2 [2].

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 12670:2001, *Natural stone — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12670:2001 and the following apply.

3.1

agglomerated stone

industrial product manufactured from a mixture of aggregates of various sizes and natures (generally coming from natural stones), sometimes mixed with other compatible materials, additions and binder

NOTE The binder could be resin, hydraulic cement or mixture of both (in various percentages). Aggregates consist of natural and/or recycled stones and/or different additions such as crushed ceramics, glass, mirrors. They are bound via resin and filler or cement and water or mixture of both. The manufacturing process is irreversible.

3.2

agglomerated stone product

semi-finished product manufactured from agglomerated stone in form of blocks or slabs, which can be transformed in finished slabs, tiles, vanity tops or similar elements.

NOTE Under the agglomerated stones term fall architectural elements, complementary to products for flooring and wall finishes, which can or cannot be subsequently cut to size. Products manufactured by the technology of the agglomerated stones could be impregnated by suitable chemicals in order to waterproof/seal open pores. The products can be also sealed with putty in order to fill in the surface defects accidentally present in some natural stones and other aggregates.

3.3

classification of agglomerated stones

classification according to the type of the binder and the nature of the aggregates of the agglomerated stone product

NOTE If the volume of the binding material is greater than the volume of the aggregates, the resulting material cannot be classified as agglomerated stone.

4

3.3.1

classification according to the type of the binder

classification according to the binder of the agglomerated stone product, i.e. resin, hydraulic cement or mixtures of resin and cement

NOTE Agglomerated stone product can be bound by resin (e.g. thermosetting resin) or by other suitable organic or inorganic polymer which can be irreversibly hardened

Agglomerated stone product can be bound by hydraulic cement (white or grey).

Agglomerated stone product can be bound by mixtures of resin and cement.

3.3.2

classification according to the mineral nature of the aggregates

classification according to the mineral nature of the agglomerated stone product, i.e. carbonate nature, silica nature or carbonate and silica nature

NOTE Agglomerated stone product can be constituted of aggregates of carbonate nature e.g. marble, limestone, etc.

Agglomerated stone product can be constituted of aggregates of silica nature e.g. quartz, sandstone, granite, etc.

Agglomerated stone product either of carbonate or of silica nature can contain aggregates such as crushed ceramics, glass, mirrors, etc.

Agglomerated stone product can be constituted of aggregates of both carbonate and silica nature.

4 Terminology of agglomerated stones

4.1 Terms of fragmented aggregates

4.1.1

natural aggregate

mixture of natural stone fragments which are derived either from incoherent rocks (sand) or fragmented coherent carbonate type rocks or silica-type rocks (granite, quartzite, etc.), and whose maximum linear size may be either 150 mm or more

NOTE 1 Calcium Carbonate: a solid, formula CaCO_3 , occurring in nature as calcite and its polymorphous minerals.

NOTE 2 Carbonate: a chemical compound containing CO_3^{2-} group.

4.1.2

continuous particle size distribution

mixture of aggregates with a continuous particle size distribution scale up to a maximum value, depending on the nature of the material and the comminution method

4.1.3

de-powdered continuous particle size distribution

continuous particle size distribution without the fraction smaller than 0,2 mm

4.1.4

granite (commercial definition)

natural stone, compact and polishable, mainly consisting of minerals with a hardness between 5 and 7 on the Mohs scale

4.1.5

filler

finely ground powder usually below 45 µm used as a component in the formulation, to be coupled with the binding material to form the binding paste

4.1.6

particle size

predominant average diameter of particles in a mixture of aggregates

4.1.7

intermediate aggregate

mixture of aggregates which forms a restricted intermediate grain size fraction between the maximum selected size and generally 45 µm

4.1.8

limestone

sedimentary rock consisting chiefly of calcite, CaCO₃

4.1.9

marble (commercial definition)

natural stone compact and polishable, mainly consisting of minerals with hardness between 3 and 4 on the Mohs scale

4.1.10

quartz

silicate mineral of the formula SiO₂

4.1.11

quartzite

metamorphic rock consisting essentially of quartz

4.1.12

sand

mineral sediment of size range 0,06 mm to 4 mm, commercially intended constituted by SiO₂

4.1.13

sandstone

sedimentary rock composed of grains from quartz, feldspath, mica and minor fragments from other rocks

4.1.14

selected aggregate

mixture of aggregates selected by classification with a grain size distribution subdivided into two pre-selected size ranges

4.1.15

sieve analysis

measurement of the grain size distribution by sieve selection and classification

4.1.16

silica

silicon dioxide (formula SiO₂)

4.2 Terms of paste components

4.2.1

accelerator (promoter)

chemical additive used to make faster the action of the initiator and, in general, the setting of the binder

4.2.2

additive

chemical product added to a mixture in small amount to obtain particular aesthetical or technical characteristics

4.2.3

binder

organic or inorganic chemical product used to bind via an irreversible process the aggregates and the filler in an agglomerated stone

4.2.4

gel

semi-solid or jellylike state of a thermosetting resin due to the partial reaction (cross-linking) of the polymer chains

4.2.5

impregnating product

organic material by which the stone agglomerate may be impregnated to improve the physical - mechanical product properties

4.2.6

inhibitor

chemical additive used to make slower the hardening in a thermosetting resin, so increasing its pot life

NOTE See 5.20.

4.2.7

initiator (hardener)

chemical additive able to make faster the hardening of a thermosetting resin

4.2.8

inorganic binding paste

mixture of inorganic binding material (generally Portland cement, white or grey), filler and mixing water

4.2.9

matrix

mixture of organic or inorganic binding paste, sometimes including the intermediate aggregates

4.2.10

mixture

mixture of the binding paste, and of the aggregates, including the additions of chemicals, and sometimes pigments and compatible materials

4.2.11

mortar

mixture of water, cement and sand (sometimes including chemical additives)