

Agglomerated stone — Modular tiles for flooring and stairs (internal and external)

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ICS 91.100.15

National foreword

This British Standard is the UK implementation of EN 15285:2008, incorporating corrigendum June 2008.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by CEN corrigendum June 2008 is indicated in the text by AC1 AC1.

The UK participation in its preparation was entrusted to Technical Committee B/545, Natural stone.

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

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English Version

Agglomerated stone - Modular tiles for flooring and stairs (internal and external)

Pierre reconstituée - Dalles modulaires pour revêtements
de sol (intérieurs et extérieurs)

Künstlich hergestellter Stein - Fliesen für Fußbodenbeläge
und Stufenbeläge (innen und außen)

This European Standard was approved by CEN on 5 January 2008.

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Foreword

This document (EN 15285:2008) has been prepared by Technical Committee CEN/TC 246 “Natural 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of an identical text or by endorsement, at the latest by August 2008, and conflicting national standards shall be withdrawn at the latest by November 2009.

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 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.

This European Standard is one of a series of standards for specifications of agglomerated stone products which includes the following:

- prEN 15286, *Agglomerated stones — Slabs and tiles for wall finishes (internal and external)*,
- prEN 15388, *Agglomerated stones — Slabs and cut to size products for vanity and kitchen tops*.

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 the United Kingdom.

1 Scope

This European Standard specifies requirements and appropriate test methods for modular tiles of agglomerated stone which are made for use as flooring and stairs for internal and external uses, fixed by mortar or adhesives. It also provides for the evaluation of conformity and marking of the products to the requirements of this European Standard.

This European Standard is not applicable to terrazzo tiles covered by EN 13748-1 and EN 13748-2 (see Bibliography).

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 12524, *Building materials and products — Hygrothermal properties — Tabulated design values*

EN 12664, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 14231, *Natural stone test methods — Determination of the slip resistance by means of the pendulum tester*

EN 14617-1, *Agglomerated stone — Test methods — Part 1: Determination of apparent density and water absorption*

EN 14617-2, *Agglomerated stone — Test methods — Part 2: Determination of flexural strength (bending)*

EN 14617-4, *Agglomerated stone — Test methods — Part 4: Determination of the abrasion resistance*

EN 14617-5, *Agglomerated stone — Test methods — Part 5: Determination of freeze and thaw resistance*

EN 14617-6, *Agglomerated stone — Test methods — Part 6: Determination of thermal shock resistance*

EN 14617-9, *Agglomerated stone — Test methods — Part 9: Determination of impact resistance*

EN 14617-10, *Agglomerated stone — Test methods — Part 10: Determination of chemical resistance*

EN 14617-11, *Agglomerated stone — Test methods — Part 11: Determination of linear thermal expansion coefficient*

EN 14617-12, *Agglomerated stone — Test methods — Part 12: Determination of dimensional stability*

EN 14617-13, *Agglomerated stone — Test methods — Part 13: Determination of electrical resistivity*

EN 14617-16, *Agglomerated stone — Test methods — Part 16: Determination of dimensions, geometric characteristics and surface quality of modular tiles*

EN 14618:2005, *Agglomerated stone — Terminology and classification*

EN ISO 9001:2000, *Quality management systems — Requirements (ISO 9001:2000)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14618:2005 and the following apply.

3.1

modular tile

piece of agglomerated stone in standard sizes, with dimensions (≤ 600 mm) \times (≤ 600 mm) and nominal thickness from 6 mm to 20 mm

3.2

dimensions of modular tiles

length l , width b and thickness d of a modular tile. The dimensions are given in the stated sequence in millimetres (see Figure 1)

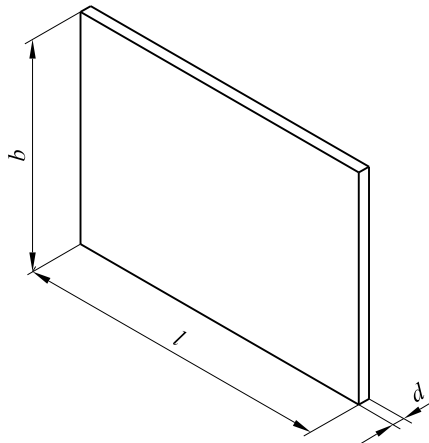


Figure 1 — Dimensions of a modular tile

4 Requirements

4.1 Requirements for geometric characteristics

4.1.1 General

All measurements of geometrical characteristics of modular tiles as given in the following clauses shall be carried out in accordance with EN 14617-16.

4.1.2 Dimensions

The dimensions of modular tiles shall always be declared (see 3.2).

4.1.3 Size and shape

The tolerances for size and shape of modular tiles shall be as given in Table 1.

Stricter tolerances than those given in Table 1 may be declared by the manufacturer. This is particularly important when tiles are to be fixed with adhesive.

4.1.4 Surface finish

4.1.4.1 General

Surface finishes shall extend uniformly to the edges of the modular tiles.

Table 1 — Tolerances on dimensions and shape of modular tiles

Characteristic	Tolerances on dimensions or shape
Dimensions: – length and width	$\pm 0,5$ mm
Thickness	$\pm 0,7$ mm
Straightness of sides	$\pm 0,3$ mm
Rectangularity	$\pm 0,9$ mm
Flatness: – centre curvature – edge curvature – warping	$\boxed{AC_1} \pm 0,2$ % referred to length $\boxed{AC_1}$

If the tile is required to be bevelled (when no other specification is made), the angle of the bevel shall be 45° and the width of the bevel shall be 1,0 mm with a tolerance of $\pm 0,7$ mm.

4.1.4.2 Surfaces after finishing

Surfaces of modular tiles shall have a regular appearance as a function of the finishing process and shall be worked to meet the finish declared (e.g. by submission of samples beforehand between the manufacturer and purchaser).

Examples of the surface finishes are:

- a) surfaces with texture in relief obtained by copying the design of the mould (e.g. hand-splitting or artistic design);
- b) fine ground surfaces, obtained e.g. by means of a grinding disk of grain size F 220;
- c) matt finished surfaces, obtained e.g. by means of a polishing disk with grain size F 400;
- d) highly polished surfaces, obtained e.g. by means of a polishing disk or felt.

4.2 Requirements for flooring and stairs modular tiles made of agglomerated stones

4.2.1 General

The values for the characteristics in 4.2.2 to 4.2.17 shall be declared for flooring and stairs modular tiles made of agglomerated stones when subject to regulatory requirements and may be declared otherwise with reference to the intended end use conditions.

The classification of flooring and stairs tiles according to water absorption, flexural strength, abrasion resistance and chemical resistance shall be expressed with letters corresponding to their values as indicated in Table 2.

Contractual specifications can be used to establish reference values, e.g. in design or manufacturer's data sheet, due account being taken of any regulatory requirements applicable.

4.2.2 Apparent density and water absorption

The values for apparent density and water absorption of modular tiles shall be declared and determined using the test method in EN 14617-1, and the results expressed accordingly.

The water absorption of the tile shall be classified in accordance with Table 2.

Table 2 — Classification of flooring and stairs modular tiles to their characteristics

Sub-clause	Characteristics	Values			
4.2.2	Water absorption (%)	$W_1 > 2,0$	$2,0 \geq W_2 > 0,5$	$0,5 \geq W_3 > 0,05$	$W_4 \leq 0,05$
4.2.3	Flexural strength (MPa)	$F_1 < 12,0$	$12,0 \leq F_2 < 25,0$	$25,0 \leq F_3 < 40,0$	$F_4 \geq 40,0$
4.2.4	Abrasion resistance (mm)	$A_1 > 36,5$	$36,5 \geq A_2 > 33,0$	$33,0 \geq A_3 > 29,0$	$A_4 \leq 29,0$
4.2.5	Chemical resistance	C ₁	C ₂	C ₃	C ₄
<p>C1: Agglomerated stones which keep below 60 % of the reference reflection values (see EN 14617-10) after 8 h of alkali or acid attack.</p> <p>C2: Agglomerated stones which keep between 60 % and 80 % of the reference reflection value (see EN 14617-10) after 8 h of alkali attack and 1 h of acid attack.</p> <p>C3: Agglomerated stones which keep between 60 % and 80 % of the reference reflection value (see EN 14617-10) after 8 h of acid attack and 1 h of alkali attack.</p> <p>C4: Agglomerated stones which keep at least 80 % of the reference reflection value (see EN 14617-10) after 8 h of acid or alkali attack (or in one case, see EN 14617-10, is between 60 % and 80 %).</p>					

4.2.3 Flexural strength

The values for flexural strength of modular tiles shall always be declared.

The flexural strength shall be determined using the test method in EN 14617-2 and the results expressed accordingly.

The classification of flexural strength of modular tiles is given in Table 2.

4.2.4 Abrasion resistance

Where subject to contractual request or where the product is expected to be subject to aggressive abrasion actions, the values for abrasion resistance of modular tiles shall be declared.

The resistance to abrasion shall be determined using the test method in EN 14617-4 and the results expressed accordingly.

The classification of abrasion resistance of modular tiles is given in Table 2.

4.2.5 Chemical resistance

Where subject to contractual request or where the product is expected to be subject to aggressive chemical actions, chemical resistance of modular tiles shall be declared.

The chemical resistance of modular tiles shall be determined using the test method in EN 14617-10 and the results expressed accordingly.

The classification of chemical resistance of modular tiles is given in Table 2.

4.2.6 Visual appearance

Visual appearance of modular tiles shall always be declared.

The colour, roughness etc. of the agglomerated stone shall be identified visually (see 4.2.7) e.g. by a range of samples selected in agreement by manufacturer and purchaser following the criteria given in EN 14617-16.

Any visual variations, for example inclusions and veins, are permissible provided that they are characteristic of the relevant type of agglomerated stone and provided that they do not adversely affect the performance of the tiles.

Reference samples are described in 4.2.7.

4.2.7 Reference sample, visual inspection and acceptance criteria

A reference sample shall be an adequate number of pieces of agglomerated stone of sufficient size to indicate the general appearance of the finished work. The dimensions of individual pieces shall be at least 0,01 m² (typical values are between 0,01 m² and 0,25 m² in face area but may be more) and shall indicate the range of appearance regarding the colouring, the vein pattern, the physical structure and the surface finish.

Evaluation of the reference sample does not imply strict uniformity between the sample itself and the actual supply; natural variations in tonality can always occur due to natural raw materials.

All the differences in aesthetical pattern between the tiles and the reference sample shall be considered typical of the agglomerated stone and not as flaws. Therefore they shall not become a reason for rejection, unless their presence exceeds 15 % of the surface and the typical pattern of the agglomerated stone is lost.

Any comparison between production tile and reference sample shall be carried out by placing the reference sample in a vertical position against the production tile, viewing them at a distance of about two metres under normal daylight conditions and recording any visible differences in the characteristics of the agglomerated stone (see Figure 2). According to this method the shading tolerance and the gloss value (in the case of fine ground, honed or highly polished surfaces) measured at six different points of the tile shall be evaluated.

Any features of tiles which are likely to adversely affect the flexural strength and the structural stability of the agglomerated stone, such as cracks, hairline cracks, cavities, soft inclusions or similar, are not permitted if the modular tiles are intended to be mechanically fixed.

The name and address of the manufacturer or supplier of the agglomerated stone, shall also be indicated on the reference test sample.

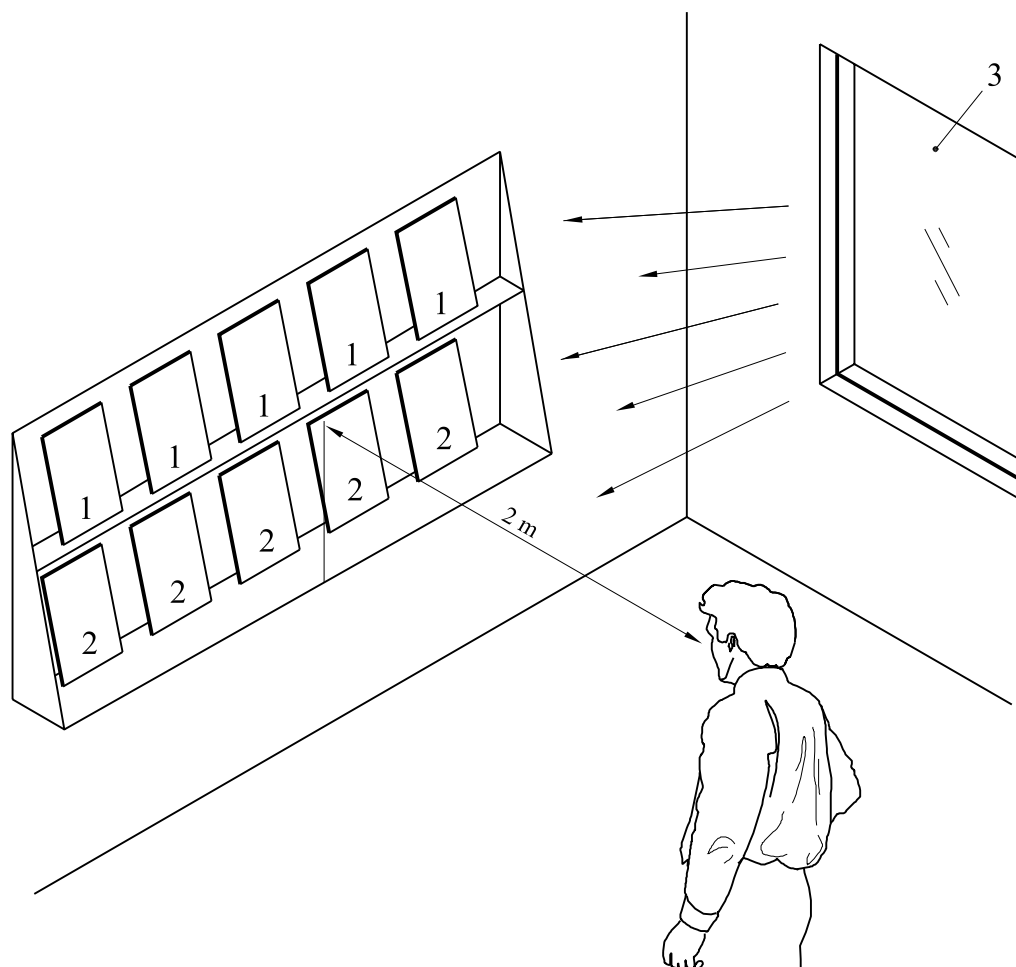
NOTE The pieces of agglomerated stone should be analysed under similar conditions: e.g. wet/dry, light.

4.2.8 Reaction to fire

Reaction to fire performance shall always be declared when the modular tiles are intended to be used in areas subjected to reaction to fire regulation and may be declared otherwise.

Agglomerated stones (except those containing more than 1 % by mass or volume, whichever is the most onerous, of organic materials), may be classified without testing (CWT) as reaction to fire Class A1_{fl}¹⁾.

For agglomerated stones containing more than 1 % by mass or volume, whichever is the most onerous, of organic materials, and having an end use subject to reaction to fire regulatory requirements shall be tested and classified in accordance with EN 13501-1.



Key

- 1 reference sample
- 2 production sample
- 3 daylight

Figure 2 — Comparison between production sample and reference sample of the modular tile

4.2.9 Slipperiness

The value for slipperiness of modular tiles shall be declared when subject to regulatory requirements and may be declared otherwise.

The slipperiness shall be determined using tests methods in EN 14231 and the results expressed accordingly.

1) See Decision of the Commission 96/603/EC of 1996-10-04 (see OJEC L267 of 1996-10-19), as amended twice by 2000/605/EC of 2000-09-26 (see OJEC L258 of 2000-10-12) and 2003/424/EC of 2003-06-06 (see OJEC L144 of 2003-06-12).

4.2.10 Thermal conductivity

The value for thermal conductivity of modular tiles shall always be declared.

The thermal conductivity value shall be taken from tabulated values and based on the apparent density of the material.

The apparent density shall be determined using the test method indicated in 4.2.2 and the value for thermal conductivity shall be taken from EN 12524 or tested in accordance with EN 12664 and the results expressed accordingly.

4.2.11 Thermal shock resistance

Where subject to regulatory requirements or where the product is expected to be subject to critical thermal cycles, thermal shock resistance of modular tiles shall be declared.

The thermal shock resistance shall be determined using the test method in EN 14617-6 and the results expressed accordingly.

4.2.12 Tactility/visibility

Tactility/visibility of modular tiles shall be declared when it is requested for specific purposes.

The tactility is expressed by a description of surface corrugation obtained by mechanical finishing.

NOTE The characteristic "tactility", when requested, is covered by the description of the morphology of the surfaces. "Visibility" has been considered as not relevant for agglomerated stones, because, when a particular visibility is needed, it is not normally achieved using this product.

4.2.13 Linear thermal expansion coefficient

Where subject to contractual request or where the modular tiles are expected to be subject to relevant dimensional variations due to temperature changes, linear thermal expansion coefficient of modular tiles shall be declared.

The linear thermal expansion coefficient shall be determined using the test method in EN 14617-11 and the results expressed accordingly.

4.2.14 Electrical resistivity

Where subject to contractual request, electrical resistivity of modular tiles shall be declared.

The electrical resistivity shall be determined using the test method in EN 14617-13 and the results expressed accordingly.

4.2.15 Impact resistance

Where subject to regulatory requirements or where the product is expected to be subject to impact of hard falling objects, impact resistance of modular tiles shall be declared.

The impact resistance shall be determined using the test method in EN 14617-9 and the results expressed accordingly.

4.2.16 Frost resistance

Where subject to regulatory requirements or where the product is expected to be subject to freeze/thaw cycles, frost resistance of modular tiles shall be declared.

The frost resistance shall be determined using the test method in EN 14617-5 and the results expressed accordingly.

4.2.17 Dimensional stability

Where subject to regulatory requirements or where the product is expected to be sensitive to the adhesive used for installation, dimensional stability of modular tiles shall be declared.

The dimensional stability shall be determined using the test method in EN 14617-12 and the results expressed accordingly.

5 Marking, labelling and packaging

As a minimum of identification, each consignment shall specify on the label and/or packaging the denomination of the agglomerated stone (see EN 14618). The dimensions, quantities and/or any other information shall be reported on the accompanying documents. The number of labels shall be sufficient to identify the delivered products according to the type of packaging.

The modular tiles shall be clean before packaging and transporting.

Sensitive polished surfaces shall be protected by appropriate means.

Tiles which are susceptible to stains shall get special attention in order to protect them.

Packing and tapes which are likely to stain shall not be used. Products with caustic properties shall not be used.

6 Evaluation of conformity

6.1 General rules

The compliance of agglomerated stone modular tiles with the requirements of this European Standard and with the declared values shall be demonstrated by initial type testing and additionally the manufacturer shall exercise a permanent factory production control and register the results.

6.2 Initial type testing (ITT)

Initial type testing of a modular tiles made of agglomerated stone product, as given in Table 3, shall be carried out:

- a) to demonstrate conformity to this European Standard or at the beginning of production of a new material,
- b) when significant variations occur in the production process, determined visually or by significant changes in FPC results.

Tests previously performed in accordance with the provisions of this European Standard (i.e. same material/product, same characteristic measured with same test method, same sampling procedure and system of attestation of conformity) may be taken into account for the purpose of ITT.

The results of the selected tests shall be expressed as referred to in 4.1 and 4.2.

The results of all initial type tests shall be recorded and held by the manufacturer for at least 10 years after the date of last production of the tiles to which they relate.

Table 3 — List of characteristic of modular tiles for flooring and stairs for initial type testing

Reference sub-clause for applicability ^a	Characteristics	Test method
4.1.2	Dimensions	EN 14617-16
4.1.3	Size and shape	EN 14617-16
4.1.4	Surface finish	Visual
4.2.2	Apparent density and water absorption	EN 14617-1
4.2.3	Flexural strength	EN 14617-2
4.2.4	Abrasion resistance	EN 14617-4
4.2.5	Chemical resistance	EN 14617-10
4.2.6	Visual appearance	Visual (see 4.2.7)
4.2.8	Reaction to fire, for agglomerated stone containing organic material of: - less or equal than 1 %, - more than 1 %	- see 4.2.8 (CWT) ^b , - see EN 13501-1
4.2.9	Slipperiness	EN 14231
4.2.10	Thermal conductivity	EN 14617-1, EN 12524 or EN 12664 ^c
4.2.11	Thermal shock resistance	EN 14617-6
4.2.12	Tactility/visibility	Description
4.2.13	Linear thermal expansion coefficient	EN 14617-11
4.2.14	Electrical resistivity	EN 14617-13
4.2.15	Impact resistance	EN 14617-9
4.2.16	Frost resistance	EN 14617-5
4.2.17	Dimensional stability	EN 14617-12

^a Reference shall be made to Clause 4 in order to decide which characteristics need to be declared.

^b Appropriate assessment shall be made to ensure compliance with the requirement for classification without testing (CWT).

^c EN 14617-1 is used in order to give a reference allowing reference data to be taken from EN 12524. Alternatively, products may be tested according to EN 12664.

6.3 Factory production control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the modular tiles placed on the market conform to the declared values for performance characteristics. The FPC system shall consist of written procedures (works' manual), regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product. Records shall remain legible, readily identifiable and retrievable.

An FPC system conforming with the requirements of EN ISO 9001:2000, and made specific to the requirements of this European Standard, shall be considered to satisfy the above requirements.

The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded and retained for the period specified in the manufacturer's FPC procedures.

6.3.2 FPC requirements

The tests and controls to be carried out by the manufacturer shall be part of the factory production control. The characteristics of the modular tiles for flooring and stairs, control frequencies for FPC and test methods shall be as given in the Table 4. The manufacturer shall exercise a permanent internal production control.

Table 4 — Control frequencies for factory production control

Reference sub-clause for applicability	Characteristics	Control frequency	Test method
4.1.2	Dimensions	Every production lot ^a	EN 14617-16
4.1.3	Size and shape	Every production lot ^a	EN 14617-16
4.1.4	Surface finish	Every production lot ^a	Visual
4.2.6	Visual appearance	Every production lot ^a	Visual
4.2.3	Flexural strength	At least every year	EN 14617-2
4.2.4	Abrasion resistance	At least every year	EN 14617-4
4.2.5	Chemical resistance	At least every year	EN 14617-10
4.2.8 ^b	Reaction to fire, for agglomerated stone containing organic material of: - more than 1 %	At least every 3 years ^a	EN 13501-1 ^b
4.2.2, 4.2.7, 4.2.9, 4.2.10, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 4.2.15, 4.2.16 and 4.2.17	All other characteristics	At least every 3 years	
^a The dimension or amount of production lot, should be determined by the manufacturer having as reference a daily production quantity, the number of deliveries and the final destination of the considered quantity of modular tiles. ^b Appropriate routine and regular check shall be carried out to maintain compliance with the requirement for CWT.			

The results of the tests carried out during FPC shall demonstrate the conformity to the requirements declared in accordance with 4.1 and 4.2.

6.3.3 Description of the records

Manufacturers' records shall include at least the following:

- a) identification of the product tested;
- b) information on sampling:
 - 1) place of sampling,
 - 2) identification of the production lot sampled,
 - 3) frequencies of sampling,

- 4) size and number of samples;
- c) the test methods applied;
- d) the results of the test carried out;
- e) calibration records of apparatus.

Annex ZA (informative)

Clauses of this European Standard addressing the provisions of the EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/119 "Floorings" given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard, shown in this annex, meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the construction products covered by this European Standard for its intended uses; reference shall be made to the information accompanying the CE marking.

WARNING: Other requirements and other EU Directives, not affecting the fitness of intended uses, can be applicable to the construction products falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA.
(accessed through <http://ec.europa.eu/enterprise/construction/internal/dangsub/dangmain.htm>)

This annex establishes the conditions for the CE marking of the agglomerated stone modular tiles intended for the uses indicated in Tables ZA.1.1 and ZA.1.2 and shows the relevant clauses applicable.

This annex has the same scope as Clause 1 of this European Standard and is defined by Tables ZA.1.1 and ZA.1.2.

Construction products: Agglomerated stone modular tiles.

Intended uses: Internal and external floorings and stairs.

Table ZA.1.1 — Relevant clauses for agglomerated stone modular tiles for internal floorings and stairs

Essential characteristics	Requirement sub-clause in this European Standard	Mandated levels and/or classes	Notes ^f
Water tightness ^c (water absorption)	4.2.2	—	a) EN 14617-1 b) see Table 2→ Class W ₁ to W ₄
Breaking strength (flexural strength)	4.2.3	—	a) EN 14617-2 b) see Table 2→ Class F ₁ to F ₄
Reaction to fire	4.2.8	Class A1 _{fl} Classes A1 _{fl} to F _{fl}	See 4.2.8 ^a Acc. to EN 13501-1 ^b
Slipperiness	4.2.9	—	a) EN 14231 b) declared value
Tactility/visibility ^d	4.2.12	—	Description
Thermal conductivity	4.2.10	—	a) EN 12524 b) declared value (W/mK)
Durability ^e	Not relevant	—	

^a For agglomerated stones with less or equal than 1 % mass or volume, whichever is the most onerous, of organic materials.

^b For agglomerated stones with more than 1 % mass or volume, whichever is the most onerous, of organic materials.

^c The characteristic "water tightness" can be considered as the inverse of water permeability and it roughly coincides with water absorption because a flooring element can absorb water while not releasing any on the other side (i.e. remaining water tight).

^d Visibility is not relevant for agglomerated stone products.

^e The current state of the art suggests that the agglomerated stone material and the surface will maintain its performances for a normal service life and so no durability test is required.

^f Standard, clause, table or annex for test/calculation method of the product characteristics [see a)] and expression of the test result [see b)].

Table ZA.1.2 — Relevant clauses for agglomerated stone modular tiles for external floorings and stairs

Essential characteristics		Requirement sub-clause in this European Standard	Mandated levels and/or classes	Notes ^b
Breaking strength (flexural strength)		4.2.3	–	a) EN 14617-2 b) see Table 2 → Class F ₁ to F ₄
Slipperiness (for pedestrian areas only)		4.2.9	–	a) EN 14231 b) declared value
Tactility/visibility ^a		4.2.12	–	Description
Durability	Thermal shock resistance	4.2.11	–	a) EN 14617-6 b) declared value
	Impact resistance (maintenance of integrity)	4.2.15	–	a) EN 14617-9 b) declared value
	Freeze and thaw resistance	4.2.16	–	a) EN 14617-5 b) declared value
<p>^a Visibility is not relevant for agglomerated stone products.</p> <p>^b Standard, clause, table or annex for test/calculation method of the product characteristics [see a)] and expression of the test result [see b)].</p>				

The requirement on a certain characteristic is not applicable in those Member States (MSs) where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products on the market of these MSs are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option "No performance determined" (NPD) in the information accompanying the CE marking (see clause ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Procedures for the attestation of conformity of agglomerated stone modular tiles

ZA.2.1 Systems of attestation of conformity

The systems of attestation of conformity of agglomerated stone modular tiles indicated in Tables ZA.1.1 and ZA.1.2, in accordance with the Decision of the Commission 97/808/EC of 1997-11-20 (see OJEC L331 of 1997-12-03), as amended firstly by 1999/453/EC of 1999-06-18 (see OJEC L178 of 1997-07-14), secondly by 2001/596/EC of 2001-01-08 (see OJEC L209 of 2001-08-02) and thirdly by 2006/190/EC of 2006-03-01 (see OJEC L66 of 2006-03-08), as given in Annex III of the Mandate M/119 for "Floorings", are shown in Table ZA.2 for the indicated intended uses and relevant level(s) or classes.

Table ZA.2 — Attestation of conformity systems

Products	Intended use(s)	Level(s) or class(es)	Attestation of conformity systems
Rigid flooring products: agglomerated stone modular tiles for floors and stairs	For external uses	–	4
	For internal uses	(A _{1fl} , A _{2fl} , B _{fl} and C _{fl}) [*]	1
		(A _{1fl} , A _{2fl} , B _{fl} , C _{fl}) ^{**} , D _{fl} and E _{fl}	3
		(A _{1fl} to E _{fl}) ^{***} F _{fl}	4
<p>[*] Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. addition of fire retardants or a limiting of organic material).</p> <p>^{**} Products/materials not covered by footnote (*).</p> <p>^{***} Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC (see OJEC L267, 1996-10-19, p.23), as amended.</p>			
<p>System 1: See Directive 89/106/EEC (CPD) Annex III.2.(i), without audit testing of samples.</p> <p>System 3: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility.</p> <p>System 4: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Third possibility.</p>			

The attestation of conformity of the agglomerated stone modular tiles in Tables ZA.1.1 and ZA.1.2 shall be according to the evaluation of conformity procedures indicated in Tables ZA.3.1 to ZA.3.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3.1 — Assignment of evaluation of conformity tasks for agglomerated stone modular tiles under system 1

Tasks		Content of the task	Evaluation of conformity sub-clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use [except reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} and C _{fi}) ^a] ^b	6.2
Tasks under the responsibility of the product certification body	Initial type testing	[Reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} and C _{fi}) ^a] ^b	6.2
	Initial inspection of factory and of FPC	Parameters related to all characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use [in particular reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} and C _{fi}) ^a] ^b	6.3
	Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use [in particular reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} and C _{fi}) ^a] ^b	6.3
<p>^a See footnote (*) to Table ZA.2.</p> <p>^B Applicable for internal use of modular tiles only.</p>			

Table ZA.3.2 — Assignment of evaluation of conformity tasks for agglomerated stone modular tiles under system 3

Tasks		Content of the task	Evaluation of conformity sub-clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use	6.3
	Initial type testing by notified test laboratory	[Reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} , C _{fi}) ^a D _{fi} and E _{fi}] ^b	6.2
	Initial type testing by manufacturer	All characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use [except reaction to fire classes (A1 _{fi} , A2 _{fi} , B _{fi} , C _{fi}) ^a , D _{fi} and E _{fi}] ^b	6.2
<p>^a See footnote (**) to Table ZA.2.</p> <p>^B Applicable for internal use of modular tiles only.</p>			

Table ZA.3.3 — Assignment of evaluation of conformity tasks for agglomerated stone modular tiles under system 4

Tasks		Content of the task	Evaluation of conformity sub-clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1.1 or ZA.1.2 relevant for the intended use	6.2

ZA.2.2 EC certificate of conformity and EC declaration of conformity

(In case of modular tiles under system 1): When compliance with the conditions of this annex is achieved, the notified certification body shall draw up a certificate of conformity (i.e. EC certificate of conformity), which entitles the manufacturer to affix the CE marking. The certificate shall include:

- a) name, address and identification number of the notified certification body;
- b) name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

- c) description of the product (type, identification, use, ...);
- d) provision to which the product conforms (i.e. Annex ZA of this EN);
- e) particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- f) the number of the certificate;
- g) conditions of availability of the certificate, where applicable;
- h) name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up and retain a declaration of conformity (i.e. EC declaration of conformity) including the following:

- i) name and address of the manufacturer, or his authorised representative established in the EEA;
- j) name and address of the notified certification body;
- k) description of the product (type, identification, use, ...) and a copy of the information accompanying the CE marking;

NOTE 2 Where some of the information required for the declaration is already given in the CE marking information, it does not need to be repeated.

- l) provision to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT report(s) and factory production control records (if appropriate);
- m) particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);

- n) number of the accompanying EC certificate of conformity;
- o) name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer of his authorised representative.

(In case of modular tiles under system 3 or 4): When compliance of agglomerated stone modular tiles with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity (i.e. EC declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- p) name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 3 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

- q) description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;

NOTE 4 Where some of the information required for the declaration is already given in the CE marking information, it does not need to be repeated.

- r) provisions to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT report(s) and factory production control records as appropriate;
- s) particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions);
- t) name and address of the notified laboratory(ies) (*only for modular tiles under system 3*);
- u) name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The above mentioned declaration and certificate, where issued, shall be presented in the language or languages accepted in the Member State in which the product is intended to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EEC and shall be shown on the packaging of modular tiles or on the accompanying commercial documents (e.g. a delivery note). The following information shall accompany the CE marking symbol:

- a) identification number of the notified certification body (*only for internally used modular tiles under system 1*);
- b) the name or identifying mark and registered address of the manufacturer (see NOTE 1 in ZA.2.2);
- c) the last two digits of the year in which the marking was affixed;
- d) number of the EC certificate of conformity (*only for internally used modular tiles under system 1*);
- e) reference to this European Standard (i.e. EN 15285);
- f) description of the product:
 - 1) generic name: agglomerated stone modular tiles,

- 2) intended use: external or internal application for flooring or/and stairs,
 - 3) dimensions (length l , width b , thickness d), (see 4.1.2);
- g) information on those essential characteristics listed in Table ZA.1.1 or ZA.1.2, which are to be declared:
- 1) reaction to fire (for internally used modular tiles under system 1 only), (see 4.2.8),
 - 2) water tightness (water absorption) (*for internally used modular tiles only*), (see 4.2.2),
 - 3) breaking strength (flexural strength) (see 4.2.3),
 - 4) slipperiness (when modular tiles used externally, for pedestrian areas only), (see 4.2.9),
 - 5) tactility/visibility (see 4.2.12),
 - 6) thermal conductivity (*for internally used modular tiles only*) (see 4.2.10),
 - 7) durability (for internally used modular tiles only) as: NPD,
 - 8) durability (for externally used modular tiles only) as:
 - i) thermal shock resistance (see 4.2.11),
 - ii) impact resistance (maintenance of integrity) (see 4.2.15),
 - iii) freeze and thaw resistance (see 4.2.16).

The “No performance determined” (NPD) option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination. Class F_{fl} is used instead of NPD for reaction to fire.

Where a product is intended for both internal and external uses, the information for both uses may be combined into a single CE marking.

Examples of CE marking information to be given on the packaging of modular tiles or accompanying commercial documents are shown in Figures ZA.1 for tiles for internal uses (*under system 3*), ZA.2 for tiles for external uses (*under system 3*) and ZA.3 for tiles for both uses, respectively.

CE	<i>CE conformity marking, consisting of the “CE”-symbol given in Directive 93/68/EEC.</i>														
AnyCo Ltd, PO Box 21, B-1050 08	<i>Name or identifying mark and registered address of the manufacturer Last two digits of the year in which the marking was affixed</i>														
EN 15285 Agglomerated stone modular tiles, intended to be used for internal floor and stair applications 600 mm × 400 mm × 12 mm	<i>No. of European Standard Description of product, intended use and dimensions</i>														
<table border="0"> <tr> <td>Reaction to fire:</td> <td>Class A1_{fl}</td> </tr> <tr> <td>Breaking strength: (flexural strength)</td> <td>F₂</td> </tr> <tr> <td>Slipperiness:</td> <td>50</td> </tr> <tr> <td>Tactility/visibility:</td> <td>NPD</td> </tr> <tr> <td>Thermal conductivity:</td> <td>1,3 W/(m K)</td> </tr> <tr> <td>Water tightness: (water absorption)</td> <td>W₄</td> </tr> <tr> <td>Durability:</td> <td>NPD</td> </tr> </table>	Reaction to fire:	Class A1 _{fl}	Breaking strength: (flexural strength)	F ₂	Slipperiness:	50	Tactility/visibility:	NPD	Thermal conductivity:	1,3 W/(m K)	Water tightness: (water absorption)	W ₄	Durability:	NPD	<i>Information on regulated characteristics</i>
Reaction to fire:	Class A1 _{fl}														
Breaking strength: (flexural strength)	F ₂														
Slipperiness:	50														
Tactility/visibility:	NPD														
Thermal conductivity:	1,3 W/(m K)														
Water tightness: (water absorption)	W ₄														
Durability:	NPD														

Figure ZA.1 — Example of CE marking information for agglomerated stone modular tiles for internal uses

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	<i>CE conformity marking, consisting of the “CE”-symbol given in Directive 93/68/EEC.</i>														
AnyCo Ltd, PO Box 21, B-1050	<i>Name or identifying mark and registered address of the manufacturer</i>														
08	<i>Last two digits of the year in which the marking was affixed</i>														
EN 15285	<i>No. of European Standard</i>														
Agglomerated stone modular tiles, intended to be used for external floor and stair applications 600 mm × 400 mm × 12 mm	<i>Description of product, intended use and dimensions</i>														
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Breaking strength (flexural strength):</td> <td style="text-align: right;">F₂</td> </tr> <tr> <td>Slipperiness:</td> <td style="text-align: right;">50</td> </tr> <tr> <td>Tactility/visibility:</td> <td style="text-align: right;">NPD</td> </tr> <tr> <td>Durability:</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">– thermal shock resistance:</td> <td style="text-align: right;">95 %</td> </tr> <tr> <td style="padding-left: 20px;">– impact resistance (maintenance of integrity):</td> <td style="text-align: right;">5 J</td> </tr> <tr> <td style="padding-left: 20px;">– freeze and thaw resistance:</td> <td style="text-align: right;">95 %</td> </tr> </table>	Breaking strength (flexural strength):	F ₂	Slipperiness:	50	Tactility/visibility:	NPD	Durability:		– thermal shock resistance:	95 %	– impact resistance (maintenance of integrity):	5 J	– freeze and thaw resistance:	95 %	<i>Information on regulated characteristics</i>
Breaking strength (flexural strength):	F ₂														
Slipperiness:	50														
Tactility/visibility:	NPD														
Durability:															
– thermal shock resistance:	95 %														
– impact resistance (maintenance of integrity):	5 J														
– freeze and thaw resistance:	95 %														

Figure ZA.2 — Example of CE marking information for agglomerated stone modular tiles for external uses


		<i>CE conformity marking, consisting of the “CE”-symbol given in Directive 93/68/EEC.</i>
AnyCo Ltd, PO Box 21, B-1050		<i>Name or identifying mark and registered address of the manufacturer</i>
08		<i>Last two digits of the year in which the marking was affixed</i>
EN 15285		<i>No. of European Standard</i>
Agglomerated stone modular tiles, intended to be used for internal/external floor and stair applications		<i>Description of product, intended use and dimensions</i>
600 mm × 400 mm × 12 mm		
Reaction to fire:	Class A1 _{fl}	<i>Information on regulated characteristics</i>
Breaking strength (flexural strength):	F ₂	
Slipperiness:	50	
Tactility/visibility:	NPD	
Thermal conductivity:	1,3 W/(m K)	
Water tightness: (water absorption)	W ₄	
Durability:		
– thermal shock resistance:	95 %	
– impact resistance (maintenance of integrity):	5 J	
– freeze and thaw resistance:	95 %	

Figure ZA.3 — Example of CE marking information for agglomerated stone modular tiles for internal/external uses

In addition, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE 1 European legislation without national derogations need not be mentioned.

NOTE 2 Affixing the CE marking symbol means, if a product is subject to more than one directive that it complies with all applicable directives.

Bibliography

- [1] EN 13748-1, *Terrazzo tiles — Part 1: Terrazzo tiles for internal use*
- [2] EN 13748-2, *Terrazzo tiles — Part 2: Terrazzo tiles for external use*

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