

<b>STN</b>	<b>Keramické obkladové prvky. Definície, klasifikácia, vlastnosti, hodnotenie zhody a označovanie.</b>	<b>STN EN 14411</b>  72 5101
------------	--	--

Ceramic tiles - Definition, classification, characteristics, assessment and verification of constancy of performance and marking

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/16

Obsahuje: EN 14411:2016

Oznámením tejto normy sa od 30.04.2018 ruší  
STN EN 14411 (72 5101) z mája 2013

**123608**



EUROPEAN STANDARD

**EN 14411**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2016

ICS 91.100.23

Supersedes EN 14411:2012

English Version

## Ceramic tiles - Definition, classification, characteristics, assessment and verification of constancy of performance and marking

Carreaux céramiques - Définitions, classification,  
caractéristiques, évaluation et vérification de la  
constance de performance et marquage

Keramische Fliesen und Platten - Definitionen,  
Klassifizierung, Eigenschaften, Konformitätsbewertung  
und Kennzeichnung

This European Standard was approved by CEN on 13 May 2016.

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.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	4
<b>1 Scope</b> .....	<b>6</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>7</b>
<b>4 Classification of ceramic tiles</b> .....	<b>10</b>
<b>5 Requirements</b> .....	<b>11</b>
5.1 General.....	11
5.2 Characteristics.....	11
<b>6 Assessment and verification of constancy of performance (AVCP)</b> .....	<b>13</b>
6.1 General.....	13
6.2 Type testing.....	13
6.2.1 General.....	13
6.2.2 Test samples, testing and compliance criteria.....	14
6.2.3 Test reports.....	14
6.2.4 Shared other party results.....	14
6.3 Factory production control (FPC).....	14
6.3.1 General.....	14
6.3.2 Requirements.....	15
6.3.3 Product specific requirements.....	18
6.3.4 Procedure for modifications.....	18
6.3.5 One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity.....	19
<b>7 Designation</b> .....	<b>19</b>
<b>8 Marking</b> .....	<b>19</b>
<b>Annex A (normative) Requirements for extruded ceramic tiles of Group AI<sub>b</sub> (0,5 % &lt; E<sub>b</sub> ≤ 3 %)</b> .....	<b>21</b>
<b>Annex B (normative) Requirements for extruded ceramic tiles of Group AII<sub>a-1</sub> (3 % &lt; E<sub>b</sub> ≤ 6 %)</b> .....	<b>25</b>
<b>Annex C (normative) Requirements for extruded ceramic tiles of Group AII<sub>a-2</sub> (3 % &lt; E<sub>b</sub> ≤ 6 %)</b> .....	<b>29</b>
<b>Annex D (normative) Requirements for extruded ceramic tiles of Group AII<sub>b-1</sub> (6 % &lt; E<sub>b</sub> ≤ 10 %)</b> .....	<b>33</b>
<b>Annex E (normative) Requirements for extruded ceramic tiles of Group AII<sub>b-2</sub> (6 % &lt; E<sub>b</sub> ≤ 10 %)</b> .....	<b>37</b>
<b>Annex F (normative) Requirements for extruded ceramic tiles of Group AIII (E<sub>b</sub> &gt; 10 %)</b> .....	<b>41</b>
<b>Annex G (normative) Requirements for dry-pressed ceramic tiles with low water absorption of Group BI<sub>a</sub> (E<sub>b</sub> ≤ 0,5 %)</b> .....	<b>45</b>
<b>Annex H (normative) Requirements for dry-pressed ceramic tiles with low water absorption of Group BI<sub>b</sub> (0,5 % &lt; E<sub>b</sub> ≤ 3 %)</b> .....	<b>49</b>

<b>Annex J (normative) Requirements for dry-pressed ceramic tiles of Group BII<sub>a</sub></b> <b>(3 % &lt; E<sub>b</sub> ≤ 6 %) .....</b>	<b>53</b>
<b>Annex K (normative) Requirements for dry-pressed ceramic tiles of Group BII<sub>b</sub></b> <b>(6 % &lt; E<sub>b</sub> ≤ 10 %) .....</b>	<b>57</b>
<b>Annex L (normative) Requirements for dry-pressed ceramic tiles of Group BIII (E<sub>b</sub> &gt; 10 %) .....</b>	<b>61</b>
<b>Annex M (normative) Requirements of extruded ceramic tiles with low water absorption of</b> <b>Group AI<sub>a</sub> (E<sub>b</sub> ≤ 0,5 %) .....</b>	<b>65</b>
<b>Annex N (informative) Classification of glazed ceramic tiles for floorings according to their</b> <b>resistance to surface abrasion .....</b>	<b>69</b>
<b>Annex O (informative) Additional information on applicability of certain characteristics .....</b>	<b>70</b>
<b>0.1 General .....</b>	<b>70</b>
<b>0.2 Characteristics .....</b>	<b>70</b>
<b>Annex P (informative) Symbols for indication of intended use and of performances of some</b> <b>characteristics of ceramic tiles .....</b>	<b>71</b>
<b>Annex ZA (informative) Clauses of this European Standard addressing the provisions of the</b> <b>EU Construction Products Regulation .....</b>	<b>73</b>
<b>Bibliography .....</b>	<b>84</b>

## European foreword

This document (EN 14411:2016) has been prepared by Technical Committee CEN/TC 67 “Ceramic tiles”, 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 2017, and conflicting national standards shall be withdrawn at the latest by April 2018.

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

This document supersedes EN 14411:2012.

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.

The changes with respect to the previous edition include:

Errors (editorial):

- Skipping Annex I, because ceramic tiles that comply with the requirements of EN 14411, have to include specific marking on the boxes. One of the requirements of this marking is to indicate the reference to the standard and the annex it complies with. Previous editions of EN 14411 all skipped the reference to Annex I, and only the 2012 edition included it by error. This also affects the numbering of annexes which go after I (J, K, L,...) since these all shift one letter downwards. If this is not corrected, manufacturers will need to update the marking and change all the boxes. Furthermore, the letter of the annex has traditionally been connected with a specific group or type of ceramic tile, and the change will create confusion. In order to avoid all these unnecessary consequences, and increased costs, it is requested, like it has been done in the past with previous editions, to skip Annex I, and adapt the successive annexes accordingly.
- Renumbering of Annexes J to P (previous I to O)
- Annex C – dimensional tolerance limits for surface flatness were incorrect (see EN 14411:2006)
- Annex K – Eliminated note ‘o’ since it was duplicated (same as note ‘n’)
- Updated references to annexes throughout the text

Changes (technical):

- Exclusion of ceramic decorative pieces, trims and accessories (not included in mandate)
- Exclusion of meshed backed products (these are considered systems or kits, involving other non-ceramic materials, thus not covered by this standard)
- New Clause 6 on assessment and verification of the constancy of performance (previous evaluation of conformity clause) according to Doc. TF N 548 Rev 1 Guidance document.

- Clause 8 on marking: addition of text for special consideration of marking on small size tiles
- Table 2, clause *B.10d*): elimination of ‘mortar’ in the bond strength characteristic (the reference to test standard EN 1015-12 is not appropriate since it is not used to determine the adhesion properties of ceramics but of renders and plastering mortars on substrates). Eliminated references throughout the text.
- New Annex ZA according to CPR (including Delegated Regulation EU 157/2014 relative to DoP on websites and Delegated Regulation EU 574/2014 relative to model of DoP).

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, 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 the United Kingdom.

## 1 Scope

This European Standard defines terms and specifies characteristics for ceramic tiles, including mosaics (i.e. any piece that can fit into a square area of 49 cm<sup>2</sup>) produced by extrusion or dry-pressing techniques, used for internal and/or external floorings (including stairs) and/or walls. Furthermore, it provides the level of requirements for these characteristics and references to the test methods applied as well as provisions for the assessment and verification of the constancy of performance.

This European Standard is not applicable to:

- meshed backed products;
- ceramic decorative accessories or trims (such as edges, corners, skirting, capping, coves, beads, curved tiles and other accessory pieces);
- ceramic tiles made by processes other than extrusion or dry-pressing;
- dry-pressed unglazed ceramic tiles with water absorption greater than 10 %;
- ceramic tiles used for floorings on external road finishes;
- ceramic tiles used in ceiling finishes or suspended ceilings.

## 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 12004:2007+A1:2012, *Adhesives for tiles - Requirements, evaluation of conformity, classification and designation*

CEN/TS 15209, *Tactile paving surface indicators produced from concrete, clay and stone*

CEN/TS 16165, *Determination of slip resistance of pedestrian surfaces - Methods of evaluation*

EN ISO 10545-1, *Ceramic tiles - Part 1: Sampling and basis for acceptance (ISO 10545-1)*

EN ISO 10545-2, *Ceramic tiles - Part 2: Determination of dimensions and surface quality (ISO 10545-2)*

EN ISO 10545-3, *Ceramic tiles - Part 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density (ISO 10545-3)*

EN ISO 10545-4, *Ceramic tiles - Part 4: Determination of modulus of rupture and breaking strength (ISO 10545-4)*

EN ISO 10545-5, *Ceramic tiles - Part 5: Determination of impact resistance by measurement of coefficient of restitution (ISO 10545-5)*

EN ISO 10545-6, *Ceramic tiles - Part 6: Determination of resistance to deep abrasion for unglazed tiles (ISO 10545-6)*

EN ISO 10545-7, *Ceramic tiles - Part 7: Determination of resistance to surface abrasion for glazed tiles (ISO 10545-7)*



EN ISO 10545-8, *Ceramic tiles - Part 8: Determination of linear thermal expansion (ISO 10545-8)*

EN ISO 10545-9, *Ceramic tiles - Part 9: Determination of resistance to thermal shock (ISO 10545-9)*

EN ISO 10545-10, *Ceramic tiles - Part 10: Determination of moisture expansion (ISO 10545-10)*

EN ISO 10545-11, *Ceramic tiles - Part 11: Determination of crazing resistance for glazed tiles (ISO 10545-11)*

EN ISO 10545-12, *Ceramic tiles - Part 12: Determination of frost resistance (ISO 10545-12)*

EN ISO 10545-13, *Ceramic tiles - Part 13: Determination of chemical resistance (ISO 10545-13)*

EN ISO 10545-14, *Ceramic tiles - Part 14: Determination of resistance to stains (ISO 10545-14)*

EN ISO 10545-15, *Ceramic tiles - Part 15: Determination of lead and cadmium given off by glazed tiles (ISO 10545-15)*

EN ISO 10545-16, *Ceramic tiles - Part 16: Determination of small colour differences (ISO 10545-16)*

ISO 1006:1983, *Building construction — Modular coordination — Basic module*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**