
Tekoče vgrajevani za vodo neprepustni izdelki za uporabo pod keramičnimi ploščicami, lepljenimi z lepili - Bistvene značilnosti in ocenjevanje ter preverjanje nespremenljivosti lastnosti (AVCP)

Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives - Essential characteristics and AVCP

Flüssig zu verarbeitende wasserundurchlässige Produkte im Verbund mit keramischen Fliesen und Plattenbelägen - Anforderungen, Prüfverfahren, Bewertung und Überprüfung der Leistungsbeständigkeit, Klassifizierung und Bezeichnung

Produits d'imperméabilisation appliqués en phase liquide utilisés sous carrelage collé - Caractéristiques essentielles et EVCP

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Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives - Essential characteristics and AVCP

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liquide utilisés sous carrelage collé - Caractéristiques
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Leistungsbeständigkeit, Klassifizierung und
Bezeichnung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 67.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 14891:2020) has been prepared by Technical Committee CEN/TC 67 “Ceramic tiles”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14891:2017.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports basic requirements for construction works of Regulation No. 305/2011.

For relationship with this Regulation, see informative Annex ZA, which is an integral part of this document.

The significant changes between this document and the previous edition are according to the requirements of the CPR.

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1 Scope

This document applies to all liquid-applied water impermeable products, based on polymer modified cementitious mortars, dispersions and reaction resin coatings, used beneath ceramic tiling, for external tile installations on walls and floors and in swimming pools.

This document specifies the essential characteristics, the respective threshold levels and test methods for liquid-applied water impermeable products associated with tile adhesives.

This document specifies the assessment and verification of constancy of performance, of liquid-applied water impermeable products beneath ceramic tiling.

NOTE This document does not contain recommendations for the design and installation of ceramic tiles and grouts in combination with water impermeable products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 196-1:2016, *Methods of testing cement — Part 1: Determination of strength*

EN 197-1:2011, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

EN 480-1:2014, *Admixtures for concrete, mortar and grout — Test methods - Part 1: Reference concrete and reference mortar for testing*

EN 1008:2002, *Mixing water for concrete — Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete*

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EN 1067:2005, *Adhesives — Examination and preparation of samples for testing*

prEN 12004-1:2020, *Adhesives for ceramic tiles — Part 1: Essential characteristics assessment and verification of constancy of performance*

EN 12004-2:2017, *Adhesives for ceramic tiles — Part 2: Test methods*

EN 12390-2:2019, *Testing hardened concrete — Part 2: Making and curing specimens for strength tests*

EN 12620:2002+A1:2008, *Aggregates for concrete*

EN 14411:2016, *Ceramic tiles — Definition, classification, characteristics, assessment and verification of constancy of performance and marking*

EN ISO 15605:2004, *Adhesives — Sampling (ISO 15605:2000)*

prEN 14891:2020 (E)**3 Terms and definitions**

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**liquid-applied water impermeable product**

single- or multicomponent waterproofing material applied in a uniform layer, beneath ceramic tiling

Note 1 to entry: The water impermeable layer can include a reinforcing cloth or mesh.

3.2**polymer modified cementitious liquid-applied water impermeable product****CM**

mixture of hydraulic binding agents, aggregates and organic additives that has only to be mixed with water or liquid admixture just before use

3.3**dispersion liquid-applied water impermeable product****DM**

ready for use mixture of organic binding agent(s) in the form of an aqueous polymer dispersion, organic additives and mineral fillers

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3.4**reaction resin liquid-applied water impermeable product****RM**

one or more component mixture of synthetic resin, mineral fillers and organic additives in which hardening occurs by chemical reaction

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3.5**crack bridging ability**

ability of the hardened waterproofing material to withstand propagation of the cracks without deterioration

3.6**primer**

liquid coating applied to the surface, prior to the application of a liquid product, to improve adhesion and durability of the bond

4 Essential characteristics

The assessment of the essential characteristics of the liquid-applied water impermeable products shall be carried out in accordance with Table 1.

The amount of water and/or liquid admixture required for preparing the cementitious liquid-applied water impermeable products shall be the same for all tests.

Table 1 — Essential characteristics – Requirements (CM – DM – RM)

Characteristic	Threshold value	Test method
Initial tensile adhesion strength	≥ 0,5 N/mm ²	A.6.2
Tensile adhesion strength after water contact	≥ 0,5 N/mm ²	A.6.3 or A.6.4
Tensile adhesion strength after heat ageing	≥ 0,5 N/mm ²	A.6.5
Tensile adhesion strength after freeze–thaw cycles	≥ 0,5 N/mm ²	A.6.6
Tensile adhesion strength after contact with lime water	≥ 0,5 N/mm ²	A.6.9
Waterproofing	No penetration and ≤ 20 g weight gain	A.7
Crack bridging ability under standard conditions or	≥ 0,75 mm	A.8.2
Crack bridging ability at low temperature (- 5 °C) or		A.8.3
Crack bridging ability at very low temperature (- 20 °C)		A.8.3

5 Testing, assessment and sampling methods

Testing and assessment methods and requirements for sampling shall be as set out in A.1 to A.8.

6 Assessment and verification of constancy of performance

6.1 General

The technical details necessary for the implementation of the system of assessment and verification of constancy of performance comprise provisions with regards to:

- the assessment of the performance of the construction product, which may be carried out on the basis of testing (including sampling) of the product and
- the applicable factory production control.

6.2 Assessment of performance

6.2.1 General

When the intention is to declare any performance related to characteristics included in Annex ZA of this standard this shall be carried out on the basis of testing (including sampling) of the product, in accordance with Clause 'Characteristics'.

Assessment previously performed in accordance with the provisions of this standard, may be considered, provided that this assessment was performed to the same or a more rigorous assessment method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.

For the purposes of assessment, the products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for that same characteristic for all products within that same family.

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In addition, the determination of the product performance shall be:

- carried out for all characteristics included in the standard for which it is intended to declare the performance
 - on first application of this standard, or
 - at the beginning of the production of a new or modified liquid-applied water impermeable product, unless a member of the same product family, or
 - at the beginning of a new or modified method of production, where the modification may affect the stated properties;
- repeated for the characteristic(s) in question, whenever a change occurs in the liquid-applied water impermeable product design, in the raw material(s) or in the supplier of the components, and/or in the method of production (subject to the definition of a family), which may affect significantly the performance in relation to one or more of the characteristics.

Where components are used whose performance in relation to their characteristics has already been determined on the basis of assessment methods of other harmonized technical specifications and those components bear CE marking in accordance with those harmonized technical specifications, these performances do not need to be re-assessed, if the intended use and the assessment methods of this standard correspond to previously used. The specifications of these components shall be documented.

6.2.2 Test samples, testing and compliance criteria

The samples of the liquid-applied water impermeable product to be tested/assessed shall be in accordance with Table 2.

Table 2 — Number of samples to be tested and assessment criteria

Characteristic	Clause	Assessment method	No. of samples	Assessment criteria
Initial tensile adhesion strength	4	A.6	1	Clause 4, Table 1
Tensile adhesion strength after water contact	4	A.6	1	Clause 4, Table 1
Tensile adhesion strength after heat ageing	4	A.6	1	Clause 4, Table 1
Tensile adhesion strength after freeze-thaw cycles	4	A.6	1	Clause 4, Table 1
Tensile adhesion strength after contact with lime water	4	A.6	1	Clause 4, Table 1
Waterproofing	4	A.7	1	Clause 4, Table 1
Crack-bridging ability (under standard conditions or at low temperature)	4	A.8	1	Clause 4, Table 1

6.3 Verification of constancy of performance

6.3.1 Factory Production Control (FPC)

6.3.1.1 General

An FPC system shall be established, documented, operated and maintained to ensure that the products placed on the market comply with the declared performance in relation to the essential characteristics.

The FPC system shall consist of procedures, 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.

All the elements and provisions shall be documented in a systematic manner in the form of written policies and procedures.

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting constancy of the performance of the product, shall be defined.

The qualification and competence (e.g. on the basis of education, training, skills, or experience) of personnel performing tasks affecting the assessment and verification of constancy of performance of the product shall be recorded.

Documents defining the factory production control system shall be drawn up and kept up-to-date. Documentation and procedures should be appropriate to the product and production process. The FPC system should achieve an appropriate level of confidence in the constancy of performance of the product. This involves:

- a) the preparation of documented procedures and instructions relating to factory production control operations, in accordance with the technical specification to which reference is made;
- b) the effective implementation of these procedures and instructions;
- c) the recording of these operations and their results;
- d) the use of these results to correct any deviations, correct the effects of such deviations, treat any resulting instances of non-constancy and, if necessary, revise the FPC system to rectify the cause of non-constancy of performance.

6.3.1.2 Equipment

6.3.1.2.1 Testing

All weighing, measuring and testing equipment shall be checked, calibrated and regularly inspected according to documented procedures, frequencies and criteria.

6.3.1.2.2 Production

All equipment used in the production process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the production process. Inspections and maintenance shall be carried out and recorded in accordance with written procedures and the records retained for the period defined in the FPC procedures.

6.3.1.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance.

prEN 14891:2020 (E)**6.3.1.4 Traceability and marking**

Individual product batches shall be identifiable and traceable with regard to their place of production.

Written procedures ensuring that processes related to affixing traceability codes and/or markings are inspected regularly shall be maintained.

6.3.1.5 Product testing and evaluation

Procedures to ensure that the performance in relation to the declared characteristics are maintained shall be established. The characteristics, and the means of control, are specified in Table 3.

Table 3 — Production control: test methods and minimum FPC frequency

Characteristic	Test method	Minimum FPC frequency
Initial tensile adhesion strength	A.6.2	B
Tensile adhesion strength after water contact	A.6.3 or A.6.4	B
Tensile adhesion strength after heat ageing	A.6.5	B
Tensile adhesion strength after freeze-thaw cycles	A.6.6	B
Tensile adhesion strength after contact with lime water	A.6.9	B
Waterproofing	A.7	A
Crack-bridging ability (under standard conditions or at low temperature)	A.8.2 or A.8.3	B
A: means at six month interval B: means one test per year for production below 500 tonnes/y and two tests per year for production over 500 tonnes/y		