SLOVENSKI STANDARD
SIST EN 14891:2008

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Tekoče vgrajevani za vodo neprepustni izdelki za uporabo pod keramičnimi ploščicami, lepljenimi z lepili - Zahteve, preskusne metode, ugotavljanje skladnosti, klasifikacija in označevanje

Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives - Requirements, test methods, evaluation of conformity, classification and designation

Flüssig zu verarbeitende wasserundurchlässige Produkte im Verbund mit keramischen Fliesen- und Plattenbelägen - Anforderungen, Prüfverfahren, Konformitätsbewertung, Klassifizierung und Bezeichnung

Produits d'imperméabilisation pour la pose collée du carrelage - Spécification, méthodes d'essai, évaluation de la conformité, classification et désignation

Ta slovenski standard je istoveten z: **EN 14891:2007**

ICS:

91.100.23	Keramične ploščice	Ceramic tiles
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

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EUROPEAN STANDARD

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English Version

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This European Standard was approved by CEN on 2 December 2006.

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 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 Management Centre has the same status as the official versions.

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

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Contents

Foreword

This document (EN 14891:2007) 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of an identical text or by endorsement, at the latest by February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.

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 United Kingdom.

1 Scope

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

This European Standard gives the terminology concerning the products and specifies the test methods and the values of performance requirements for liquid-applied water impermeable products associated with tile adhesives.

This European Standard specifies the evaluation of conformity and the classification and designation of liquid-applied water impermeable products beneath ceramic tiling.

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

NOTE 1 Liquid-applied water impermeable products may also be used beneath other types of tiles (natural and agglomerated stones etc.), where they do not adversely affect these materials.

NOTE 2 The user of this European Standard should be familiar with normal laboratory practice. This European Standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any European and national regulatory conditions.

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 196-1, *Methods of testing cement — Part 1: Determination of strength*

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

EN 480-1:2006, *Admixture for concrete, mortar and grout — Test methods — Part 1: Reference concrete and mortar for testing*

EN 1008, *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*

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

EN 1323, *Adhesives for tiles — Concrete slab for test*

EN 12004, *Adhesives for tiles — Definitions and specifications*

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

EN 12620, *Aggregates for concrete*

EN 14411, *Ceramic tiles — Definitions, classification, characteristics and marking*

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

3 Terms and definitions

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

3.1
liquid-applied water impermeable product
single- or multicomponent waterproofing material applied in a uniform layer, beneath ceramic tiling

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

NOTE The mixture is ready for use

3.4
reaction resin liquid-applied water impermeable product
(RM)

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

NOTE They are available in one or more component forms

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

3.7
fundamental characteristics
characteristics that a liquid-applied water impermeable product always needs to have

3.8
optional characteristics
characteristics for specific service conditions where enhanced levels of performance are required or which provide further information about its general performance

4 Requirements

The liquid-applied water impermeable products shall comply with the characteristics specified in Table 1 a.

Table 1 b gives the additional characteristics that might be required for special service conditions.

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 — Product requirements

1 a FUNDAMENTAL CHARACTERISTICS		
Characteristic	**Requirement**	**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	A.7
Crack bridging ability under standard conditions	≥ 0,75 mm	A.8.2
1 b OPTIONAL CHARACTERISTICS		
Characteristic	**Requirement**	**Test method**
Tensile adhesion strength after contact with chlorinated water	≥ 0,5 N/mm^2	A.6.7 or A.6.8
Crack bridging ability at low temperature (- 5°C)	≥ 0,75 mm	A.8.3
Crack bridging ability at very low temperature (- 20°C)	≥ 0,75 mm	A.8.3

5 Evaluation of conformity

5.1 Principle

The scheme for the evaluation of conformity includes the following elements:

— initial type tests;

— Factory Production Control (FPC);

— registration and traceability.

Manufacturers having a Quality System complying with EN ISO 9001 and made specific to the requirements of this European Standard are assumed to meet the requirements related to Factory Production Control.

5.2 Initial type testing

On first evaluation of a product to the requirements of this European Standard, or before the beginning of sale of a new product, appropriate initial type testing shall be carried out to confirm that the characteristics of the product meet the requirements of this European Standard. Tests which have previously been performed in accordance with the provisions of this European Standard (same product, same characteristic, test method, sampling procedure etc.) may be taken into account for the purpose of demonstrating satisfactory initial type testing.

Initial tests shall also be carried out on existing products after any change in raw materials or manufacturing procedures that can modify the declared values of the characteristics or application properties.

In these cases the appropriate initial type testing to be carried out shall be for those characteristics and properties that can be affected and need confirmation; any new property or properties arising from a change of formulation or manufacturing procedure shall be tested and the results reported.

The initial type testing shall be performed as listed in Table 2.

The results of initial tests shall be recorded and be available for inspection. They shall be kept for at least 10 years after the date of last manufacture of the product to which they relate.

5.3 Factory Production Control

5.3.1 General

A Factory Production Control (FPC) plan shall be established and documented in a manual.

Any change in raw materials, manufacturing procedures or control plan that can affect the properties of the product shall be recorded.

The manual shall include the FPC procedures relevant to the declared properties, as confirmed by the initial tests.

The FPC procedures shall consist of a system for the production quality control to ensure that the product conforms to this European Standard.

The production control shall consist of the following main phases:

— inspection and testing of raw materials;

— inspection and testing of production equipment and process;

— inspection and testing of finished products.

5.3.2 Production

5.3.2.1 Raw materials

The acceptance criteria and control procedures for incoming materials shall be defined by the manufacturer, to ensure that these are not used until it has been verified that they conform to the required specifications.

5.3.2.2 Production process

The manufacturer shall identify and define the plant and production processes and ensure that the processes are carried out under controlled conditions clearly described in documented operating procedures. The processes shall be verified by means of inspections and testing documented in a plan, as frequency and values or criteria required, both on equipment and on operations in the process.

The action to be taken when control values or criteria are not obtained shall be given.

5.3.3 Finished products

As appropriate, the factory production control system incorporates a sampling plan and the frequency of testing for the finished product. The number and size of the samples, the frequency of sampling, the tests performed and the results obtained, shall be recorded.

The frequency of sampling and testing can be determined from statistical principles, ensuring that the corresponding production conforms to the compliance criteria in this European Standard and achieves the required values for products. The tests can also be performed with the frequency described in Table 2.

These records shall be available for inspection by relevant parties.

Table 2 — Initial type testing and production control frequency

Characteristic	Test method	Initial type test	Production control frequency
Initial tensile adhesion strength	A.6.2	y	A
Tensile adhesion strength after water contact	A.6.3	y	A
Tensile adhesion strength after heat ageing	A.6.4	y	A
Tensile adhesion strength after freeze-thaw cycles	A.6.5	y	A
Tensile adhesion strength after contact with lime water	A.6.7	y	A
Waterproofing	A.7	y	A
Crack bridging ability	A.8.2	y	A
Tensile adhesion strength after contact with chlorinated water	A.6.6	(y)	(A)
Crack-bridging ability at low temperature	A.8.3	(y)	(A)
NOTE y means « yes » ; (y) means « yes, if relevant for the product ». A means «at six month interval»; (A) means «at six month interval if relevant for the product».			

For the purpose of the Factory Production Control alternative tests to those given in Table 2 may be used, provided that a correlation of the results between both tests, for the product in question, is established. The use of alternative tests shall be recorded, maintained and be made available on request from a relevant party.

5.3.4 Equipment

All the measuring instruments used for production or testing shall be identified, calibrated and kept in good order, in accordance with documented procedures and instructions.

The manufacturer shall establish an appropriate plan detailing the procedures and frequency of these checks and shall maintain the registrations. Test equipment shall be calibrated to traceable standards.

5.3.5 Statistical techniques

Where and when possible and applicable, the results of inspections and testing shall be interpreted by means of statistical techniques, by attributes or by variables, to verify the product characteristics and to determine if the production conforms with the compliance criteria and the product conforms to the declared values.

5.4 Registration, traceability and nonconforming materials

5.4.1 Registration

The records of inspections and testing shall be collected, stored and retained in a way to prevent damage, deterioration or loss.

These records shall be maintained for 5 years and shall be made available on request from a relevant party.

5.4.2 Identification and traceability

Where appropriate, the manufacturer shall establish and maintain in the FPC manual suitable procedures for the identification and traceability of materials from receipt of raw materials and during all stages of production and delivery.

5.4.3 Non-conforming materials and corrective actions

The manufacturer shall ensure by means of procedures, documented in the FPC manual, that the materials (raw materials, packaging, finished products) that do not conform to the specified requirements are clearly identified and/or segregated to prevent their use or despatch.

The non-conforming material may be reworked to meet the specifications, reclassified or rejected and discarded, with a corrective action described and recorded in a non-conformity report.

5.4.4 Management and personnel

The management activities to ensure that all of the above requirements operate shall be described in the manual.

The manufacturer shall ensure that all personnel involved in the process receive the appropriate training to perform their duties.

Where appropriate, all educational and training activities *shall be* recorded to prove the personnel qualification.

The job description and the responsibilities of the operatives shall be given in the FPC manual.

6 Classification and designation

The liquid-applied water impermeable products are classified into one of the three types, according to the definitions given in Clause 3:

CM cementitious liquid-applied water impermeable products;

DM dispersion liquid-applied water impermeable products;

RM reaction resin liquid-applied water impermeable products.

For each type it is possible to have different classes, related to the different optional characteristics given in Table 1b. These classes are designated by the following abbreviations:

O with crack bridging ability at low temperature;

P resistant to contact with chlorinated water (i.e. for use in swimming pools).

The product is designated by the symbol for the type (CM, DM or RM), followed by the abbreviation of the class or classes it belongs to. Table 3 describes the designation of the products types and classes.