



SLOVENSKI STANDARD
oSIST prEN 12004-3:2022

01-februar-2022

Lepila in malte za keramične ploščice - 3. del: Terminologija, specifikacije, opisovanje in označevanje

Adhesives for ceramic tiles - Part 3: Terminology, specifications, designation and marking

Klebstoffe für keramische Fliesen und Platten - Teil 3: Terminologie, Spezifikationen, Bezeichnung und Kennzeichnung

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ICS:

83.180	Lepila	Adhesives
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.100.23	Keramične ploščice	Ceramic tiles

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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Will supersede EN 12004-1:2017

English Version

Adhesives for ceramic tiles - Part 3: Terminology, specifications, designation and marking

Klebstoffe für keramische Fliesen und Platten - Teil 3:
Terminologie, Spezifikationen, Bezeichnung und
Kennzeichnung

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

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 12004-3:2021) 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 with FprEN 12004-1:2021 will supersede EN 12004-1:2017.

In comparison with the previous edition, the following technical modifications have been made.

Splitting the former document into two parts:

- *Part 1: Adhesives for ceramic tiles – Essential characteristics and AVCP;*
- *Part 3: Adhesives for ceramic tiles – Terminology, specifications, designations and marking.*

The series of EN 12004 consists of the following parts, under the general title of *Adhesives for ceramic tiles*:

- *Part 1: Adhesives for ceramic tiles – Essential characteristics and AVCP*
- *Part 2: Adhesives for ceramic tiles – Test methods*
- *Part 3: Adhesives for ceramic tiles – Terminology, specifications, designations and marking*

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Introduction

It is essential that the characteristics of the construction products defined in this document consider that the normal stresses due to the works for which they are intended, assembled or installed, can be properly accommodated. Some special characteristics will take into account the type of substrate and that the adhesives should resist the degrading actions of climate, etc.

Many properties of adhesives for tiling are mainly determined by the type of binders used. Different types of tile adhesives are defined according to the chemical nature of their binders.

The different types of adhesives for ceramic tiles have specific characteristics in terms of their application properties and final performance.

The relationship between characteristics and the working conditions (dry or humid conditions, hot climate, fast setting, etc.) is not given in this document.

The manufacturer should give information about the use of the product and the correct conditions of use.

The specifier should evaluate the state of the job site (mechanical and thermal influences) and choose the appropriate product considering all the possible risks.

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1 Scope

This document specifies the additional characteristics for the adhesives for ceramic tiles, i.e. cementitious ones for internal and external tile installations, dispersion and reaction resin ones for internal tile installations, on walls and floors.

This document provides the terminology concerning the products, working methods, application properties, etc., for ceramic tile adhesives.

This document does not provide criteria or recommendations for the design and installation of ceramic tiles.

NOTE Ceramic tile adhesives are also used for other types of tiles (natural and agglomerated stones, etc.), if they do not adversely affect these materials.

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.

FprEN 12004-1:2021, *Adhesives for ceramic tiles — Part 1: Essential characteristics and AVCP*

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

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

3.1 General

3.1.1

thin bed method

method used for installing tiles onto a plane surface with an adhesive

Note 1 to entry: The adhesive is usually applied with a trowel to obtain a layer and then combed with a notched trowel to achieve the right thickness and planarity.

3.1.2

fixing surface

plane rigid surface upon which the tile is fixed

3.1.3

wall and floor tiles

tiles made out of ceramic or natural and agglomerated stones

prEN 12004-3:2021 (E)**3.2 Products****3.2.1****cementitious adhesive**

mixture of hydraulic binding agents, aggregates, and organic additives, mixed with water or liquid admix just before use

3.2.2**dispersion adhesive**

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

3.2.3**reaction resin adhesive**

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

3.3 Tools and working methods**3.3.1****notched trowel**

toothed tool, which makes it possible to apply the adhesive as a series of ribs of a uniform thickness onto the fixing surface and/or the reverse face of the tile

3.3.2**floating method**

adhesive applied only to the fixing surface, usually with a trowel to obtain a uniform layer and then combed with a notched trowel

3.3.3**floating and buttering method**

adhesive applied to the fixing surface and to the reverse of the tiles

3.4 Application properties**3.4.1****shelf life**

time of storage under stated conditions during which an adhesive is expected to maintain its working properties

3.4.2**maturing time**

interval between the time when the cementitious adhesive is mixed and the time when it is ready for use

3.4.3**pot-life**

maximum time interval during which the adhesive can be used after mixing

3.4.4**open time**

maximum interval after application at which tiles can be embedded in the applied adhesive and meet the specified tensile adhesion strength requirement

3.4.5**wetting capability**

ability of a combed adhesive layer to wet the tile

3.4.6**slip**

downward movement of a tile applied to a combed adhesive layer on a vertical or inclined surface

3.4.7**adjustability**

maximum time interval after which the tile's position in the adhesive layer can be adjusted without significant loss of adhesion strength

3.5 Final properties**3.5.1****adhesion strength**

maximum strength per unit surface area which can be measured by shear or tensile testing

3.5.2**deformability**

capacity of a hardened adhesive to be deformed by stresses between the tile and the fixing surface without damage to the installed surface

3.5.3**transverse deformation**

deflection recorded at the centre when a beam of hardened adhesive is subjected to three point loading

4 Product specifications

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4.1 Cementitious adhesives (C)

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When needed for special service condition(s) of cementitious adhesive for ceramic tiles, its characteristics are determined in accordance with Table 1.

Table 1 — Characteristics - Cementitious adhesives (C)

Characteristic	Requirement	Test method
1 a NORMAL SETTING ADHESIVES (C1)		
Initial tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$	EN 12004-2:2017, 8.3
Tensile adhesion strength after water immersion	$\geq 0,5 \text{ N/mm}^2$	
Tensile adhesion strength after heat ageing	$\geq 0,5 \text{ N/mm}^2$	
Tensile adhesion strength after freeze-thaw cycles	$\geq 0,5 \text{ N/mm}^2$	
Open time: tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not less than 20 min	EN 12004-2:2017, 8.1

prEN 12004-3:2021 (E)

Characteristic	Requirement	Test method
1 b NORMAL FAST SETTING ADHESIVES (C1F)		
Characteristic	Requirement	Test method
Initial tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$	EN 12004-2:2017, 8.3
Early tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not more than 6 h	
Tensile adhesion strength after water immersion	$\geq 0,5 \text{ N/mm}^2$	
Tensile adhesion strength after heat ageing	$\geq 0,5 \text{ N/mm}^2$	
Tensile adhesion strength after freeze-thaw cycles	$\geq 0,5 \text{ N/mm}^2$	
Open time: tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not less than 10 min	EN 12004-2:2017, 8.1
1 c IMPROVED NORMAL SETTING ADHESIVES (C2)		
High initial tensile adhesion strength	$\geq 1 \text{ N/mm}^2$	EN 12004-2:2017, 8.3
High tensile adhesion strength after water immersion	$\geq 1 \text{ N/mm}^2$	
High tensile adhesion strength after heat ageing	$\geq 1 \text{ N/mm}^2$	
High tensile adhesion strength after freeze-thaw cycles	$\geq 1 \text{ N/mm}^2$	
Open time: tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not less than 20 min	EN 12004-2:2017, 8.1
1 d IMPROVED FAST SETTING ADHESIVES (C2F)		
High initial tensile adhesion strength	$\geq 1 \text{ N/mm}^2$	EN 12004-2:2017, 8.3
High tensile adhesion strength after water immersion	$\geq 1 \text{ N/mm}^2$	
High tensile adhesion strength after heat ageing	$\geq 1 \text{ N/mm}^2$	
High tensile adhesion strength after freeze-thaw cycles	$\geq 1 \text{ N/mm}^2$	
Open time: tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not less than 10 min	EN 12004-2:2017, 8.1
1 e SPECIAL CHARACTERISTICS		
Slip (T)	$\leq 0,5 \text{ mm}$	EN 12004-2:2017, 8.2
Extended open time (E): tensile adhesion strength	$\geq 0,5 \text{ N/mm}^2$ after not less than 30 min	EN 12004-2:2017, 8.1
Deformable adhesive (S1): transverse deformation	$\geq 2,5 \text{ mm}$ and $< 5 \text{ mm}$	EN 12004-2:2017, 8.6
Highly deformable adhesive (S2): transverse deformation:	$\geq 5 \text{ mm}$	

4.2 Dispersion adhesives (D)

When needed for special service condition(s) of dispersion adhesive for ceramic tiles, its characteristics are determined in accordance with Table 2.