INTERNATIONAL STANDARD

ISO 13007-1

Second edition
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Ceramic tiles — Grouts and adhesives —

Part 1: Terms, definitions and specifications for adhesives

Carreaux céramiques — Mortiers de joints et colles —

Partie 1: Termes, définitions et spécifications relatives aux colles

Reference number
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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 13007-1 was prepared by Technical Committee ISO/TC 189, *Ceramic tiles*.

This second edition cancels and replaces the first edition (ISO 13007-1:2004), which has been technically revised. It also incorporates the Technical Corrigendum ISO 13007-1:2004/Cor.1:2006.

ISO 13007 consists of the following parts, under the general title *Ceramic tiles — Grouts and adhesives*:

— *Part 1: Terms, definitions and specifications for adhesives*

— *Part 2: Test methods for adhesives*

— *Part 3: Terms, definitions and specifications for grouts*

— *Part 4: Test methods for grouts*

Ceramic tiles — Grouts and adhesives —

Part 1:
Terms, definitions and specifications for adhesives

1 Scope

This part of ISO 13007 defines terms concerning the products, working methods and application properties for ceramic tile adhesives. It specifies values of performance requirements for all ceramic tile adhesives [cementitious (C), dispersion (D) and reaction resin (R) adhesives].

This part of ISO 13007 is applicable to ceramic tile adhesives for internal and external tile installations on walls and floors.

It is not applicable to criteria or recommendations for the design and installation of ceramic tiles.

NOTE Ceramic tile adhesives can also be used for other types of tiles (natural and agglomerated stones, etc.), where these do not adversely affect the materials.

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.

ISO 13006, *Ceramic tiles — Definitions, classification, characteristics and marking*

ISO 13007-2:2010, *Ceramic tiles — Grouts and adhesives — Part 2: Test methods for adhesives*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13006 and the following apply.

3.1
substrate
fixing surface
surface on which the tile is installed or fixed

3.2
wall and floor tiles
tiles made out of ceramic tile or natural and agglomerated stones

3.3
cementitious adhesive
C
mixture of hydraulic binding agents, aggregates and organic additives, mixed with water or liquid admix immediately prior to use

3.4
dispersion adhesive
D
ready-for-use mixture of organic binding agent(s) that is in the form of an aqueous polymer dispersion, organic additives and mineral fillers

3.5
reaction resin adhesive
R
single or multi-component mixture of synthetic resin, mineral fillers and organic additives in which curing occurs by chemical reaction

3.6
notched trowel
toothed tool, which makes it possible to apply the adhesive as a series of ribs of a uniform thickness on to the fixing surface and the reverse face of the tile

3.7
application to one surface only
adhesive applied only to the fixing surface with a trowel to obtain a uniform layer and then combed with a notched trowel

3.8
application to both surfaces
adhesive applied to the fixing surface and to the reverse surface of the tiles

3.9
shelf life
time of storage under stated conditions during which an adhesive can be expected to maintain its working properties

3.10
maturing time
interval between the time when the cementitious adhesive is mixed and the time when it is ready for use

3.11
pot life
time interval during which the adhesive can be used after mixing

3.12
open time
maximum time interval after application at which tiles can be embedded in the applied adhesive and meet the specified tensile adhesion strength requirement

3.13
slip
downward movement of a tile applied to a combed adhesive layer on a vertical surface

3.14
adjustability
maximum time interval after which the tile's position in the adhesive layer can be adjusted without significant loss of adhesion strength

3.15
adhesion strength
maximum strength per unit surface area which can be measured by shear or tensile testing

3.16
deformability
capacity of a hardened adhesive to be deformed by stresses between the tile and the fixing surface without damage to the installed surface

3.17
transverse deformation
deflection recorded at the centre when a beam of hardened adhesive is subjected to three point loading

3.18
fundamental characteristic
characteristic that is absolutely required of an adhesive

3.19
additional characteristic
characteristic of an adhesive for specific service conditions where enhanced levels of performance are required

3.20
special characteristic
characteristic of an adhesive which provides further information about its general performance

4 Classification and designation

4.1 Tile adhesives are classified into three types (see 3.3, 3.4 and 3.5, and ISO 13006):

— C cementitious adhesive

— D dispersion adhesive

— R reaction resin adhesive

For each type, there are different possible classes, related to combinations of the different additional and special characteristics, in accordance with Tables 1, 2 and 3. These classes are designated with the following numbers and letters:

— 1 normal adhesive

— 2 improved adhesive

— F fast-setting cementitious adhesive

— A accelerated drying dispersion adhesive

— T slip-resistant adhesive

— E adhesive with extended open time

— S special deformable characteristic for cementitious adhesives only

— P adhesive with adhesion to exterior glue plywood

4.2 The designation of the adhesive is generated with the symbol of the type (C, D or R), followed by the abbreviation of the class or classes to which it belongs. Table 1 describes the designation of tile adhesives.

Table 1 — Examples of designation and classification

Symbol type	Number	Class	Description
C	1		Normal cementitious adhesive
C	1	F	Fast-setting cementitious adhesive
C	1	T	Normal cementitious adhesive with slip resistance
C	1	FT	Fast-setting cementitous adhesive with slip resistance
C	2		Cementitious adhesive with improved characteristics
C	2	E	Cementitous adhesive with improved characteristics and extended open time
C	2	F	Fast-setting cementitous adhesive with improved characteristics
C	2	T	Cementitous adhesive with improved characteristics and slip resistance
C	2	TE	Cementitious adhesive with improved characteristics, slip resistance and extended open time
C	2	FT	Fast-setting cementitious adhesive with improved characteristics and slip resistance
D	1		Normal dispersion adhesive
D	1	T	Normal dispersion adhesive with slip resistance
D	2		Dispersion adhesive with improved characteristics
D	2	A	Accelerated drying dispersion adhesive with improved characteristics
D	2	T	Dispersion adhesive with improved characteristics with slip resistance
D	2	TE	Dispersion adhesive with improved characteristics, slip resistance and extended open time
R	1		Normal reaction resin adhesive
R	1	T	Normal reaction resin adhesive with slip resistance
R	2		Reaction resin adhesive with improved characteristics
R	2	T	Reaction resin adhesive with improved characteristics and slip resistance

NOTE Additional designations can be inserted according to the combination of the different symbols of the characteristics.

EXAMPLE Deformable, improved cementitious adhesive with extended open time and normal adhesion to exterior glue plywood: C2ES1P1.

5 Requirements

5.1 Substrates

The standard concrete substrate is mandatory. Other substrates may be used upon agreement, if the substrate is recommended for the ceramic tile application by the adhesive manufacturer. To demonstrate compatibility with other optional substrates, the adhesive shall be applied to the selected substrate in accordance with the tensile adhesion strength method given in ISO 13007-2:2010, 4.4.4.2. When the result of $\geqslant 0{,}5\ \text{N/mm}^2$ is achieved or cohesive failure occurs in the substrate, the requirement shall be considered satisfied.

5.2 Specifications for cementitious adhesives — C

Cementitious adhesives shall comply with all of the C1 fundamental characteristics reported in Table 2. The amount of water or liquid admix required for preparing the cementitious adhesive shall be the same for all tests. The additional characteristics for C2 (improved performance) products are also contained in Table 2. Table 3 gives the special characteristics that can be reported for cementitious adhesives.

Table 2 — Specifications for cementitious adhesives — C

Classification	Property	Requirement	Test method in ISO 13007-2:2010
C1 – Normal cementitious adhesives (fundamental characteristics)	Tensile adhesion strength	$\geqslant$ 0,5 N/mm^2	4.4.4.2
	Tensile adhesion strength after water immersion	$\geqslant$ 0,5 N/mm^2	4.4.4.3
	Tensile adhesion strength after heat ageing	$\geqslant$ 0,5 N/mm^2	4.4.4.4
	Tensile adhesion strength after freeze-thaw cycle	$\geqslant$ 0,5 N/mm^2	4.4.4.5
	Open time: tensile adhesion strength	$\geqslant$ 0,5 N/mm^2 After not less than 20 min	4.1
C2 – Improved cementitious adhesives (additional characteristics)	Tensile adhesion strength	$\geqslant$ 1,0 N/mm^2	4.4.4.2
	Tensile adhesion strength after water immersion	$\geqslant$ 1,0 N/mm^2	4.4.4.3
	Tensile adhesion strength after heat ageing	$\geqslant$ 1,0 N/mm^2	4.4.4.4
	Tensile adhesion strength after freeze-thaw cycle	$\geqslant$ 1,0 N/mm^2	4.4.4.5