INTERNATIONAL STANDARD

ISO 13007-3

Second edition
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Ceramic tiles — Grouts and adhesives —

Part 3: Terms, definitions and specifications for grouts

Carreaux céramiques — Mortiers de joints et colles —

Partie 3: Termes, définitions et spécifications relatives aux mortiers de joints

Reference number
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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 13007-3 was prepared by Technical Committee ISO/TC 189, *Ceramic tiles*.

This second edition cancels and replaces the first edition (ISO 13007-3:2004), which has been technically revised.

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*

Introduction

The characteristics of the construction products defined in this part of ISO 13007 have been developed to accommodate the stresses due to the structure for which they are intended. Some special characteristics take into account the type of substrate and the necessity for the grouts to resist degradation due to climatic conditions, etc. Many properties of grouts for tiling are mainly determined by the type of binder used.

Tile grouts are classified in different types depending on the chemical nature of their binders. The types have specific characteristics in terms of application properties and final performance. The relationship between the characteristics and the working conditions (dry or humid conditions, hot climate, fast-setting, etc.) is not given in this part of ISO 13007.

Ceramic tiles — Grouts and adhesives —

Part 3:
Terms, definitions and specifications for grouts

1 Scope

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

This part of ISO 13007 is applicable to ceramic tile grouts 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 grouts 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 13007-1:2010, *Ceramic tiles — Grouts and adhesives — Part 1: Terms, definitions and specifications for adhesives*

ISO 13007-4, *Ceramic tiles — Grouts and adhesives — Part 4: Test methods for grouts*

3 Terms and definitions

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

3.1
wall and floor tile
tile made out of ceramic or natural and agglomerated stones

See ISO 13006 for definitions and specifications of ceramic tile.

3.2
grouting a tile surface
process of filling the joints between all types of tiles, with the exception of movement joints

3.3
tile grout
any suitable product used to fill the joints between all types of tile

3.4
cementitious grout
CG
mixture of hydraulic binding agents, aggregates, inorganic and organic additives, as defined in ISO 13007-1:2010, 3.3

3.5
reaction resin grout
RG
single or multi-component mixture of synthetic resin, aggregates, inorganic and organic additives in which hardening occurs by chemical reaction, as defined in ISO 13007-1:2010, 3.5

3.6
liquid admix
special aqueous polymer dispersion mixed with a cementitious grout on site

3.7
working method
method used for filling the joints between tiles and cleaning the tiles

3.8
shelf life
time of storage under stated conditions during which a grout can be expected to maintain its working properties

3.9
maturing time
interval between the time when the grout is mixed and the time when it is ready for use

3.10
pot life
maximum time interval during which the grout can be used after mixing

3.11
grouting time
minimum time interval after installation of tiles, after which the grout can be applied into the joints

3.12
cleaning time
time interval between filling the joints and starting to clean the tiles

3.13
service time
minimum time after which the completed tile installation can be put into service

3.14
flexural strength
value at which grout fails as determined by exerting a force in flexure at three points

3.15
compressive strength
value at which grout fails determined by exerting a force in compression at two opposite points

3.16
water absorption
amount of water absorbed by capillary action when a single end surface of the grout prism is in contact with water

3.17
shrinkage
reduction in volume of a grout during hardening

3.18
abrasion resistance
capability of a grout to resist wear

3.19
transverse deformation
deflection recorded at the centre of a beam of hardened grout when it is subjected to three point loading

3.20
chemical resistance
capability of a grout to resist chemical agents

3.21
fundamental characteristic
characteristic that is absolutely required of a grout

3.22
additional characteristic
characteristic of a grout for specific service conditions where enhanced levels of performance are required

3.23
special characteristic
characteristic of a grout which provides further information about its general performance

4 Requirements

4.1 Cementitious grouts

Cementitious grouts shall comply with the specifications reported in Table 1. Table 2 lists the special characteristics that may be required for fast-setting grouts and special service conditions. The amount of water and liquid admix required for preparing the cementitious grout shall be the same for all tests.

For the characteristic of transverse deformation (see ISO 13007-2:2010, 4.5), there is no specification. However, it is at the discretion of the producer to declare the value in order to provide further information.

Table 1 — Specifications for cementitious grouts — CG

Classification	Property	Requirement	Test method in ISO 13007-4:2010
CG1 – Fundamental characteristics	Abrasion resistance	$\leqslant$ 2 000 mm^3	4.4
	Flexural strength under standard conditions	$\geqslant$ 2,5 N/mm^2	4.1.3
	Flexural strength after freeze-thaw cycles	$\geqslant$ 2,5 N/mm^2	4.1.5
	Compressive strength under standard conditions	$\geqslant$ 15 N/mm^2	4.1.4
	Compressive strength after freeze-thaw cycles	$\geqslant$ 15 N/mm^2	4.1.5
	Shrinkage	$\leqslant$ 3 mm/m	4.3
	Water absorption after 30 min	$\leqslant$ 5 g	4.2
	Water absorption after 240 min	$\leqslant$ 10 g	4.2
CG2 – Additional characteristics	Enhanced performance	In addition to meeting all CG1 requirements, the grout meets the requirements for at least one of the special characteristics: (W) reduced water absorption and (A) high abrasion resistance	

Table 2 — Special characteristics for cementitious grouts

Special characteristic	Requirement	Test method in ISO 13007-4:2010
F – Fast setting	Fast setting grouts shall meet all the requirements listed in Table 1, with the exception that the requirement for compressive strength under standard conditions shall be met in 24 h or less.	4.1.4
A – High abrasion resistance	$\leqslant$ 1 000 mm^3	4.4
W – Reduced water absorption after 30 min	$\leqslant$ 2 g after 30 min $\leqslant$ 5 g after 240 min	4.2

4.2 Reaction resin grouts

Reaction resin grouts shall comply with the specifications reported in Table 3.

Table 3 — Specification for reaction resin grouts — RG

Characteristic	Property	Requirement	Test method in ISO 13007-4:2010
RG – Fundamental characteristics	Abrasion resistance	$\leqslant$ 250 mm^3	4.4
	Flexural strength under standard conditions	$\geqslant$ 30 N/mm^2	4.1.3
	Compressive strength under standard conditions	$\geqslant$ 45 N/mm^2	4.1.4
	Shrinkage	$\leqslant$ 1,5 mm/m	4.3
	Water absorption after 240 min	$\leqslant$ 0,1 g	4.2

4.3 Chemical resistance

Regarding the characteristic of chemical resistance, there is no indication of limit value or chemical agent. When specific chemical resistance data are required for a project, testing shall conform to ISO 13007-2:2010, 4.6 (determination of chemical resistance), with chemical concentrations and immersion temperatures chosen to simulate exposure conditions. The test media shall consist of media to which the chemical resistant materials are exposed in service and the test conditions (temperature, etc.) shall simulate the anticipated service and exposure conditions as closely as possible.

5 Classification and designation

5.1 Ceramic tile grouts are classified into two types, according to 3.4 and 3.5:

— CG cementitious grout

— RG reaction resin grout

For cementitous grouts, there are different possible classes, related to the different additional characteristics, in accordance with Table 1. These classes are designated with the following numbers and letters:

— 1 normal grout

— 2 improved grout: meets the requirements of at least one of the additional characteristics:

  — reduced water absorption (W), or

  — high abrasion resistance (A)

— F fast-setting grout

— W reduced water absorption

— A high abrasion resistance

5.2 Table 4 gives the designation and classification of grout.

Table 4 — Designation and classification

Symbol			Description
Type	Number	Class	
CG	1		Normal cementitious grout
CG	1	F	Normal cementitious grout, fast-setting
CG	2	W	Improved cementitious grout with additional characteristic of reduced water adsorption
CG	2	A	Improved cementitious grout with additional characteristic of high abrasion resistance
CG	2	WA	Improved cementitious grout with additional characteristic of reduced water adsorption and high abrasion resistance
CG	2	WF	Improved cementitious grout, fast-setting with additional characteristic of reduced water adsorption
CG	2	AF	Improved cementitious grout, fast-setting with additional characteristic of high abrasion resistance
CG	2	WAF	Improved cementitious grout, fast-setting with additional characteristic of reduced water absorption and high abrasion resistance
RG			Reaction resin grout

6 Marking, labelling and packaging

Products complying with the requirements of this part of ISO 13007 shall be clearly marked with the following information:

a) reference to this part of ISO 13007, i.e. ISO 13007-3:2010;

b) name of the product;

c) manufacturer's mark and place of origin;

d) date or code of production, shelf life and conditions of storage;

e) designation of grout in accordance with Clause 5 (using symbols given in Table 3);

f) instructions for use:

   1) mix proportions, if applicable;

   2) maturing time, if applicable;

   3) pot life;

   4) mode of application;

   5) delay for cleaning and service time, if applicable;

   6) field of application.

NOTE In the designation of a grout, information about special properties can be included when the product is intended for use in specific applications.

This information shall be marked on the packaging or on the product's technical data sheet.

ICS 91.100.10; 91.100.23

Price based on 7 pages