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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*

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Foreword

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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*.

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 will take into account the type of substrate and will also take into account that the grouts must resist degrading actions of climate, etc. Many properties of grouts for tiling are mainly determined by the type of binder used.

Tile grouts are defined in different types depending on the chemical nature of their binders. The different types have specific characteristics in terms of 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 part of ISO 13007.

Ceramic tiles — Grouts and adhesives —

Part 3: Terms, definitions and specifications for grouts

1 Scope

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

This part of ISO 13007 establishes the terminology, concerning the products, working methods, application properties, etc., for ceramic tile grouts.

This part of ISO 13007 specifies the values of performance requirements for all ceramic tile grouts [cementitious (CG) and reaction resin (RG) grouts].

This part of ISO 13007 does not contain 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 13007-2:—¹⁾, *Ceramic tiles — Grouts and adhesives — Part 2: Test methods for adhesives*

ISO 13007-4:—¹⁾, *Ceramic tiles — Grouts and adhesives — Part 4: Test methods for grouts*

3 Terms and definitions

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

3.1

wall and floor tiles

tiles made out of ceramic or natural and agglomerated stones

NOTE See ISO 13006 for the definition of ceramic tiles.

1) To be published.

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 to be 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

NOTE See also ISO 13007-1:2004, term 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

NOTE See also ISO 13007-1:2004, term 3.5.

3.6

liquid admix

special aqueous polymer dispersion to be mixed with a cementitious grout on site

3.7

working method

method 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 the grout surface 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 a grout is absolutely required to have

3.22**additional characteristic**

characteristic for specific service conditions where enhanced levels of performance are required

4 Classification and designation

Ceramic tile grouts are classified as follows:

a) into two **types** with the following **letter designation**:

- | | |
|-------------------------------|-----------|
| 1) cementitious grout (3.4) | CG |
| 2) reaction resin grout (3.5) | RG |

b) each type can be divided into

1) two **classes** with the following **number designation**:

- | | |
|--------------------|----------|
| i) normal grout | 1 |
| ii) improved grout | 2 |

2) with the following different **additional characteristics** with the following **letter designation**:

- | | |
|-------------------------------|----------|
| i) fast-setting grout | F |
| ii) reduced water absorption | W |
| iii) high abrasion resistance | A |

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For each type of grout, it is possible to have different classes, related to the different optional characteristics, in accordance with Table 1. The designation of the ceramic tile grout consists of the letters of the type (CG or RG), followed by the number of the class (1 or 2) and/or the letter(s) corresponding to the characteristics (F, A, and/or W) to which it belongs. Table 1 gives the designation of current ceramic tile grouts.

Table 1 — Designation and classification

Type	Class	Characteristic	Description
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 adsorption and high abrasion resistance
RG	1		Reaction resin grout

5 Requirements

5.1 Cementitious grouts

Cementitious grouts shall comply with the specifications listed for fundamental characteristics in Table 2, while fast-setting grouts shall comply with the specifications listed for fast-setting characteristics in Table 2. Table 3 gives the additional characteristics that can be required for special service conditions. The amount of water and/or liquid admix required for preparing the cementitious grout shall be the same for all tests.

For the characteristic of transverse deformation (ISO 13007-2:—, 4.5), there is no specification. However, it is optional for the producer to declare the value to provide further information.

Table 2 — Specifications for cementitious grouts (CG)

Cementitious grout	Characteristic	Requirement	Test method
Fundamental characteristics CG1	Abrasion resistance	$< 2\,000\text{ mm}^3$	ISO 13007-4:—, 4.4
	Flexural strength under standard conditions	$> 2,5\text{ N/mm}^2$	ISO 13007-4:—, 4.1.3
	Flexural strength after freeze-thaw cycles	$> 2,5\text{ N/mm}^2$	ISO 13007-4:—, 4.1.5
	Compressive strength under standard conditions	$> 15\text{ N/mm}^2$	ISO 13007-4:—, 4.1.4
	Compressive strength after freeze-thaw cycles	$> 15\text{ N/mm}^2$	ISO 13007-4:—, 4.1.5
	Shrinkage	$< 3\text{ mm/m}$	ISO 13007-4:—, 4.3
	Water absorption after 30 min	$< 5\text{ g}$	ISO 13007-4:—, 4.2
	Water absorption after 240 min	$< 10\text{ g}$	ISO 13007-4:—, 4.2
Fast setting CG1F	Fast-setting grouts (CG1F) shall meet all the requirements listed in this table for fundamental characteristics (CG1) with the exception that the requirement for compressive strength under standard conditions shall be met in 24 h or less.		

Table 3 — Additional characteristics for cementitious grouts

Characteristic		Requirement	Test method
Additional characteristics	High abrasion resistance (A)	$\leq 1\,000\text{ mm}^3$	ISO 13007-4:—, 4.4
	Reduced water absorption after 30 min (W)	$\leq 2\text{ g}$	ISO 13007-4:—, 4.2
	Reduced water absorption after 240 min (W)	$\leq 5\text{ g}$	ISO 13007-4:—, 4.2

5.2 Reaction resin grouts

Reaction resin grouts shall comply with the specifications listed in Table 4.

Table 4 — Specifications for reaction resin grouts (RG)

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

5.3 Chemical resistance

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

6 Marking, labelling and packaging

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

- c) name of the product;
- d) manufacturer's mark and place of origin;
- e) date or code of production, shelf life and conditions of storage;
- f) number of this part of ISO 13007 and date of issue (ISO 13007-3:2004);
- g) designation of grout as specified in Clause 4 (see Table 1);
- h) instructions for use:
 - 1) mix proportions (where applicable);
 - 2) maturing time (where applicable);
 - 3) pot-life;
 - 4) mode of application;
 - 5) delay for cleaning and service time (where applicable);
 - 6) field of application.

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

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

Bibliography

- [1] ISO 1513, *Paints and varnishes — Examination and preparation of samples for testing*
- [2] ISO 13006, *Ceramic tiles — Definitions, classification, characteristics and marking*
- [3] ISO 13007-1:2004, *Ceramic tiles — Grouts and adhesives — Part 1: Terms, definitions and specifications for adhesives*
- [4] ISO 15528²⁾, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

2) ISO 15528 cancels and replaces ISO 1512, *Paints and varnishes — Sampling of products in liquid or paste form*, which has been withdrawn.

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