
Ceramic tiles — Grouts and adhesives —

Part 5:

**Requirements, test methods,
evaluation of conformity,
classification and designation
of liquid-applied waterproofing
membranes for use beneath ceramic
tiling bonded with adhesives**

ISO 13007-5:2015
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*Carreaux céramiques — Mortiers de joints et colles —
Partie 5: Exigences, méthodes d'essai, évaluation de conformité,
classification et la désignation des membranes liquides étanches à
l'eau appliquées pour la pose de carreaux céramiques*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 189, *Ceramic tile*.

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*
- *Part 5: Requirements, test methods, evaluation of conformity, classification and designation of liquid-applied waterproofing products for use beneath ceramic tiling bonded with adhesives*

Ceramic tiles — Grouts and adhesives —

Part 5:

Requirements, test methods, evaluation of conformity, classification and designation of liquid-applied waterproofing membranes for use beneath ceramic tiling bonded with adhesives

1 Scope

This part of ISO 13007 gives terminology concerning the products, and specifies test methods (see [Annex A](#)) and values of performance requirements, for liquid-applied waterproofing products associated with tile adhesives. It specifies the evaluation of conformity and the classification and designation of liquid-applied waterproofing products beneath ceramic tiling.

It is applicable to all liquid-applied waterproofing membranes — including polymer modified cementitious coatings, dispersions and reaction resin coatings — used beneath ceramic tiling for internal and external tile installations on walls and floors.

NOTE Liquid-applied waterproofing products can also be used beneath other types of tiles (natural and agglomerated stones, etc.), as long as an adverse reaction does not occur between the membrane and the alternative tile.

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2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Ceramic tiles — Grouts and adhesives — Part 1: Terms, definitions and specifications for adhesives*

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

ISO 15605, *Adhesives — Sampling*

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

EN 12620, *Aggregates for concrete*

3 Terms and definitions

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

3.1 liquid-applied waterproofing membrane
single- or multi component waterproofing material applied in a uniform layer or layers, beneath ceramic tiling

Note 1 to entry: The final waterproofing membrane can include a reinforcing cloth or mesh.

3.2 polymer modified cementitious liquid-applied waterproofing membrane 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 waterproofing membrane DM
mixture of organic binding agent(s) in the form of an aqueous polymer dispersion, organic additives and mineral fillers

Note 1 to entry: The mixture is ready for use.

3.4 reaction resin liquid-applied waterproofing membrane RM
mixture of synthetic resin, mineral fillers and organic additives in which hardening occurs by chemical reaction

Note 1 to entry: They are available in one or more component forms.

3.5 crack bridging ability
ability of the cured waterproofing material to withstand propagation of cracks without deterioration

3.6 primer
liquid coating applied to the surface, prior to the application of a liquid waterproofing product, to improve adhesion and durability of the bond between the substrate and the membrane

3.7 fundamental characteristics
characteristics that a liquid-applied waterproofing membrane 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 waterproofing membrane products shall comply with the characteristics specified in [Table 1](#).

[Table 2](#) 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 waterproofing membrane shall be the same for all tests of that product.

Table 1 — Product requirements — 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 visual penetration below membrane and ≤ 20 g weight gain	A.7
Crack bridging ability under standard conditions	≥ 0,75 mm	A.8.2

Table 2 — Product requirements — 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

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5.1 General

The liquid-applied waterproofing membrane shall be considered conformant if test results indicate compliance with all of the fundamental characteristics listed in [Table 1](#). For those products claiming the optional classifications in [Clause 5](#), test results must also indicate compliance with the optional characteristics listed in [Table 2](#).

5.2 Reaction to fire

Reaction to fire may be of concern in individual countries, and may need to be considered in light of local standards or regulatory requirements

6 Classification and designation

The liquid-applied waterproofing membranes are classified into one of the three types, according to the definitions given in [Clause 3](#):

- CM** cementitious liquid-applied waterproofing membrane;
- DM** dispersion liquid-applied waterproofing membrane;
- RM** reaction resin liquid-applied waterproofing membrane.

For each type it is possible to have different classes, related to the different optional characteristics given in [Table 2](#). These classes are designated by the following abbreviations:

- O1** with improved crack bridging ability at -5°C;
- O2** with improved crack bridging ability at -20°C;
- 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 which shall be used.

Table 3 — Classification and designation of liquid-applied waterproofing membranes

Symbol		Description
Type	Class	
CM		Normal cementitious liquid-applied waterproofing membrane
DM		Normal dispersion liquid-applied waterproofing membrane
RM		Normal reaction resin liquid-applied waterproofing membrane
CM	01	Cementitious liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C)
CM	02	Cementitious liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C)
DM	01	Dispersion liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C)
DM	02	Dispersion liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C)
RM	01	Reaction resin liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C)
RM	02	Reaction resin liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C)
CM	P	Cementitious liquid-applied waterproofing membrane resistant to contact with chlorinated water
DM	P	Dispersion liquid-applied waterproofing membrane resistant to contact with chlorinated water
RM	P	Reaction resin liquid-applied waterproofing membrane resistant to contact with chlorinated water
CM	01P	Cementitious liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C) and resistant to contact with chlorinated water
CM	02P	Cementitious liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C) and resistant to contact with chlorinated water
DM	01P	Dispersion liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C) and resistant to contact with chlorinated water
DM	02P	Dispersion liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C) and resistant to contact with chlorinated water
RM	01P	Reaction resin liquid-applied waterproofing membrane with crack bridging ability at low temperature (-5°C) and resistant to contact with chlorinated water
RM	02P	Reaction resin liquid-applied waterproofing membrane with crack bridging ability at low temperature (-20°C) and resistant to contact with chlorinated water

7 Marking and labelling

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

- a) name of the product;
- b) manufacturer's mark and place of origin;
- c) date or code of production, shelf life and conditions of storage;
- d) dated reference to this part of ISO 13007, i.e. ISO 13007-5:2015;
- e) type of product according to [Clause 6](#) and using symbols given in [Clause 6](#);
- f) instructions for use:
 - mix proportions (where applicable);
 - maturing time (where applicable);
 - pot life;
 - mode of application (including recommended primer and/or reinforcement mesh);
 - minimum quantity or thickness of the product as applied wet as well as the final cured film thickness;
 - delay for installing ceramic tiles;
 - suitable adhesive(s), type and class in accordance with ISO 13007-1;
 - field of application (internal, external, wall, floor etc.)

In the designation of a liquid-applied waterproofing membrane, information about special properties may also 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.

NOTE This does not remove the requirement that all manufacturers claiming compliance with this part of ISO 13007 state declared values for the properties of their products, when required.

Annex A (normative)

Test methods

A.1 Sampling

Take a sample of at least 2 kg of the product to be tested in accordance with ISO 15605 and EN 1067.

A.2 Test conditions

Standard conditions shall be (23 ± 2) °C and (50 ± 5) % relative humidity (RH) and a circulation of air in the working area less than 0,2 m/s.

When the test specimens have to be conditioned according to the test method, the tolerances in the time of conditioning for all test specimens shall be as follows:

Conditioning	Tolerance
24 h	$\pm 0,5$ h
7 days	± 3 h
14 days	± 6 h
21 days	± 9 h
28 days	± 12 h

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A.3 Test materials

A.3.1 General

Condition all test materials for at least 24 h under standard conditions. The materials to be tested shall be within their shelf life.

A.3.2 Ceramic tiles

The tiles shall be clean and dry.

The tiles used for this method shall be of

Type Bia, fully vitrified tile complying with ISO 13006, with a water absorption $\leq 0,5$ % by mass, unglazed and with a plain adhering surface, with facial dimensions of (50 ± 1) mm \times (50 ± 1) mm.

A.3.3 Test substrate

A.3.3.1 Concrete slab

The concrete slab shall comply with ISO 13007-2.

A.3.3.2 Other substrates (optional)

Other substrates may be used upon agreement if the substrate is recommended for the ceramic tile application by the manufacturer. To demonstrate compatibility with other optional substrates, the product shall be applied to the selected substrate in accordance with the initial adhesion test method (A.6.2). When a result of $\geq 0,5$ N/mm² is achieved or cohesive failure occurs in the substrate, the requirement is considered satisfied.

A.3.4 Ceramic tile adhesive

The ceramic tile adhesive shall comply with ISO 13007-1.

A.3.5 Sodium hypochlorite

Analytical grade sodium hypochlorite.

A.4 Apparatus

A.4.1 Weight

A weight of less than 50 mm × 50 mm cross-sectional area, capable of exerting a force of $(20 \pm 0,05)$ N.

A.4.2 Pull head plates

Square metallic plates, with dimensions of 50 mm × 50 mm and a minimum thickness of 10 mm with a suitable fitting for connection to the test machine.

A.4.3 Machine for pull testing

A test machine for direct pull tensile force test and with suitable capacity and sensitivity for the test. The machine shall be capable of applying the load to the pull-head plate at the rate of (250 ± 50) N/s through a suitable fitting that does not exert any bending force.

A.4.4 Air-circulating oven

An air-circulating oven capable of controlling the temperature to within ± 3 °C.

A.4.5 Mould

The mould shall consist of six horizontal compartments so that six prismatic specimens $(12 \pm 0,1)$ mm × (40 ± 1) mm × (160 ± 1) mm, with a square hole, with $(4 \pm 0,1)$ mm side, in the middle of the narrowest face, can be prepared simultaneously. In order to avoid the sliding of the sample in the dynamometer, the ends of the specimen shall be greater than the middle (see Figure A.1) and a clamp as shown in Figure A.2 shall be used.