

## DRAFT ZANZIBAR NATIONAL STANDARD

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### **Ceramic tiles — Grouts and adhesives — Part 3: Terms, definitions and specifications for grouts**

**ZANZIBAR BUREAU OF STANDARDS**

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## National Foreword

ZBS is in the process of development of standards for Ceramic tiles — Grouts and adhesives — Part 3: Terms, definitions and specifications for grouts. It is presented to Building and Construction Materials Technical Committee. In accordance with ZBS general procedures, this draft standard is presented to the public in order to receive any technical comment concerns.

In the preparation of this draft Standard, the reference was made to the following sources:

ISO 13007-3: 2010, Ceramic tiles — Grouts and adhesives — Part 3: terms, definitions and specifications for grouts

## Technical Committee Representatives

This Draft Zanzibar National Standard was prepared by Building and Construction Materials Standard Technical committee which consists of representatives from the following organizations:

Architect, Engineer and Quantity Surveyor Registration Board (AEQSRB)  
Karume Institute of Science and Technology (KIST)  
Zanzibar Road Agency (ZANROADS)  
Zanzibar Housing Corporation (ZHC)  
Stone Town Conservation and Development Authority (STCDA)  
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## **Ceramic tiles — Grouts and adhesives — Part 3: Terms, definitions and specifications for grouts**

### **1 Scope**

This part of draft standard 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 draft standard 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 ZNS 255: 2018 and the following apply.

#### **3.1**

##### **wall and floor tile**

tile made out of ceramic or natural and agglomerated stones See ZNS 255: 2018 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 ZNS 258-1: 2023

**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 ZNS 258-1: 2023, 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**

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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 ZNS 258-2: 2018 (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                                        | $\leq 2\,000\text{ mm}^3$                                                                                                                                                                    | 4.4                             |
|                                   | Flexural strength under standard conditions                | $\geq 2.5\text{ N/mm}^2$                                                                                                                                                                     | 4.1.3                           |
|                                   | Flexural strength after freeze-thaw cycles                 | $\geq 2.5\text{ N/mm}^2$                                                                                                                                                                     | 4.1.5                           |
|                                   | Compressive strength under standard conditions             | $\geq 1.5\text{ N/mm}^2$                                                                                                                                                                     | 4.1.4                           |
|                                   | Flexural and Compressive strength after freeze-thaw cycles | $\geq 1.5\text{ N/mm}^2$                                                                                                                                                                     | 4.1.5                           |
|                                   | Shrinkage                                                  | $\leq 3\text{ mm/m}$                                                                                                                                                                         | 4.3                             |
|                                   | Water absorption after 30 min                              | $\leq 5\text{ g}$                                                                                                                                                                            | 4.2                             |
|                                   | Water absorption after 240 min                             | $\leq 10\text{ g}$                                                                                                                                                                           | 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 |                                 |

## 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                            | $\leq 250 \text{ mm}^3$  | 4.4                             |
|                                  | Flexural strength under standard conditions    | $\geq 30 \text{ N/mm}^2$ | 4.1.3                           |
|                                  | Compressive strength under standard conditions | $\geq 45 \text{ N/mm}^2$ | 4.1.4                           |
|                                  | Shrinkage                                      | $\leq 1,5 \text{ mm/m}$  | 4.3                             |
|                                  | Water absorption after 240 min                 | $\leq 0,1 \text{ g}$     | 4.2                             |
|                                  |                                                |                          |                                 |

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              | $\leq 1000 \text{ mm}^3$                                                                                                                                                                        | 4.4                             |
| W – Reduced water absorption after 30 min | $\leq 2 \text{ g}$ after 30 min<br>$\leq 5 \text{ g}$ after 240 min                                                                                                                             | 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 **ZNS 258-2: 2018** 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 cementitious 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

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

- a) reference to this part of standard;
- 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.