

Australian Standard™

Methods of sampling and testing ceramic tiles

Method 1: Sampling and basis for acceptance

[ISO title: Ceramic tiles, Part 1: Sampling and basis for acceptance]

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD/44, Fixing of Ceramic Tiles.

This Standard is technically equivalent to and is reproduced from ISO 10545-1:1995, *Ceramic tiles Part 1: Sampling and basis for acceptance*.

This Standard is the result of consensus among the representatives on the Joint Committee that it be produced as an Australian Standard.

Appendix ZA provides guidance on the sampling of existing laid tiles to facilitate the use of the Standard in the case of disputes involving installed tiles.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

For the purpose of this Australian Standard, the ISO/IEC text should be modified as follows:

- (a) *Terminology* The words ‘Australian Standard’ should replace the words ‘International Standard’ wherever they appear.
- (b) *Decimal marker* A full point should be substituted for a comma where it appears as a decimal marker.
- (c) *References* The references to International Standards should be replaced by references to the following Australian Standards:

*Reference to International Standard
or other Publication*

Australian Standard

ISO

AS

3951 Sampling procedures and charts for
inspection by variables for percent non-
conforming

2490 Sampling procedures and charts for
inspection by variables for percent non-
conforming

NOTES

METHOD

1 Scope

This part of ISO 10545 specifies rules for batching, sampling, inspection and acceptance/rejection of ceramic tiles.

2 Definitions

For the purposes of this part of ISO 10545, the following definitions apply.

2.1 order: Quantity of tiles ordered at one time. An order may consist of one or more consignments.

2.2 consignment: Quantity of tiles delivered during a period of 2 days.

2.3 homogeneous (sub)consignment: (Sub) consignment that consists of tiles from one manufacturer, produced under conditions and with properties that are presumed uniform.

2.4 inspection lot: Quantity of tiles submitted for inspection manufactured by one manufacturer under conditions and with properties that are presumed uniform.

2.5 sample: Specified number of tiles taken from an inspection lot.

2.6 sample size: Number of tiles to be tested for each property.

2.7 requirement: Required characteristic as specified for the property in the relevant product standard.

2.8 non-conforming unit: Tile that does not meet the requirement for the property concerned.

3 Principle

This part of ISO 10545 provides for a sampling inspection system with a double sampling plan, partly for the method of inspection by attributes (individual values) and partly for a method of inspection by average values (variables).

The number of tiles to be tested varies for each property (see table 1).

4 Constitution of inspection lots

An inspection lot may consist of one or more homogeneous consignments or subconsignments.

Any consignment which is not homogeneous shall be divided into subconsignments which are assumed to be homogeneous and which may then constitute inspection lots.

If non-homogeneity is not relevant to the properties to be tested, by agreement between the supplier and consumer, the consignment can be treated as homogeneous.

NOTE 1 For example, a consignment of tiles, of the same type with different glazes, can be homogeneous with regard to dimensions and water absorption and non-homogeneous with regard to surface quality. In the same way, accessories which differ only in shape from the remaining tiles in the sample may be considered homogeneous with respect to the other properties.

5 Extent of the inspection

The choice of properties to be considered for inspection shall be subject to agreement between the supplier and

consumer and may depend on the size of the inspection lot.

NOTE 2 In principle, a complete range of tests shall only be executed for inspection lots of more than 5 000 m² of tiles. Testing is usually not considered to be necessary for inspection lots of less than 1 000 m² of tiles.

The number of inspection lots to be drawn for testing shall be subject to agreement between the parties concerned.

6 Sampling

6.1 The sampling location shall be subject to agreement between the supplier and consumer.

6.2 One or more representatives of each party concerned may be present at the time the sample is taken.

Samples shall be taken at random from the inspection lot.

Two samples shall be taken. It may not be necessary to test the second sample.

Each sample shall be packed separately and shall be sealed and marked as agreed by the parties concerned.

6.3 For each property, the number of tiles to be tested is indicated as "sample size" in column 2 of table 1.

7 Inspection

7.1 The tiles in the sample shall be tested according to the test methods specified in the relevant product standards.

7.2 The test results shall be evaluated according to clause 8.

8 Determination of acceptability of inspection lots

8.1 Inspection by attributes

8.1.1 When the number of non-conforming units found in the initial sample is less than or equal to the acceptance number Ac_1 indicated in column 3 of table 1, the inspection lot from which the sample was drawn shall be considered acceptable.

8.1.2 When the number of non-conforming units found in the initial sample is greater than or equal to the rejection number Re_1 indicated in column 4 of table 1, this justifies rejection of the inspection lot.

8.1.3 When the number of non-conforming units found in the initial sample lies between the acceptance number and the rejection number (columns 3 and 4 of table 1), a second sample of the same size as the initial sample shall be taken and tested.

8.1.4 The number of non-conforming units found in the initial and second samples shall be totalled.

8.1.5 If the total number of non-conforming units is less than or equal to the acceptance number Ac_2 indicated in column 5 of table 1, the inspection lot shall be considered acceptable.

8.1.6 If the total number of non-conforming units is greater than or equal to the second rejection number Re_2 indicated in column 6 of table 1, this justifies rejection of the inspection lot.

8.1.7 When the relevant product standard calls for more than one property to be tested, the second sample taken (see 8.1.3) shall only be inspected in accordance with those tests which, at the time of inspection of the initial sample, gave numbers of nonconforming units between the acceptance number Ac_1 and the rejection number Re_1 .

8.2 Inspection by the average value

8.2.1 If the average value ($\bar{x}_1$) of the test results of the initial sample meets the requirements, the inspection lot shall be considered acceptable (column 7 of table 1).

8.2.2 If the average value $\bar{x}_1$ does not meet the requirements, a second sample of the same size as the initial sample shall be taken (column 8 of table 1).

8.2.3 If the average value ($\bar{x}_2$) of the test results of the combined initial and second samples meets the requirements, the inspection lot shall be considered acceptable (column 9 of table 1).

8.2.4 If the average value $\bar{x}_2$ does not meet the requirements, this justifies rejection of the inspection lot (column 10 of table 1).