- English Translation -

Announcement of Ministry of Industry
No. 4391 (A.D. 2012)
Enacted by virtue of the Thai Industrial Standard Act
A.D. 1968
Subject: Cancellation of the Thai Industrial Standard for the Flooring Earthenware Tile, Glazed Earthenware Tile for Internal Wall and Earthenware Tile for External Wall

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It is deemed appropriate to revise the Thai Industrial Standard for the Flooring Earthenware Tile standard no. 37-2529, the Glazed Earthenware Tile for Internal Wall standard no. 613-2529 and Earthenware Tile for External Wall standard no. 614-2529.

By virtue of Section 15 of Thai Industrial Standard Act A.D. 1968, the Minister of the Ministry of Industry prescribed an announcement to cancel the Announcement of Ministry of Industry no. 1032 (A.D. 1986) enacted as per the Thai Industrial Standard Act A.D. 1968 on the subject of Cancellation and Enactment of the Thai Industrial Standard for the Flooring Earthenware Tile dated 11 June A.D. 1986; Announcement of Ministry of Industry no. 1034 (A.D. 1986) enacted as per the Thai Industrial Standard Act A.D. 1968 on the subject of Enactment of the Thai Industrial Standard for Glazed Earthenware Tile for Internal Wall dated 11 June A.D. 1986, and the Announcement of Ministry of Industry no. 1034 (A.D. 1986) enacted as per the Thai Industrial Standard Act A.D. 1968 on the subject of Enactment of the Thai Industrial Standard for Earthenware Tile for External Wall dated 11 June A.D. 1986, and also newly enact an Announcement for Enactment of the Thai Industrial Standard for Ceramic Tile standard no. TIS.2508-2555 as per the details appear in the attachment to this Announcement.

Accordingly, this Announcement shall be effective upon the Decree on the Requirement of the Industrial Products on Ceramic Tile must be in accordance with standard TIS no.2508-2555

Announced on 7 February A.D. 2012

M.R. Pongsawas Sawasdiwat

Minister of the Ministry of Industry

TIS.2508-2555

Thai Industrial Standard

CERAMIC TILES

1. Scope

1.1 This Thai Industrial Standard covers the Ceramic Tiles formed by means of extruding and pressing both glazed and non-glazed tile using for flooring or walling.
1.2 This Thai Industrial Standard excludes the followings:

1.2.1 Ceramic Tile with the area of not exceeding 10 000 mm^2 (square millimeter);

1.2.2 Ceramic Tile formed by means of pressing with non-glazed surface and having the water absorption value of more than 10 percent;

1.2.3 Decorating Ceramic Tile.

2. Definition

Meaning of the terms using in this Thai Industrial Standard shall be as follows:

2.1 Ceramic Tile, hereinafter in this standard called “Tile” means a flattened material made of soil and/or other inorganic materials uses for flooring or walling which is formed by means of extruding or pressing at the room temperature and dehydrate the moisture. The biscuit may be firstly fired and subsequently fired at the proper temperature in order to obtain the preferred properties, i.e., incombustible and unaffected by light. Surface of the tiles are both glazed and non-glazed type.

2.2 Decorative Ceramic Tile means a tile uses for beautiful decoration i.e., Crazed Glazing Earthenware, Terracotta Tile, Decorative Firing Tile, Crystal Glaze Tile, Supplementary Tile, Tile with its surface decorated by other materials and Glazed Tile that is purposely spotted in color and dispersed the pinned-puncture on the glazed surface or having inconsistent color tones on the same series.

2.2.1 Crazed Glazing Earthenware means a glazed decorative ceramic tile in which the glazed surface is crazed causing during the manufacturing process. The glazed surface is shinny, having various colors in different tones in each tile such as local tile from Lumpang, Ang Thong, Nakornpathom and Ratchaburi Provinces.

2.2.2 Terracotta Tile means a decorative ceramic tile made of red soil or soil with high-iron oxide which could be formed by extruding, pressing and by hand. It is also capable of high water absorption and its surface shall not be glazed, only the transparent glaze is acceptable in case of its surface is glazed.

2.2.3 Decorative Firing Tile means a decorative ceramic tile uses for additionally decorating the design on the surface such as affixing sticker, imprint of design, paint, scattered over with fragments of of glass and fires at the temperature which is lower than the degree uses for manufacture of the tile, the fire can be more than one time. The temperature and number of firing depends on the color to be used for decoration.

2.2.4 Crystal Glaze Tile means a decorative ceramic tile reacts in crystallization on or within the glaze layer.

2.2.5 Supplementary Tile means a decorative ceramic tile with a special shape or is specially made for a particular use such as step nosing, banana trunk-shaped connecting tile, connecting joinery corner, ending of corner, ending of edge and wall-based board.

2.2.6 Tile with its surface decorated by other materials means a decorative ceramic tile which decorates with the design on its surface in part or in whole by other materials such as natural stone, resin and metal, but shall not repeat the firing.

2.3 Glazed Surface means a tile's surface having the surface glazing substance and becomes vitrified covering after the firing, non-liquid absorbable. The glazed surface has various types such as dense, polished or matte.

2.4 Engobed Surface means tile's surface glazed by the grounding substance having soil as a major composition, being matte after the firing, capable of water-absorption. The tile which is grounded solely with the grounding surface is categorized as a non-glazed tile.

2.5 Polished Surface means the surface of a non-glazed tile, polishing by using the scrubber at the final stage of the manufacturing process.

2.6 Extruded Tiles (A sign) means a tile formed at the time that the soil is being as plastic state in the extruder, and the extruded soil shall be cut into the determined size. The Extruding Tile is categorized as "Precision Tile" or "Natural Tile" provided that the Precision Tile is formed by means of extruding with a specific technique and the inaccuracy of dimension is therefore less than the Natural Tile.

2.7 Dry-pressed Tiles (B sign) means a tile formed from a compound soil which is thoroughly grinded and formed in a mould by using high pressing pressure.

2.8 Spacer Lugs means the prominent part that is off the tile's edge provided that when connecting the two tiles, the prominent part from each tile's side shall separate the connecting tile at no less than the prescribed width range of the joint (see Figure 2).

2.9 Water Absorption (E sign) means a proportion in the water mass against dry mass of tile as a percentage.

2.10 Description of Size refers to the Figure 1 and Figure 2 for the square-shaped tile only, the tile which is not the square-shaped tile shall have the size equals to the square-shaped that is firmly fitted such tile.

2.10.1 Nominal Size means the size for the description of product;

2.10.2 Work Size (W sign) means a tile's size determined for the manufacture in order to control the actual size to be within the acceptable range of inaccuracy. Work Size designated by width, length and thickness;

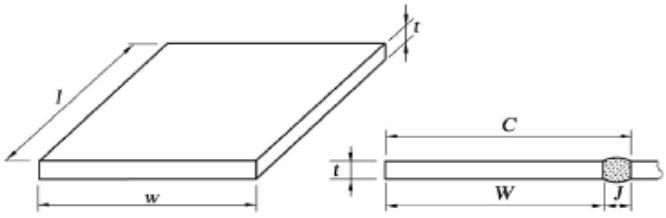
2.10.3 Actual Size means the size measured from the tile's surface;

2.10.4 Coordinating Size (C sign) means the Work Size includes the width of joint;

2.10.5 Modular Size means the tile's size which is in accordance with the modular unit base Por, 2Por 3Por and 5Por including the multiplied modular unit or sub-modular unit in case that 1Por equals 100 mm (millimeter);

2.10.6 Non-modular Size means the tile's size which is not in accordance with the modular unit base Por;

2.10.7 Tolerance Measurement means the differences between the permissible limit of tile's size;

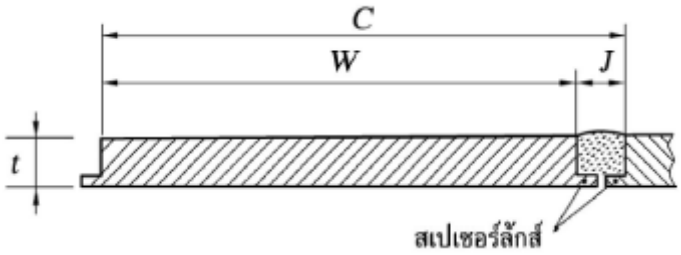


Coordinating Size *(C)* = Work Size *(W)* + Joint *(J)*

Work Size *(W)* = Width (*w*) Length (*I*) and Thickness (*t*)

Figure 1 Tile's Size

(Clause 2.10)



Spacer Lugs

Coordinating Size *(C)* = Work Size *(W)* + Joint *(J)*

Work Size *(W)* = Width (*w*) Length (*I*) and Thickness (*t*)

Figure 2 Tile's Size with Spacer Lugs

(Clause 2.8 and 2.10)

3. Category, Group, Type, Model and Class of Quality

3.1 Category, Group and Sub-group

Tiles are divided into the Category, Group and Sub-group as per the Table 1

Table 1 Category, Group and Sub-group of the Tile

(Clause 3.1)

Category	Group	Sub-group	Sign
Formed by Extruding (A)	Low Water Absorption (I), $E \leq 3$ %	-	AI
	Middle Water Absorption (II) 3 % < $E \leq$ 10 %	a-1	AII_{a-1}
		a-2	AII_{a-2}
		b-1	AII_{b-1}
		b-2	AII_{b-2}
	High Water Absorption (III), $E \leq 10$ %	-	AIII
Formed by Pressing (B)	Low Water Absorption (I), $E \leq 3$ %	a	BI_a
		b	BI_b
	Middle Water Absorption (II) 3 % < $E \leq$ 10 %	a	BII_a
		b	BII_b
	High Water Absorption (III), $E \leq 10$ %	-	BIII

3.2 Type

Tiles are divided as per the glaze criteria into 2 types as follows:

3.2.1 Glazed

4.2.2 Non-glazed

3.3 Model

Tiles are divided as per the usage model into 4 types as follows:

3.3.1 Internal Flooring

3.3.2 External Flooring

3.3.3 Internal Wall

3.3.4 External Wall

3.4 Class of Quality

Tiles are divided as per the quality of surface into 3 classes of quality as follows:

3.5.1 Class of Quality 1

3.5.2 Class of Quality 2

3.5.3 Class of Quality 3

4. Dimension and Measurement of Inaccuracy

4.1 Dimension and Measurement of Inaccuracy shall be in accordance with Table 2 to Table 12

5. Preferred Feature

5.1 Quality of Surface

5.1.1 Class of Quality 1
Tested as per TIS.2398 Vol. 2, shall not appear fracture, craze, stained spot, uneven surface, pinned-puncture, glazed crystallization, flaw spot, flaw underneath the glaze, decorative flaw, breaking mark, swelled glaze, uneven edge and seam.

5.1.2 Class of Quality 2
Tested as per TIS.2398 Vol. 2 with 3 meters vertically perpendicular view, shall not appear fracture, craze, stained spot, uneven surface, pinned-puncture, glazed crystallization, flaw spot, flaw underneath the glaze, decorative flaw, breaking mark, swelled glaze, uneven edge and seam.

5.1.3 Class of Quality 3
Must be in accordance with the abovementioned Clause 5.1.2 provided that:
(1) Breaking mark having the area of not exceeding 25 mm^2 per mark and shall not be exceeding 2 marks, the total area shall not exceed 50 mm^2
(2) Craze shall not exceed 2 lines with the total length of not exceeding 25 mm
(3) Flaw shall not exceed 2 marks with the area of not exceeding 50 mm^2

5.2 Physical and Chemical Properties

shall be in accordance with Table 2 to Table 12:

TIS.2508-2555

Table 2 Dimension, Physical and Chemical Properties of AI Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	 ± 1.0 But not exceed ± 2 mm ± 1.0	 ± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	 ± 10	 ± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.6
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.8	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage[5)]	Average ≤ 3.0 Each tile shall not exceed 3.3	Average ≤ 3.0 Each tile shall not exceed 3.3
Crushing Pressure Resistance as Newton 1) Thickness ≥ 7.5 mm 2) Thickness < 7.5 mm	 Not less than 1 100 Not less than 600	 Not less than 1 100 Not less than 600

Table 2 Dimension, Physical and Chemical Properties of AI Tile (Cont.)

Physical Properties	**Precision Tile**	**Natural Tile**
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average shall not less than 23 Each tile shall not exceed 18	Average shall not less than 23 Each tile shall not exceed 18
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 275 Not less than the level that the maker determined in the form	Not exceed 275 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 3 Dimension, Physical and Chemical Properties of AII $_{a-1}$ Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.25 But not exceed ± 2 mm ± 1.0	± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.6
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.8	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage	Average ≤ 3.0 E ≤ 6.0 Each tile shall not exceed 6.5	Average ≤ 3.0 E ≤ 6.0 Each tile shall not exceed 6.5
Crushing Pressure Resistance as Newton 1) Thickness ≥ 7.5 mm 2) Thickness < 7.5 mm	 Not less than 950 Not less than 600	 Not less than 950 Not less than 600

Table 3 Dimension, Physical and Chemical Properties of AII $_{a-1}$ Tile (Cont.)

Physical Properties	Precision Tile	Natural Tile
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average shall not less than 20 Each tile shall not exceed 18	Average shall not less than 20 Each tile shall not exceed 18
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 393 Not less than the level that the maker determined in the form	Not exceed 393 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than the level that the maker determined in the form Not less than GB level Not less than UB level	 Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 4 Dimension, Physical and Chemical Properties of AII $_{a-2}$ Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, the joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.5 But not exceed ± 2 mm ± 1.5	± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 1.0	± 1.0
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 1.0 ± 1.0 ± 1.5	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage	Average ≤ 3.0 E ≤ 6.0 Each tile shall not exceed 6.5	Average ≤ 3.0 E ≤ 6.0 Each tile shall not exceed 6.5
Crushing Pressure Resistance as Newton 3) Thickness ≥ 7.5 mm 4) Thickness < 7.5 mm	 Not less than 800 Not less than 600	 Not less than 800 Not less than 600

Table 4 Dimension, Physical and Chemical Properties of AII $_{a-2}$ Tile (Cont.)

Physical Properties	Precision Tile	Natural Tile
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average not less than 13 Each tile shall not exceed 11	Average not less than 13 Each tile shall not exceed 11
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 541 Not less than the level that the maker determined in the form	Not exceed 541 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than the level that the maker determined in the form Not less than GB level Not less than UB level	 Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 5 Dimension, Physical and Chemical Properties of AII $_{b-1}$ Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 2.0 But not exceed ± 2 mm ± 1.5	± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 1.0	± 1.0
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 1.0 ± 1.0 ± 1.5	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage	Average $6 < E \leq 10$ Each tile shall not exceed 11	Average $6 < E \leq 10$ Each tile shall not exceed 11
Crushing Pressure Resistance as Newton	Not less than 900	Not less than 900
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average not less than 17.5 Each tile shall not exceed 15	Average not less than 17.5 Each tile shall not exceed 15

Table 5 Dimension, Physical and Chemical Properties of AII $_{b-1}$ Tile (Cont.)

Physical Properties	Precision Tile	Natural Tile
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 649 Not less than the level that the maker determined in the form	Not exceed 649 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 6 Dimension, Physical and Chemical Properties of AII $_{b-2}$ Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 2.0 But not exceed ± 2 mm ± 1.5	± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 1.0	± 1.0
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 1.0 ± 1.0 ± 1.5	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage	Average $6 < E \leq 10$ Each tile shall not exceed 11	Average $6 < E \leq 10$ Each tile shall not exceed 11
Crushing Pressure Resistance as Newton	Not less than 750	Not less than 750
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average shall not less than 9 Each tile shall not exceed 8	Average shall not less than 9 Each tile shall not exceed 8

Table 6 Dimension, Physical and Chemical Properties of AII $_{b-2}$ Tile (Cont.)

Physical Properties	Precision Tile	Natural Tile
Scrub Resistance		
1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter	Not exceed 1 062	Not exceed 1 062
2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not less than the level that the maker determined in the form	Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance		
Resistance on acid and base with low intensity		
1) Glazed tile	Not less than the level that the maker determined in the form	Not less than the level that the maker determined in the form
2) Non-glazed tile[4)]		
Resistance on the household cleaning substance and the salt treatment for swimming pool		
1) Glazed tile	Not less than GB level	Not less than GB level
2) Non-glazed tile[4)]	Not less than UB level	Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 7 Dimension, Physical and Chemical Properties of AIII Tile
(Clause 4.1 and 5.2)

Dimension	Precision Tile	Natural Tile
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 3 mm to 11 mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 3mm Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 2.0 But not exceed ± 2 mm ± 1.5	± 2.0 But not exceed ± 4 mm ± 1.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 1.0	± 1.0
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 1.0	± 1.0
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 1.0 ± 1.0 ± 1.5	 ± 1.5 ± 1.5 ± 1.5
Physical Properties	**Precision**	**Natural**
Water absorption as a mass percentage	*E > 10*	*E > 10*
Crushing Pressure Resistance as Newton	Not less than 600	Not less than 600
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average not less than 8 Each tile shall not exceed 7	Average not less than 8 Each tile shall not exceed 7

Table 7 Dimension, Physical and Chemical Properties of AIII Tile (Cont.)

Physical Properties	Precision Tile	Natural Tile
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 2 365 Not less than the level that the maker determined in the form	Not exceed 2 365 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze	Shall not craze
Chemical Properties	**Precision Tile**	**Natural Tile**
Stain Resistance (glazed tile only)	Not less than level 3	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level	Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark *1) Curve-shaped tile is not required to be tested.*

2) Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.

3) Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.

4) In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.

Table 8 Dimension, Physical and Chemical Properties of BI_a Tile
(Clause 4.1 and 5.2)

Dimension	**Surface Area of Tile (s) (square centimeter)**		
	100 < s ≤ 190	**190 < s ≤ 410**	**s > 410**
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 2 mm to 5mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 2 percent (but shall not exceed ± 5 mm) Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.0 ± 0.5	± 0.75 ± 0.5	± 0.6 ± 0.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 5	± 5
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.5	± 0.5
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 0.6	± 0.6	± 0.6
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5
Physical Properties	**Parameter**		
Water absorption as a mass percentage	Average ≤ 0.5 Each tile shall not exceed 0.6		
Crushing Pressure Resistance as Newton 5) Thickness ≥ 7.5 mm 6) Thickness < 7.5 mm	 Not less than 1 300 Not less than 700		

Table 8 Dimension, Physical and Chemical Properties of BI_a Tile (Cont.)

Physical Properties	Parameter
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average shall not less than 35 Each tile shall not exceed 32
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	 Not exceed 175 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze
Chemical Properties	**Parameter**
Stain Resistance (glazed tile only)	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)]	Not less than the level that the maker determined in the form Not less than the level that the maker determined in the form
Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 9 Dimension, Physical and Chemical Properties of BI_b Tile
(Clause 4.1 and 5.2)

Dimension	**Surface Area of Tile (s) (square centimeter)**		
	100 < s ≤ 190	**190 < s ≤ 410**	**s > 410**
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 2 mm to 5mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 2 percent (but shall not exceed ± 5 mm) Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.0 ± 0.5	± 0.75 ± 0.5	± 0.6 ± 0.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 5	± 5
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.5	± 0.5
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 0.6	± 0.6	± 0.6
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5
Physical Properties	**Parameter**		
Water absorption as a mass percentage	Average 0.5 < E ≤ 3 Each tile shall not exceed 3.3		
Crushing Pressure Resistance as Newton 1) Thickness ≥ 7.5 mm 2) Thickness < 7.5 mm	 Not less than 1 100 Not less than 700		

Table 8 Dimension, Physical and Chemical Properties of BI_b Tile (Cont.)

Physical Properties	Parameter
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average shall not less than 30 Each tile shall not exceed 27
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	Not exceed 175 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze
Chemical Properties	**Parameter**
Stain Resistance (glazed tile only)	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)]	Not less than the level that the maker determined in the form Not less than the level that the maker determined in the form
Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 10 Dimension, Physical and Chemical Properties of BII_a Tile
(Clause 4.1 and 5.2)

Dimension	**Surface Area of Tile (s) (square centimeter)**		
	100 < s ≤ 190	**190 < s ≤ 410**	**s > 410**
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 2 mm to 5mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 2 percent (but shall not exceed ± 5 mm) Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.0 ± 0.5	± 0.75 ± 0.5	± 0.6 ± 0.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 5	± 5
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.5	± 0.5
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 0.6	± 0.6	± 0.6
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 4) Central curvature along the diagonal line 5) Curvature at the edge 6) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5
Physical Properties	**Parameter**		
Water absorption as a mass percentage	Average 3 < E ≤ 6 Each tile shall not exceed 6.5		
Crushing Pressure Resistance as Newton 3) Thickness ≥ 7.5 mm 4) Thickness < 7.5 mm	 Not less than 1 000 Not less than 600		

Table 10 Dimension, Physical and Chemical Properties of BII_a Tile (Cont.)

Physical Properties	**Parameter**
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average not less than 22 Each tile shall not exceed 20
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	 Not exceed 345 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze
Chemical Properties	**Parameter**
Stain Resistance (glazed tile only)	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than the level that the maker determined in the form Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 11 Dimension, Physical and Chemical Properties of BII_b Tile
(Clause 4.1 and 5.2)

Dimension	**Surface Area of Tile (s) (square centimeter)**		
	100 < s ≤ 190	**190 < s ≤ 410**	**s > 410**
Width and Length Work Size is determined by maker as follows: 1) Modular tile, joint width shall be between 2 mm to 5mm 2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 2 percent (but shall not exceed ± 5 mm) Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	± 1.0 ± 0.5	± 0.75 ± 0.5	± 0.6 ± 0.5
Thickness 1) Thickness is determined by the maker 2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 5	± 5
Straightness of Edge[1)] Maximum deviation of the straightness as a percentage of Work Size	± 0.5	± 0.5	± 0.5
Perpendicularity[1)] Maximum deviation of the perpendicularity as a percentage of Work Size	± 0.6	± 0.6	± 0.6
Flatness of Surface Maximum deviation of the flatness as a percentage of the followings: 1) Central curvature along the diagonal line 2) Curvature at the edge 3) Wryness along the diagonal line	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5	 ± 0.5 ± 0.5 ± 0.5
Physical Properties	**Parameter**		
Water absorption as a mass percentage	Average 6 < E ≤ 10 Each tile shall not exceed 11		
Crushing Pressure Resistance as Newton 1) Thickness ≥ 7.5 mm 2) Thickness < 7.5 mm	 Not less than 800 Not less than 500		

Table 11 Dimension, Physical and Chemical Properties of BII_b Tile (Cont.)

Physical Properties	**Parameter**
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N)	Average not less than 18 Each tile shall not exceed 16
Scrub Resistance 1) Deep Scrub Resistance of the non-glazed flooring tile: the fragmented volume as cubic millimeter 2) Surface Scrub Resistance of the glazed flooring tile[2)]	 Not exceed 540 Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze
Chemical Properties	**Parameter**
Stain Resistance (glazed tile only)	Not less than level 3
Chemical Substance Resistance Resistance on acid and base with low intensity 1) Glazed tile 2) Non-glazed tile[4)] Resistance on the household cleaning substance and the salt treatment for swimming pool 1) Glazed tile 2) Non-glazed tile[4)]	 Not less than the level that the maker determined in the form Not less than the level that the maker determined in the form Not less than GB level Not less than UB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

Table 12 Dimension, Physical and Chemical Properties of BIII Tile
(Clause 4.1 and 5.2)

Dimension	No Spacer	With Spacer
Width *(w)* and Length *(l)*		
Work Size is determined by maker as follows:		
1) Modular tile, joint width shall be between 1.5 mm to 5 mm		
2) Non-modular tile, the difference of Work Size and Determined Size shall not exceed ± 2 mm		
Deviation of the average size for each tile (2 or 4 sides) as a percentage of Work Size	$1 \leq 12$ cm: ± 0.75 $1 \leq 12$ cm: ± 0.5	± 0.6 - 0.3
Deviation of the average size for each tile (2 or 4 sides) as percentage of the average size for 10 tiles (20 or 40 sides)	$1 \leq 12$ cm: ± 0.5 $1 \leq 12$ cm: ± 0.3	± 0.25
Thickness		
1) Thickness is determined by the maker		
2) Deviation of the average thickness for each tile as a percentage of Work Size	± 10	± 10
Straightness of Edge[1)]		
Maximum deviation of the straightness as a percentage of Work Size	± 0.3	± 0.3
Perpendicularity[1)]		
Maximum deviation of the perpendicularity as a percentage of Work Size	± 0.5	± 0.3
Flatness of Surface		
Maximum deviation of the flatness as a percentage of the followings:		
1) Central curvature along the diagonal line	+ 0.5 - 0.3	± 0.8 mm ± 0.2 mm
2) Curvature at the edge	+ 0.5 - 0.3	± 0.8mm - 0.2 mm
3) Wryness along the diagonal line	± 0.5	± 0.5 mm for $s \leq 250$ cm^2 ± 0.75 mm for $s \leq 250$ cm^2

Table 12 Dimension, Physical and Chemical Properties of BIII Tile (Cont.)

Physical Properties	**Parameter**
Water absorption as a mass percentage	Average > 10 In case the average is more than 20, the maker is required to notify. Each tile shall not be less than 9
Crushing Pressure Resistance as Newton[5)] 1) Thickness ≥ 7.5 mm 2) Thickness < 7.5 mm	 Not less than 600 Not less than 200
Modulus of Rupture as Newton per square meter (incompatible with the tile having Crushing Pressure Resistance ≥ 3 000 N) 1) Thickness ≤ 7.5 mm 2) Thickness > 7.5 mm	 Not less than 15 Not less than 12
Scrub Resistance Surface Scrub Resistance of the glazed flooring tile[2)]	Not less than the level that the maker determined in the form
Craze Resistance (glazed tile only)[3)]	Shall not craze
Chemical Properties	**Parameter**
Stain Resistance (glazed tile only)	Not less than level 3
Chemical Substance Resistance Resistance on the household cleaning substance and the salt treatment for swimming pool	Not less than GB level

Remark [1)] *Curve-shaped tile is not required to be tested.*

[2)] *Level of the Surface Scrub Resistance for glazed flooring tile shall be in accordance with TIS.2398 Vol. 7.*

[3)] *Method uses in decorating some type of the tiles may cause the craze. Therefore, the maker is required to specify that the TIS.2398 Vol. 11 is incompatible with the craze testing for which particular cases.*

[4)] *In case that the difference of color tone is insignificant, it shall not be deemed as the result of chemical corrosion.*

[5)] *The tile with Crushing Pressure Resistance less than 400 Newton, the maker must specify as walling tile only.*

6. Package

6.1 The tile shall be packed into a box, package or appropriate container in order to prevent the probable damage that may be occurred during the transportation and storage.

7. Mark and Label

7.1 Every tile is required to bear at least the number, alphabet or notifying mark the following details to be seen easily, obviously, firmly or permanently visible:

(1) Manufacturer or manufacturing factory or registered trademark;

(2) Manufacturing country.

7.2 The box or container of every unit of tile is required to bear at least the number, alphabet or notifying mark of the following details to be seen easily, obviously, firmly or permanently visible:

(1) Category, group and sub-group or sign;

(2) The terms Precision or Natural (only the tile formed by means of extruding);

(3) Type;

(4) Model;

(5) Class of Quality;

(6) Shape (In case of not being a square-shaped);

(7) Size displays as centimeter, Work Size displays as millimeter

For example 25 cm x 12.5 cm (*w* 240 mm x 115 mm x 10 mm);

(8) Amount of tiles or Work Size of tile in 1 product unit as square meter;

(9) Color or design;

(10) Date, Month, Year of the Manufacture;

(11) Name of the manufacturer or manufacturing factory or registered trademark;

(12) Manufacturing country.

7.3 Document of product's details or catalog must be notifying the following details:

(1) Level of Surface Scrub Resistance for the glazed flooring tile;

(2) Chemical Substance Resistance (Resistance on acid and base with low intensity)

In case of using a foreign language, the meaning must be identical to Thai language as mentioned above.

7. Sampling plan and Criteria

8.1 Sampling plan and Criteria shall be in accordance with Annexure A.

Annexure A.

Sampling Plan and Criteria

(8.1)

A.1 Series means the tile in the same category, type, model, group, sub-group, class of quality, work size, shape, color and design which was manufactured or delivered or trading in the same period of time.

A.2 Sampling Plan and Acceptance shall be in accordance with the following required Sampling Plan or may apply the other Sampling Plan which is academically equivalent to required Sampling Plan.

A.2.1 Sampling Plan and Acceptance for the test of dimension, surface quality and physical and chemical properties.

A.2.1.1 randomly selects the sample from the same series as per the amount specified in the Table A.1

Table A.1 Testing List and Plan of Sampling

(Clause A.2.1.1)

No.	Testing List	Testing Method as per TIS.2398	Sample Size (sheet)	Acceptable Amount (sheet)
1	Dimension	Vol 2.	10	0
2	Surface Quality (Class of Quality 1 and 2)		20	1
	Surface Quality (Class of Quality 3)		20	2
3	Water Absorption	Vol 3.	5	0
4	Crushing Pressure Resistance and Modulus of Rupture	Vol 4.	7	0
5	Deep Scrub Resistance (only the non-glazed flooring tile)	Vol 6.	5	0
6	Surface Scrub Resistance (only the glazed flooring tile)	Vol 7.	11	0
7	Craze Resistance (glazed tile only)	Vol 11.	5	0
8	Chemical Substance Resistance	Vol 13.	5	0
9	Stain Resistance (glazed tile only)	Vol 14.	5	0

A.2.1.1 Sample which is not in accordance with Clause 4.1, 5.1 and 5.2, shall be deemed qualified should it does not exceed the Acceptable Amount in this Table A.1.

A.3 Criteria

The sample of tile shall be deemed qualified under the Thai Industrial Standard should it is in accordance with Clause A.2.1.2.