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European Assessment Document for

# Glass panels, tiles and mosaic



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This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation (EU) No 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

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# 1 SCOPE OF THE EAD

## 1.1 Description of the construction product

This EAD applies to panels, tiles and mosaic made of glass with or without decorative coat. Glass mosaic can be produced as a sheet (glass mosaic on a grid) or loose mosaic glass tiles.

The way of fixing of panels, tiles and mosaic made of glass to the substrate is not covered by the EAD.

The product is not fully covered by the following harmonised technical specification: hEN 14411:2012. The harmonised European standard EN 14411 does not apply to glass products in its scope but refers to assessment methods applicable for glass panels, tiles and mosaic because of the same intended use as ceramic tiles covered by the standard.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

## 1.2 Information on the intended use(s) of the construction product

### 1.2.1. Intended use

The glass panels, tiles and mosaic are intended to be used for internal and/or external wall and floor finishes.

### 1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the glass panels, tiles and mosaic for the intended use of 25 years for internal use and 15 years for external use, when installed in the works. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works<sup>1</sup>.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

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<sup>1</sup> The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above.

## 2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

All undated references to standards or to EADs in this EAD are to be understood as references to the dated versions listed in chapter 4.

### 2.1 Essential characteristics of the product

Table 2.1.1 shows how the performance of glass panels, tiles and mosaic is assessed in relation to the essential characteristics.

**Table 2.1.1 Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics**

No	Essential characteristic	Assessment method	Type of expression of product performance	
<b>Basic Works Requirement 2: Safety in case of fire</b>				
1	Reaction to fire	2.2.1	Class	
<b>Basic Works Requirement 3: Hygiene, health and the environment</b>				
2	Content, emission and/or release of dangerous substances	2.2.2	Level	
<b>Basic Works Requirement 4: Safety and accessibility in use</b>				
3	Breaking strength	EN 14411, Clause 5.2, Table 2, pos. B.2	Level	
4	Impact resistance	EN 14411, Clause 5.2, Table 2, pos. B.13	Level	
5	Resistance to surface abrasion	EN 14411, Clause 5.2, Table 2, pos. B.4 b)	Class/Description	
6	Resistance to thermal shock	2.2.3	Description	
7	Freeze-thaw resistance	EN 14411, Clause 5.2, Table 2, pos. B.8	Description	
8	Slip resistance	Barefoot ramp test	2.2.4.1	Level
		Shod ramp test	2.2.4.2	Level
9	Resistance to staining	EN 14411, Clause 5.2, Table 2, pos. C.1 a)	Class	
10	Tactility	EN 14411, Clause 5.2, Table 2, pos. B.15	Description	

## 2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessments shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare this performance in the Declaration of Performance.

### 2.2.1 Reaction to fire

The glass panels, tiles and mosaic shall be tested, using the method(s) relevant for the corresponding reaction to fire class according to EN 13501-1. The glass panels, tiles and mosaic shall be classified according to the Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

The reaction to fire class shall be stated in the ETA.

If the conditions referred to in the Commission Decision 96/603/EC, as amended by the Commission Decisions 2000/605/EC and 2003/424/EC, are fulfilled the glass panels, tiles and mosaic are considered to satisfy the requirements for performance class A1 and/or A1<sub>FL</sub> of the characteristic reaction to fire in accordance with that Decision without the need for testing on the basis of it fulfilling the conditions set out in that Decision and its intended use being covered by that Decision.

Therefore, the performance of the product is class A1 and/or A1<sub>FL</sub> according to EN 13501-1.

### 2.2.2 Content, emission and/or release of dangerous substances

The lead and cadmium given off shall be determined in accordance with EN ISO 10545-15.

The value of lead and cadmium given off [mg/dm<sup>3</sup>] shall be stated in the ETA.

### 2.2.3 Resistance to thermal shock

The resistance to thermal shock shall be determined in accordance with EN ISO 10545-9 – test without immersion and without determination of the water absorption coefficient.

After the test it shall be assessed if no/any visible defects occur. The result of the test shall be stated in the ETA.

### 2.2.4 Slip resistance

#### 2.2.4.1 Barefoot ramp test

The slip resistance (Barefoot ramp test) shall be determined in accordance with EN 16165, Annex A.

The ramp test value,  $\alpha_{\text{barefoot}}$ , rounded to the nearest 1 degree, shall be stated in the ETA.

#### 2.2.4.2 Shod ramp test

The slip resistance (Shod ramp test) shall be determined in accordance with EN 16165, Annex B.

The ramp test value,  $\alpha_{\text{shod}}$ , rounded to the nearest 1 degree, shall be stated in the ETA.

### 3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

#### 3.1 System(s) of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal acts are:

- Commission Decision 97/808/EC, as amended by Commission Decisions 1999/453/EC, 2001/596/EC and 2006/190/EC,
- Commission Decision 98/437/EC, as amended by Commission Decision 2001/596/EC.

The systems to be applied have been specified in Table 3.1.1.

**Table 3.1.1 Systems of assessment and verification of constancy of performance applicable to the glass panels, tiles and mosaic**

Product(s)	Intended uses	Level(s) or class(es)	AVCP systems
Floor products	For external uses, to cover external pedestrian and vehicular circulation areas	-	4
	For internal uses including enclosed public transport premises	A1 <sub>FL</sub> *, A2 <sub>FL</sub> *, B <sub>FL</sub> * and C <sub>FL</sub> * A1 <sub>FL</sub> **, A2 <sub>FL</sub> **, B <sub>FL</sub> **, C <sub>FL</sub> **, D <sub>FL</sub> and E <sub>FL</sub> (A1 <sub>FL</sub> to E) <sup>***</sup> , F <sub>FL</sub>	1 3 4
Wall products	As internal or external finishes in walls subject to reaction to fire regulations	A1*, A2*, B* and C* A1**, A2**, B**, C**, D and E (A1 to E) <sup>***</sup> , F	1 3 4
	As internal or external finishes in walls, as relevant, subject to regulations on dangerous substances	-	3
<p>* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g., an addition of fire retardants or a limiting of organic material)</p> <p>** Products/materials not covered by footnote (*)</p> <p>*** Products/materials that do not require to be tested for reaction to fire (e.g., products/materials of Class A1 according to Commission Decision 96/603/EC, as amended by the Commission Decisions 2000/605/EC and 2003/424/EC)</p>			

### 3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.2.1.

**Table 3.2.1 Control plan for the manufacturer; cornerstones**

No	Subject/type of control		Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
<b>Factory production control (FPC)</b> [including testing of samples taken at the factory in accordance with a prescribed test plan]						
1	Geometry		EN ISO 10545-2, clause 1-6	Laid down in control plan	10	Every production unit
2	Content, emission and/or release of dangerous substances (lead and cadmium)		2.2.2	Laid down in control plan	5	Once a year
3	Breaking strength		EN 14411, Clause 5.2, Table 2, pos. B.2	Laid down in control plan	10 / 7 <sup>(1)</sup>	Once a month
4	Resistance to thermal shock		2.2.3	Laid down in control plan	5	Once a year
5	Freeze-thaw resistance		EN 14411, Clause 5.2, Table 2, pos. B.8	Laid down in control plan	10	Once a year
6	Slip resistance	Barefoot ramp test	2.2.4.1	Laid down in control plan	1	Once a year
		Shod ramp test	2.2.4.2	Laid down in control plan	1	Once a year
<sup>(1)</sup> Seven samples only for products with length $\geq 48$ mm						



### 3.3 Tasks of the notified body

The intervention of the notified body under AVCP system 1 is only necessary for reaction to fire for products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g., an addition of fire retardants or a limiting of organic material).

In this case the cornerstones of the actions to be undertaken by the notified body under AVCP system 1 are laid down in Table 3.3.1.

**Table 3.3.1 Control plan for the notified body; cornerstones**

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
<b>Initial inspection of the manufacturing plant and of factory production control</b> <i>(for systems 1+, 1 and 2+ only)</i>					
1	Where the intervention of the Notified Body is necessary only because the conditions for the applicability of system 1 are fulfilled for reaction to fire, the notified body will consider especially the clearly identifiable stage in the production process which results in an improvement of the reaction to fire classification (e.g., an addition of fire retardants or a limiting of organic material).	Verification of the complete FPC as described in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	When starting the production or a new line
<b>Continuous surveillance, assessment and evaluation of factory production control</b> <i>(for systems 1+, 1 and 2+ only)</i>					
2	Where the intervention of the Notified Body is necessary only because the conditions for the applicability of system 1 in the Decisions regarding reaction to fire are fulfilled, the notified body will consider especially the clearly identifiable stage in the production process which results in an improvement of the reaction to fire classification (e.g., an addition of fire retardants or a limiting of organic material)	Verification of the controls carried out by the manufacturer as described in the control plan agreed between the TAB and the manufacturer with reference to the raw materials, to the process and to the product as indicated in Table 3.2.1	As defined in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	Once a year

## 4 REFERENCE DOCUMENTS

EN ISO 10545-2:2018	Ceramic tiles. Part 2: Determination of dimensions and surface quality
EN ISO 10545-9:2013	Ceramic tiles. Part 9: Determination of crazing resistance for glazed tiles
EN ISO 10545-15:2021	Ceramic tiles. Part 15: Determination of lead and cadmium given off by glazed tiles
EN 13501-1:2018	Fire classification of construction products and building elements. Part 1: Classification using data from reaction to fire tests
EN 14411:2012	Ceramic tiles. Definition, classification, characteristics, evaluation of conformity and marking
EN 16165:2021	Determination of slip resistance of pedestrian surfaces. Methods of evaluation