

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-20/0221**  
**of 14 November 2023**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

FOAMGLAS-Slab S3, FOAMGLAS-Board S3,  
FOAMGLAS-Slab F and FOAMGLAS-Board F

Product family  
to which the construction product belongs

Cellular glass boards as load bearing layer and thermal  
insulation outside the waterproofing

Manufacturer

PITTSBURGH CORNING EUROPE N.V.  
Albertkade 1  
3980 TESSENDERLO  
BELGIEN

Manufacturing plant

Pittsburgh Corning Europe N.V.  
Albertkade 1  
B-3980 Tessenderlo

This European Technical Assessment  
contains

8 pages including 1 annex which form an integral part of  
this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

040777-00-1201

This version replaces

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## Specific Part

### 1 Technical description of the product

The thermal insulation products (cellular glass boards) are made of expanded cellular glass with a closed cell structure. Cellular glass boards are manufactured with straight edges.

The cellular glass boards have the following designation:

"FOAMGLAS-Slab S3", "FOAMGLAS-Board S3" and  
"FOAMGLAS-Slab F", "FOAMGLAS-Board F".

The cellular glass boards "FOAMGLAS-Slab S3" are cut from blocks and manufactured with the following dimensions:

Nominal thicknesses:	50 mm to 200 mm
Nominal length:	600 mm
Nominal widths:	450 mm

The cellular glass boards "FOAMGLAS-Slab F" are cut from blocks and manufactured with the following dimensions:

Nominal thicknesses:	50 mm to 180 mm
Nominal length:	600 mm
Nominal widths:	450 mm

The cellular glass boards "FOAMGLAS-Board S3" and "FOAMGLAS-Board F" consist of either one board "FOAMGLAS-Slab" or a number of these boards bonded edge to edge in the factory and are lined with a special paper on both sides by the application of a bitumen layer.

The boards are manufactured with the following dimension (without coating):

Nominal thicknesses:	50 mm to 180 mm
Nominal length:	1200 mm
Nominal widths:	600 mm

The European Technical Assessment has been issued for the product on the basis of agreed data/ information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed. The European Technical Assessment applies only to products corresponding to this agreed data/information.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The thermal insulation boards are intended to be used as load bearing layer and/ or thermal insulation outside the waterproofing. The boards are laid uniformly on the substrate to which they are applied. In particular the following applications are intended:

- Load bearing and thermal insulation underneath foundation slabs up to 180 mm thickness
- External horizontal and vertical thermal insulation of in-ground constructions in non-structural applications (also in case of groundwater)

The performance according to section 3 only applies if the thermal insulation boards are installed according to the manufacturer's installation instructions and if they are protected from precipitation, wetting or weathering during transport and storage before installation.

Concerning the application of the thermal insulation boards, also the respective national regulations shall be observed.

Where the thermal insulation boards are fixed by using adhesives, only such adhesions shall be used, which are suitable for this purpose. The assessment of these fixings is not subject of this European Technical Assessment.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the cellular glass boards of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

For sampling, conditioning and testing the provisions of the EAD No 040777-00-1201 "Cellular glass boards as load bearing layer and thermal insulation outside the waterproofing" apply.

#### 3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
<p>Compressive strength</p> <p>test acc. to EN 826:2013</p> <p>"FOAMGLAS-Slab S3", "FOAMGLAS- Board S3 "</p> <p>thickness <math>50 \text{ mm} \leq d \leq 180 \text{ mm}</math></p> <p>"FOAMGLAS-Slab F ", "FOAMGLAS-Board F"</p> <p>thickness <math>50 \text{ mm} \leq d \leq 180 \text{ mm}</math></p>	<p>Level (individual values may fall below this level up to 10 %):</p> <p><math>\sigma_m \geq 850 \text{ kPa}</math></p> <p><math>\sigma_m \geq 1500 \text{ kPa}</math></p>
<p>Characteristic value of compressive stress or compressive strength</p> <p>5%-fractile value for a one-sided confidence level of 75 % under unknown or known variance using ISO 12491:1997</p> <p>"FOAMGLAS-Slab S3", "FOAMGLAS-Board S3"</p> <p>thickness <math>50 \text{ mm} \leq d \leq 180 \text{ mm}</math></p> <p>"FOAMGLAS-Slab F", "FOAMGLAS-Board F"</p> <p>thickness <math>50 \text{ mm} \leq d \leq 180 \text{ mm}</math></p>	<p><math>\sigma_{0,05} = 905 \text{ kPa}</math> (n = 50; <math>\sigma_{\text{mean}} = 1097 \text{ kPa}</math>; <math>s_\sigma = 114 \text{ kPa}</math>)</p> <p><math>\sigma_{0,05} = 1558 \text{ kPa}</math> (n = 50; <math>\sigma_{\text{mean}} = 1771 \text{ kPa}</math>; <math>s_\sigma = 127 \text{ kPa}</math>)</p>
Compressive creep	See Annex A
Behaviour under compressive load (large-sized specimen, double-layer installation)	No performance assessed
<p>Shear strength</p> <p>test acc. to EN 12090:2013</p> <p>"FOAMGLAS-Slab F", "FOAMGLAS-Board F"</p> <p>thickness <math>50 \text{ mm} \leq d \leq 180 \text{ mm}</math></p>	$\tau \geq 100 \text{ kPa}$

Essential characteristic	Performance
Behaviour under shear load (large-sized specimen)	No performance assessed
Density test acc. to EN 1602:2013 "FOAMGLAS-Slab S3", "FOAMGLAS-Board S3" thickness $50 \text{ mm} \leq d \leq 180 \text{ mm}$ "FOAMGLAS-Slab F", "FOAMGLAS-Board F" thickness $50 \text{ mm} \leq d \leq 180 \text{ mm}$	density range:  110 kg/m <sup>3</sup> - 135 kg/m <sup>3</sup>  155 kg/m <sup>3</sup> - 180 kg/m <sup>3</sup>

### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	
"FOAMGLAS-Slab S3", "FOAMGLAS-Slab F"	Class A1 <sup>1</sup>
Reaction to fire test acc. to EN ISO 11925-2:2010	
"FOAMGLAS-Board S3", "FOAMGLAS-Board F"	Class E acc. to EN 13501-1:2007 + A1:2009

### 3.3 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity at mean reference temperature of 10 °C test acc. to EN 12667:2001 or EN 12939:2001 "FOAMGLAS-Slab S3", "FOAMGLAS-Board S3" "FOAMGLAS-Slab F", "FOAMGLAS-Board F"	acc. to EN 13167:2012+A1:2015 $\lambda_D = 0.045 \text{ W/(m} \cdot \text{K)}$ $\lambda_D = 0.050 \text{ W/(m} \cdot \text{K)}$
Water absorption Short term water absorption by partial immersion test acc. to EN 1609:2013 (method A)  Long term water absorption by partial immersion test acc. to EN 12081:2013 (method 1A)	acc. to EN 13167:2012+A1:2015 WS ( $W_p \leq 0.5 \text{ kg/m}^2$ )  acc. to EN 13167:2012+A1:2015 WL(P) ( $W_{ip} \leq 0.5 \text{ kg/m}^2$ )

<sup>1</sup> According to decision 96/603/EC (as amended)

Essential characteristic	Performance
<p>Water vapour diffusion resistance factor test acc. to EN 12086:2013 "FOAMGLAS-Slab S3", "FOAMGLAS-Slab F", "FOAMGLAS-Board S3", "FOAMGLAS-Board F"</p>	<p>acc. to EN 13167:2012+A1:2015</p> <p>MU (<math>\mu &gt; 40000</math>)</p>
<p>Geometrical properties</p> <p>Thickness test acc. EN 823:2013 (clause 7.2, figure 2, measuring set-up 3)</p> <p>Length test acc. EN 822:2013 "FOAMGLAS-Slab S3", "FOAMGLAS-Slab F" "FOAMGLAS-Board S3", "FOAMGLAS-Board F"</p> <p>Width test acc. EN 822:2013</p> <p>Squareness in direction of length and width test acc. EN 824:2013 in direction of thickness test acc. EN 824:2013</p> <p>Flatness test acc. EN 825:2013</p>	<p>Tolerance acc. to EN 13167:2012+A1:2015 (board without coating)</p> <p><math>\pm 2</math> mm</p> <p><math>\pm 2</math> mm</p> <p><math>\pm 5</math> mm</p> <p><math>\pm 2</math> mm</p> <p>5 mm/m</p> <p>2 mm</p> <p>2 mm</p>
<p>Dimensional stability under specified conditions test acc. to EN 1604:2013</p>	<p>acc. EN 13167:2012+A1:2015 temperature: 70 °C and 90% R.H.</p> <p>DS(70,90) (<math>\Delta\epsilon_l \leq 0.5</math> %, <math>\Delta\epsilon_b \leq 0.5</math> %, <math>\Delta\epsilon_d \leq 1</math> %)</p>
<p>Tensile strength perpendicular to faces test acc. to EN 1607:2013 "FOAMGLAS-Slab S3", "FOAMGLAS-Board S3" "FOAMGLAS-Slab F", "FOAMGLAS-Board F"</p>	<p>acc. to EN 13167:2012+A1:2015</p> <p>TR200 (<math>\sigma_{mt} \geq 200</math> kPa) TR200 (<math>\sigma_{mt} \geq 200</math> kPa)</p>
<p>Bending strength test acc. to EN 12089:2013 "FOAMGLAS-Slab S3", "FOAMGLAS-Board S3" "FOAMGLAS-Slab F", "FOAMGLAS-Board F"</p>	<p>acc. to EN 13167:2012+A1:2015</p> <p>BS500 (<math>\sigma_b \geq 500</math> kPa) BS550 (<math>\sigma_b \geq 550</math> kPa)</p>

Essential characteristic	Performance
Point load test acc. to EN 12430:2013	acc. to EN 13167:2012+A1:2015 PL(P)1 ( $P_d \leq 1.0$ mm)
Compressive strength test acc. to EN 826:2013 "FOAMGLAS-Slab S3" thickness $180 \text{ mm} < d \leq 200 \text{ mm}$	$\sigma_m \geq 900 \text{ kPa}$
Density test acc. to EN 1602:2013 "FOAMGLAS-Slab S3" thickness $180 \text{ mm} < d \leq 200 \text{ mm}$	density range: $110 \text{ kg/m}^3 - 135 \text{ kg/m}^3$

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

In accordance with EAD No. 040777-00-1201, the applicable European legal act is: 1995/467/EC

The systems to be applied are:

- System 1 for Essential characteristics concerning Mechanical resistance and stability (BWR 1)
- System 3 all other Essential characteristics

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 14 November 2023 by Deutsches Institut für Bautechnik

Frank Iffländer  
Head of Section

*beglaubigt:*  
Wendler

FOAMGLAS-Slab S3, FOAMGLAS-Board S3,  
FOAMGLAS-Slab F and FOAMGLAS-Board F

Annex A

1. Compressive creep (single-layer board)

<b>FOAMGLAS-Slab S3</b>	<b>thickness 120 mm</b>
density (kg/m <sup>3</sup> )	133
compressive strength acc. EN 826 (kPa)	931
<b>Load stage (kPa)</b>	<b>350</b>
X <sub>0</sub> (mm)	0.9
X <sub>ct</sub> (mm) with t = 3.33 years	1.10
X <sub>ct100</sub> (mm)	1.16
<b>X<sub>t100</sub> (mm)</b>	<b>2.06</b>
<b>FOAMGLAS-Slab F</b>	
<b>thickness 100 mm</b>	
density (kg/m <sup>3</sup> )	164
compressive strength acc. EN 826 (kPa)	1739
<b>Load stage (kPa)</b>	<b>600</b>
X <sub>0</sub> (mm)	0.73
X <sub>ct</sub> (mm) with t = 20 month	0.45
X <sub>ct50</sub> (mm)	0.47
<b>X<sub>t50</sub> (mm)</b>	<b>1.21</b>
<b>FOAMGLAS-Slab F</b>	
<b>thickness 140 mm</b>	
density (kg/m <sup>3</sup> )	160
compressive strength acc. EN 826 (kPa)	1681
<b>Load stage (kPa)</b>	<b>600</b>
X <sub>0</sub> (mm)	1.17
X <sub>ct</sub> (mm) with t = 3.33 years	0.70
X <sub>ct100</sub> (mm)	0.72
<b>X<sub>t100</sub> (mm)</b>	<b>1.89</b>