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European Technical Assessment

ETA-24/0894
of 28.10.2024

General part

Technical Assessment Body issuing the European Technical Assessment

Österreichisches Institut für Bautechnik (OIB)
Austrian Institute of Construction Engineering

Trade name of the construction product

Cellular glass loose fill „SGS-T”

Product family to which the construction product belongs

Factory made cellular glass loose fill

Manufacturer

PoliCell GmbH & Co. KG
Gewerbestraße 10
3375 Krummnussbaum
AUSTRIA

Manufacturing plant

PoliCell GmbH & Co. KG
Gewerbestraße 10
3375 Krummnussbaum
AUSTRIA

This European Technical Assessment contains

15 pages including 5 annexes 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

European Assessment Document (EAD)
040394-00-1201 “Factory made cellular glass loose
fill”.

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Specific parts

1 Technical description of the product

1.1 General

The European Technical Assessment – ETA – applies to cellular glass loose fill material that consists of factory made particles of cellular foamed glass, with typical size 10/60 mm – nominal sizes d/D – Cellular glass loose fill „SGS-T”.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

The cellular glass loose fill is intended to be used as load bearing and thermal insulation layer underneath building foundations or floor slabs in areas with in-ground frost and under impact of soil moisture and non-retaining leak water.

The load bearing function is limited to predominately static loads. The cellular glass loose fill is compacted under load bearing structures to reach an appropriate load-bearing capacity without excessive fragmentation of particles.

In particular, the following applications are covered.

- Load-bearing capacity and thermal insulation under a foundation plate
- Horizontal thermal insulation and anti-frost layer in an area with in-ground frost, loose fill, drainage layer, and anti-capillary layer – also for non-bearing applications.

The cellular glass loose fill is not used under punctual single loads.

2.2 Assumptions

2.2.1 General

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 transport, storage, maintenance, replacement, and repair of the product as he considers necessary.

2.2.2 Design

The manufacturer ensures that the requirements in accordance with Clauses 1, 2, and 3 as well as with the Annexes of the European Technical Assessment are made known to those who are concerned with design and execution of the works.

The European Technical Assessment only applies to the manufacture and use of the factory made cellular glass loose fill.

2.2.3 Installation

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.

2.3 Assumed working life

The European Technical Assessment is based on an assumed working life of the factory made cellular glass loose fill of 50 years, provided that the factory made cellular glass loose fill is subject to appropriate installation, use, and maintenance, see Clause 2.2. These provisions are based upon the current state of the art and the available knowledge and experience.

In normal use conditions, the real working life may be considerably longer without major degradation affecting the basic requirements for construction works¹.

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 nor by the Technical Assessment Body but are regarded only as a means for expressing the expected economically reasonable working life of the product.

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

3.1 Performance of the product

Table 1: Performance of the product in relation to the essential characteristics

Essential characteristic	Method of assessment	Performance
Basic requirement for construction works 1: Mechanical resistance and stability		
Oedometer modulus	EAD 040394-00-1201 ² , Clause 2.2.1	No performance assessed
Compressive stress at 10 % deformation	EAD 040394-00-1201, Clause 2.2.2	See Annex 1
Crushing resistance	EAD 040394-00-1201, Clause 2.2.3	See Annex 1
Creep strain	EAD 040394-00-1201, Clause 2.2.4	See Annex 2
Behaviour under cyclic load	EAD 040394-00-1201, Clause 2.2.5	See Annex 3
Loose bulk density	EAD 040394-00-1201, Clause 2.2.6	See Annex 1
Installation-specific density	EAD 040394-00-1201, Clause 2.2.7	No performance assessed
Shear parameter	EAD 040394-00-1201, Clause 2.2.8	See Annex 1
Basic requirement for construction works 2: Safety in case of fire		
Reaction to fire	EAD 040394-00-1201, Clause 2.2.9	See Annex 1
Basic requirement for construction works 3: Hygiene, health and environment		
Content, emission and/or release of dangerous substances	EAD 040394-00-1201, Clause 2.2.10	See Annex 1

¹ The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works are subject, as well as on the particular conditions of 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 the assumed working life.

² Standards and other documents referred to in the European Technical Assessment are listed in Annex 5.

Essential characteristic	Method of assessment	Performance
Basic requirement for construction works 4: Safety and accessibility in use		
Not relevant. No characteristic assessed.	—	—
Basic requirement for construction works 5: Protection against noise		
Not relevant. No characteristic assessed.	—	—
Basic requirement for construction works 6: Energy economy and heat retention		
Thermal conductivity	EAD 040394-00-1201, Clause 2.2.11	See Annex 4
Water absorption by total immersion	EAD 040394-00-1201, Clause 2.2.12	See Annex 4
Freeze/thaw resistance	EAD 040394-00-1201, Clause 2.2.13.1	See Annex 4
Particle size distribution	EAD 040394-00-1201, Clause 2.2.14	See Annex 4
Capillary water suction height	EAD 040394-00-1201, Clause 2.2.15	No performance assessed
Basic requirement for construction works 7: Sustainable use of natural resources		
No characteristic assessed.	—	—

3.2 Assessment methods

The assessment of the essential characteristics in Clause 3.1 of the factory made cellular glass loose fill for the intended use, and in relation to the requirements for mechanical resistance and stability, safety in case of fire, hygiene, health and environment, and energy economy and heat retention in the sense of the basic requirements for construction works № 1, 2, 3, and 6 of Regulation (EU) № 305/2011, has been made in accordance with EAD 040394-00-1201, Factory made cellular glass loose fill.

3.3 Identification

The European Technical Assessment for the factory made cellular glass loose fill is issued on the basis of agreed data³ that identify the assessed product. Changes to materials, to composition, to characteristics of the product, or to the production process could result in these deposited data being incorrect. Österreichisches Institut für Bautechnik should be notified before the changes are introduced, as an amendment of the European Technical Assessment is possibly necessary.

³ The technical file of the European Technical Assessment is deposited at Österreichisches Institut für Bautechnik.

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

4.1 System of assessment and verification of constancy of performance

According to the decision 95/467/EC⁴ of the European Commission, as amended, the system of assessment and verification of constancy of performance (see Annex V of Regulation (EU) No 305/2011) is System 1. System 1 is detailed in Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014, Annex, point 1.2., and provides for the following items.

- (a) The manufacturer shall carry out
 - (i) factory production control;
 - (ii) further testing of samples taken at the manufacturing plant by the manufacturer in accordance with the prescribed test plan⁵.
- (b) The notified product certification body shall decide on the issuing, restriction, suspension or withdrawal of the certificate of constancy of performance of the construction product on the basis of the outcome of the following assessments and verifications carried out by that body
 - (i) an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product;
 - (ii) initial inspection of the manufacturing plant and of factory production control;
 - (iii) continuing surveillance, assessment, and evaluation of factory production control.

4.2 AVCP for construction products for which a European Technical Assessment has been issued

Notified bodies undertaking tasks under System 1 shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Notified bodies shall therefore not undertake the tasks referred to in Clause 4.1, point (b) (i).

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 in the control plan deposited by the Technical Assessment Body Österreichisches Institut für Bautechnik.

The notified product certification body shall visit the factory at least once a year for surveillance of the manufacturer.

⁴ Official Journal of the European Communities L 268, 10 November 1995, p. 29

⁵ The prescribed test plan has been deposited with Österreichisches Institut für Bautechnik and is handed over only to the notified product certification body involved in the procedure for the assessment and verification of constancy of performance. The prescribed test plan is also referred to as control plan.

5.1 Tasks for the manufacturer

5.1.1 Factory production control

In the manufacturing plant, the manufacturer establishes and continuously maintains a factory production control. All procedures and specifications adopted by the manufacturer are documented in a systematic manner. Purpose of factory production control is to ensure the constancy of performances of the factory made cellular glass loose fill with regard to the essential characteristics.

The manufacturer only uses raw materials supplied with the relevant inspection documents as laid down in the control plan. The incoming raw materials are subjected to controls by the manufacturer before acceptance. Check of incoming materials includes control of inspection documents presented by the manufacturer of the raw materials.

Testing within factory production control is in accordance with the prescribed test plan. The results of factory production control are recorded and evaluated. The records are presented to the notified product certification body involved in continuous surveillance and are kept at least for ten years after the product has been placed on the market. On request, the records are presented to Österreichisches Institut für Bautechnik.

If test results are unsatisfactory, the manufacturer immediately implements measures to eliminate the defects. Products or components that are not in conformity with the requirements are removed. After elimination of the defects, the respective test – if verification is required for technical reasons – is repeated immediately.

5.1.2 Declaration of performance

The manufacturer is responsible for preparing the declaration of performance. When all the criteria of the assessment and verification of constancy of performance are met, including the certificate of constancy of performance issued by the notified product certification body, the manufacturer draws up the declaration of performance. Essential characteristics to be included in the declaration of performance for the corresponding intended use are given in Clause 3.1, Table 1.

5.2 Tasks for the notified product certification body

5.2.1 Initial inspection of the manufacturing plant and of factory production control

The notified product certification body verifies the ability of the manufacturer for a continuous and orderly manufacturing of the factory made cellular glass loose fill according to the European Technical Assessment. In particular, the following items are appropriately considered.

- Personnel and equipment
- Suitability of the factory production control established by the manufacturer
- Full implementation of the prescribed test plan

5.2.2 Continuing surveillance, assessment, and evaluation of factory production control

The notified product certification body visits the factory at least twice a year for routine inspection. In particular the following items are appropriately considered.

- Manufacturing process including personnel and equipment
- Factory production control
- Implementation of the prescribed test plan

It is verified that the system of factory production control and the specified manufacturing process are maintained, taking account of the prescribed test plan.

The results of continuous surveillance are made available on demand by the notified product certification body to Österreichisches Institut für Bautechnik. When the provisions of the European Technical Assessment and the prescribed test plan are no longer fulfilled, the certificate of constancy of performance is withdrawn by the notified product certification body.

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by Österreichisches Institut für Bautechnik

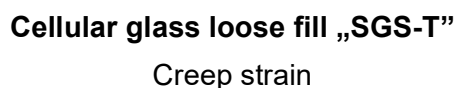
The original document is signed by

Thomas Rockenschaub
Deputy Managing Director

Essential characteristics

Essential characteristic	Performance				
Oedometer modulus	No performance assessed				
Compressive stress at 10 % deformation or compressive strength	of the dry material	No performance assessed			
	after water absorption by total immersion	No performance assessed			
	after the freezing and thaw test, wet	890 kPa			
	after the freezing and thaw test, dry	830 kPa			
Characteristic value of compressive stress or compressive strength	No performance assessed				
Crushing resistance	0.50 MPa				
Loose bulk density	164–197 kg/m³				
Aggregate density	No performance assessed				
Installation-specific density	No performance assessed				
Shear parameter	Cohesion, c'		40.0 kPa		
	Friction angle, φ'		36.6 °		
	Specimen	Shear displacement [mm]	Nominal shear stress [kN/m²]		
	1	> 35	55.7		
	2	> 50	74.1		
	3	> 80	121.1		
	4	> 90	192.4		
	5	> 95	220.7		
Reaction to fire	Class A1				
Content, emission and/or release of dangerous substances	Leachable substances	Content in solid material		Content in eluate	
		Unit	Result	Unit	Result
	Arsenic (As)	mg/kg	< 5	µg/l	66
	Lead (Pb)		17		3
	Cadmium (Cd)		< 0.2 ¹⁾		< 0.07 ¹⁾
	Chromium (total) (Cr)		14		5
	Copper (Cu)		52		18
	Nickel (Ni)		5.7		1
	Mercury (Hg)		< 0.1		<0.03 ¹⁾
	Zinc (Zn)		15		<10 ¹⁾
	¹⁾ Below limit of detection				

Essential characteristic	Performance																																								
Creep strain	Degree of compaction 1.3:1																																								
	Mean value of loose bulk density 185 kg/m ³																																								
	Mean compacted height, h ₀ 601 mm																																								
	<table border="1"> <thead> <tr> <th>Test time [days]</th><th>Initial thickness reduction, x₀ [%]</th><th>Load stage [kPa]</th><th>Total deformation, x_{total} [mm] mean</th><th>Related thickness reduction, x_{load} [%] mean</th></tr> </thead> <tbody> <tr><td>0</td><td rowspan="12">0.42</td><td rowspan="12">250</td><td>5.40</td><td>0.90</td></tr> <tr><td>1</td><td>12.04</td><td>2.00</td></tr> <tr><td>2</td><td>13.07</td><td>2.18</td></tr> <tr><td>5</td><td>14.43</td><td>2.40</td></tr> <tr><td>10</td><td>15.16</td><td>2.52</td></tr> <tr><td>15</td><td>15.40</td><td>2.56</td></tr> <tr><td>20</td><td>15.52</td><td>2.58</td></tr> <tr><td>21</td><td>15.52</td><td>2.58</td></tr> <tr><td>22</td><td>15.52</td><td>2.58</td></tr> <tr><td>23</td><td>15.52</td><td>2.58</td></tr> <tr><td>24</td><td>15.52</td><td>2.58</td></tr> </tbody> </table>	Test time [days]	Initial thickness reduction, x ₀ [%]	Load stage [kPa]	Total deformation, x _{total} [mm] mean	Related thickness reduction, x _{load} [%] mean	0	0.42	250	5.40	0.90	1	12.04	2.00	2	13.07	2.18	5	14.43	2.40	10	15.16	2.52	15	15.40	2.56	20	15.52	2.58	21	15.52	2.58	22	15.52	2.58	23	15.52	2.58	24	15.52	2.58
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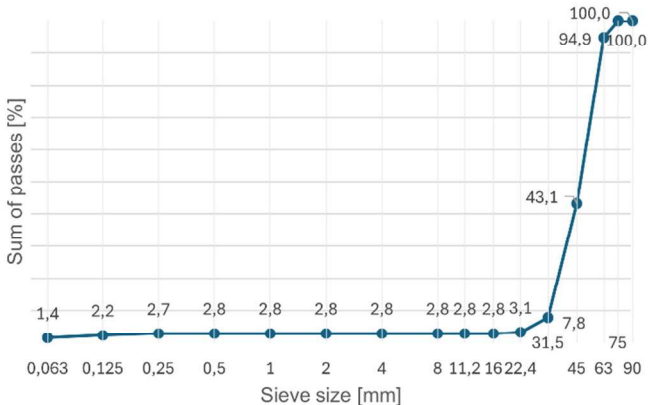


Annex 2
of ETA-24/0894 of 28.10.2024

Essential characteristics

Essential characteristic	Performance			
Behaviour under cyclic load	Degree of compaction			1.3:1
	Mean value of loose bulk density			186 kg/m³
	Mean compacted height, h ₀			602 mm
	Load stages			54/204 kPa

 PoliCell nachhaltig bauen	Cellular glass loose fill „SGS-T” Behaviour under cyclic load	Annex 3 of ETA-24/0894 of 28.10.2024
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Essential characteristics																
Essential characteristic	Performance															
Thermal conductivity	λ_D	0.085 W/(m · K)														
	Moisture correction factor, F_m	2.48														
	F_m after freeze-thaw cycles	No performance assessed														
Water absorption by total immersion	individual particles	15 %														
	compacted specimen	No performance assessed														
Freeze/thaw resistance for building applications	Water absorption by total immersion of compacted specimen after freeze/thaw cycles	38 %														
	individual particles	No performance assessed														
Freeze/thaw resistance for traffic areas	the results of building applications can be used instead															
Particle size distribution	Sieve size [mm]	0.063	0.125	0.25	0.5	1	2	4	8	11.2	16	22.4	31.5	45	63	75
	Sum of passes [M.-%]	1.4	2.2	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.1	7.8	43.1	94.9	100
	 Nominal size 10/60, maximum 15 % oversize and maximum 15 % undersize															
Capillary water suction height	No performance assessed															

 PoliCell nachhaltig bauen	Cellular glass loose fill „SGS-T” Essential characteristics	Annex 4 of ETA-24/0894 of 28.10.2024
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European Assessment Document

EAD 040394-00-1201 Factory made cellular glass loose fill

Other documents

95/467/EC	Commission decision 95/467/EC of 24 October 1995 on the procedure for attesting the conformity of construction products pursuant to Article 20 (2) of Council Directive 89/106/EEC as regards structural bearings, Official Journal of the European Communities L 268 of 10 November 1995, p. 29
305/2011	Regulation (EU) № 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, OJ L 88 of 4 April 2011, p. 5, amended by Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014, OJ L 157 of 27.05.2014, p. 76, Commission Delegated Regulation (EU) № 574/2014 of 21 February 2014, OJ L 159 of 28.05.2014, p. 41, and Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019, OJ L 169 of 15.06.2019, p. 1
568/2014	Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014 amending Annex V to Regulation (EU) № 305/2011 of the European Parliament and of the Council as regards the assessment and verification of constancy of performance of construction products, OJ L 157 of 27.05.2014, p. 76