

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-22/0569
of 23 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

SOPRA XPS AM SL
SOPRA XPS AM 500
SOPRA XPS AM 700
SOPRA XPS AM SL TB
SOPRA XPS AM 500 TB
SOPRA XPS AM 700 TB

Product family
to which the construction product belongs

Extruded polystyrene foam boards as load bearing layer
and/or thermal insulation outside the waterproofing

Manufacturer

SOPREMA SAS
14, Rue de Saint Nazaire
67025 STRASBOURG CEDEX 1
FRANKREICH

Manufacturing plant

Soprema NV
Mammoetstraat 1
B-3700 Tongeren

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

040650-00-1201

This version replaces

ETA-22/0569 issued on 14 September 2022

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English translation prepared by DIBt

- External horizontal and vertical thermal insulation of in-ground constructions in non-structural applications (also in case of groundwater)
- Inverted roof insulation (including park deck and green roof applications)

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 extruded polystyrene foam 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 040650-00-1201 "Extruded polystyrene foam boards as load bearing layer and/or thermal insulation outside the waterproofing" apply.

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire test acc. to EN ISO 11925-2:2010	Class E acc. to EN 13501-1:2007 + A1:2009

3.2 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 and aging procedure acc. EN 13164:2012+A1:2015, Annex C with deviating storage time period (sliced specimen) of (90 +2/-2) days prior to testing	
"SOPRA XPS AM SL" thickness 50 mm ≤ d ≤ 60 mm	$\lambda_{D(90d)} = 0,033 \text{ W/(m} \cdot \text{K)}$
thickness 60 mm < d ≤ 120 mm	$\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$
"SOPRA XPS AM SL TB" thickness 80 mm	$\lambda_{D(90d)} = 0,033 \text{ W/(m} \cdot \text{K)}$
thickness 80 mm < d ≤ 280 mm	$\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$

Essential characteristic	Performance
<p>"SOPRA XPS AM 500" thickness 60 mm thickness 60 mm < d ≤ 120 mm</p> <p>"SOPRA XPS AM 500 TB" thickness 100 mm thickness 100 mm < d ≤ 280 mm</p> <p>"SOPRA XPS AM 700" thickness 60 mm thickness 60 mm < d ≤ 120 mm</p> <p>"SOPRA XPS AM 700 TB" thickness 120 mm < d ≤ 280 mm</p> <p>Moisture conversion coefficient</p>	<p>$\lambda_{D(90d)} = 0,034 \text{ W/(m} \cdot \text{K)}$ $\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$</p> <p>$\lambda_{D(90d)} = 0,034 \text{ W/(m} \cdot \text{K)}$ $\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$</p> <p>$\lambda_{D(90d)} = 0,034 \text{ W/(m} \cdot \text{K)}$ $\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$</p> <p>$\lambda_{D(90d)} = 0,035 \text{ W/(m} \cdot \text{K)}$</p> <p>No performance assessed</p>
<p>Water absorption</p> <p>Long term water absorption by total immersion test acc. to EN 12087:2013 (method 2A)</p> <p>Long term water absorption by diffusion test acc. to EN 12088:2013</p>	<p>WL(T)0,7 ($W_{it} \leq 0,7 \text{ Vol.}\%$)</p> <p>WD(V)3 ($W_{dv} \leq 3,0 \text{ Vol.}\%$)</p>
<p>Freeze-thaw resistance test acc. to EN 12091</p> <p>using the wet test specimens from having done the water diffusion test in accordance with EN 12088: 2013</p> <p>single-layer boards: "SOPRA XPS AM SL", "SOPRA XPS AM 500" and "SOPRA XPS AM 700"</p> <p>multi-layer boards: "SOPRA XPS AM SL TB", "SOPRA XPS AM 500 TB" and "SOPRA XPS AM 700 TB"</p> <p>Reduction in compressive stress at 10 % deformation or in compressive strength of the re-dried specimens, when tested in accordance with EN 826:2013</p> <p>Reduction of shear strength of the re-dried specimens, when tested in accordance with EN 12090:2013</p>	<p>FTCD1 ($W_v \leq 1,0 \text{ Vol.}\%$)</p> <p>FTCD2 ($W_v \leq 2,0 \text{ Vol.}\%$)</p> <p>≤ 10 %</p> <p>≤ 10 %</p>

Essential characteristic	Performance
Reduction of tensile strength of the re-dried specimens, when tested in accordance with EN 1607:2013	$\leq 10 \%$
Water vapour diffusion resistance factor acc. to EN 12086:2013 multi-layer boards: "SOPRA XPS AM SL TB", "SOPRA XPS AM 500 TB" and "SOPRA XPS AM 700 TB"	see Annex A
Geometrical properties Thickness test acc. EN 823:2013 (clause 7.2, figure 2, measuring set-up 3) Length, width test acc. EN 822:2013 Squareness in direction of length and width; in direction of thickness test acc. EN 824:2013 Flatness in direction of length and width test acc. EN 825:2013	tolerance $\pm 2 \text{ mm}$ $\pm 8 \text{ mm}$ 5 mm/m 2 mm
Compressive stress at 10 % deformation or compressive strength test acc. to EN 826:2013 "SOPRA XPS AM SL" and "SOPRA XPS AM SL TB" "SOPRA XPS AM 500" and "SOPRA XPS AM 500 TB" "SOPRA XPS AM 700" and "SOPRA XPS AM 700 TB"	Level $\geq 300 \text{ kPa}$ $\geq 500 \text{ kPa}$ $\geq 700 \text{ kPa}$
Density test acc. to EN 1602:2013 "SOPRA XPS AM SL" and "SOPRA XPS AM SL TB" "SOPRA XPS AM 500" "SOPRA XPS AM 500 TB" "SOPRA XPS AM 700" "SOPRA XPS AM 700 TB"	density range: $32 \text{ kg/m}^3 - 36 \text{ kg/m}^3$ $35 \text{ kg/m}^3 - 41 \text{ kg/m}^3$ $37 \text{ kg/m}^3 - 43 \text{ kg/m}^3$ $39 \text{ kg/m}^3 - 47 \text{ kg/m}^3$ $44 \text{ kg/m}^3 - 48 \text{ kg/m}^3$

Essential characteristic	Performance
Deformation under specified compressive load and temperature conditions test acc. to EN 1605:2013	load: 40 kPa; temperature: $(70 \pm 1) \text{ }^\circ\text{C}$; time: $(168 \pm 1) \text{ h}$ $\leq 5 \%$
Dimensional stability under specified conditions test acc. to EN 1604:2013	temperature: $70 \text{ }^\circ\text{C}$ and 90 % R.H. DS(70,90) ($\Delta\epsilon_l \leq 5 \%$, $\Delta\epsilon_b \leq 5 \%$, $\Delta\epsilon_d \leq 5 \%$)
Tensile strength perpendicular to faces test acc. to EN 1607:2013 multi-layer boards: "SOPRA XPS AM SL TB", "SOPRA XPS AM 500 TB" and "SOPRA XPS AM 700 TB"	TR200 ($\sigma_{mt} \geq 200 \text{ kPa}$)
Shear strength test acc. to EN 12090:2013 multi-layer boards: "SOPRA XPS AM SL TB", "SOPRA XPS AM 500 TB" and "SOPRA XPS AM 700 TB"	$\geq 150 \text{ kPa}$
Volume percentage of closed cells test acc. to EN ISO 4590:2016 (method 1 with correction)	$\geq 95 \%$

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

In accordance with EAD No. 040650-00-1201, the applicable European legal acts are: 1995/467/EC and 1999/91/EC¹.

The system to be applied is:

System 3 all 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 23 November 2023 by Deutsches Institut für Bautechnik

Frank Iffländer
Head of Section

beglaubigt:
Meyer

¹ as amended

Anlage A

SOPRA XPS AM SL
SOPRA XPS AM 500
SOPRA XPS AM 700
SOPRA XPS AM SL TB
SOPRA XPS AM 500 TB
SOPRA XPS AM 700 TB

Water vapour transmission in accordance with EN 12086

SOPRA XPS AM SL TB	thickness 80 mm (2x 40 mm)	thickness 280 mm (4x 70 mm)	
sliced thickness of the specimens in mm			
Skin layer	9	10	
Adhesion layer	27	170	
Core layer	37	90	
water vapour diffusion resistance factor (mean values for the sliced thickness)			
μ_{skin}	338	244	
μ_{ad}	203	141	
μ_{core}	171	119	

SOPRA XPS AM 500 TB	thickness 100 mm (2x 50 mm)	thickness 160 mm (2x 80 mm)	thickness 280 mm (4x 70 mm)
sliced thickness of the specimens in mm			
Skin layer	10	10	10
Adhesion layer	50	34	170
Core layer	33	110	92
water vapour diffusion resistance factor (mean values for the sliced thickness)			
μ_{skin}	298	165	254
μ_{ad}	260	182	162
μ_{core}	243	169	135

SOPRA XPS AM 700 TB	thickness 120 mm (2x 60 mm)	thickness 160 mm (2x 80 mm)	thickness 280 mm (4x 70 mm)
sliced thickness of the specimens in mm			
Skin layer	10	10	10
Adhesion layer	35	34	170
Core layer	69	111	91
water vapour diffusion resistance factor (mean values for the sliced thickness)			
μ_{skin}	264	171	202
μ_{ad}	207	191	155
μ_{core}	168	197	137