

SYNTHOS XPS PRIME G 70

Extruded polystyrene board

Declaration of Performance

no. SK/PG70/2023/01

Date of compilation: 2023-04-15

1. Unique identification code of the product-type:

Synthos XPS PRIME G 70

2. Intended use:

Thermal insulation for buildings (EN 13164)

Thermal insulation for building equipment and industrial installations (EN 14307)

Thermal insulation and light weight fill products for civil engineering applications (EN 14934)

Load bearing and thermal insulation underneath foundation slabs (EAD 040650-00-1201)

External horizontal and vertical thermal insulation of in-ground construction (EAD 040650-00-1201)

Inverted roof insulation (EAD 040650-00-1201)

3. Manufacturer:

SYNTHOS Kralupy a.s.

O. Wichterleho 810

278 01 Kralupy nad Vltavou

Czech Republic

4. System of assessment and verification of constancy of performance:

System 1 – mechanical resistance and stability

System 3 – remaining characteristics

5. For intended uses covered with harmonized standard

Harmonised standards: EN 13164:2012+A1:2015; EN 14307+A:2013; EN 14934:2007

Notified Body:

Centrum stavebního inženýrství, a.s., (NB 1390)

Instytut Techniki Budowlanej (NB 1488)

Universität Stuttgart für die Materialprüfungsanstalt Universität Stuttgart (NB 0672)

für Wärmeschutz e. V. München FIW München (NB 0751)

RISE Research Institutes of Sweden AB (NB 0402)

6. For intended uses covered with European Technical Assessment

Deutsches Institut für Bautechnik issued European Technical Assessment No. 19/0250 based on the European Assessment Document EAD 040650-00-1201.

Materialprüfungsanstalt Universität Stuttgart (Notified Body No. 0672) has carried out preliminary tests of the production plant, factory production control, production stability, assessment of factory production control and issued the certificate of constancy of performance No. 0672-CPR-1181 as part of the conformity assessment system 1 for mechanical resistance and stability.

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7. Declared performances - Table no.1

Essential characteristics	Performance		Harmonized technical specification
Thermal resistance	Thermal resistance and thermal conductivity	Table no. 2, below	EN 13164:2012+A1:2015
	Thickness		
Reaction to fire	Euroclass characteristic	Euroclass E	EN 13164:2012+A1:2015
Durability of reaction to fire against heat, weathering, ageing/degradation	Durability characteristics	No change	EN 13164:2012+A1:2015
Durability of thermal resistance against heat, weathering, ageing/degradation	Thermal resistance and thermal conductivity	Table no. 2, below	EN 13164:2012+A1:2015
	Durability characteristics	DS(70,90)	EN 13164:2012+A1:2015
		DLT(2)5	EN 13164:2012+A1:2015
	Freeze-thaw resistance after long term water diffusion test	FTCD1	EN 13164:2012+A1:2015
	Freeze-thaw resistance after long term water absorption by total immersion	FTCI1	EN 13164:2012+A1:2015
Compressive strength	Compressive strength at 10% of deformation	CS(10/Y)700	EN 13164:2012+A1:2015
Tensile/flexural strength	Tensile strength perpendicular to faces	TR200	EN 13164:2012+A1:2015
Durability of compressive strength against ageing/degradation	Compressive creep	CC(2/1,5/50)250	EN 13164:2012+A1:2015
Water permeability	Long term water absorption by total immersion	WL(T)0,7	EN 13164:2012+A1:2015
	Long term water absorption by diffusion	Table no. 5, below	EN 13164:2012+A1:2015
Water vapour permeability	Water vapour transmission	NPD	EN 13164:2012+A1:2015
Release of dangerous substances to the indoor environment	Release of dangerous substances	NPD	EN 13164:2012+A1:2015
Glowing combustion	Continuous glowing combustion	NPD	EN 13164:2012+A1:2015

Reaction to fire Euroclass characteristic	Reaction to fire	Euroclass E	EN 14307:2009+A1:2013
Water permeability	Short term water absorption by partial immersion	WS(0,5)	EN 14307:2009+A1:2013
Thermal resistance	Thermal conductivity	In whole temperature service range - table no. 3	EN 14307:2009+A1:2013
	Dimensions and tolerances		EN 14307:2009+A1:2013
Water vapour permeability	Water vapour transmission properties	NPD	EN 14307:2009+A1:2013
Compressive strength	Compressive strength at 10% of deformation	CS(10/Y)700	EN 14307:2009+A1:2013
Rate of release of corrosive substances	Trace quantities of water soluble chloride ions	NPD	EN 14307:2009+A1:2013
	Trace quantities of water soluble fluoride ions	NPD	EN 14307:2009+A1:2013
	Trace quantities of water soluble silicate ions	NPD	EN 14307:2009+A1:2013
	Trace quantities of water soluble sodium ions	NPD	EN 14307:2009+A1:2013
	pH value	NPD	EN 14307:2009+A1:2013
Release of dangerous substances to the indoor environment	Release of dangerous substances	NPD	EN 14307:2009+A1:2013
Glowing combustion	Continuous glowing combustion	NPD	EN 14307:2009+A1:2013
Durability of reaction to fire against ageing/degradation and high temperature	Durability characteristics	No change	EN 14307:2009+A1:2013
	Maximum service temperature	ST(+)70	EN 14307:2009+A1:2013
Durability of thermal resistance against ageing/degradation and high temperature	Thermal conductivity	In whole temperature service range - table no. 3	EN 14307:2009+A1:2013
	Dimensions and tolerances		EN 14307:2009+A1:2013
	Durability characteristics	(a)	EN 14307:2009+A1:2013
	Maximum service temperature	ST(+)70	EN 14307:2009+A1:2013
Reaction to fire	Reaction to fire	Euroclass E	EN 14934:2007
Glowing combustion	Continuous glowing combustion	NPD	EN 14934:2007
Resistance against dynamic loads	Resistance against cyclic compressive loading	Table no. 4, below	EN 14934:2007

Water permeability	Long term water absorption by total immersion	WL(T)0,7	EN 14934:2007
	Long term water absorption by diffusion	NPD	EN 14934:2007
Release of dangerous substances to the indoor environment	Release of dangerous substances	NPD	EN 14934:2007
Thermal resistance	Thermal resistance and thermal conductivity	Table no. 2, below	EN 14934:2007
	Thickness		EN 14934:2007
Water vapour permeability	Water vapour transmission	NPD	EN 14934:2007
Compressive strength	Compressive strength at 2% of deformation	CS(2/Y)300	EN 14934:2007
	Compressive strength at 5% of deformation	CS(5/Y)600	EN 14934:2007
	Compressive strength at 10% of deformation	CS(10/Y)700	EN 14934:2007
Tensile/flexural strength	Flexural strength	BS300	EN 14934:2007
Durability of reaction to fire against heat, weathering, ageing/ degradation	-	No change	EN 14934:2007
Durability of thermal resistance against heat, weathering, ageing/degradation	Thermal resistance and thermal conductivity	Table no.2, below	EN 14934:2007
	Dimensional stability at 23°C and 90% relative humidity	NPD	EN 14934:2007
	Dimensional stability at (70 °C)	NPD	EN 14934:2007
	Dimensional stability at 70°C and 90% relative humidity	DS(TH)	EN 14934:2007
	Deformation under specific conditions of compressive load of 40 kPa and at temperature of 70°C	DLT(2)5	EN 14934:2007
	Freeze-thaw resistance	FTC1	EN 14934:2007
Durability of compressive strength against ageing/ degradation	Compressive creep	CC(2/1,5/50)250	EN 14934:2007
	Freeze-thaw resistance	FTC1	EN 14934:2007
Durability of resistance	Resistance to cyclic	Table no.4, below	EN 14934:2007

against dynamic loads	compressive load		
Durability of resistance against chemical and biological agents	-	NPD	EN 14934:2007
Mechanical resistance and stability	Compressive strength at 10% of deformation	40 mm – NPD 50-100 mm: CS(10/Y)700	EAD 040650-00-1201
	Slip deformation	NPD	EAD 040650-00-1201
	Compressive strength in the transverse and longitudinal directions	NPD	EAD 040650-00-1201
	Characteristic value of compressive stress or compressive strength – 5% fractile value for a one-sided confidence level of 75% under unknown or known variance	NPD	EAD 040650-00-1201
	Compressive creep	40 mm – NPD 50-100 mm: CC(2/1,5/50)250	EAD 040650-00-1201
	Behaviour under shear load	NPD	EAD 040650-00-1201
	Creep under shear load	NPD	EAD 040650-00-1201
	Creep under combined compressive and shear load	NPD	EAD 040650-00-1201
	Compressive modulus of elasticity	NPD	EAD 040650-00-1201
	Adhesion behaviour under compressive and shear load	NPD	EAD 040650-00-1201
	Shear strength	NPD	EAD 040650-00-1201
	Density	NPD	EAD 040650-00-1201
Safety in case of fire	Reaction to fire	Euroclass E	EAD 040650-00-1201
Energy economy and heat retention	Thermal conductivity	Table no. 6, below	EAD 040650-00-1201
	Moisture conversion coefficient	NPD	EAD 040650-00-1201
	Long term water absorption by total immersion	40 mm – NPD 50-100 mm: WL(T)0,7	EAD 040650-00-1201
	Long term water absorption by diffusion	Table no. 7, below	EAD 040650-00-1201

	Freeze-thaw resistance after long term water diffusion test	40 mm – NPD 50-100 mm: FTCD1	EAD 040650-00-1201
	Reduction in compressive stress at 10% of deformation or in compressive strength of the re-dried specimens	NPD	EAD 040650-00-1201
	Water vapour diffusion resistance factor	NPD	EAD 040650-00-1201
	Geometrical properties - thickness	NPD	EAD 040650-00-1201
	Geometrical properties – length, width	NPD	EAD 040650-00-1201
	Geometrical properties – squareness	NPD	EAD 040650-00-1201
	Geometrical properties – flatness	NPD	EAD 040650-00-1201
	Deformation under specific conditions of compressive load of 40 kPa and at temperature of 70°C	40 mm – NPD 50-100 mm: DLT(2)5	EAD 040650-00-1201
	Dimensional stability at 70°C and 90% relative humidity	40 mm – NPD 50-100 mm: DS(70,90)	EAD 040650-00-1201
	Compressive strength at 10% of deformation	40 mm – NPD 50-100 mm: CS(10/Y)700	
	Tensile strength perpendicular to faces	NPD	EAD 040650-00-1201
	Density	NPD	EAD 040650-00-1201
	Volume content of closed cells	NPD	EAD 040650-00-1201

- (a) According to B appendix to EN 14307+A:2013, the declared values of thermal resistance factor (as in table 2) comprise changes of thermal conductivity of Synthos XPS PRIME G in time.

Table no. 2. Heat values for particular thickness

Thickness In the class of tolerance T1 [mm]	Coefficient of thermal conductivity λ_D [W/mK]	Thermal resistance R_D [m ² K/W]
40	$\leq 0,033$	$\geq 1,20$
50	$\leq 0,034$	$\geq 1,45$
60	$\leq 0,034$	$\geq 1,75$
80	$\leq 0,034$	$\geq 2,35$
100	$\leq 0,035$	$\geq 2,85$

Table no 3. Heat values for particular thickness in whole temperature service range

Thickness In the class of tolerance T1 [mm]	Coefficient of thermal conductivity λ_D [W/mK] at -60°C	Coefficient of thermal conductivity λ_D [W/mK] at +10 °C	Coefficient of thermal conductivity λ_D [W/mK] at +70 °C
40	0,026	0,033	0,040
50	0,027	0,034	0,040
60	0,027	0,034	0,040
80	0,027	0,034	0,040
100	0,027	0,035	0,045

Table no. 4. Resistance against cyclic compressive loading

Thickness [mm]	Resistance against cyclic compressive loading using square - wave load: 5% deformation after 2×10^6 cycles	Resistance against cyclic compressive loading using sinusoid - wave load: 5% deformation after 2×10^6 cycles
40	CLRT(5/2×10⁶)600	CLR(5/2×10⁶)600
50	CLRT(5/2×10⁶)560	CLR(5/2×10⁶)560
60	CLRT(5/2×10⁶)530	CLR(5/2×10⁶)530
80	CLRT(5/2×10⁶)470	CLR(5/2×10⁶)470
100	CLRT(5/2×10⁶)440	CLR(5/2×10⁶)440

Table no. 5. Long term water absorption by diffusion for particular thickness

Thickness [mm]	Long term water absorption by diffusion
40	WD(V)3
50	WD(V)3
60	WD(V)2
80	WD(V)2
100	WD(V)1

Table no. 6. Heat values for particular thickness

Thickness [mm]	Coefficient of thermal conductivity λ_D [W/mK]	Thermal resistance R_D [m ² K/W]
50	$\leq 0,034$	$\geq 1,45$
60	$\leq 0,034$	$\geq 1,75$
80	$\leq 0,034$	$\geq 2,35$
100	$\leq 0,035$	$\geq 2,85$

Table no. 7. Long term water absorption by diffusion for particular thickness

Thickness [mm]	Long term water absorption by diffusion
50	WD(V)3
60	WD(V)2
80	WD(V)2
100	WD(V)1

The performance of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Chairman of the Board



David Pohl

Kralupy nad Vltavou, 2023-04-15