

SYNTHOS XPS PRIME S 30 IR

Extruded polystyrene board

Declaration of Performance

no. SK/PS30R/2017/01

Date of compilation: 2017-04-15

1. Unique identification code of the product-type:

Synthos XPS PRIME S 30 IR

2. Intended use:

Thermal insulation for buildings

Thermal insulation for building equipment and industrial installations

Thermal insulation and light weight fill products for civil engineering applications.

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 3, in case reaction to fire – system 4

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

Notified Body:

Centrum stavebního inženýrství, a.s., (number 1390): EN 13164:2012+A1:2015

Instytut Techniki Budowlanej (number 1488): EN 14307+A:2013; EN 14934:2007

6. 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 F	EN 13164:2012+A1:2015
Durability of reaction to fire against heat, weathering, ageing/degradation	Durability characteristics	No change	EN 13164:2012+A1:2015

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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 ($\leq 5\%$)	EN 13164:2012+A1:2015
	Freeze-thaw resistance after long term water diffusion test	Table no. 3, below	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)300 (≥ 300 kPa)	EN 13164:2012+A1:2015
Tensile/flexural strength	Tensile strength perpendicular to faces	TR400 (≥ 400 kPa)	EN 13164:2012+A1:2015
Durability of compressive strength against ageing/degradation	Compressive creep	CC(2/1,5/50)110 (Value not exceeding 1,5 % for compressive creep and 2 % for total thickness reduction after extrapolation at 50 years under a declared stress of 110 kPa)	EN 13164:2012+A1:2015
Water permeability	Long term water absorption by total immersion	WL(T)0,7 ($\leq 0,7\%$)	EN 13164:2012+A1:2015
	Long term water absorption by diffusion	Table no. 4, below	EN 13164:2012+A1:2015
Water vapour permeability	Water vapour transmission	MU150	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 F	EN 14307:2009+A1:2013
Water permeability	Short term water absorption by partial immersion	WS(1,0) ($< 1,0$ kg/m ³)	EN 14307:2009+A1:2013
Thermal resistance	Thermal conductivity	In whole temperature service range - table no. 5	EN 14307:2009+A1:2013
	Dimensions and tolerances		EN 14307:2009+A1:2013

Water vapour permeability	Water vapour transmission properties	MU150	EN 14307:2009+A1:2013
Compressive strength	Compressive strength at 10% of deformation	CS(10/Y)300 ≥300 kPa	EN 14307:2009+A1:2013
Rate of release of corrosive substances	Trace quantities of water soluble chloride ions	CL(27) (<27 ppm)	EN 14307:2009+A1:2013
	Trace quantities of water soluble fluoride ions	F(5) (<5 ppm)	EN 14307:2009+A1:2013
	Trace quantities of water soluble silicate ions	SI(27) (<27 ppm)	EN 14307:2009+A1:2013
	Trace quantities of water soluble sodium ions	NA(5) (<5 ppm)	EN 14307:2009+A1:2013
	pH value	PH7 (7,0 ± 0,5)	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 (70°C)	EN 14307:2009+A1:2013
Durability of thermal resistance against ageing/degradation and high temperature	Thermal conductivity	In whole temperature service range - table no. 5	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 (70°C)	EN 14307:2009+A1:2013
Reaction to fire	Reaction to fire	Euroclass F	EN 14934:2007
Glowing combustion	Continuous glowing combustion	NPD	EN 14934:2007
Resistance against dynamic loads	Resistance against cyclic compressive loading	Table no. 6, below	EN 14934:2007
Water permeability	Long term water absorption by total immersion	WL(T)0,7 (≤ 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)100 (≥100 kPa)	EN 14934:2007
	Compressive strength at 5% of deformation	CS(5/Y)200 (≥200 kPa)	EN 14934:2007
	Compressive strength at 10% of deformation	CS(10/Y)300 (≥300 kPa)	EN 14934:2007
Tensile/flexural strength	Flexural strength	Table no. 7, below	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.7, 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 (≤5%)	EN 14934:2007
	Freeze-thaw resistance	Table no.8, below	EN 14934:2007

Durability of compressive strength against ageing/ degradation	Compressive creep	CC(2/1,5/50)110 (Value not exceeding 1,5 % for compressive creep and 2 % for total thickness reduction after extrapolation at 50 years under a declared stress of 110 kPa)	EN 14934:2007
	Freeze-thaw resistance	Table no.8, below	EN 14934:2007
Durability of resistance against dynamic loads	Resistance to cyclic compressive load	Table no.6, below	EN 14934:2007
Durability of resistance against chemical and biological agents	-	NPD	EN 14934:2007

- (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 S 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	$\leq 0,032$	$\geq 1,25$
50	$\leq 0,032$	$\geq 1,55$
60	$\leq 0,032$	$\geq 1,85$
70	$\leq 0,032$	$\geq 2,15$
80	$\leq 0,034$	$\geq 2,35$
100	$\leq 0,034$	$\geq 2,85$
120	$\leq 0,034$	$\geq 3,50$

Table no. 3. Freeze-thaw resistance for particular thickness

Thickness [mm]	Freeze-thaw resistance – declared level
40	FTCD4
50	FTCD3
60	FTCD2
70	FTCD2
80	FTCD2
100	FTCD1
120	FTCD1

Table no. 4. Long term water absorption by diffusion for particular thickness

Thickness [mm]	Long term water absorption by diffusion – declared level
40	WD(V)3
50	WD(V)3
60	WD(V)3
70	WD(V)3
80	WD(V)3
100	WD(V)2
120	WD(V)2

Table no. 5. 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	0,025	0,032	0,040
50	0,025	0,032	0,040
60	0,025	0,032	0,040
70	0,025	0,032	0,040
80	0,027	0,034	0,040
100	0,027	0,034	0,045
120	0,027	0,034	0,049

Table no. 6. 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)220	CLR(5/2×10⁶)195
50	CLRT(5/2×10⁶)200	CLR(5/2×10⁶)180
60	CLRT(5/2×10⁶)180	CLR(5/2×10⁶)165
70	CLRT(5/2×10⁶)170	CLR(5/2×10⁶)155
80	CLRT(5/2×10⁶)160	CLR(5/2×10⁶)150
100	CLRT(5/2×10⁶)140	CLR(5/2×10⁶)125
120	CLRT(5/2×10⁶)135	CLR(5/2×10⁶)120

Table no. 7 Flexural strength for particular thickness

Thickness [mm]	Flexural strength – declared level	Flexural strength – value of pressure [kPa]
40	BS500	≥ 500
50	BS400	≥ 400
60	BS300	≥ 300
70	BS300	≥ 300
80	BS300	≥ 300
100	NPD	
120	NPD	

Table no. 8. Freeze-thaw resistance for particular thickness

Thickness [mm]	Freeze-thaw resistance – declared level
40	FTC4
50	FTC3
60	FTC2
70	FTC2
80	FTC2
100	FTC1
120	FTC1

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



Jolanta Brudnicka

Kralupy nad Vltavou, 2017-04-15