

Product Data Sheet

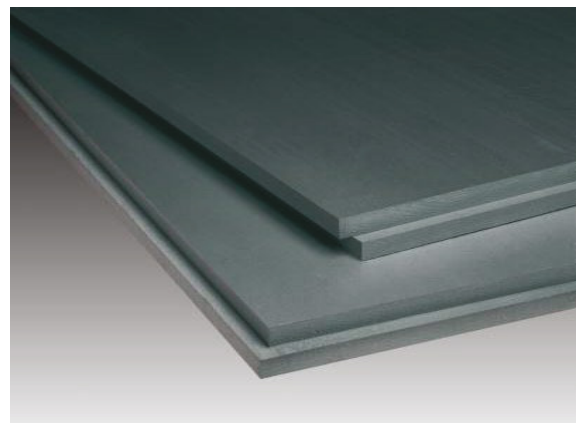
HYTHERM ULTRA XPS Insulation - Inverted

High performance insulation for inverted roof constructions

Axter Hytherm Ultra XPS is a high performance, flame retarded, extruded polystyrene XPS insulation board, designed for the thermal insulation and frost protection of inverted flat roofs, roof terraces, green and blue roofs and car parks.

Its significantly improved lambda performance minimises the thickness of insulation required to achieve performance requirements of specific applications and allows greater design flexibility.

The insulation boards are grey with a smooth skin on both surfaces and are used in conjunction with the Axter water flow reducing layer. Infra-red particles are finely dispersed and incorporated into the extruded cell walls. These lead to reduced heat transfer to keep a building warm in winter and cool in summer.



Key benefits

- Low thermal conductivity minimising board thickness needed to achieve a specific U-value and increasing design flexibility, including lower parapet heights
- High compressive strength
- Negligible moisture uptake
- Resistant to high loads
- Flame retarded, enhancing safety and protection on construction projects.
- Environmental credentials: GWP (Global Warming Potential) <5; ODP (Ozone Depletion Potential) zero.
- Simple installation with hand tools, odourless and dust-free
- Manufactured in accordance with BS EN 13164, ISO 14001 and ISO 9001
- BREEAM Green Guide Rating A+; Environmental Product Declaration EPD-EXI-20190112-IBE1-EN
- BBA Approved

Use

Hytherm Ultra XPS is designed for use as insulation on inverted roofs and its significantly improved lambda performance minimises the thickness required to satisfy thermal performance and strength requirements for the lifetime of the structure. This allows greater design flexibility with demanding project specifications.

The boards are robust and highly resistant to the conditions often present on a flat roof, including wide temperature fluctuations and repeated freeze/thaw cycles.

Its low water absorption, natural resistance to rain, snow, frost and water vapour, makes Hytherm Ultra XPS an exceptionally stable material retaining its initial insulation performance and physical integrity in exposed conditions over a long period.

Hytherm Ultra XPS is intended for use on heavyweight decks such as reinforced concrete with a ballast layer of gravel or concrete slab. It can also be used with a vapour permeable separation layer and this combination helps to minimize the heat loss due to rainwater cooling and therefore the amount of insulation required.

These insulation boards are compatible with most construction materials, e.g. lime, cement, plaster, solvent-free bitumen compounds, water-based preservatives, anhydrous gypsum, alcohols, acids and alkalis. The use of solvent-free adhesives is advised; please contact Axter Ltd for more information on compatibility. Certain organic materials such as solvent-based wood preservatives, coal tar and derivatives (creosote), paint thinners and common solvents (acetone, ethyl acetate, petrol, toluene and white spirit for example) will attack Hytherm Ultra XPS which could lead to loss of performance through softening, shrinkage and possible dissolution.

Polystyrene products will melt when brought into direct contact with high temperature heat sources. The recommended maximum continuous working temperature for Hytherm Ultra XPS boards is 75°C.

Durability

When properly installed, Hytherm Ultra XPS boards have a service life similar to that of the building or structure.

Environmental

Hytherm Ultra XPS is non bio-degradable and does not present an environmental hazard. The material can be recycled, disposed of as landfill or incinerated to recover the energy content.

Fire

Hytherm Ultra XPS contains a flame retardant additive to inhibit accidental ignition from a small fire source. However, it is combustible and if exposed to an intensive fire may burn rapidly. During shipment, storage, installation and use, therefore, Hytherm Ultra XPS should not be stored close to open flames or other ignition sources or come into contact with volatile organic compounds and chemicals such as solvents. During installation Hytherm Ultra XPS products should be protected from direct exposure to fire. Hytherm Ultra XPS achieves Euroclass E (reaction to fire); fire classification is based on small scale tests which may not reflect the reaction of the product in its end use state under actual fire conditions.

Handling and Storage

Hytherm Ultra XPS is lightweight and easy to handle and install. The product must be protected from prolonged exposure to sunlight to prevent degradation of the surface of the board.

Axter Water Flow Reducing Layer (WFRL)

The Axter water flow reducing layer is a high performance spun bonded polyethylene geotextile, which helps to minimise heat loss caused by rainwater cooling and consequently the thickness of insulation required.

fx=0.001 drainage correction for the system incorporating the Axter WFRL.

Nominal characteristics	
Roll size	Length 100m Width 3m
	Length 50m Width 1.5m
	300m ² 75m ²
Water vapour resistance (MN.s.g ⁻¹)	0.17
Head of water test	No penetration
Mass per unit area (g.m ⁻²)	60
Lap joints unsealed	300mm

HYTHERM ULTRA XPS – PRODUCT DATA

Standard Thicknesses & Characteristics

Thickness (mm)	λ design W/mk	R Wm2K/W	U0.18 W/m20.15K	Length (mm)	Width (mm)	Compressive strength (kPa)
205	0.028	7.32	0.13	1250	600	300
175	0.028	6.25	0.15	1250	600	300
145	0.028	5.18	0.18	1250	600	300
130	0.028	4.74	0.20	1250	600	300
105	0.028	3.75	0.25	1250	600	300

Hytherm Ultra XPS is supplied as a lap jointed board

Standard Thicknesses & Pack/Bulk Sizes

Thickness (mm)	Length (mm)	Width (mm)	Boards / pack	Packs /Bulk*	m ³ / pack	m ² / pack
205	1250	600	2	48	0.308	1.50
175	1250	600	2	56	0.263	1.50
145	1250	600	3	48	0.326	2.25
130	1250	600	3	56	0.293	2.25
105	1250	600	4	48	0.315	3.00

*HYTHERM ULTRA XPS is packed on bearers in 2400 x 2500 x 2600mm bulk packs as standard.

HYTHERM ULTRA XPS – TECHNICAL DATA

Extruded polystyrene foam XPS (EM13164) – grey colour

Property ¹	Measure unit	Value	Standard	EN code
Thermal Conductivity				
Declared thermal conductivity ¹ Design thermal conductivity Thickness: 70 – 205mm	W/mK	0.027 0.028	BS EN 13164	λD
Dimensions and tolerances				
Length	mm	1250	BS EN 822	-
Width	mm	600	BS EN 822	-
Thickness	mm	105 - 205	BS EN 823	T1
Mechanical Properties				
Compressive strength or compressive stress at 10% deformation (90 days)	kPa	300	BS EN 826	CS(10Y)
Compressive creep (design load) max 2% deflection after 50 years ²	kPa	110	BS EN 1606	CC(2/1.5/50) _{oc}
Hygrometric properties				
Long term water absorption by immersion (28 days)	Vol-%	≤0.7	BS EN 12087	WL(T)
Long term water absorption by diffusion dN ≥50mm to <80mm	Vol-%	≤2	BS EN 12088	WD(V)
Long term water absorption by diffusion dN ≥80mm	Vol-%	≤1	BS EN 12088	WD(V)
Water vapour diffusion resistance factor μ	-	150	EN ISO 10456	MU
Freeze/thaw after 300 cycles	Vol-%	≤1	BS EN 12091	FTCD

Property ¹	Measure unit	Value	Standard	EN code
Dimensional stability under specified temperature and humidity conditions	%	≤5	BS EN 1604	DS(70,90)
Deformation under specified compressive load and temperature conditions	%	≤5	BS EN 1605	DLT(2)5
Other properties				
Reaction to fire	-	E	BS EN 13501-1	Euroclass
Linear thermal expansion coefficient	mm/m.K	0.07	-	-
Maximum service temperature	°C	-50 / +75	-	-
Capillarity	-	0	-	-
Density (typical)	kg/m ³	32	BS EN 1602	-
Colour	-	Grey	-	-
Surface finish	--	Skin	-	-
Edge profile		Shiplap	-	-
Designation code: T1-CS(10\Y)300-CC(2/1,5/50)110-DS(70,90)-DLT(2)5-WL(T)0.7-WD(V)1,2,32-FTCD1				

¹ The properties refer to thickness ranges mentioned in the table.

² Depends on thickness

Material to be stored inside in original packaging, away from direct sunlight or heat sources.
For further information, contact Axter Ltd.

The manufacturer reserves the right without prior notice to modify the composition of these products. Characteristics provided in this publication derive from data obtained under controlled test conditions. Axter Ltd makes no warranties, express or implied, as to the properties and performance under any variations from such conditions in actual construction. It is the purchaser's responsibility to ensure that this product is suitable for the application required and to ensure that site work and installation conform with current legislation.