

Product Data Sheet

HYTHERM ECO XPS

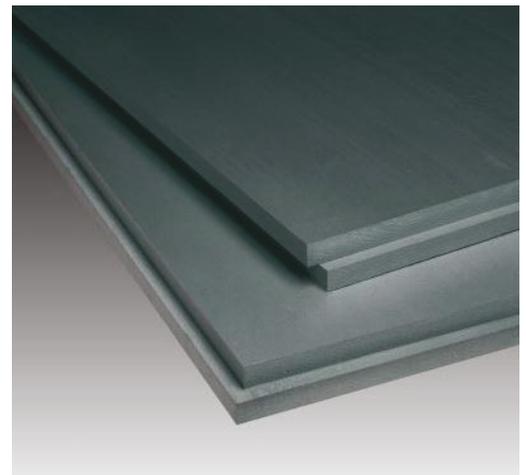
Insulation for Inverted Roofs

Axter Hytherm ECO XPS is a lightweight, durable, rigid extruded polystyrene XPS insulation board, designed specifically for roofing applications and used in conjunction with the Axter water flow reducing layer. It is available in a range of thicknesses to meet the performance requirements of specific applications.

The insulation boards are grey with a smooth skin on both surfaces. 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: closed cell structure gives greater rigidity and high resistance to compression.
- Low water absorption: natural resistance to rain, snow, frost and water vapour, makes Hytherm ECO XPS an exceptionally stable material retaining its initial insulation performance and physical integrity in exposed conditions over a long period.



- High resistance to temperature fluctuations and repeated freeze/thaw cycles.
- Flame retarded, enhancing safety and protection on construction projects.
- Rigid boards provide firm base for ballast layer (gravel or concrete slabs).
- Low susceptibility to rot, resulting in minimised mould or fungal growth.
- User-friendly: easy to install with hand tools, odourless and dust-free.
- Manufactured in accordance with BS EN 13164, ISO 14001 and ISO 9001. BBA approved.
- Environmental Product Declaration: EPD-EXI-20190112-IBE1-EN
- BRE Green Guide Rating A+. Ref: www.greenbooklive.com BRE Certificate of Validation No. 508e
- GWP (Global Warming Potential) = <5; ODP (Ozone Depletion Potential) = zero.
- HYTHERM ECO XPS is tested to ETAG 031 and can be used in a green roof application.

Use

Hytherm ECO XPS is designed for use as insulation on inverted roofs and to satisfy thermal performance and strength requirements of demanding project specifications for the lifetime of the structure.

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.

Hytherm ECO 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.

Hytherm ECO XPS has attained a Green Guide Rating A+ by BREEAM and provides insulation that enables the constructions of energy efficient buildings.

These insulation boards are compatible with most construction materials, e.g. lime, cement, plaster, solvent-free bituminous 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 ECO XPS which could lead to loss of performance through softening, shrinkage and possible dissolution.

Durability

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

Environmental

Hytherm ECO 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 ECO 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 and installation and use, therefore, Hytherm Eco 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 ECO XPS products should be protected from direct exposure to fire.

Hytherm ECO XPS achieves Euroclass E (reaction to fire) to standard BS EN 13501-1: 2007+A1: 2009: Fire classification of construction products and building elements. Classification using test data from reaction to fire tests.

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 ECO 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 (300m ² *) or Length 50m Width 1.5m (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

* not allowing for overlap (300mm)

HYTHERM ECO XPS – PRODUCT DATA

Thickness	Declared thermal resistance	Length	Width	Compressive strength
(mm)	(RD) - m ² K/W	(mm)	(mm)	(kPa)
205*	6.60	1250	600	300
200	6.45	1250	600	300
180	5.80	1250	600	300
160	5.15	1250	600	300
140	4.50	1250	600	300
120	3.85	1250	600	300
100	3.20	1250	600	300

Thickness	Declared thermal resistance	Length	Width	Compressive strength
(mm)	(RD) - m ² K/W	(mm)	(mm)	(kPa)
80	2.60	1250	600	300
50	1.65	1250	600	300

Hytherm ECO XPS is supplied as a lap jointed board.
*Contact Axter for availability of 205mm thickness insulation board.

Properties	Measure unit	Value	Standard	EN code
Dimensions and tolerances				
Length	mm	1250	BS EN 822	
Width	mm	600	BS EN 822	
Thickness	mm	50, 80,100, 120,130,140, 160, 180, 200, 205	BS EN 823	T1
Mechanical Properties				
Compressive strength or compressive stress at 10% deformation	kPa	300	BS EN 826	CS(10\Y)
Compressive creep max after 50 yrs <2% deformation under stress	kPa	130	BS EN 1606	CC(2/1.5/50) _{o_c}
Hygrometric properties				
Long term water absorption by total immersion (28 days)	Vol-%	< 0.7	BS EN 12087	WL(T)
Water pick up by diffusion	%	< 2 50 < 80mm < 1 ≥ 80mm	BS EN 12088	WD(V)

Properties	Measure unit	Value	Standard	EN code
Water pick up after Freeze Thaw	%	<1	BS EN 12091	FTCD
Thermal Conductivity				
Design thermal conductivity Thickness: 50mm 75mm - 205mm	W/mK	0.031 0.032	BS EN 13164	λu
Other properties				
Reaction to fire	-	E	BS EN 13501-1	Euroclass
Linear thermal expansion coefficient (typical)	mm/m.K	0.07		
Temperature limits	°C	-50 /+75		
Dimensional stability 70°C & humidity 90%rh	%	< 5	BS EN 1604	DS (70,90)
Density (typical)	kg/m ³	34	BS EN 1602	
Colour		Grey		
Surface finish		Skin		
Edge profile		Shiplap		
EN designation code: T1-CS(10\Y)300-CC(2/1.5/50)110 ² -WL(T)0.7-WD(V)1,2 ³ -FCTD1-DS(70,90)-DLT(2)5				

Thickness (mm)	50	80	100	120	130	140	160	180	200	205
R _D [m ² .K/W]	1.65	2.60	3.20	3.55	4.20	4.50	5.15	5.80	6.45	6.60

Thermal resistance - thickness dependant.

1 N/mm²= 10³ kPa = 1MPa

For further information, contact Axter Ltd.

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