



Eurothane[®] PL

Product Guide

Insulated Plasterboard Laminate for use in Internal Thermal Dry Linings.

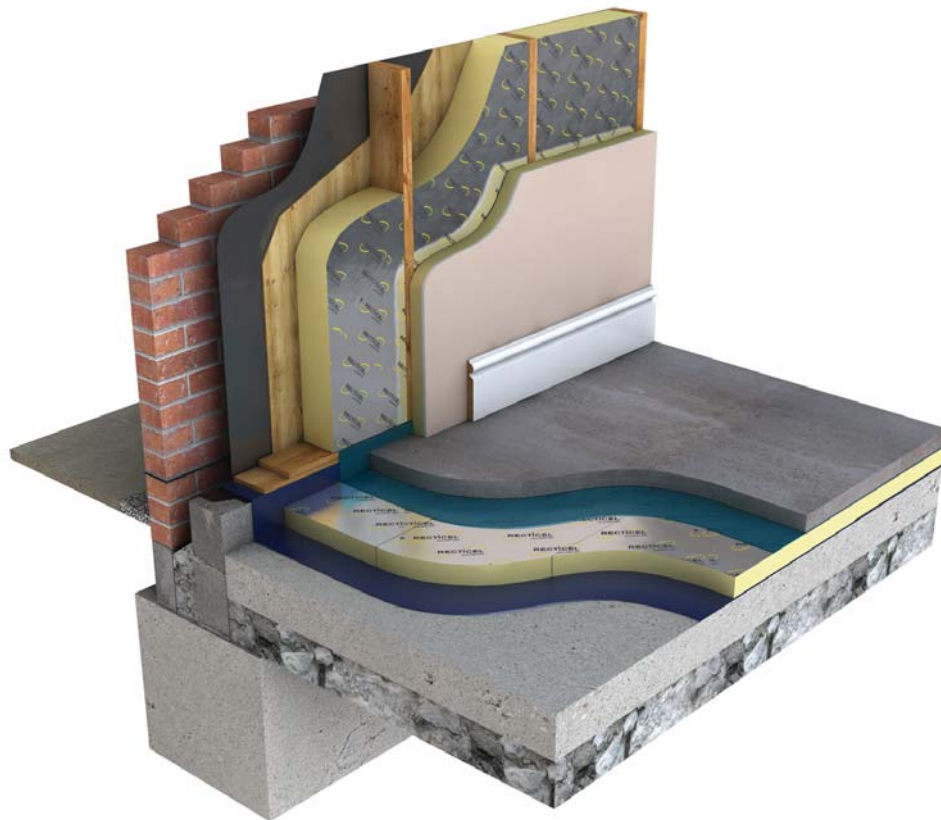
...a better way

Introduction

The Company.

Driven by a culture of innovation, technical competence and flair, Recticel Insulation Products is dedicated to raising the standard of quality of insulation products in the UK.

Recticel Insulation, based at its new state-of-the-art facility in Stoke-on-Trent, is part of the International Recticel Group, one of the world's largest producers of PIR insulation products. At Recticel Insulation, quality is at the heart of everything we do. Striving for excellence in quality of both product and service, Recticel Insulation will raise the standards and product demands of the customer by delivering to the UK unparalleled PIR product and service quality. Our mission is, to demonstrate that, on all levels, Recticel Insulation will continue to deliver **'a better way'** of Insulation.





Insulation for Thermal Dry Lining.

Eurothane PL is a high performance rigid polyisocyanurate (PIR) foam board with factory bonded plasterboard on one side.

Description.

Eurothane PL is a closed cell, CFC and HCFC-free (zero ozone depletion), rigid polyisocyanurate foam core faced, both sides, with a multi-layer kraft and aluminium foil, with plasterboard bonded to one side. The core has an exceptionally low thermal conductivity of 0.022 W/mK, the plasterboard 0.170W/mK.

Benefits of Eurothane PL thermal dry lining boards:

Wider choice.

Eurothane PL, is available in a wide range of thicknesses, which will assist in meeting the appropriate Building Regulation standard with any form of wall or roof construction.

Quality.

Outstanding product quality manufactured to ISO 9001 Quality Systems.

Ozone friendly.

Zero ozone depletion potential.

Global warming.

CFCs, HCFCs and HFCs are all powerful greenhouse gases. Pentane on the other hand satisfies the "Green Guide to Specification" and the Intergovernmental Panel on Climate Change (IPCC) confirming a Global Warming Potential of below 5.

All our products have a global warming potential of below 5.

Low thermal conductivity.

The declared thermal conductivity value of the insulation at 0.022 W/mK is some 30% more efficient than most other insulation materials, the plasterboard 0.170W/mK.

Reduced risk of condensation.

Condensation within the buildings structure is avoided as the board provides vapour resistance and removes thermal bridging of structural components

Handling.

Eurothane PL is lightweight yet tough and resilient. The boards are easily cut using a knife or fine-toothed saw.

Durability.

Eurothane PL boards are rot-proof, durable and maintenance free. All of our products carry the CE Mark to show compliance with the harmonised European Standard BS EN 13165.

Fire Performance.

The fire performance of Eurothane PL is designated as Class 0

Installation

Installation

The method of installation and fixing is determined by the nature of the existing wall and the required level of fixing, in some cases a mechanical fixing may be required.

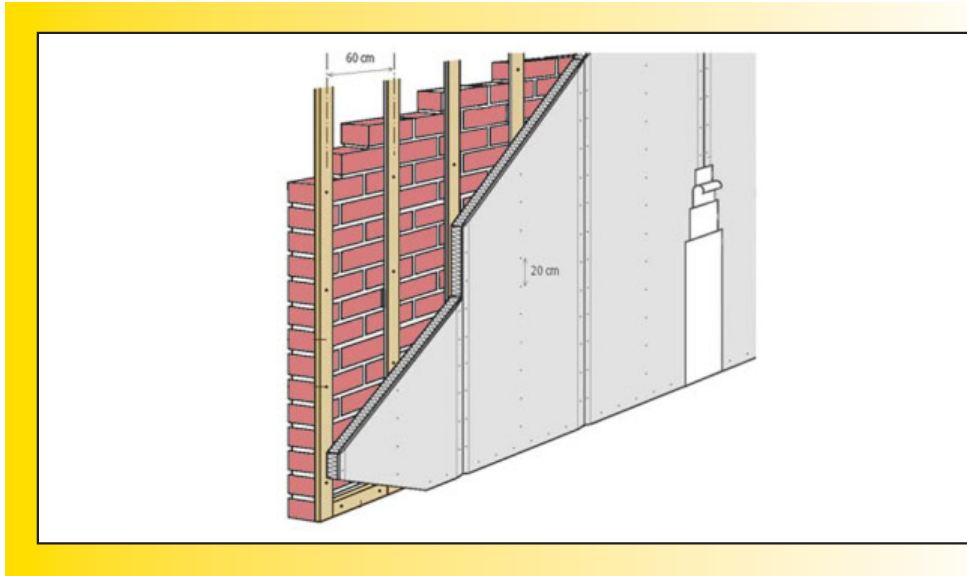
Eurothane PL boards can be used for walls, ceilings and partitions. For partitions the boards are directly fixed on to the timber structure.

When used as an internal thermal dry lining the Eurothane PL insulation boards can be adhered directly on the wall with gypsum based adhesive.

Eurothane PL boards should be placed approximately 1 cm from the finished floor level, this is to avoid moisture absorption by the gypsum panel. If the boards have to be placed in direct contact with the ground floor the bottom edge of the board should be isolated with a Damp Proof Membrane.



Mechanically Fixed - Figure 1.



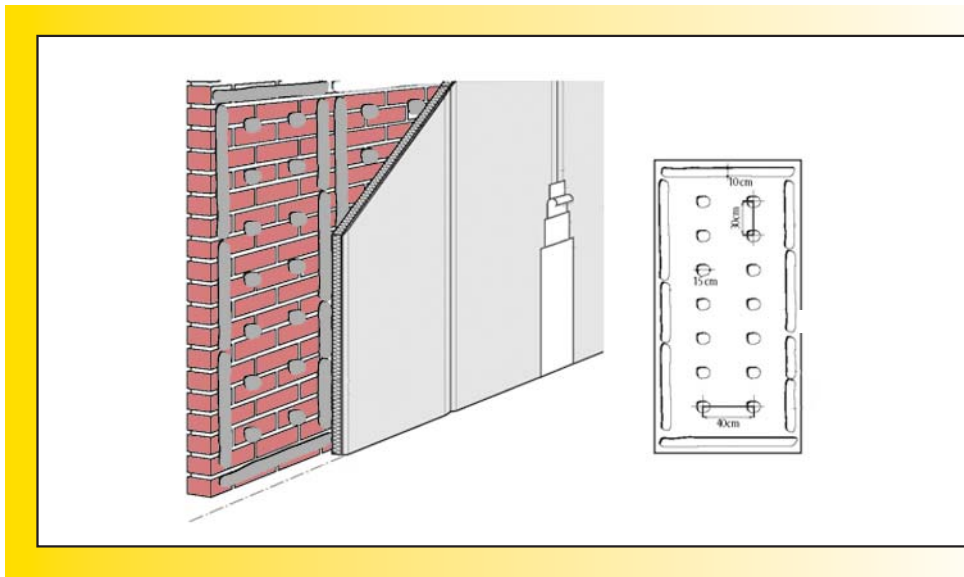
Fixing to a timber structure:

- 1) The supporting structure should be structurally rigid and not allow more deflection than 1/300th of the span.
- 2) The structure should use straight and dry timbers. The studs should be finished on the side against which the Eurothane PL panels are placed. The studs should not be treated with preservative products which may affect the fixings or the insulation.
- 3) Eurothane PL panels have a higher rigidity in the longitudinal direction than in the transverse direction. The batten spacing therefore should not exceed 600mm centres.
- 4) Fixing of Eurothane PL panels on to the timber structure should be completed with plasterboard screws. Screw fixing allows for the boards to be fixed tightly against the structure and reduces the possibility of the boards being able to flex.
- 5) The minimum distance from the screw to the edge of the Eurothane PL panels is 10mm. For horizontal or hand sawn edges a minimum distance of 15 mm should be kept. The maximum distance between screws is 250 mm (200 mm for nails).
- 6) The screws or nails should always penetrate the board perpendicularly and be driven in until the screw heads flush with the gypsum board. The screw shank should not penetrate all the way through the wooden battens, a minimum fix of 20mm in to the structure is required.

Note: Eurothane PL panels should be stored flat and protected from moisture.

Installation

Adhered Application - Figure 2.



Fixing with gypsum adhesive:

- 1) The support should be such that the gypsum plaster adheres well.
- 2) Eurothane PL insulation panels can be adhered without any special precautions to gypsum panels, facing bricks, moderately absorbent bricks/blocks, and concrete.
- 3) Highly absorbent bricks/blocks need to be pre moistened. Gypsum plaster blocks, strong gypsum plastering and smooth concrete should be pre-treated with a primer.
- 4) The possibility of bonding to paint or waterproofed surfaces depends on the condition and the nature of the applied products.
- 5) It is important that the water in the gypsum adhesive should be able to dissipate after bonding. This means that Eurothane PL panels with vapour barrier should never be glued onto a vapour-tight surface. Eurothane PL panels should not be finished vapour-tight before the adhesive has completely dried. Adhering to very wet surfaces should be avoided. Do not bond at temperatures lower than 5 degrees C or on to frozen surfaces.
- 6) Before applying adhesive to the wall, remove all, grease, dust, wallpaper and loose plaster. Completely dry surfaces should be moistened at least 15 minutes before bonding. Existing fixed gypsum panels should not be moistened.
- 7) The application of adhesive is by plastering trowel. Plugs of adhesive are placed over the full panel surface. The plugs and strips have a width of 40 to 80 mm and a thickness of 5 to 40mm. The plugs in the middle of the panels are a little thicker than others. The distance between the vertical strips and the edges of the Eurothane PL panels is between 10 and 100mm after installation.
- 8) To fix the Eurothane PL panel you should start in one corner. Place the panel in position, and check for level. Use a wooden batten and rubber mallet to bed the board. Do not hit the panels directly with the mallet. The next panel can be placed and levelled using a straight edge.
- 9) Additional mechanical fixings may be required to help secure the Eurothane PL whilst adhesive cures in certain circumstances.

Note: Eurothane PL panels should be stored flat and protected from moisture.

Cutting.

Cutting of Eurothane PL panels:

Thin Eurothane PL boards can be cut with a universal knife. Cutting this way the insulation should be fully cut through and the plasterboard scored. The panel can then be broken, once broken the front paper then can be cut to separate.

- 1) Thicker Eurothane PL panels are usually sawn by circular saw or handsaw.
- 2) When a strip of insulation has to be removed typically for cable conduit, the insulation material should be cut through, without cutting the gypsum board, the insulation is then removed using a filling-knife

To remove a strip of gypsum board:

- 1) A "V" shape cut is made ensuring that the backing paper of the gypsum board is not cut.
- 2) The strip of gypsum board can be removed by using a filling knife.

To drill the Eurothane PL panels, preferably use metal cutting drills. If a cut or sawn edge needs to be reworked, a plane rasp can be used.

Installation

Jointing.

Once all Eurothane PL panels are installed, filling can start, the Ideal room temperature of 20 degrees C and relative humidity of 60%. The mixing of filling plaster should not be done at temperatures below 5 degrees C. Also, do not mix more joint filler than you can use in 30 to 40 minutes.

Tapered Edges:

- 1) The first layer of joint filler is used to close all gaps between the panels and to retouch possible damage. This should be done with a 100 mm wide filling-knife.
- 2) After full hardening of the gap filler (approx 2 hours) fill the bulk of the joint. In the wet plaster a strip of joint scrim is laid and pushed in.
- 3) The displaced plaster is smoothed over the scrim tape with a wide plastering trowel so that the joint surface is flat.
- 4) Finally, once this last layer has hardened, a plaster skim coat is applied. The surface of the board is now flat.
- 5) After drying (approx 10 hours) any irregularities can be sanded away with dry sandpaper.

Internal Corners:

- 1) Apply joint filling material to both edge surfaces.
- 2) Apply the joint scrim tape as described above. Cover both sides with plaster. Do this for a width of approximately 100 mm along both sides.
- 3) Sand and apply a skim coat plaster so that it passes approximately 50 mm past the fill layer.

External Corners:

- 1) A metal corner bead is used instead of a joint scrim tape.
- 2) First of all the joint filler is applied on both wall surfaces with the help of an angle trowel for external angles to a width of 50 mm on each side of the corner.
- 3) Then the corner bead is pressed into the plaster. Excess plaster is removed before a plaster filling coat is applied to a width of approximately 200 mm on either side of the corner.
- 4) Sand flat and apply a plaster skim coat so that it passes approximately 50mm past the filling layer.

Square Edges:

- 1) The crosscut edges of the Eurothane PL boards are not tapered. A taper of 100mm on either side of the joint should be made in order that the joint filler can be applied.
- 2) Finishing is completed in the same way as detailed for tapered edges.

Note: Nail and screw holes should also be finished with two layers of joint filler.

Heat Loss Calculations.

The method of calculating U-values is the Combined Method (see BS EN ISO 6946:2007) which as well as assessing the thermal bridge effect of mortar joints, timber studs etc also accounts for air gaps in the insulation and mechanical fasteners penetrating the insulation.

305mm Brick / Block Cavity - Internal Lining	
Eurothane PL Thickness (mm)	U-Value (W/m ² K)
37.5mm - 25mm Insulation	0.19
52.5mm - 40mm Insulation	0.17
57.5mm - 45mm Insulation	0.16
62.5mm - 50mm Insulation	0.157
67.5mm - 55mm Insulation	0.15
77.5mm - 65mm Insulation	0.146

103mm Brickwork, 50mm Cavity (Low E Cavity = 0.600m²K/W), 50mm Eurowall Cavity, 100mm Blockwork (0.110) 15mm Plaster Dabs Cavity, Eurothane PL Board, 2mm Plaster Skim.

Stainless Steel Cavity Wall Ties, Thermal Conductivity 17W/mK, 2.5 Per m², Cross Section 12.5mm.

Timber Frame Wall	
Eurothane PL Thickness (mm)	U-Value (W/m ² K)
37.5mm - 25mm Insulation	0.21
52.5mm - 40mm Insulation	0.18
57.5mm - 45mm Insulation	0.17
62.5mm - 50mm Insulation	0.167
67.5mm - 55mm Insulation	0.16
77.5mm - 65mm Insulation	0.15

103mm Brickwork, 50mm Cavity, Breather Membrane, 9mm OSB, Timber Studs 100 x 50mm (15% Bridging) 100mm Eurothane GP Between Studs, Eurothane PL Board.

Technical Details

Eurothane PL board is available in the following dimensions:

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	37.5, 52.5, 57.5, 62.5, 67.5, 77.5

Specifications Clause.

The thermal dry lining insulation shall be mm thick Recticel Eurothane PL CFC and HCFC-free, rigid PIR foam with a multi-layer kraft and aluminium foil, facing to both sides with 12.5mm tapered edge plasterboard factory bonded. Insulation to be installed as work proceeds in accordance with Recticel Insulation Products instructions.

Eurothane Eurothane PL Designation Code.

PUR – EN 13165

Compressive Strength.

The compressive strength exceeds 140kPa at yield. (Insulation board only)

Thermal Conductivity.

The declared thermal conductivity, λ_D -value of Eurothane PL is 0.022 W/mK for the insulation when tested using BS EN 13165: 2001 and 0.170 for the plasterboard.

Moisture Vapour Transmission.

The foil faces of the Eurothane PL board give it an almost infinite water vapour resistance value. The joints between boards however will facilitate the passage of moisture vapour under normal conditions of temperature and humidity; a practical value for the moisture vapour resistance of the system is 100 MNs/g.

Specific Heat Capacity.

The specific heat capacity is 1.4 kJ/kgK.

Durability..

When correctly installed, Eurothane PL boards are maintenance free.

Storage.

Eurothane PL boards are supplied wrapped in polythene to provide short term protection. On site the boards should be stored in dry conditions, clear of the ground, on a clean level surface.

Reaction to Fire.

Euroclass F (BS EN 13501-1) Insulation
Class 0 (BS 476 Part 6 & Part 7) Plasterboard



Health and Safety.

Eurothane PL boards are inherently safe to handle. During cutting or machining any dust generated is of nuisance value only. Large scale machining should be connected to a dust extraction system. Ensure care is taken to avoid skin and eye contact with any sharp edges. Do not stand on or otherwise support your weight on this board unless it is fully supported by a load bearing surface. A comprehensive Health and Safety data sheet is available from Recticel Insulation Products upon request.

References.

The Building Regulations and supporting documents.
Thermal Insulation: avoiding risks.
Limiting Thermal Bridging and Air Leakage: Robust Construction Details for Dwellings and Similar Buildings (DTLR/DEFRA).
CIBSE Guide A3 - Thermal Properties of Building Structures.
BS 5250:2002 Code of Practice for Control of Condensation in Buildings.
BS 8000 Workmanship on Building Sites.
BRE Digests, Information Papers and Good Building Guides

Contact Details.

Technical Desk Freephone 0800 0854079
Email: technicalservices@recticel.com

The information, technical details and other instructions included in this literature are correct at the time of publication and apply to the uses described. Heat loss calculation figures quoted are for guidance only. A detailed U-value calculation together with condensation risk analysis should be completed for each individual project. Please contact Recticel Insulation Technical Service Department for assistance.

Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, contact Recticel Insulation Technical Service Department for assistance.

Recticel Insulation Ltd. reserves the right to amend product specifications without prior notice.



Recticel Insulation Products
Enterprise Way,
Whittle Road,
Meir Park,
Stoke-on-Trent.
ST3 7UN

Technical Desk Freephone 0800 0854079
Email: technicalservices@recticel.com

t 01782 590470
f 01782 590497
www.recticelinsulation.co.uk

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