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- ✓ ISO 9001

POLYSHEET[®]
External Insulated Cladding



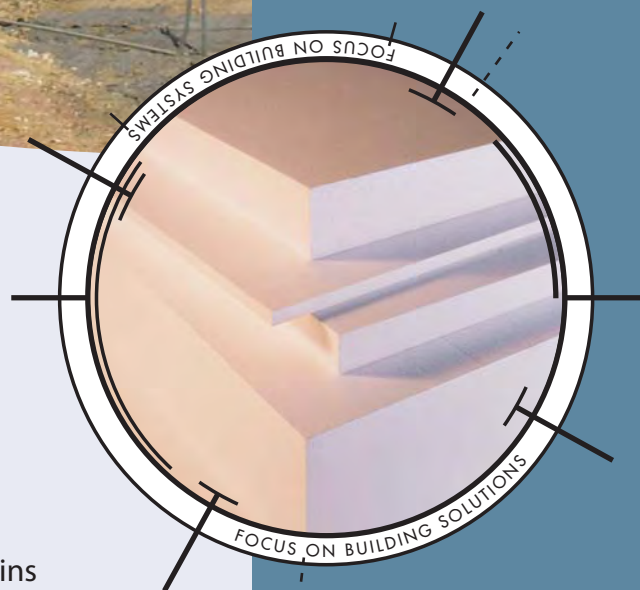
POLYSHEET[®]

Common Applications:

- Residential Building
- Insulation material for floors - ceilings - walls
- Insulation under concrete floors
- Formwork material for creative architects
- Model making, Signs and Protective Packing

Key product features of POLYSHEET[®]

- ✓ Thermal and compressive performance
- ✓ Durability
- ✓ Accoustic properties
- ✓ Resistant to fungi and bacteria
- ✓ Earth-friendly
- ✓ Easily sealed with fibreglass and pre-coloured resins



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PRODUCT INFORMATION

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General Description

POLYSHEET® manufactured by Austral Insulation is an expanded polystyrene foam (EPS), a rigid thermoplastic, with a cellular structure, comprising closed cell polystyrene beads fused together to form a block composed of approximately 98% by volume of air and 2% solid polystyrene. POLYSHEET® is ideally suited to meeting the performance requirements of the Building Code of Australia Acceptable Solutions H1/AS1: Energy Efficiency. With characteristics compatible with virtually all building materials, POLYSHEET® provides the versatility, design and cost advantages that other materials cannot offer.

The excellent insulating properties of POLYSHEET® are due to still air in the closed cell structure being the ideal insulant, aided by the material's high resistance to the diffusion of water.

POLYSHEET® is easily cut by knife, saw or hot-wire, making accurate straight cuts and complicated profiles very easy to achieve. It is strong, lightweight and clean to handle.

These properties, coupled with moderate cost, make POLYSHEET® an ideal low temperature insulant, and many years of reliable service have established the material as a leader in this field.

POLYSHEET® is chemically neutral and does not dissolve in water. EPS samples being tested since the mid-1950's display no evidence of decay or deterioration.

Standard sheet sizes

Stock sizes vary according to the thickness:

Up to 5400x1200mm

Up to 4800x1200mm

POLYSHEET® is available in thicknesses from 10mm to 600mm. Non standard thicknesses and sheet sizes are readily available on application.

Light Weight

POLYSHEET® has an extremely low density, with a cubic metre typically weighing between 15kg and 28kg, depending upon the grade required.

Thermal Performance

POLYSHEET® provides an economical and efficient means of insulating timber stud, steel stud, concrete and masonry buildings.

- Because POLYSHEET® is often used on the outside of the wall, stud cavities are maintained closer to room temperature, reducing the risk of surface and cavity condensation. Thermal mass advantages of concrete and masonry walls are improved.

- POLYSHEET® has the following Thermal Conductivity (k-value) @ a reference temperature of 15°C.

S-grade k = 0.038 W/mK

H-grade k = 0.036 W/mK

VH-grade k = 0.034 W/mK

The Thermal Resistance (R-value) varies linearly with thickness Fig.1

Compressive Performance

POLYSHEET® is ideal for underfloor insulation in both commercial coldstore and normal domestic applications. All coldstores require a vapour barrier to protect the POLYSHEET® underfloor insulation. A damp-proof membrane is recommended in domestic flooring situations.

Current test data indicates that POLYSHEET® will undergo an elastic compressive strain of approximately 1.5% when subjected to compressive loads for a 50 year period.

Effect of Moisture

POLYSHEET® is generally resistant to moisture gain. However, moisture content will affect the thermal performance of any insulating material. For POLYSHEET®, there is a linear relationship between Thermal Resistance (R-value) loss and moisture content increase by volume. There is an approximate 2.5% loss of R-value per 1% moisture content by volume increase (up to 20% m.c. by volume). For example, POLYSHEET® that has a 2% moisture content by volume, will have 95% of it's 'dry' R-value. It is recommended that an effective vapour barrier be provided in situations where significant moisture content increases are likely to occur.

Durability

POLYSHEET® will last the life of the buildings in which it is correctly used. EPS has been produced and processed for over 50 years.

Resistance to Fungi and Bacteria

Fungus attack has not been observed on POLYSHEET®, and it does not support bacterial growth. Surface spoilage (spilt softdrink, sugar, etc.) can however supply the nutrient for fungus and/or bacteria.

Chemical Properties

- POLYSHEET® is resistant to virtually all aqueous media including dilute acids and alkalis. In addition, it is resistant to water-miscible alcohols such as methanol, ethanol and i-propanol, and also to silicone oils.
- POLYSHEET® has limited resistance to paraffin oil, vegetable oils, diesel fuel and vaseline. These substances may attack the surface of POLYSHEET® after long-term contact. POLYSHEET® is not resistant to hydrocarbons, ketones and esters.
- Prolonged exposure to UV light causes yellowing and embrittlement on the surface of EPS.

Earth-Friendly POLYSHEET®

- POLYSHEET® uses no CFC's or ozone depleting gases in manufacture.
- No reports have ever been received of any harmful effects on health that could be due to a causal relationship with POLYSHEET®.
- POLYSHEET® does not degrade into harmful substances or contaminate ground water.

In terms of global warming, POLYSHEET® plays a positive role in reducing carbon dioxide emissions. For each kilogram of oil used in the manufacture of POLYSHEET® insulation, savings of up to 200kg of heating fuel can be made over the average life of a house.

Fig.1 Thermal performance

R-value (m ² K/W) - excluding surface resistance			
POLYSHEET® thickness	S-grade	H-grade	VH-grade
20mm	0.53	0.56	0.59
40mm	1.05	1.11	1.18
50mm	1.32	1.39	1.47
60mm	1.58	1.67	1.76
75mm	1.97	2.08	2.21
100mm	2.63	2.78	2.94