

Product Description and Features

Permalite® Al sulfate-125® is an insulated panel system, combining the corrosion resistance of marine grade aluminium with the exceptional thermal properties of a sandwich panel. The clever composite panel design incorporates both roofing and a prefinished ceiling to provide outstanding watertightness, durability and stunning aesthetics.

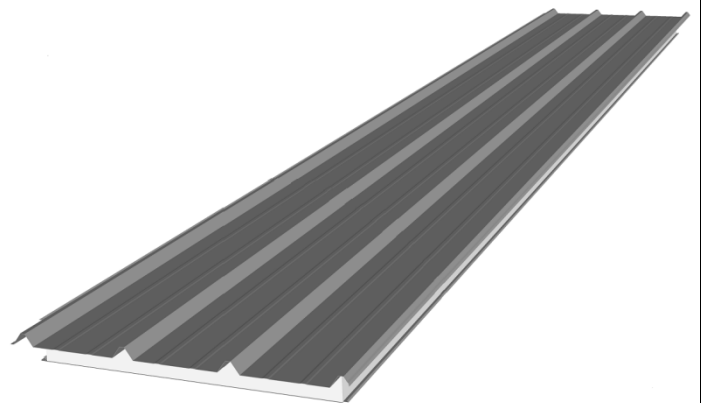
The self-mating panels, with their large free span capacities combine to provide a clean crisp uninterrupted ceiling finish, reducing the number of unsightly support beams normally associated with traditional roofing methods.

Al sulfate-125® insulated roof panels are easily incorporated into all forms of construction with the added benefit of meeting the building regulations insulation requirements. With its unrivalled sustainability and durability credentials, ALSULATE-125® makes it easy to specify roofing for your next project.

Other features include:

- Insulation ratings of R3.4 Winter and R3.3 Summer
- Can be used for both roofing and walling applications
- Marine grade aluminium top and bottom skins
- High strength / light weight
- May be used in roof pitches as low as 1 degree (1 in 57)
- Free spans of up to 6.4m

Thickness (BMT): 0.70mm top and bottom skins
 Length Range: 2.0m to 14.0m
 Pan Cross Section area: 30,537mm²/metre sheet width
 Tolerances: Length +0mm, -15mm
 Width ±2.0mm
 Finishes: Painted



Colour Availability

The following Permalite® standard polyester paint colours are applied to the coiled sheet by reverse roller coating and heat curing on BlueScope paint lines employing the latest painting technology.

| | | | |
|-----------|-----------------|---------------|--------------------|
| | TOP SKIN | | BOTTOM SKIN |
| Gull Grey | | Glacier White | |



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Other colours/ fluorocarbon paints are available upon request and subject to MOQ's.

Design and Installation

Permalite® Alsulate-125® span capacity tables are based on data in accordance with AS/NZS 1170.2:2002 Structural design actions – Wind actions. Wind classes nominated are in accordance with AS4055-2012 Wind loads for housing.

These tables and all installation data/details can be found in the Permalite® Aluminium Alsulate-125® Roofing Panels manual, available for download at www.permalite.com.au.

Profile Properties

| Thickness (mm) | kg/m ² Cover width (Paint finish) | kg/m Length (Paint finish) | m ² /tonne (Paint finish) |
|-------------------|--|----------------------------|--------------------------------------|
| 0.7 (top skin) | 6.423 | 6.423 | 156 |
| 125 (EPS) | | | |
| 0.7 (bottom skin) | | | |

Material Specification

The top and bottom skins of Permalite® Alsulate-125® is produced from marine grade aluminium 5251 and 5052 H38 temper to AS/NZS 1734:1997 Aluminium and aluminium alloys – Flat sheet, coiled sheet and plate.

The 125mm EPS (expanded polystyrene) foam core is produced in accordance with the following standards:

AS 2498.3-1993 Methods of testing rigid cellular plastics – Determination of compressive stress

AS 2498.4-1993 Methods of testing rigid cellular plastics – Determination of cross-breaking strength

AS 2498.5-1993 Methods of testing rigid cellular plastics – Determination of water vapour transmission rate

AS 2498.6-1993 Methods of testing rigid cellular plastics – Determination of dimensional stability

AS 2464.5-1985 Methods of testing thermal insulation – Steady-state thermal transmission properties by means of the heat flow meter

AS 2464.6-1983 Methods of testing thermal insulation – Steady-state thermal transmission properties by means of the guarded hot plate

AS 2122.1-1993 Combustion characteristics of plastics - Determination of flame propagation - Surface ignition of vertically oriented specimens of cellular plastics

Chemical Composition of 5251 and 5052 (% max except where range is given)

| Alloy | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Others | |
|-------|------|------|------|-----------|-----------|-----------|------|------|--------|-------|
| | | | | | | | | | Each | Total |
| 5251 | 0.40 | 0.50 | 0.15 | 0.10-0.50 | 1.70-2.40 | 0.15 | 0.15 | 0.15 | 0.05 | 0.15 |
| 5052 | 0.25 | 0.40 | 0.10 | 0.10 | 2.20-2.80 | 0.15-0.35 | 0.10 | 0.15 | 0.05 | 0.15 |

Characteristics of 5251 & 5052

Corrosion Resistance: Excellent

Anodising: Fair (finish cannot be guaranteed to meet the requirements of AS 1231:2000 Aluminium and Aluminium Alloys – Anodised Coatings for Architectural Applications)

Formability: Very Good

Machinability: Fair



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Weldability: Very Good
 Brazeability: Poor

Alloy Mechanical Properties

The following properties are typical of mill finish, unpainted sheet.

| Alloy | 5251 | 5052 |
|---------------------------------|------|------|
| Temper | H38 | H38 |
| Minimum Yield Strength (Mpa) | 225 | 220 |
| Ultimate Tensile Strength (MPa) | 260 | 270 |
| Elongation (0.70 BMT) | 3% | 3% |
| Elongation (0.90 BMT) | 4% | 4% |
| Elongation (1.20 BMT) | 4% | 4% |

EPS Foam Core Properties

| Physical Property | Unit | Class | | | | | | Test Method |
|---|----------|-------|------|-------------|-----|------|------|-----------------------|
| | | L | SL | S | M | H | VH | |
| Compressive stress at 10% deformation min. | kPa | 50 | 70 | 85 | 105 | 135 | 165 | AS2498.3 |
| Cross - breaking strength; min. | kPa | 95 | 135 | 165 | 200 | 269 | 320 | AS2498.4 |
| Rate of water vapour transmission; max. - measured parallel to rise at 23°C | µg/m²s | 710 | 630 | 580 | 520 | 460 | 400 | AS2498.5 |
| Dimensional stability of length; max.: at 70°, dry conditions: 7 days | per cent | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | AS2498.6 |
| Thermal resistance (min.) at a mean temperature of 25°C (50mm sample) | m²K/W | 1.0 | 1.13 | 1.17 | 1.2 | 1.25 | 1.28 | AS2464.5 or AS 2464.6 |
| Flame propagation characteristics: | | | | | | | | AS2122.1 |
| - median flame duration; max. | seconds | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| - eighth value; max. | seconds | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| - median volume retained; | per cent | 15 | 18 | 22 | 30 | 40 | 50 | |
| - eighth value; min. | per cent | 12 | 15 | 19 | 27 | 37 | 47 | |

Thermal Properties

Coefficient of thermal expansion: 23.9×10^{-6} per °C (approximately 1.17mm/m over 50°C temperature change).