



Overview

Polynum Reflective Insulation combines thermal reflective layers of pure aluminium foil with a series of multi or single layered inner core compositions. Suitable for commercial, industrial, residential and agricultural roofs, ceilings, walls and suspended floors.

Product Description

Polynum insulation blankets are comprised of a nominal 4-16 mm thick and 1200 mm wide fire retardant polyethylene bubble film or cross linked XPE fire retardant foam layer between two layers of reflective and low-emittance aluminium foil, which reflects up to 95-97% of radiant heat. One side of *Polynum* is treated with a light coating to reduce glare during installation. *Polynum* products are used for roofs, ceilings, walls and suspended floors.

Polynum provides effective energy efficiency without creating human or environmental risks associated with airborne fibres or Volatile Organic Compounds.

Polynum is safe to handle, no protective equipment such as gloves or breathing apparatus is required. The products are fibre free, non itchy and non cancerous. *Polynum* is also water proof which ensures no moisture retention, no fungi or bacterial growth.

PRODUCT SPECIFICATIONS

Options	Product variations:	antiglare, reinforcing net, triplex, self adhesive
	<i>Polynum One</i> - One aluminium foil layer covering a single core layer of bubble film	
	Roll Size:	1.2m x 30m (36m ²)
	Thickness:	4mm
	Heat Resistance (R-value): 1.54 m ² ·°C/W Typical Rt (AS/NZ 4589.1)	
	<i>Polynum Super</i> - Aluminium foil layers covering both sides of a single core layer of bubble film	
	Roll Size:	1.2m X 60m (72m ²)
	Thickness:	4mm
	Heat Resistance (R-value): 2.98 m ² ·°C/W Typical Rt (AS/NZ 4589.1)	
	<i>Polynum Double</i> - Aluminium foil layers covering both sides of a double core layer of bubble film	
	Roll Size:	1.2m X 40m (48m ²)
	Thickness:	8mm
Heat Resistance (R-value): 3.06 m ² ·°C/W Typical Rt (AS/NZ 4589.1)		
<i>Polynum Big</i> - Aluminium foil layers covering both sides of a double core layer of large bubble film		
Roll Size:	1.2m X 30m (36m ²)	
Thickness:	8mm	
Heat Resistance (R-value): 3.06 m ² ·°C/W Typical Rt (AS/NZ 4589.1)		



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	<p>Polynum Multi - Aluminum foil layers covering both sides of a double core layer of bubble film with middle layer of thermal break XPE foam</p> <p>Roll Size: 1.2m X 30m (36m²)</p> <p>Thickness: 9mm</p> <p>Heat Resistance (R-value): 3.16 m²·°C/W Typical Rt (AS/NZ 4589.1)</p> <p>Polynum Ultra – Aluminium foil layers covering both sides of a double core layer of large bubble film encasing additional reflective surfaces inside airtight cells</p> <p>Roll Size 1: 1.2m X 20m (24m²)</p> <p>Thickness: 16mm</p> <p>Heat Resistance (R-value): 3.72 m²·°C/W - Under roof (Heat flow down)*</p> <p>1.46 m²·°C/W - Under roof (Heat flow up)*</p> <p>2.10 m²·°C/W - Wall cavity</p> <p>*Only these R-values have been verified. Tested according to ASTM C 1363.</p> <p>R-values of reflective insulation are largely influenced by the volume of air space provided on either side of the insulation surfaces, and therefore R-values provided should be used as a guide only and are calculated based on typical construction practices and minimum air spaces.</p>	
Colours	Side 1: Silver (pure aluminium foil)	Side 2: Silver or antiglare (pure aluminium foil or, with anti-glare coating)
Warranty	7 to 25 years	
Expected Life	Residential Min 15 years and up	Commercial Min 7 years and up
Indicative Costs	Cost of Supply \$3.00 USD/m ² to \$15 USD/m ²	Cost of Installation \$0.50 USD/m ² to \$2.00 USD/m ²
Purchase Options	E-Commerce: www.refelctive-foil-insulation.com	
Constituents	<p><i>Polynum One</i>: approx 10% Aluminium – 90% polyethylene</p> <p><i>Polynum Super</i>: approx 10% Aluminium – 90% Polyethylene</p> <p><i>Polynum Double</i>: approx 10% Aluminium - 80% Polyethylene</p> <p><i>Polynum Multi</i> : approx 10% Aluminium – 70% Polyethylene, 20% XPE</p> <p><i>Polynum Big</i>: approx 10% Aluminium – 90% Polyethylene</p> <p><i>Polynum Ultra</i>: approx 15% Aluminium – 85% Polyethylene</p>	



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National International Standards	& AS 4859.1 (Thermal insulation standard) AS 1530.2 (flammability index) AS 1530.3 (ignitability index) AS 1530.3 (spread of flame index) AS 1530.3 (heat evolved index) AS 1530.3 (smoke developed index) AS 3837:1998 (BCA fire classification) ASTM E-84 Class 1 (Flame and smoke compliances) BS 476 Part 6 & 7: Class 1 & Class 0 DIT 478 (Spain Technical Approval) AS 4201.1 (dry delamination) AS 4859.1 App1 (wet delamination) AS 4859.1 App1 (surface corrosion) ASTM E408 (emittance) ASTM C518 (thermal resistance) ASTM C1136 (tensile strength) ASTM E96 method A (vapour transmission) ASTM C1338 (fungal growth)
Country of Origin	Thailand
Preparation	Installation of <i>Polynum</i> should be executed in accordance with the relevant building system specification. It is the responsibility of the installers to observe and comply with any relevant occupational health and safety requirements.

ECOSPECIFIER LIFE-CYCLE ASSESSMENT

INTEGRATED DESIGN AND POLICY ISSUES

Product is designed to replace fibre-based batts, blanket and sarking in one application. Product performs as a thermal insulation, vapour barrier and can be used as a thermal break.

Insulative performance is somewhat dependent on minimum air space dimensions (preferably over 20mm) adjacent to the outer surfaces and installation context. Reflective and hybrid insulation values should be quoted in the context of the building element as it is not the material itself which provides the thermal resistance but the impact of the low emittance surface that reduces heat flows across an air space.

It is important that penetrations through the foil (e.g. plumbing pipes or electrical cables) are taped and that the joins in the foil are taped. If air can leak from one air space to the next, the heat flow by convection 'short circuits' the reduced radiant heat flow caused by the reflective foil, substantially reducing its effect.

Reducing heating and cooling loads of buildings contributes to reductions in energy consumption and associated greenhouse gas emissions, through reduced need for air conditioning, and hence reduced plant size and operating costs. Reduced re-radiation from surfaces exposed to direct sun will also support staff comfort and increase productivity.



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HUMAN HEALTH

Health

Products are manufactured with the benign polymer polyethylene without the use of formaldehyde (as some fibreglass and rockwool products are). As such, the products are able to provide energy efficiency without creating human health risks associated with airborne fibres or VOC emissions.

The antiglare coating contains a very small percentage (1/1000 of a gram per m²) of chemicals which in its raw form prior to manufacture is hazardous. However, after the ink is applied the product passes through a lamination process at approx 250°C which disperses this solvent, therefore there is no further odour or off-gassing once manufactured.

OH&S safety precautions should be taken during manufacture process to eliminate the risk.

Comfort

R-Values indicate that this system will reduce solar heat gain, particularly radiant gain, while also providing conductional resistance through the multi-layer polymer closed air cell structure. The thermal benefits achieved by these products result in a reduction in radiated heat transfer and in the demand for air conditioning and heating. This will potentially lead to improved individual thermal comfort levels, promoting a healthy indoor environment.

Indoor Environment Quality

Finished products do not emit VOCs, improving indoor air quality.

Electromagnetic Radiation

Not Applicable

Safety

Products are a fibre-free, non-allergenic and non-itchy insulation system, eliminating health or occupational health and safety risks to the occupants or installers.

Accessibility

Not Applicable



ECOLOGICAL QUALITY

The raw material extraction and production processes associated with aluminium production may have local adverse landscape, vegetation, aquatic, atmospheric and biodiversity impacts. However, only a small volume of aluminium is used in the products and this is somewhat offset early in the products' life by improved thermal performance and pollution minimisation.

Terrestrial Pollution

Emissions – There are minor toxic emissions to land in the production of the constituent materials localised around production facilities during the production of the constituent materials.

Physical – Polyethylene is petrochemical based, and will therefore have limited physical pollution due to oil extraction.



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Aquatic Pollution

Emissions – Ethylene is produced in the initial production stage of polyethylene and the emissions to water consist of methanol and butane. The production of these products does not produce waste water. There is no pollution of water or groundwater.

Physical – The petrochemical portion of polyethylene results in potential sea pollution in the extraction or spilling of oil. Other aquatic emissions include methanol and butane in the production of ethylene.

Atmosphere Pollution

Greenhouse (GHG) – The raw materials fabrication, especially aluminium, are associated with high GHG emissions. However, the aluminium content is integral to the products performance yet it comprises a small percentage of the overall product

Greenhouse intensity ~ *Polynum One/Super*: 0.68 kgCO_{2e}/m²

Polynum Multi/Double: 1.00 kgCO_{2e}/m²

Polynum Ultra: 1.21 kgCO_{2e}/m²

Calculation is based on data sourced from Bath University, UK.

Transport intensity – Product is manufactured in Israel. GHG intensities for shipping product are shown below.

Product Weight	Energy Intensity – Container Shipping	GHG Intensity – Container Shipping
Average Roll Weight – 16 kg	0.000135MJ / kg.km	0.000011kgCO _{2e} / kg.km

Table below provides land transportation greenhouse intensity figures to help calculate the greenhouse gas intensity of land transportation from shipping port.

Light commercial vehicle	Rigid Truck	Articulated Truck
0.001451kgCO _{2e} / kg.km	0.000195kgCO _{2e} / kg.km	0.000169kgCO _{2e} / kg.km

Transport intensity figures sourced from Australian National Greenhouse Gas Inventory 1990, 1995 and 1999 and WWF International, Inland Navigations and Emissions, 2005.

Operational Efficiency – Products do not require energy during operation. Applying insulation reduces energy consumption of the building.

Re-use Efficiency – Subject to appropriate installation and removal techniques, these products represents a high value product with high re-use potential.

Toxics and Pollutants – Polyethylene is highly stable and does not readily react with other elements or compounds in the environment. Neither LDPE nor aluminium are sources of toxics or pollutants in use, but both create minor localised emissions around production facilities.

Ozone Depletion – There is no ODP in production, installation or on-going use.

Urban Heat Island Effects – *Polynum* is always covered by roof/wall cladding so its highly reflective surface is never exposed and hence creates no UHI benefits.

Noise – Products will provide some acoustic insulation, reducing noise levels.



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Biodiversity

Open cast mining of bauxite minerals, used in the fabrication of aluminium, involves habitat destruction, modified soil profiles and modified drainage which impacts natural vegetation and biodiversity. Petroleum, the primary raw material of polyethylene, can have localised marine biodiversity impacts in its extraction and potentially catastrophic impacts when spills occur.

RESOURCE DEPLETION

Resource Efficiency

Compared to bulk insulation, *Polynum* contains less mass of embodied resources for comparable R-values.

Aluminium is relatively abundant and the amount used in *Polynum* while very small, is also recyclable. Polyethylene is derived from fossil fuel based feedstock and is a non-renewable albeit recyclable resource.

Embodied Fossil Fuel Energy

Embodied Energy of:

- *Polynum* One/Super: 23.8 MJ/m²
- *Polynum* Double/Multi: 35.2 MJ/m²
- *Polynum* Ultra: 39.2 MJ/m²

Calculation is based on data sourced from Bath University, UK.

Embodied Water

No water is used during manufacture.

Durability

Polynum's expected lifetime is 50 years according to the manufacturer.

Reusability

Product is reusable when removed with care.

Repairability

Any tears can be repaired using heavy duty foil tape. However, the area of the product affected by the tear will not perform at its optimum due to reduction in air pockets, thereby reducing the effectiveness of the insulation. If significant damage occurs, the system should be replaced.

Design for Dematerialisation

Polynum is a dematerialised product with low material content compared to bulk insulation.

Design for Disassembly

Product is installed using mechanical fixing and is therefore able to be disassembled. Mechanical fixing is preferable to glue-fixing, which limits disassembly and reuse.

The aluminium is bonded to the polyethylene and physical separation for purposes of recycling is limited.



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Recyclability

Aluminium is highly recyclable – although bonded to the polyethylene makes it technically harder to recycle, such recycling options are valid and available in growing number of countries worldwide. LDPE is recyclable but aluminium facings may reduce recyclability.

Maintenance

None required

Product Takeback Scheme

No

Extended Producer Responsibility (EPR)

No

CORPORATE AND SOCIAL SUSTAINABILITY

Audits and Environmental Reporting

No

Convictions

No

Environmental Policy

Yes

Social Enhancement Programs

No

Technology Transfer Programs

No

Environmental Management Systems (EMS)

None



ECOSPECIFIER ISSUES OF CONCERN / RED LIGHTS

None



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ECOSPECIFIER GREENRATE GREEN BUILDING SCHEME PRE-ASSESSMENT

Estdama Pearls Design System for New Buildings

RESOURCEFUL ENERGY

<p><u>RE-r1: Minimum Energy Performance</u></p> <p>Product may assist in a project obtaining this requirement if the building meets the prescribed percentage performance improvement compared to the baseline.</p>	<p><i>Points Available</i></p> <p>Requirement</p>
<p><u>RE-1: Improved Energy Performance</u></p> <p>Product may assist in a project obtaining this credit for reduced energy consumption and carbon emissions during building operation compared to the baseline building consumption determined in RE-r1. Number of points awarded is determined by the percentage reduction from the baseline.</p>	<p><i>Points Available</i></p> <p>15</p>

STEWARDING MATERIALS

<p><u>SM-1: Non-Polluting Materials</u></p> <p>Product may assist in a project obtaining this credit for non-polluting materials to eliminate long-term negative impacts on human health and pollution of natural systems. 1 Credit point is awarded when all thermal insulation materials and blowing agents used in manufacture have an ODP of zero and a GWP less than 5. 1 Credit point is awarded for replacing of chlorine-based materials including PVC, in accordance with the prescribed proportions. 1 Credit point is awarded for elimination of products containing the following R-Phrases: R20-29, R31-33, R36-39, R 41, R43, R45-46, R48-65.</p>	<p><i>Points Available</i></p> <p>3</p>
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LEED® for Commercial Interiors - Version 3 (see LEED® disclaimer below)

ENERGY & ATMOSPHERE

<p><u>EA Prerequisite 2: Minimum Energy Performance</u></p> <p>Product may assist a project to comply with the ANSI/ASHRAE/IESNA Standard 90.1-2007 for the tenant's scope or works, when appropriately included in combination with other elements, to establish the minimum energy efficiency of a tenant space in accordance with prescribed requirements.</p>	<p><i>Points Available</i></p> <p>Requirement</p>
<p><u>EA Credit 1.3: Optimize Energy Performance, HVAC</u></p> <p>Product may assist in a project obtaining credits for increasing the energy performance of a project HVAC system. EA Credit 1.3 offers two credit achievement approaches (Option 1 & 2).</p> <p><i>Option 2</i> is performance based in the reduction by either 15% (5 points) or 30% (10 points) of the ANSI/ASHRAE/IESNA Standard 90.1-2007 minimum compliance.</p>	<p><i>Points Available</i></p> <p>10</p>



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LEED® for New Construction & Major Renovations - Version 3 (see LEED® disclaimer below)

ENERGY & ATMOSPHERE

<p><u>EA Prerequisite 2: Minimum Energy Performance</u></p> <p>Product may assist in combination with other systems in a project meeting the energy performance rating goal established using the EPA’s Target Finder Rating Tool through a variety of options.</p>	<p><i>Points Available</i></p> <p>Requirement</p>
<p><u>EA Credit 1: Optimize Energy Performance</u></p> <p>Product may assist in a project obtaining credits, when appropriately designed in combination with other elements in achieving levels of energy performance beyond prerequisite standard, through a variety of options. Project is assumed to be in compliance with EA Prerequisite 2: Minimum Energy Performance.</p>	<p><i>Points Available</i></p> <p>21</p>

LEED® is a registered mark of the U.S Green Building Council (USGBC). The listing constitutes an **ecospecifier** Technical Opinion and is not endorsed by the USGBC or its agents. For detailed technical information about Credit requirements refer to the relevant LEED® Reference Guide. Rating Systems and Reference Guides are subject to change by the USGBC and any decision regarding the award of credits towards a LEED® rating is at the sole discretion of the USGBC.

BREEAM Issue 3

<p>ENERGY</p> <p><u>Ene 1 – Reduction of CO₂ emissions</u></p> <p>Product is likely to assist in a project obtaining credits as it demonstrates an improvement in the energy efficiency of a building’s systems and therefore achieves lower operational related CO₂ emissions. Number of points awarded is dependent on percentage improvement over the established baseline.</p>	<p><i>Points Available</i></p> <p>15</p>
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MATERIALS

<p><u>Mat 6 – Insulation</u></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the projects use of thermal insulation which has low embodied impact compared to its thermal properties and has been responsibly sourced.</p>	<p><i>Points Available</i></p> <p>2</p>
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BCA Green Mark Landed Houses

ENERGY EFFICIENCY

<p><u>1-4 Maximum Permissible Wall U-Value</u></p> <p>Product is likely to assist in a project obtaining credit points as it reduces the thermal transmittance value of external walls. Two points are awarded where the maximum U-value of wall is 1.5 W/m²K, three points where maximum is 1 W/m²K, and four points are awarded for finishes or external wall surface with an SRI of 70 or more.</p>	<p><i>Points Available</i></p> <p>4</p>
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BCA Green Mark Non-Residential Buildings v3

MANDATORY REQUIREMENTS

<p><u>M1 Building Envelope – ETTV</u></p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing heat conduction and radiation through walls and fenestrations. In order to comply, the envelope thermal transfer value (ETTV) of the building shall not exceed 50 W/m².</p>	<p><i>Points Available</i></p> <p>Mandatory</p>
<p><u>M2 Roof - RTTV</u></p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing heat conduction and radiation through opaque roof and sky lights. In order to comply, the roof thermal transfer value (RTTV) of the building shall not exceed 50 W/m².</p>	<p><i>Points Available</i></p> <p>Mandatory</p>
<p><u>M3 Roof – U Value</u></p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing the thermal transmittance of a roof without skylights and assisting in achieving an average U-value below the prescribed levels.</p>	<p><i>Points Available</i></p> <p>Mandatory</p>

ENERGY EFFICIENCY

<p><u>1-1 Building Envelope - ETTV</u></p> <p>Product is likely to assist in a project obtaining credit points by improving the overall thermal performance of the building envelope by reducing the envelope thermal transfer value (ETTV). Two points are awarded for every reduction of 1 W/m² from the 50 W/m² baseline.</p>	<p><i>Points Available</i></p> <p>15</p>
<p><u>1-3(c) Building Envelope – Design / Thermal Parameters: Wall Insulation</u></p> <p>Product is likely to assist in a project obtaining credit points as it reduces the thermal transmittance value of external walls, achieving a U-value equal or less than 2 W/m²K.</p>	<p><i>Points Available</i></p> <p>4</p>
<p><u>1-3(d) Building Envelope – Design / Thermal Parameters: Roof Insulation</u></p> <p>Product is likely to assist in a project obtaining credit points as it reduces thermal transmittance of roof. Two points are awarded for every 0.1 W/m²K reduction from the baseline.</p>	<p><i>Points Available</i></p> <p>5</p>

BCA Green Mark Residential Buildings v3

MANDATORY REQUIREMENTS

<p><u>M1 Building Envelope – RETV</u></p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing heat conduction and radiation through walls and fenestrations. In order to comply, the residential envelope thermal transmittance value (RETV) of the building shall not exceed 25 W/m².</p>	<p><i>Points Available</i></p> <p>Mandatory</p>
<p><u>M2 Roof – U Value</u></p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing the thermal transmittance of a roof without skylights and assisting in achieving an average U-value below the prescribed levels.</p>	<p><i>Points Available</i></p> <p>Mandatory</p>



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ENERGY EFFICIENCY

1-1 Building Envelope - RETV

Product is likely to assist in a project obtaining credit points by improving the overall thermal performance of the building envelope by reducing the residential envelope thermal transmittance value (RETV). Two points are awarded for every reduction of 1 W/m² from the 25 W/m² baseline.

Points Available

15

BCA Green Mark Non-Residential Existing Buildings v2

ENERGY EFFICIENCY

1-1 Energy Efficiency

Product is likely to assist in a project obtaining credit points by contributing to increased energy efficiency of the building. Number of points awarded is determined by the percentage improvement from the specified benchmarks.

Points Available

22

Green Building Index Non-Residential New Construction v1

ENERGY EFFICIENCY

EE1 Minimum EE Performance

Product is likely to assist in a project obtaining credit point by improving thermal performance and contributing to a maximum Overall Thermal Transmittance Value of 50, and a maximum Roof Thermal Transmittance Value 25.

Points available

1

EE5 Advanced EE Performance

Product is likely to assist in a project obtaining credit points by assisting in reducing the Building Energy Intensity (BEI) through energy efficient measure. Number of points awarded is determined by the amount of reduction below the baseline BEI.

Points available

15

Green Building Index Residential New Construction v1

ENERGY EFFICIENCY

EE1 Minimum EE Performance

Product is likely to assist in a project obtaining credit points by improving thermal performance and contributing to a maximum Overall Thermal Transmittance Value of 50, and a maximum Roof Thermal Transmittance Value 25, and appropriate roof U values depending on weight.

Points available

3

EE3 Advanced EE Performance Based on OTTV & RTTV

Product is likely to assist in a project obtaining credit point by contributing to improved thermal efficiency to reduce demand on energy to maintain indoor thermal comfort. Number of points awarded is determined by the OTTV and Roof U-Values achieved.

Points available

10

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Products are available in Australia under the brand name Polyair™. Please see www.ecospecifier.org/products/private/polyair_pty_ltd_polyair_reflective_insulation_ecg_premium

National Australian Built Environment Rating System (NABERS) Compatibility

Product may assist in the achievement of ENERGY & GREENHOUSE credit points in this rating tool.

BASIX building Sustainability Compatibility

Product may assist in the achievement of THERMAL COMFORT credit points in this rating tool.

Green Star™ Office Interiors Version 1.1 Compatibility (see Green Star™ disclaimer below)

ENERGY

<p><u>Ene-1: Energy Efficiency</u></p> <p>Product is likely to assist in a project obtaining the conditional requirement for the design of a base building that achieves a predicted rating of 4 stars or greater using the Australian Building Greenhouse Rating (ABGR) scheme's <i>Validation Protocol for Tenancy Energy Estimation Version 2005-02</i>.</p>	<p><i>Points Available</i></p> <p>Conditional</p>
<p><u>Ene-2: Energy Improvements</u></p> <p>Product is likely to assist obtaining credits for improvement in the overall energy efficiency of a project. Credit points achieved are determined by the star rating achieved above the conditional 4 star Australian Building Greenhouse Rating (ABGR). Product contribution to credit points is determined by project energy load simulation and needs to be included in the model to provide beneficial credits.</p>	<p><i>Points Available</i></p> <p>12</p>

EMISSIONS

<p><u>Emi-2: Insulation Ozone Depleting Potential</u></p> <p>Product is likely to assist in a project obtaining credits for the use of refrigerants that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed non ODP content requirements.</p>	<p><i>Points Available</i></p> <p>1</p>
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Green Star™ Office Design Version 2 Compatibility (see Green Star™ disclaimer below)

ENERGY

<p><u>Ene-1: Conditional</u></p> <p>Product is likely to assist in a project obtaining the conditional requirement for the design of a base building in which the project's greenhouse gas emissions do not exceed 110 kgCO₂/m²/annum as determined using the Australian Building Greenhouse Rating (ABGR) <i>Validation Protocol for Computer Simulations</i> or by using the final and current version of the Green Star™ Energy Calculator.</p>	<p><i>Points Available</i></p> <p>Conditional</p>
<p><u>Ene-2: Energy Improvement</u></p> <p>Product is likely to assist in obtaining credits for minimising the greenhouse gas emissions of a project. Credit points achieved are determined by determining the reduction in predicted greenhouse gas emissions below the Conditional Requirement of 110 kgCO₂/m²/annum. Full points are available for carbon-neutral base buildings.</p>	<p><i>Points Available</i></p> <p>15</p>



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EMISSIONS

<p><u>Emi-9: Insulant ODP</u></p> <p>Product is likely to assist in a project obtaining this credit for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit point all thermal insulation products specified must meet the prescribed requirements.</p>	<p><i>Points Available</i></p> <p>1</p>
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Green Star™ Office Design Version 3 Compatibility (see Green Star™ disclaimer below)

ENERGY

<p><u>Ene: Conditional</u></p> <p>Product is likely to assist in a project obtaining the conditional requirement for the design of a base building in which the project's greenhouse gas emissions do not exceed 110 kgCO2/m2/annum as determined using the Australian Building Greenhouse Rating (ABGR) <i>Validation Protocol for Computer Simulations</i> or by using the final and current version of the Green Star™ Energy Calculator.</p>	<p><i>Points Available</i></p> <p>Conditional</p>
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<p><u>Ene-1: Greenhouse Gas Emissions</u></p> <p>Product is likely to assist in obtaining credits for minimising the greenhouse gas emissions of a project. Credit points achieved are determined by determining the reduction in predicted greenhouse gas emissions below the Conditional Requirement of 110 kgCO2/m2/annum. Full points are available for carbon-neutral base buildings.</p>	<p><i>Points Available</i></p> <p>20</p>
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EMISSIONS

<p><u>Emi-4: Insulant ODP</u></p> <p>Product is likely to assist in a project obtaining this credit for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit point all thermal insulation products specified must meet the prescribed requirements.</p>	<p><i>Points Available</i></p> <p>1</p>
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Green Star™ Retail Version 1 Compatibility (see Green Star™ disclaimer below)

ENERGY

<p><u>Ene-1: Greenhouse Gas Emissions</u></p> <p>Product is likely to assist obtaining credits for improvement in the operational energy consumption of a project. Credit points achieved are determined by the predicted percentage of greenhouse gas emissions reduction below the "standard practice benchmark". This benchmark is determined by the <i>Retail Centre V1</i> Energy Calculator.</p>	<p><i>Points Available</i></p> <p>20</p>
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EMISSIONS

<p><u>Emi-4: Insulant ODP</u></p> <p>Product is likely to assist in a project obtaining credits for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed requirements.</p>	<p><i>Points Available</i></p> <p>1</p>
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Green Star™ Education Version 1 Compatibility (see Green Star™ disclaimer below)

ENERGY

<u>Ene: Conditional Requirement</u> Product is likely to assist in a project obtaining the conditional requirement by meeting the green house gas emissions 'benchmark' determined by the energy calculator.	<i>Points Available</i> Conditional
<u>Ene-1: Greenhouse Gas Emissions</u> Product is likely to assist obtaining in a project obtaining credits for designs that minimise greenhouse gas emissions associated with operational energy consumption. Credit points achieved are determined by the predicted % reduction of greenhouse gas emissions below the conditional requirement.	<i>Points Available</i> 20

EMISSIONS

<u>Emi-4: Insulant ODP</u> Product is likely to assist in a project obtaining credits for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed requirements.	<i>Points Available</i> 1
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Green Star™ Industrial Compatibility (see Green Star™ disclaimer below)

ENERGY

<u>Ene Conditional Requirement</u> Product is likely to assist in a project obtaining the conditional requirement by meeting the green house gas emissions bench mark, determined by the Green Star - Industrial v1 Greenhouse Gas Emissions Calculator Guide.	<i>Points Available</i> Conditional
<u>Ene-1: Greenhouse Gas Emissions</u> Product is likely to assist obtaining credits for improvement in the operational energy efficiency of a project. Credit points achieved are by the further reduction below the conditional requirement determined by Green Star - Industrial v1 Greenhouse Gas Emissions Calculator Guide.	<i>Points Available</i> 20

EMISSIONS

<u>Emi-4: Insulant ODP</u> Product is likely to assist in a project obtaining credits for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed requirements.	<i>Points Available</i> 1
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Green Star™ Multi Unit Residential Compatibility (see Green Star™ disclaimer below)

ENERGY

<u>Ene: Conditional Requirement</u> Product is likely to assist in a project obtaining the conditional requirement for energy consumption and minimisation of greenhouse gases, through improved thermal performance. Average thermal performance for dwellings must be improved by 10% compared to the thermal performance standard in the relevant jurisdiction.	<i>Points Available</i> Conditional
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<u>Ene-1: Greenhouse Gas Emissions</u>	<i>Points Available</i>
Product is likely to assist obtaining credits for improvement in the operational energy efficiency of a project. Credit points achieved are determined by the predicted percentage of greenhouse gas emissions reduction below the “ <i>standard practice benchmark</i> ”. This benchmark is determined by the <i>Multi Unit Residential Centre V1 Energy Calculator</i> .	20

EMISSIONS

<u>Emi-4: Insulant ODP</u>	<i>Points Available</i>
Product is likely to assist in a project obtaining credits for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed requirements.	1

Green Star™ Healthcare Version 1 Compatibility (see Green Star™ disclaimer below)

ENERGY

<u>Ene: Energy Conditional Requirement</u>	<i>Points Available</i>
Product is likely to assist in a project meeting the energy conditional requirement. The project’s predicted greenhouse gas emissions must be equal to or an improvement, in the ‘ <i>bench mark</i> ’ building determined using <i>Healthcare v1 Greenhouse Gas Emissions Calculator</i> .	Conditional

<u>Ene-1: Greenhouse Gas Emissions</u>	<i>Points Available</i>
Product is likely to assist in a project obtaining credits for reduction in operational energy consumption and greenhouse gas emissions of the base building. One point is achieved for every 5% reduction against the ‘ <i>bench mark</i> ’ building and zero net operating buildings receive 20 credit points.	20

EMISSIONS

<u>Emi-4: Insulant ODP</u>	<i>Points Available</i>
Product is likely to assist in a project obtaining credits for the use of thermal insulation products that avoid the use of ozone-depleting substances, in both manufacture and composition. To achieve credit points all thermal insulation products must meet the prescribed requirements.	1

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ASSESSMENT COMPARISON

Bulk insulation, such as wool, fibreglass, synthetic mineral fibres, polyester or cellulose fibre loose fill

RELATED TOPICS

Insulation

CSI CATEGORY & NUMBER

04 71 Insulation and Sarking

NBS CATEGORY & NUMBER

072 00 Thermal Protection



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ASSESSMENT CRITERIA SATISFIED

ENERGY/GREENHOUSE
<ul style="list-style-type: none">• Low Energy in production• Potential less GHG / ODP down stream
HABITAT & LAND
<ul style="list-style-type: none">• Reduced terrestrial impact• Reduced aquatic impact
RESOURCE DEPLETION & EFFICIENCY
<ul style="list-style-type: none">• Post-Industrial recycled content• Reuse Potential• Reduced material use
HUMAN HEALTH
<ul style="list-style-type: none">• Low/Reduced Offgassing• Reduced toxics or carcinogens
POLLUTION TO ENVIRONMENT
<ul style="list-style-type: none">• Reduced Life Cycle Toxicity• Reduced Life Cycle Carcinogen• Reduced Smog
OTHER VITAL SIGNS
<ul style="list-style-type: none">• International Standards• MSDS• Independent Verification• Documented Manufacturer Claim• Environmental info about product



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