

# PRODUCTS

Martini Industries – Polymax Acoustic Insulations [ECG-Premium]



## Overview:

Thermally bonded polyester acoustic and thermal insulation with a minimum of 80% post consumer recycled content. Product is durable and 100% recyclable. *Polymax* comes in a variety of types suitable for a wide range of applications.

## Product Description:

*Polymax Insulation* products are manufactured from thermally bonded polyester fibre. A minimum of 80% of the fibre used is made from post consumer PET packaging such as empty drink bottles, and the remaining 15-20% is virgin melt fibre to bond recycled fibres. The product is 100% recyclable and has high reuse potential as insulation. This has significant environmental benefits of reduced material consumption and waste to landfill. There is also significantly less energy required to produce recycled polyester, compared to virgin material.

Polyester is a non-toxic and non harmful, low VOC product and a more installer-friendly alternative to fibreglass insulation, requiring no specific protective apparel. Product will not corrode or crumble over time.

Applications include Internal lining of HVAC ducts, roofs, underfloor, high performance acoustic partition and ceiling systems, ,original equipment manufacture (OEM) , appliance cabinets, plant rooms, rooftop plant enclosures, studios,cinemas ,sports halls in residential, commercial, healthcare community and industrial buildings.

## PRODUCT SPECIFICATIONS

<b>Options</b>	<p><i>Polymax Acoustic Thermal Batts</i> – Premium thermal and acoustic insulation for residential and commercial buildings.</p> <p><i>Polymax Prime</i> – High Performance acoustic and thermal Insulation for multi-residential projects.</p> <p><i>Polymax Absorb</i> – High Performance acoustic absorptive insulation.</p> <p><i>Polymax HVAC</i> – for acoustic lining of rigid ducting</p> <p><i>Polymax MSB</i>- for partition wall cavities in commercial and office fitouts</p> <p><i>Polymax Easy Baffle</i>- for sound transmission control above suspended ceilings</p> <p>(Sizes, R-values, and acoustic properties vary, please see Technical Specifications below for detailed information.)</p>
<b>Colours</b>	White, Dark Grey and Black
<b>Warranty</b>	50 years

<b>Expected Life</b>	<i>Insulation</i> products can be expected to last the full lifetime of the building when installed properly	
<b>Indicative Costs</b>	Cost of Supply \$4.00 - \$30.00 per m <sup>2</sup>	Cost of installation \$60.00 per person hour for labour estimated
<b>Purchase Options</b>	Please contact manufacturer for purchasing details.	
<b>Constituents</b>	<p>~ 80-85%- Recycled Polyester - Post-consumer recycled content from PET bottles</p> <p>~ 15-20% Virgin Polyester</p> <p>85% recycled polyester is the maximum recycled content possible for these insulation products, as virgin material is needed for thermal bonding process in manufacture.</p>	
<b>National &amp; International Standards</b>	<p>AS 4859.1 (Thermal insulation standard)</p> <p>AS 1530.3 (Fire ratings)</p> <p>AS 1045 (acoustic absorption testing)</p> <p>AS 354-2006 (acoustic sound transmission testing)</p>	
<b>Country of Origin</b>	Manufactured in Australia from Asian sourced, recycled polyester fibre.	
<b>Projects</b>	<p>Sydney International Airport</p> <p>Norwest Private Hospital</p> <p>Rouse Hill Shopping Centre</p> <p>Campbelltown Catholic Club</p> <p>Mirvac Apartments, Newcastle NSW</p> <p>MacQuarrie Private Hospital, North Ryde NSW</p> <p>Bovis Lend Lease Darling Walk Development</p> <p>BER Government Schools Stimulus Program</p>	
<b>Preparation</b>	No PPE (personal protective equipment) is required. Can be cut with a serrated knife, or rotary cutters. High density products can be easily cut with an angle grinder. Low density products can be torn neatly to size across the width of the roll or batt and preferably nailed or mechanically attached to wall studs and surfaces, floor and ceiling joists, incorporated in partitioning and doors, hung in false ceilings and mechanically pinned to rigid ducting and under concrete slabs	

## ECOSPECIFIER LIFE-CYCLE ASSESSMENT

### INTEGRATED DESIGN AND POLICY ISSUES

Bulk insulation, such as *Polymax insulation* products, reduces noise transfer between walls, ceilings and floors, which can help reduce stress levels and improve wellbeing and productivity. As well as providing acoustic insulation, when used in relevant applications, product reduces heating and cooling loads of buildings.

Bulk insulation reduces heat flow by creating small pockets of still air that reduce the rate of conductive heat transfer increasing the energy efficiency of a building. The subsequent reduction of heat transfer can minimise heating and cooling loads placed on mechanical air conditioning systems in a building and potentially allow for the integration (or natural ventilation period) for mixed mode air conditioning (natural ventilation with optional mechanical air conditioning). This leads to a significant reduction in the overall energy consumption of air conditioning plant which represents the largest energy user in a building. Furthermore greater levels of insulation can reduce HVAC plant sizes.

Products are designed for ease of installation. Gloves, goggles and mask are not required during installation; due to no incompatibilities with other products, no special storage or handling required and it is low irritant product.

As products are composed of polyester which does not absorb moisture, they are durable and suitable for use in a range of environments.

### HUMAN HEALTH

#### Health

Product is made from non-irritant polyester which will not cause any skin or other irritations. Product is rated as very low VOC emissions and is thermally bonded, without the need for any binders, adhesives or blowing agents, reducing associated health impacts. Polyester fibres are strong and the fibre size is large enough to be non respirable and prevent airborne fibre occurrence, therefore limiting any chance of becoming a potential airborne pollutant.

#### Comfort

Product will either reduce heat inflow into a building (summer) or retain heat within a building (winter), providing a more comfortable indoor environment. Products also enhance acoustic noise reduction by limiting noise transfer, with an  $R_w$  of 40 and  $R_w+ctr$  50 and higher when used with high performance acoustic wall and ceiling systems. High acoustic absorption for reduced reverberation or echo in single space applications and rigid duct lining Refer to the individual *Technical Specifications* section above for detailed thermal conductivity and acoustic information.

#### Indoor Environment Quality

Products are hydrophobic (do not absorb moisture), eliminating another pathway for the potential of mould and biological growth.

No volatile organic compound (VOC) data is available for this product. High levels of VOCs can adversely affect indoor air quality and occupant health. However, VOC emissions are likely to be low given the constituents.

Acoustic insulation by its very nature significantly reduces noise transmission and reverberation.

#### Electromagnetic Radiation

Not applicable.

#### Safety

Not applicable

#### Accessibility

Not applicable.

## ECOLOGICAL QUALITY

### Terrestrial

*Emissions* – Products contains between 80% and 85% recycled polyester minimising associated impacts from virgin petroleum based polymers. Polyester is derived from petroleum based polymers. Petroleum extraction and distribution can contribute to oil spills.

*Physical* – Products contains recycled polyester minimising associated impacts from virgin petroleum based polymers. Petrochemical extraction can cause localised terrestrial disturbance around oil fields, via mining infrastructure and subsidence.

### Aquatic

*Emissions* – There are no toxics emitted by this product that will impact aquatic and marine ecosystems.

*Physical* – Petrochemical extraction can cause localised aquatic disturbance around oil fields via mining infrastructure and dredging of the seabed. Petroleum extraction and distribution can also contribute to oil spills at sea. Products contain significant (but varying) amounts of recycled polyester minimising associated impacts.

### Atmosphere

*Greenhouse (GHG)* – Products utilise a minority of virgin polyester (~15%), which is fabricated from fossil fuels. Fossil fuels generate both atmospheric pollutants and greenhouse gases on combustion. Product contains significant post-consumer recycled polyester which requires less energy input than producing virgin polyester from scratch.

*Greenhouse intensity* – 2.28 kgCO<sub>2</sub> / m<sup>2</sup> (based on product weight of 1.4kg/m<sup>2</sup> and R-value of 2.5)

*Transport intensity* – Product is manufactured in Australia from virgin and recycled polyester sourced from Asia.

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 <sub>2</sub> e / kg.km	0.000195kgCO <sub>2</sub> e / kg.km	0.000169kgCO <sub>2</sub> e / 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 will reduce energy cooling and heating loads, depending on R-value used, placed on air conditioning systems (when properly installed in a building, subsequently reducing greenhouse gas emissions generated in energy production.

*Re-use Efficiency* – Suitable for and likely to be re-used if clean and installed without glues or adhesives.

*Toxics and Pollutants* – There are no toxics used in the manufacturing of this product. The product has a very low VOC emission profile during its operational life.

*Ozone Depletion* – This product produces no CFC's or HCFC's (Ozone Depleting Substances).

*Urban Heat Island Effects* – Not applicable.

*Noise* – Products reduce noise transfer and absorbs sound. See *Technical Specifications* for acoustic reports for each product.

## **Biodiversity**

Use of significant recycled content minimises associated landfill mass and other environmental impacts. The use of minor volumes of virgin polyester generates biodiversity impacts through the atmospheric emissions generated during the refining and manufacturing processes of the virgin polymer. These have not been quantified in terms of impacts on biological systems, except in the case of oil-spill impacts which, while rare, can have significant localised impacts.

## **RESOURCE DEPLETION**

### **Resource Efficiency**

The recycled polyester used by *Polymax* insulation is post-consumer polyester fibre recycled from PET bottles, and sourced from Asia. The virgin content of the products are based on petroleum a limited and finite resource. 85% recycled polyester is the maximum recycled content possible for these insulation products, as virgin material is needed for the thermal bonding process during manufacture and to provide loft (to maintain air volume and height and resist compression over time).

### **Embodied Fossil Fuel Energy**

Product has an embodied energy of ~ 57.60 MJ/m<sup>2</sup>

(Calculations based on data sourced from Bath University and Martini Industries.)

*Transport intensity* – Product is manufactured in Australia from recycled and virgin polyester sourced from Asia.

### **Embodied Water**

No water is used in the manufacturing of this product.

### **Durability**

Polyester is a durable insulation material. Polyester is used in tyre and belt manufacture as well as pressurized drink bottles. Thermo plastic will only naturally decay if exposed to UV light, however product will typically remain locked inside building envelope and will have limited exposure.

### **Reusability**

Yes. Due to high durability and the nature of the product, polyester insulation has high reuse potential.

### **Repairability**

Not applicable.

### **Design for Dematerialisation**

Product reduces the material intensity of the HVAC system due to lower thermal loads.

### **Design for Disassembly**

All acoustic insulation products can be mechanically fixed (pinned or nailed), allowing easy disassembly and reuse if required. This is preferable to glue-fixing, which limits disassembly and reuse.

### **Recyclability**

Yes, polyester is highly recyclable. Product may be returned directly to manufacturer for recycling at plant in NSW.

### **Maintenance**

Insulation products will not need maintenance once installed

### **Product Takeback Scheme**

Yes, Martini Industries provide a Product Stewardship Program. Uncontaminated off cuts and clean product can be returned to Ingleburn NSW factory for recycling.

**Extended Producer Responsibility (EPR)**

Yes

**CORPORATE AND SOCIAL SUSTAINABILITY**

**Audits and Environmental Reporting**

Unknown

**Convictions**

None

**Environmental Policy**

Yes

**Social Enhancement Programs**

No

**Technology Transfer Programs**

No

**Environmental Management Systems (EMS)**

ISO 14001 to be implemented late 2009

**ECOSPECIFIER ISSUES OF CONCERN / RED LIGHTS**

None

**ECOSPECIFIER GREENRATE GREEN BUILDING SCHEME PRE-ASSESSMENT**

**National Australian Built Environment Rating System (NABERS) Compatibility**

Product may assist in the achievement of ENERGY credits in this rating tool.

**BASIX Building Sustainability Compatibility**

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

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

**INDOOR ENVIRONMENT QUALITY**

IEQ-10: Internal Noise Levels

**ENERGY**

ENE-1: Conditional Requirement

ENE-2: Energy Improvement

**Green Star™ Office Design Version 2 Compatibility (see disclaimer below)**

**INDOOR ENVIRONMENT QUALITY**

IEQ-12: Internal Noise Levels

**ENERGY**

ENE-1: Energy

ENE-2: Energy Improvement

**Green Star™ Office Design Version 3 Compatibility** (see disclaimer below)

**INDOOR ENVIRONMENT QUALITY**

IEQ-12: Internal Noise Levels

**ENERGY**

ENE: Conditional

ENE-1: Greenhouse Gas Emissions

**Green Star™ Retail Centre Version 1 Compatibility** (see disclaimer below)

**INDOOR ENVIRONMENT QUALITY**

IEQ-7: Internal Noise Levels

**ENERGY**

Ene-1: Greenhouse Gas Emissions

**MATERIALS**

Mat-3: Recycled Content and Reused Products and Materials

**Green Star™ Education Version 1 Compatibility** (see disclaimer below)

**INDOOR ENVIRONMENT QUALITY**

IEQ-7: Internal Noise Levels

**ENERGY**

Ene-Conditional Requirement

Ene-1: Greenhouse Gas Emissions

**MATERIALS**

Mat-3: Recycled Content and Reused Products and Materials

**Green Star™ Industrial Compatibility** (see disclaimer below)

**INDOOR ENVIRONMENT QUALITY**

IEQ-7: Internal Noise Levels

**ENERGY**

Ene-Conditional Requirement

Ene-1: Greenhouse Gas Emissions

## **MATERIALS**

Mat-3: Recycled Content and Reused Products and Materials

**Green Star™ Multi Residential Unit Compatibility** (see disclaimer below)

## **INDOOR ENVIRONMENT QUALITY**

IEQ-7: Internal Noise Levels

## **ENERGY**

Ene-1: Greenhouse Gas Emissions

## **MATERIALS**

Mat-3: Recycled Content and Reused Products and Materials

**Green Star™ Healthcare Compatibility** (see disclaimer below)

## **INDOOR ENVIRONMENT QUALITY**

IEQ-7: Internal Noise Levels

## **ENERGY**

Ene-1: Greenhouse Gas Emissions

## **MATERIALS**

Mat-3: Recycled-Content Products and Materials

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## **ASSESSMENT COMPARISON**

Fibreglass, rockwool, cellulose, mineral wool, natural wool, reflective, polyethylene bubble, polystyrene, polyurethane, lead or barium-impregnated PVC sheets, or other standard polyester insulations.

## **KEYWORDS / ALTERNATIVES**

Insulation, Acoustic, batts, bulk-fibre, conductive heat transfer, heat flow insulation, low VOC, polyester, post-consumer recycled content, recyclable, thermal values, thermal, thermally bonded.

## **RELATED TOPICS**

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## **RELATED KNOWLEDGE BASE ARTICLES**

Ecospecifier Eco Priority Guide: Insulation

**CSI / SPECPACK CATEGORY & NUMBER**

07 21 00 Thermal Insulation

**NATSPEC CATEGORY AND NUMBER**

0472 Acoustic Insulation

**Availability:**

ACT, NSW, NT, QLD, SA, TAS, VIC, WA

**Other information:**

Information last verified on 14/08/09.

**Assessment Criteria Satisfied**

<b>ENERGY/GREENHOUSE</b>
Low energy in production Potential less GHG/ODP down stream
<b>HABITAT &amp; LAND</b>
Reduced terrestrial impact
<b>RESOURCE DEPLETION &amp; EFFICIENCY</b>
Post-consumer recycled content Take-back/ product stewardship Reuse potential Reduced transport energy Least processed materials Reduce material use
<b>HUMAN HEALTH</b>
Low/reduced offgassing Reduced toxics or carcinogens
<b>POLLUTION TO ENVIRONMENT</b>
Reduced chemical toxicity through Life Cycle Low/no carcinogens through life-cycle Reduced smog-forming potential

## OTHER VITAL SIGNS

MSDS  
Independent Verification  
Doc Manuf Claim  
Environmental info about product  
Australian Standard  
Environmental policy