

THERMOBREAK[®] LS

Thermal Insulation



Physically Crosslinked closed cell polyolefin foam insulation for ducts

SEKISUI

**FOAM
INTERNATIONAL**
Global Foam Solutions

**PHYSICALLY
CROSSLINKED**
SEKISUI TECHNOLOGY



The New Standard in Polyolefin Insulation



Thermobreak® is the leading and most innovative polyolefin foam thermal insulation available to the HVAC and Building industry worldwide. Thermobreak's® performance is unsurpassed.

Developed in Australia over 30 years ago, Thermobreak® is manufactured using our proprietary physically crosslinked closed cell polyolefin foam technology, invented and commercialised by the Sekisui Chemical group in Japan. Laminated with reinforced foil and adhesive backing, Thermobreak® is widely recognised as the global leader in polyolefin insulation.

Thermobreak insulation is manufactured to ASTM C1427 Standard.

Superior Fire & Smoke Performance

Third Party Certifications

Thermobreak® LS offers the same features and benefits as our standard product with the added benefit of third party certifications including Factory Mutual (FM) and UL thus meeting the highest fire ratings available today for duct and pipe insulation.



Compliance to International Fire & Smoke Standards

Thermobreak® LS meets and complies with major international fire and smoke standards for duct and pipe insulation

- > BRITISH (BS 476 Class 0)
- > ASTM E 84, UL 723 (25/50)
- > EUROPEAN STANDARD EN 13501-1 (EUROCLASS)
- > AUSTRALIAN (AS 1530.3)
- > ISO STANDARD (ISO 5659-2)

Regulations and Compliancy

- > UAE Civil Defence Certificate of Compliancy
- > DCL Product Conformity
- > CE Certification



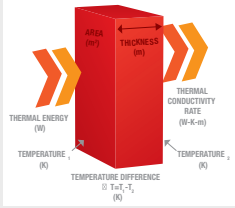


Engineered to Perform

Market leading performance

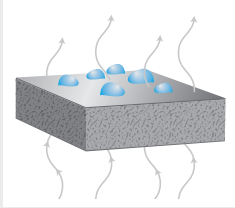
Our unique physically crosslinked technology results in a smaller and more evenly distributed cell structure. Cell structure directly affects thermal conductivity and vapour permeability. Both are key factors in insulation performance.

Thermobreak®'s thermal performance remains relatively unchanged over a 10 year period.



The diagram shows a red rectangular block representing insulation. On the left side, there are two orange arrows pointing right, labeled 'THERMAL ENERGY (W)'. Below the left side, it says 'TEMPERATURE (°C)'. On the right side, there are two orange arrows pointing left, labeled 'THERMAL CONDUCTIVITY RATE (W·K⁻¹·m⁻¹)'. Below the right side, it says 'TEMPERATURE (°C)'. At the bottom, it says 'TEMPERATURE DIFFERENCE (T₂-T₁) (°C)'. The top of the block is labeled 'AREA (m²)' and the side is labeled 'THICKNESS (m)'.

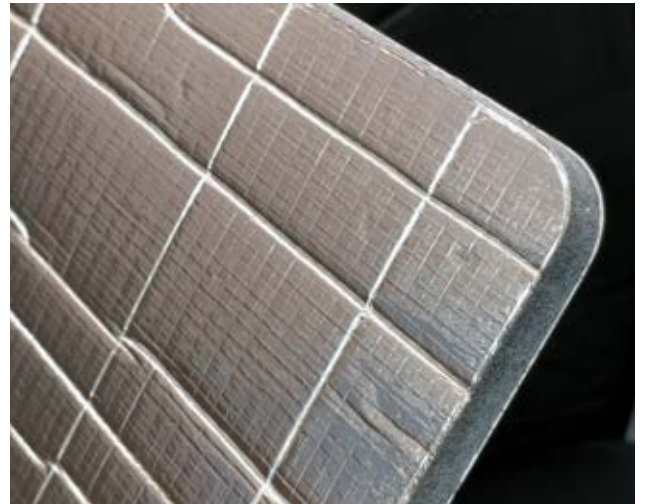
Thermal Conductivity:
0.032 W/mK (23°C) is the lowest of any flexible insulation material. On equivalent thickness basis, **Thermobreak®** provides up to 18% better insulation than elastomeric and chemically crosslinked foams.



The diagram shows a cross-section of a grey insulation block. Blue droplets are shown on the top surface, with arrows pointing upwards from them, indicating vapour escaping. On the bottom surface, arrows point downwards, indicating vapour passing through the material.

Vapour Permeability of almost zero ensures our thermal conductivity remains relatively constant for a period of 10 years thus significantly contributing to building sustainability and energy cost reduction.

Vapour Permeability = 2.3×10^{-15} Kg/Pa.s.m
Permeability Resistance Factor: $\mu > 80,000$



Engineered to Last

Thermobreak® is supplied with factory applied reinforced aluminium foil facing and repositionable acrylic tissue adhesive system.

Our materials are of the highest quality ensuring longevity and continuous energy savings.

- **Thicker, reinforced aluminium foil vapour barrier** provides additional physical protection to the insulation and at the same time reduces heat flow thus providing additional energy savings.
- Thermobreak® is the only material that uses **tissue interlayer based acrylic adhesive system**. Unlike conventional direct coated adhesives, our system ensures that the adhesive provides 100% coverage on the duct surface and on the foam insulation. This feature also provides the additional benefit of repositionability, an essential requirement during installation. The insulation can be lifted off the duct numerous times during alignment without tearing the insulation.
- **Closed cell structure** with almost zero water absorption.
- 10 year manufacturer warranty.



Burj Vistas, Dubai UAE



Fountain Views, Dubai UAE



Westfield, Sydney Australia



Coca-Cola Factory, Cambodia



Avenues Mall, Muscat Oman



Environmental Benefits

Building Sustainability, Indoor Air Quality and Health & Safety, are all key elements embodied in the Green Building concept.

Thermobreak® insulation is manufactured to support and comply with such initiatives and enables credit point accumulation through various building accreditation systems such as LEED and Estidama.

- Green Star Compliant (VOC)
- No CFCs or HCFCs
- Zero Ozone Depletion Potential
- Low GWP
- Fibre free
- Zero PVC, Zero Formaldehyde
- Compliance to RoHS Directive
- Compliance to REACH Directive
- Resistance to Mould Growth
- DUBAI GBR Approved



Leaders in HVAC Insulation

Proven Reliability for Over 30 Years

With Thermobreak® installed in over 600 projects worldwide, our experience and results speak for themselves.

Tested and proven and in a variety of climatic conditions, Thermobreak® has established an enviable reputation as a quality, reliable, closed cell insulation performing flawlessly and delivering significant energy savings to building owners and operators.

Technical Support

Thermobreak® is backed by a series of software programs to enable proper thickness selection and assist designers with heat flow scenarios and temperature profiling:

- **ThermaCalc™** – thickness selection to avoid condensation and maximise energy savings
- **Temperature Profiles** - software demonstrating the temperature profile of air or water in duct and pipes
- **Thermal Conductivity V time** – software that compares thermal performance of Thermobreak® and competitor insulation materials over time given certain design parameters such as vapour permeability



Extensive Distribution Network

Thermobreak is distributed globally through a series of authorised distributors that specialise in the HVAC market. This increasing network of HVAC specialised companies ensure that the material is readily available for projects. For your nearest distributor please consult our webpage.

The extensive distribution network is supported by regional Sekisui offices.



THERMOBREAK[®] LS

TECHNICAL SPECIFICATIONS

Physical Properties

Material:	Physically (irradiation) crosslinked closed cell polyolefin foam with factory applied reinforced aluminium foil and acrylic adhesive backing
Density:	25 kg/m ³ (foam core only)
Thermal Conductivity: (ASTM C518)	0.032 W/mK (@ 23°C mean temp.)
Water Vapour Permeability: (ASTM E96)	2.3 x 10 ⁻¹⁵ kg/Pa.s.m
Water Vapour Permeance: 12mm thickness	0.000195 µg/N.s
Water absorption by volume: (ASTM C1763, Procedure B, 24h)	< 0.2% v/v
Permeability Resistance Factor:	µ > 80,000
Resistance to fungi: (ASTM C1338)	Zero Growth
Leachable Chlorides: (ASTM C871)	< 12 ppm (< 0.0012% w/w)
Ozone Resistance:	Excellent
UV Resistance:	Excellent
Noise Reduction Coefficient: (AS 1045)	0.20 (12mm foam thickness) 0.30 (25mm foam thickness)
Operating Temperature Range:	-80 °C ~ +100 °C (no adhesive)
GreenStar Rating: (ASTM D5116)	Low VOC Emitting
Physical Property Requirements: (ASTM C1427)	COMPLIES (Type II - Sheet)
REACH Directives: (1907/2006/EC)	COMPLIES

Fire and Smoke Performance

AS1530 Part 3	Ignitability Index: 0 Spread of Flame Index: 0 Heat Evolved Index: 0 Smoke Developed Index: 0-1
ASTM E84 / UL 723	COMPLIES (NFPA 90A & B) Flame Spread Index: ≤25 Smoke Developed Index: ≤50
BS 476 Parts 6 & 7:	CLASS 0
EN 13823 (Sheet)	Single Burning Item COMPLIES (EUROCLASS B - s2, d0 RATING)
ISO 11925 Part 2 (Sheet)	Ignitability: COMPLIES (EUROCLASS B - s2, d0 RATING)
FM 4924 (Sheet)	Up to 25mm thickness FM Approved
ISO 5659 Part 2	Smoke Density: COMPLIES (EN 45545-2, R1 HL3 Rating) Smoke Toxicity: COMPLIES (EN 45545-2, R1 HL3 Rating)

Size Availability

Sheet:

- 8mm: 50m x 1200mm rolls
- 10mm: 20m x 1200mm rolls
- 12mm: 20m x 1200mm rolls
- 15mm: 20m x 1200mm rolls
- 20mm: 20m x 1200mm rolls
- 25-50mm: 2300mm x 1200mm sheets

Other sizes available on request

Product Certification may be plant specific. Please consult with your local representative.

Distributed by

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