

THERMOBREAK[®]

Thermal Insulation

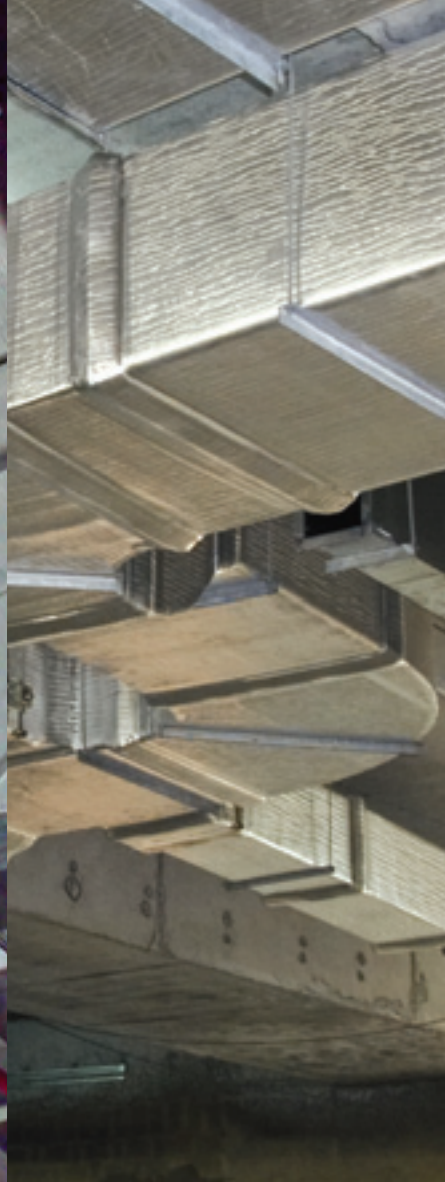
Closed Cell Physically crosslinked
polyolefin foam insulation

SEKISUI

FOAM
INTERNATIONAL
Global Foam Solutions

PHYSICALLY
CROSSLINKED
SEKISUI TECHNOLOGY





Setting the Standard

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

Thermobreak® thermal insulation is an all-in-one closed cell *physically crosslinked polyolefin* foam that is manufactured in compliance to ASTM C1427 Standard.

Thermobreak® was developed in Australia and has sold worldwide for over 20 years. The revolutionary insulation product has a factory applied reinforced foil facing and adhesive backing. **Thermobreak®** enables much faster installation and eliminates many errors and limitations encountered when using older insulation technology.

Thermobreak® is manufactured using our proprietary physically crosslinked polyolefin foam technology, invented and commercialised by the Sekisui Chemical group in Japan. The technology allows crosslinking of the polyolefin without the use of chemical agents. Instead the Sekisui process utilises clean and precise crosslinking through irradiation (physical) means.

Sekisui has been manufacturing crosslinked polyolefin foams since 1967. Today Sekisui Foam division is the largest and leading crosslinked polyolefin foam manufacturer in the world operating 10 foam factories located in Europe, USA, Thailand, Japan, Korea, and Australia.

Our commitment to quality and the protection of the environment is embodied by our operations all being certified to both the ISO 9001 Quality Assurance and ISO 14001 Environmental standards.

SEKISUI

PHYSICALLY
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SEKISUI TECHNOLOGY

Sidra Hospital Doha, Qatar
M&E Consultant KEO International



Marriott Hotel Abu Dhabi, UAE
M&E Consultant Herberger Engineers

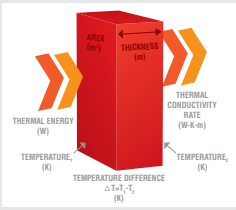


Sama Beirut, Lebanon
M&E Consultant ERGA Group

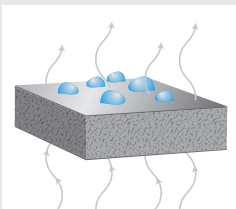


Technically Superior

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.



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.



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.

Third Party Certification & Testing

Thermobreak® is third party certified ensuring that our stated technical specifications and test results are third party verified through factory inspection, audit and sample preparation. All our product testing is performed with ISO 1725 Certified laboratories ensuring testing integrity and verification.



Energy Efficiency & Building Sustainability



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

Green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment through energy efficiency, protecting occupant health, improving employee productivity, and reducing waste, pollution and environmental degradation.

Central to the green building concept is thermal insulation. **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 (Montreal Protocol)
- > Low GWP
- > Superior thermal insulation
- > Relatively constant thermal conductivity over a 10 year period
- > Zero PVC, Zero Formaldehyde
- > Compliance to RoHS Directive
- > Compliance to REACH Directive
- > Resistance to Mould Growth
- > Non-Allergenic Properties



Palm Twin Towers Doha, QATAR
M&E Consultant MZ & Partners



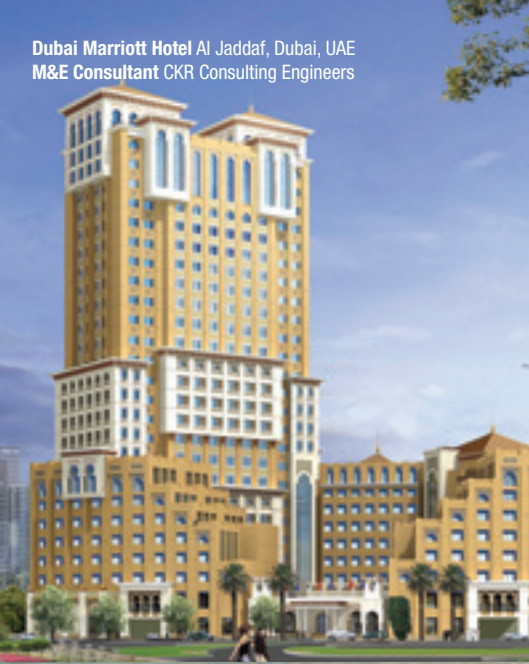
Zuellig Building Manila, Philippines
First LEED Platinum building in the Philippines
M&E Consultant Meinhardt Philippines



Lim Tower HCMC, Vietnam
M&E Consultant CASA (HK)



Dubai Marriott Hotel Al Jaddaf, Dubai, UAE
M&E Consultant CKR Consulting Engineers



Royal Adelaide Hospital Adelaide, South Australia
M&E Consultant Lehr Consultants Intl.



Movenpick Hotel Bangalore, India
M&E Consultant Sankalpa Tech



Qatar Petroleum (QP) Plaza Doha, Qatar
M&E Consultant KEO International



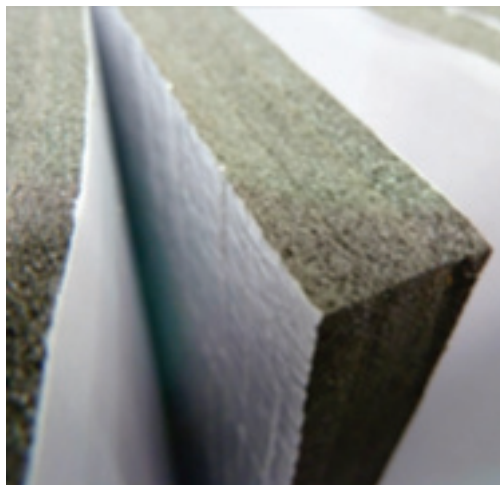
Compliance to International Fire & Smoke Standards

Thermobreak® has been tested and complies to International Fire and Smoke Standards including

- > BRITISH (BS)
- > ASTM
- > AUSTRALIAN (AS)
- > ISO

Our testing regime includes various thicknesses in the range to ensure safety across all thickness used in projects. It is the **only polyolefin foam based sheet insulation to achieve FM Approval** to FM4924, a demanding large scale room corner fire test.

Quality Materials 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.

Our **aluminium foil facing is reinforced** providing additional physical protection to the insulation and at the same time reducing heat flow.

Thermobreak® is the only material that uses **tissue interlayer based 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.

In keeping with current green building trends and demands such as indoor air quality, our adhesive system is low VOC (Green Star) compliant and offers credit points for building ratings systems such as LEED and Estidama.

Proven Reliability for Over 20 Years

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

Tested and proven 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 & Distribution Network

Backed by the technical expertise of Sekisui, a global multinational, our commitment and technical support to our customers is unrivalled. Our office locations throughout Asia Pacific, India and the Middle East provide technical support to our customers and distributors.

This includes our **ThermaCalc®** thickness selection software, heat flow and temperature profile analysis software, a series of Technical Information Bulletins for M&E professionals, detailed Installation Instructions and full set of third party certificates.

Our extensive distribution network throughout ensures that materials are locally available at all times.

Complete Range for your HVAC Insulation Needs

Thermobreak® is available in a complete range to cover typical HVAC requirements:

- > **Thermobreak® Sheet** (duct and large pipes, underslab)
- > **Thermobreak® Tube®** (preformed tube up to 10' IPS (273mm ID) and 50mm wall thickness)
- > **Thermobreak® NO CLAD®** - Sheet and pipe insulation for external applications and heavy duty traffic areas
- > **Thermobreak® Acoustic®** - Fibre free acoustic liner with factory applied acrylic adhesive

Technical Specifications

PHYSICAL PROPERTIES

Material:	Physically (irradiation) crosslinked closed cell polyolefin foam with <u>factory applied reinforced aluminium foil</u> and acrylic adhesive backing
Density:	25 kg/m ³ (foam core only)
Thermal Conductivity: (ASTM C518)	0.032 W/m/°K (@ 23°C mean temp.) 0.036 W/m/°K (@ 36°C mean temp.)
Water Vapour Permeability: (ASTM E96)	8.19 x 10 ⁻¹⁵ kg/Pa.s.m (0.029 mg.m/N.h)
Water Vapour Permeance:	3.3 x 10 ⁻⁴ g/MN.s
Water absorption by volume: (JIS K6767)	<0.1% v/v (0.00038 g/cm ²)
Permeability Resistance Factor:	μ > 20,000
Resistance to fungi: (ASTM G21)	Zero Growth
Ozone Resistance:	Excellent
UV Resistance:	Excellent
Noise Reduction Coefficient: (ISO 354)	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

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

Distributed by

FIRE AND SMOKE BEHAVIOUR

BS476 Parts 6 & 7:		CLASS 0
AS1530 Part 3	Ignitability Index:	0
	Spread of Flame Index:	0
	Heat Evolved Index:	0
	Smoke Developed Index:	0-1
ASTM E84:		COMPLIES (NFPA 90A & B)
	Flame Spread Index:	<25
	Smoke Developed Index:	<50
ASTM C411:		COMPLIES (NFPA 90A & B)
FM 4924	Thermobreak Sheet	APPROVED
	Up to 25mm thickness	
AS 3837	BCA Group Number:	1
	Smoke Index:	≤250
BS 6853 Annex B	Smoke Toxicity	COMPLIES (R < 1.0)
IMO MSC 61(67) Part 2	Smoke Toxicity	COMPLIES
ISO 5659 Part 2	Smoke Density	COMPLIES (IMO MSC 61(67) Part 2) D _m < 200 Satisfies max allowable concentrations for the following combustion gases: CO, HCl, HBr, HF, HCN, NO _x , SO ₂
UL 94	Horizontal Burn	APPROVED (HF-1)

SIZE AVAILABILITY

8-mm	50m X 1200 mm rolls
10-mm	20m X 1200 mm rolls
12-mm	20m X 1200 mm rolls
15-mm	20m X 1200 mm rolls
20-mm	20m X 1200 mm rolls
25~50-mm	2300mm X 1200mm sheets

Other sizes available on request.

SEKISUI | **FOAM INTERNATIONAL**
Global Foam Solutions



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