

THERMOBREAK[®] LS-F Tube

Thermal Insulation



**Physically Crosslinked
polyolefin foam pipe insulation**

SEKISUI

**FOAM
INTERNATIONAL**
Global Foam Solutions

**PHYSICALLY
CROSSLINKED**
SEKISUI TECHNOLOGY

A graphic element consisting of a central blue sphere with several smaller spheres of different colors (red, green, yellow, purple) attached to it by thin lines, resembling a molecular structure.



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-F offers the same thermal performance and properties as our standard product with the added benefit of Factory Mutual (FM) third party certification.

FM 4924 is widely regarded as the most severe and realistic fire test for duct and pipe insulation.

Thermobreak® is currently the only polyolefin based product to have FM approval to FM 4924 Pipe insulation.



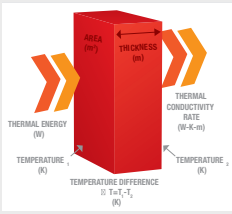
FM 4924 Fire Pipe test

Engineered to Perform

Market leading performance

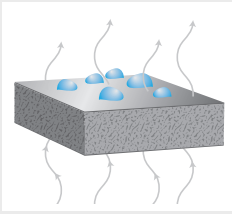
Our unique physically crosslinked technology results in a smaller and more evenly distributed cell structure. Cell structure directly affects thermal conductivity and vapour permeability. Both are key factors in insulation performance.

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



The diagram shows a red rectangular block representing insulation. It is labeled with 'AREA (m²)' on the top face and 'THICKNESS (m)' on the side. Arrows indicate the direction of heat flow through the block. Labels include 'THERMAL ENERGY (kJ)' on the left, 'TEMPERATURE (K)' at the bottom left and right, and 'TEMPERATURE DIFFERENCE (T₁-T₂) (K)' at the bottom. A central label reads 'THERMAL CONDUCTIVITY RATE (W/mK)'.

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 material with blue spheres representing water vapor molecules. Arrows indicate the vapor molecules being blocked by the material, with some arrows reflecting back.

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: $\mu > 80,000$



The Finance Centre, Manila



One World Plaza, Manila



Novozymes Biotechnology, India



Clariant Chemicals, Tamil Nadu, India

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TECHNICAL SPECIFICATIONS

Physical Properties

Material:	Physically (irradiation) crosslinked closed cell polyolefin foam with factory applied reinforced aluminium foil
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 G21)	Zero Growth
Ozone Resistance:	Excellent
UV Resistance:	Excellent
Operating Temperature Range:	-80 °C ~ +100 °C
GreenStar Rating: (ASTM D5116)	Low VOC Emitting
Leachable Chlorides: (ASTM C871)	<12 ppm (< 0.0012% w/w)

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

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Fire and Smoke Performance

AS/NZS1530 Part 3	Ignitability Index: 0	
	Spread of Flame Index: 0	
	Heat Evolved Index: 0	
	Smoke Developed Index: 0-1	
FM 4924	Up to 8" IPS (219mm)	FM Approved
	Up to 50mm wall thickness	
BS 476 Parts 6 & 7:		CLASS 0

Size Availability

Wall Thickness	Min ID (mm)	Max ID (mm)	IPS Max (in)
15mm	7.0	273.0	10"
20mm	7.0	273.0	10"
25mm	7.0	273.0	10"
30mm / 35mm	9.5	254.0	8"
40mm / 50mm	12.7	219.2	8"

Tube length: 2m
Other sizes available on request



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Head Office

1-5 Parraweena Rd, PO Box 2898,
Taren Point NSW 2229 Australia
Tel: +61 2 9525 9880
Fax: +61 2 9525 8004
Email: info@sekisuifoam.com.au
Web: www.thermobreak.com

Queensland Branch

15/853 Nudgee Rd PO Box 448
Northgate QLD 4013 Australia
Tel: +61 7 3267 7100
Fax: +61 7 3267 7166
Email: info@sekisuifoam.com.au
Web: www.thermobreak.com