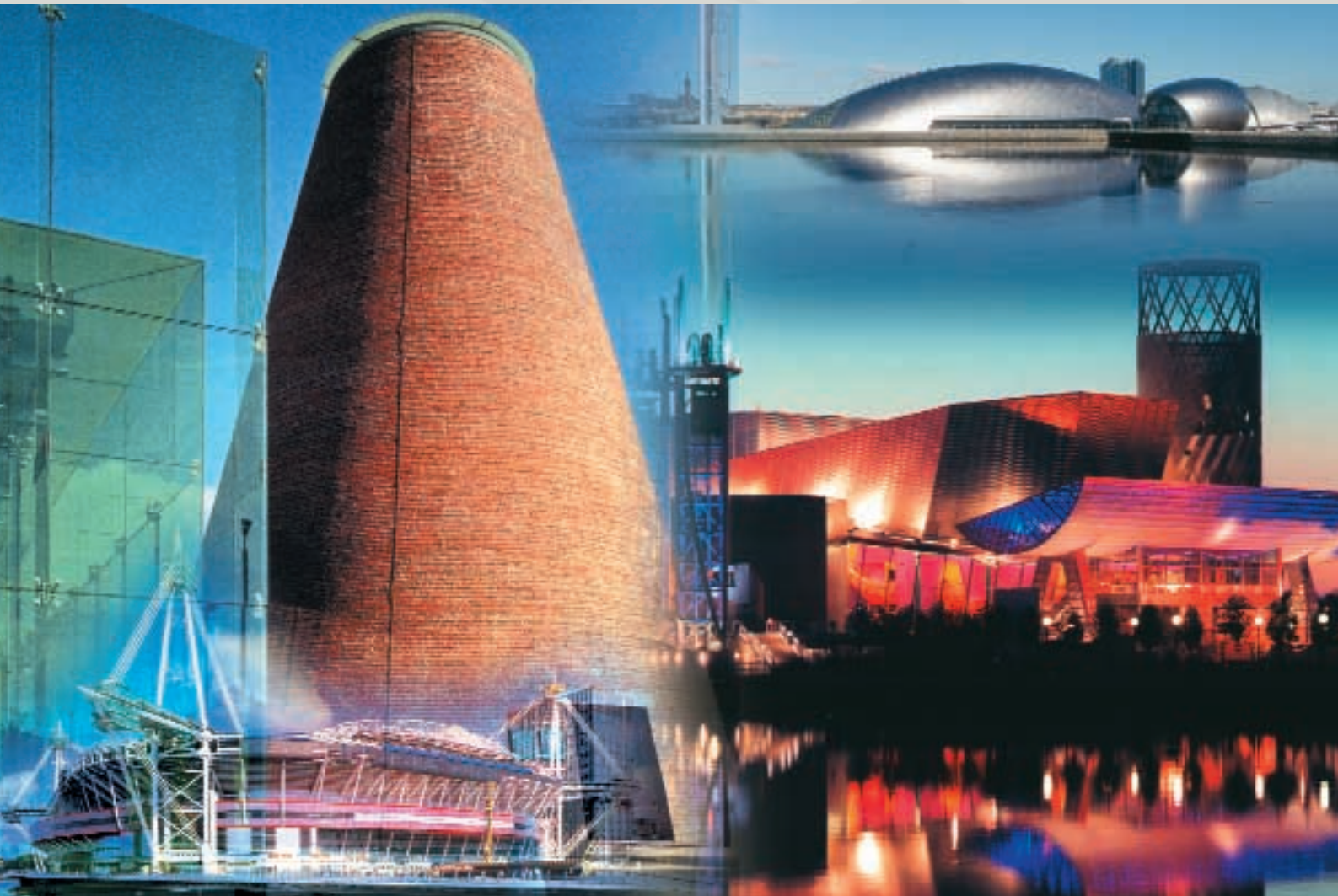


Kingspan **Kooltherm**[®] zero ODP



Assessed to ISO 9001: 2000
Certificate No. 035/2



Kingspan **Kooltherm**[®] zero ODP

Description

*Kingspan **Kooltherm**[®] zero ODP rigid phenolic insulation is based on patented technology. Whilst retaining all of the benefits of rigid polyurethane and rigid polyisocyanurate insulation, **Kingspan **Kooltherm**[®] zero ODP rigid phenolic insulation has a far superior resistance to burning and spread of flame and the lowest thermal conductivity of any commonly available insulant of 0.021 W/m.K.***

Kingspan **Kooltherm**[®] zero ODP High-Density rigid phenolic insulation is also available. Its heavier density gives it much greater compression strength and rigidity whilst retaining its far superior resistance to burning and spread of flame, making it ideal for load-bearing applications.

Kingspan **Kooltherm**[®] zero ODP and **Kingspan **Kooltherm**[®] zero ODP High-Density rigid phenolic insulation are entirely CFC/HCFC-free with zero Ozone Depletion Potential (ODP).**

Kingspan **Kooltherm**[®] zero ODP and **Kingspan **Kooltherm**[®] zero ODP High-Density rigid phenolic insulation have gained a reputation for quality and consistency, a reputation that has spread world-wide.**

Kingspan **Kooltherm**[®] zero ODP products are either cut from blocks of rigid phenolic insulation, using modern computer aided manufacturing techniques, or manufactured in a continuous lamination process.



Temperature Range

Kingspan **Kooltherm**[®] zero ODP rigid phenolic insulation and **Kingspan **Kooltherm**[®] zero ODP High-Density rigid phenolic insulation may be used on surfaces with operating temperatures from -180°C to +120°C.**

Moisture Resistance

Kingspan **Kooltherm**[®] zero ODP rigid phenolic insulation has a closed cell content of > 90%, which makes it highly resistant to moisture penetration and wicking. It is an ideal insulation material for cold, chilled and low-temperature surfaces.

Kingspan **Kooltherm**[®] zero ODP High-Density rigid phenolic insulation has an open cell structure and, because of its high density, it is resistant to moisture penetration and is also non-wicking.





Project: Burj Al Arab Hotel, Jumeirah Beach, Dubai
Engineer: W S Atkins
Insulation Contractor: B K Gulf
Products: *Kingspan Kooltherm*® Pipe Insulation
Kingspan Kooltherm® Duct Insulation
Kingspan Kooltherm® Insulated Pipe Support Inserts
Volume: *Kingspan Kooltherm*® Pipe Insulation: >100,000 linear metres
Kingspan Kooltherm® Duct Insulation: >90,000 m²
Kingspan Kooltherm® Insulated Pipe Support Inserts: >30,000 no.
Insulation Material Value: \$1.2M (US)

Insulation Performance

Kingspan Kooltherm[®] zero ODP rigid phenolic insulation has a high closed cell content and fine cell structure. The result is a thermal conductivity of 0.021 W/m.K.

0.021 W/m.K is the lowest thermal conductivity of any commonly available insulation material. A thinner insulant often results in lower surface area and therefore savings in finishing materials.

Environmental Sustainability

It is widely recognised that there are four main global environmental sustainability issues: global warming, non-renewable resource depletion, toxic pollution and ozone depletion, and that these global issues far outweigh any local environmental sustainability issues in their need for immediate attention and potential impact from inaction.

Recent studies have shown that the first three issues are essentially one. The extraction and consumption (burning) of fossil fuels is by far the most significant contributor to global warming, non-renewable resource depletion and toxic pollution.

Therefore, using zero ODP insulation materials and saving energy by specifying the best thermal performance possible are the best actions to take when considering the environmental sustainability of a project.

Kingspan Kooltherm[®] zero ODP and *Kingspan Kooltherm*[®] zero ODP High-Density rigid phenolic insulation are manufactured without the use of CFCs/HCFCs and have zero Ozone Depletion Potential (ODP).



Chemical Resistance and Compatibility

Kingspan Kooltherm[®] zero ODP rigid phenolic insulation and *Kingspan Kooltherm*[®] zero ODP High-Density rigid phenolic insulation are resistant to a wide range of oils, solvents and chemicals. They are compatible with most solvent based adhesives and solvent, polyester and epoxy resin based coatings.



Hygiene

Kingspan Kooltherm[®] zero ODP rigid phenolic insulation and *Kingspan Kooltherm*[®] zero ODP High-Density rigid phenolic insulation are resistant to fungus and mould growth, will not sustain vermin, are non-fibrous, odourless and non-tainting.

Fire and Fire Performance

The resistance to burning and spread of flame of *Kingspan Kooltherm*[®] zero ODP rigid phenolic insulation and *Kingspan Kooltherm*[®] zero ODP High-Density rigid phenolic insulation is far superior to that of any other cellular plastic insulation material, regardless of facing type. In addition, there is an almost complete absence of smoke when these products are subjected to a flame source. *Kingspan Kooltherm*[®] zero ODP rigid phenolic insulation is Class O to the Building Regulations.

Quality Assurance

Kingspan Kooltherm[®] zero ODP rigid phenolic insulation and *Kingspan Kooltherm*[®] zero ODP High-Density rigid phenolic insulation are manufactured to the highest quality standards under a quality control system approved to BS EN ISO 9001: 2000 (Quality management systems. Requirements).



Technical Advice

Extensive support is available via Kingspan Insulation's Technical Services Department. Kingspan Insulation offers a huge wealth of project experience, supported by an in-house capability for carrying out all material thickness and heat loss/gain calculations. All quoted performance data is based on accredited testing.

Technical Data

Kingspan **Kooltherm**[®] zero ODP with a density range from 35 to 60 kg/m³ for thermal insulation applications.

Physical Properties	Unit	Test Method	Value	
Norminal Density	kg/m ³	BS 4370: Part 1: 1998 (1996)	35	60
Thermal Conductivity at 10°C Mean Temp.	W/m.K	BS 4370: Part 2: 1993	0.021 ¹	0.021
Minimm Closed Cell Content	%	BS 4370: Part 2: 1993	>90	>90
Water Vapour Permeability	µg.m/N.h	BS 4370: Part 2: 1993 At 38%, 88% RH	10	10
Moisture Absorption	%	BS 3837: Part 2: 1990 (1996) (50 mm head for 7 days)	5	5
Compressive Strength at 10% Compression		BS 4370: Part 1: 1988 (1996)		
Parrallel to Rise	kPa		172	400
Perpendicular to Rise	kPa		84	270
Leachable Chloride Content	ppm	Extracted at 100°C	35	35
Operating Temperature Limits				
Upper Limit	°C		+120	+120
Lower Limit	°C		-180	-180
Specific Heat Capacity	kJ/kg. °C		1.88	1.88
Fire Test Classifications ²				
Fire Performance		BS 476: Part 6: 1989	I < 12 i < 6 ³	I < 12 i < 6 ³
Surface Spread of Flame		BS 476: Part 7: 1997	Class 1 ³	Class 1 ³

Note

(1) Aged 175 days at 70°C.

(2) Rigid phenolic insulation is organic and hence combustible. Care should be taken to avoid ignition since the burning rate of the insulation, if exposed, can be significantly greater than that of wood. The contribution to fire growth of this product is controlled by the type of finish of facing in conjunction with the insulation.

(3) These results conform to Class O to the Building Regulations.

Kingspan **Kooltherm**[®] zero ODP High-Density with a density range from 60 to 160 kg/m³ for load-bearing applications.

Physical Properties	Unit	Test Method	Value			
Norminal Density	kg/m ³	BS 4370: Part 1: 1998 (1996)	60	80	120	160
Thermal Conductivity at 10°C Mean Temp.	W/m.K	BS 4370: Part 2: 1993	0.028	0.031	0.033	0,036
Water Vapour Permeability	µg.m/N.h	BS 4370: Part 2: 1993 At 38%, 88% RH	10	10	10	10
Moisture Absorption	%	BS 3837: Part 2: 1990 (1996) (50 mm head for 7 days)	5	5	5.5	5.5
Compressive Strength at 10% Compression		BS 4370: Part 1: 1988 (1996)				
Parrallel to Rise	kPa		400	650	1350	2300
Perpendicular to Rise	kPa		270	400	950	1650
Operating Temperature Limits						
Upper Limit	°C		+120	+120	+120	+120
Lower Limit	°C		-180	-180	-180	-180
Fire Test Classifications ¹						
Fire Performance		BS 476: Part 6: 1989	I < 12 i < 6 ²	n/a	n/a	n/a
Surface Spread of Flame		BS 476: Part 7: 1997	Class 1 ²			

Note

(1) Rigid phenolic insulation is organic and hence combustible. Care should be taken to avoid ignition since the burning rate of the insulation, if exposed, can be significantly greater than that of wood. The contribution to fire growth of this product is controlled by the type of finish of facing in conjunction with the insulation.

(2) These results conform to Class O to the Building Regulations.



Project: The Lowry Centre, Salford Quays, Manchester
Engineer: Buro Happold
Mechanical Contractor: Haden Young
Insulation Contractor: Righton Insulation Services
Products: Kingspan **Kooltherm**® Pipe Insulation (35 kg/m³)
Kingspan **Kooltherm**® Duct Insulation
Kingspan **Kooltherm**® Insulated Pipe Support Inserts
Volume: Kingspan **Kooltherm**® Pipe Insulation: 12,000 linear metres
Kingspan **Kooltherm**® Duct Insulation: 5,000 m²
Kingspan **Kooltherm**® Insulated Pipe Support Inserts: 1,200 no.

Contact Details

Customer Service

For quotations, order placement and details of despatches please contact our Customer Services Department on the numbers below:

UK – Telephone: +44 (0) 870 850 8555
– Fax: +44 (0) 870 850 8444
– email: sales.uk@insulation.kingspan.com

Ireland – Telephone: +353 (0) 42 97 95000
– Fax: +353 (0) 42 97 46129
– email: sales.ie@insulation.kingspan.com

Technical Advice

Kingspan Insulation Ltd support all of their products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

This includes a free computer-aided service designed to give fast, accurate technical advice. Simply phone our **TECHLINE** with your project specification and we can run calculations to provide heat losses/gains, condensation/dew point risk, required insulation thicknesses etc.... Thereafter we can run any number of permutations to help you achieve your desired targets.

We can also give general application advice and advice on design detailing and fixing etc... Site surveys are also undertaken as appropriate.

Please contact our Building Services and Industrial Insulation Technical Services Department on the **TECHLINE** numbers below:



UK and Ireland

– Telephone: +44 (0) 1457 890 534
– Fax: +44 (0) 870 850 8444
– email: technical.uk@insulation.kingspan.com

Literature & Samples

Kingspan Insulation produces a comprehensive range of technical literature for specifiers, contractors, stockists and end users.

The literature contains clear 'user friendly' advice on typical design; design considerations; thermal properties; sitework and product data.

Available as a complete Design Manual or as individual product brochures, Kingspan Insulation technical literature is an essential specification tool. For copies please contact our Marketing Department on the numbers below:

UK – Telephone: +44 (0) 870 733 8333
– Fax: +44 (0) 1544 387 299
– email: literature.uk@insulation.kingspan.com

Ireland – Telephone: +353 (0) 42 97 95038
– Fax: +353 (0) 42 97 46129
– email: literature.ie@insulation.kingspan.com

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– Fax: +353 (0) 42 97 46129
– email: info.ie@insulation.kingspan.com

Kingspan Insulation Ltd. reserve the right to amend product specifications without prior notice. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, Kingspan Insulation offers a free Technical Advisory Service (see left) whose advice should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of the literature is current by contacting our Marketing Department (see above).



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