

Uniclass L68152	
C/SfB	L (M2)

# *Thermablok Aerogel Insulation Blanket*

## Thermablok Aerogel Blanket A2

Ultra Thin Internal Solid Wall, Ceiling & Floor Insulation Systems for New Build & Refurbishment



- Unique insulation with the lowest Thermal Conductivity of any insulation product 0.018W/m<sup>2</sup>K.
- Hydrophobic, extremely vapour permeable but non hygroscopic offering no transport for liquid.
- Breathable (Vapour Open) and Non-Breathable (Vapour Closed) Systems.
- MSB Hydroscopic Buffer Facia.
- Hostile environment to mould offering no bacterial platform.
- Non Flammable, Non Combustible Reaction to Fire Class A2-s1, d0 BS EN 13501-1:2007.
- No resins, binders or performance enhancing gases which may be released through service.
- 100% Recyclable.
- Environmentally Friendly.
- Rodent / Vermin Resistant.



# Introduction

## Thermablok Aerogel Advanced Insulation an Environmentally Friendly Solution to Thermal Bridging

*Thermablok Aerogel Advanced Insulation* is an ultra high performance fibre reinforced silica aerogel blanket insulation suitable for thermal upgrades of solid walls, floors and roofs and associated thermal bridging in new, modern and historic buildings.

The material uses the insulating power of trapped air in a nano-porous silica matrix to achieve its excellent thermal performance and represents the most thermally efficient bridging treatment available today.

Unlike competing solutions, *Thermablok Aerogel* can be mechanically fixed to substrates such as concrete, brick, wood and metal and is ideal for use in building construction and energy efficiency retrofits.

Most heat transmission through walls is passed directly through the building envelope, be it masonry, block or stud frame to the internal facia in a process known as *Thermal Bridging*.

*Thermablok Aerogel*, which has the highest insulation value of any known material with the lowest thermal conductivity value of any solid (0.015W/mK - 0.018W/mK depending on spec.), works by breaking this thermal bridging link.

### Products

- *Thermablok Aerogel Blanket Insulation (A2)*
- *Thermablok Aerogel ThermaSlim Internal Wall Insulation (IWI)*
- *Thermablok Aerogel ThermaSlim Reveal / Return*
- *Thermablok Aerogel ThermaSlim External Insulation Finishing System (EIFS)*
- *Thermablok Aerogel ThermaSlim Internal Floor Insulation (IFI)*
- *Thermablok Aerogel Strips (Standard & Custom)*
- *Thermablok Aerogel ThermaJoist Insulation*

The material is totally breathable, ensuring a healthy, durable working building with a natural ability to repel liquid whilst allowing the passage and release of moisture vapour - a major factor in historical build.

*Thermablok Aerogel* does **not** rely on a vacuum or heavy molecular gases to insulate. It is hydrophobic and is therefore not affected by moisture or age and is a hostile environment, offering no bacterial platform for mould growth. It also provides major energy savings for the life of the building.

A single 10mm thickness of *Thermablok Aerogel Super Insulation Blanket* increases the insulation factor by up to 67% without compromising on Gross Internal Area (GIA).

It is 100% recyclable.

*Thermablok Aerogel* carries a European Technical Approval (ETA) governing its use as a thermal insulation in various Building & Construction applications - ETA11\_0471, an Environmental Product Directive (EPD) and British Board of Agreement (BBA) approval for the composite board systems of *Thermablok Aerogel Magnesium Oxide Board* and installation as instructed.

### Applications

- *Solid Wall (IWI)*
- *Partition Wall Returns*
- *Window & Door Reveals*
- *Floors*
- *Ceilings / Roofs*
- *Timber Frame, Steels, Columns*
- *Soffits*
- *Balconies & Building Facades*
- *Joist Ends*
- *Pipe Lagging*

# Design Considerations

## Heritage Solutions

Where a breathable upgrade is required, for example in historic or heritage projects, a hydroscopic, vapour open variant - *Thermablok Aerogel / ThermaSlim Aerogel Board* should be selected.

*ThermaSlim Aerogel Board* is a complete natural lime based wall insulation upgrade designed to offer a heritage finish in an easy to install and finish system.

## WUFI Consultancy

*Thermablok Aerogels* can offer consultancy and a hygrothermal simulation software package where required.

## Breathability / Vapour Control

*Thermablok Aerogel* is available in breathable and non breathable form. Product variants should be selected based on an appropriate condensation risk assessment.

## Interstitial Condensation / Moisture

It may be assumed that any permeable structure with warm humid air on one side and cold air on the other will be subject to interstitial condensation and precautions need to be taken.

*Thermablok Aerogel ThermaSlim* offers a hydroscopic buffer.

## Thermal Bridging / Thermal Creep

*Thermablok Aerogel* can be used to reduce surface condensation at window and door openings where conventional insulations would obscure the window frame or provide insufficient thermal resistance.

## Window & Door Reveals

A 10mm thickness of *Thermablok Aerogel* is typically sufficient to increase the surface temperature factor  $F_{rsi}$  above the critical limit (0.75) necessary to avoid surface condensation.

## Joist Ends

*Thermablok Aerogel JoistTherm* offers heat loss and vapour control in this critical location, not addressed with conventional insulation methods.

## Partition Walls

*Thermablok Aerogel ThermaSlim Board's* ultra slim form represents an excellent treatment for the classic thermal bridge or partition walls to external solid wall junction.

## NBS Specification

Details also available in NBS Plus. NBS users should refer to clause(s):

H11, H20, K10, K11 K40, K45, M40, M21, P10

The logo for NBS Plus, consisting of the letters 'NBS' in a white, bold, sans-serif font followed by the word 'Plus' in a smaller, white, sans-serif font, all contained within a dark teal square background.

## Durability

The finished system is expected to last the duration of the building, the *Thermablok Aerogel* component is expected to perform for a minimum of 60 years.

## Emissions

*Thermablok Aerogel* meets the highest requirements of the interior emissions M1 Test (Finland) *Thermablok Aerogel* does not contain any resins, binders or performance enhancing gasses which may be released during service.

## Environmental Impact, Sustainability and Responsibility

*Thermablok Aerogels* and Aspen Aerogels operate a sustainable supply chain management and responsible sourcing system. *Thermablok Aerogels* has a long term commitment to sustainability and responsibility: as a manufacturer and supplier of insulation products; as an employer and as a member of its neighbouring communities.

An Environmental Product Declaration for *Thermablok Aerogel* (EPD) is available on request.

## Specification Terms

The specific insulation will be:

*Thermablok Aerogel Isolation Strips,*

*Thermablok Aerogel Blanket*

*Thermablok Aerogel Blanket A2*

*Thermablok Aerogel ThermaSlim Wall (IWI),*

*Thermablok Aerogel ThermaSlim Reveal / Return,*

*Thermablok Aerogel ThermaSlim Impact Floor (IFI)*

*Thermablok Aerogel ThermaSlim Floor (IFI);*

comprising Aerogel super insulation technology in its raw form, encapsulated in foil / plastic sleeve, with or without Magnesium Oxide Board.

The systems shall be manufactured by materials that have zero Ozone Depletion Potential (ODP) and a Global Warming Potential (GWP) less than 5, under a certified management system issued by *Thermablok Aerogel* products and installed in accordance with the instructions issued by the same.

# Product Description

## Thermablok Aerogel Blanket A2

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*Thermablok Aerogel Insulation Blanket A2* is a flexible, nanoporous aerogel blanket insulation that reduces energy loss whilst conserving interior space in residential and commercial building applications.

*Thermablok Aerogel Insulation Blanket A2* is fire classification of A2 - s1, d0

Thermablok's unique properties - extremely low thermal conductivity, superior flexibility, compression resistance, hydrophobicity and ease of use - make it essential for those seeking the ultimate in thermal protection.

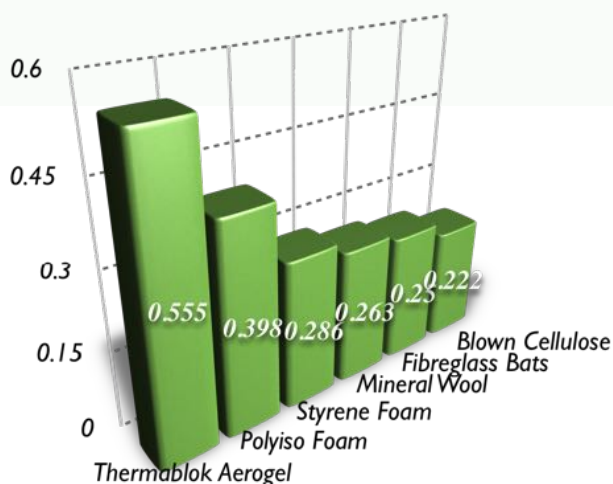
Using patented nanotechnology, *Thermablok Aerogel Insulation Blanket A2* combines amorphous silica aerogel with reinforcing fibres to deliver industry-leading thermal performance in a risk averse, environmentally safe product which is hostile to bacterial / mould growth.

*Thermablok Aerogel Insulation Blanket A2* is a proven, effective insulator in all construction applications, providing the highest R-value / lowest U-value of any insulation material available for maximum energy efficiency in walls, floors, roofs, structural frame and window frames. Also used extensively to insulate against accelerated, localised thermal bridging points within reinforced construction such as steels, RSJ's, columns, lintels and ring beams.



<i>ThermaBlok Aerogel</i>	<i>R value (m²K/W)</i>	<i>U value* (W/m²K)</i>
5mm	0.277	3.61
10mm	0.555	1.80
20mm	1.111	0.90
30mm	1.666	0.600
40mm	2.222	0.450
50mm	2.777	0.36

### R Value Comparisons of 10mm Thickness



*NB - Establish if the existing assembly is Vapour Open (Breathable) or Vapour Closed (Non Breathable) and specify the appropriate open or closed system / solution.*

*NB - Establish which fire classification is required for each and every application.*

*NB - Thermablok Aerogel Insulation Blanket is a direct fix solution without the need for a ventilation cavity and as such it is advised to prepare the area in such a way to ensure a flat and even surface for 100% contact of aerogel to substrate. It is also further advised to wash any existing substrate with an anti microbial solution to remove any bacterial / mould spores and deposits.*

*NB - The figures quoted are for guidance only. A detailed U-value calculation and a condensation risk analysis should be completed for each project.*

*NB - It is assumed that a good level of workmanship has been attained in all installations and thus eliminating repeat bridges and thermal loops.*

# Product Details

## Thermablok Aerogel Blanket A2

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*Thermablok Aerogel Blanket* is a flexible material available in differing thicknesses. Typically the 5mm thicknesses are used within industrial or commercial settings with the 10mm system more widely used in building and construction. Product variants should be selected based on required fire performance and appropriate condensation risk assessment.

A comprehensive characterisation file for *ThermaSlim* MgO Board systems is available on request for commonly used hygro-thermal simulation software programmes such as WUFI.

### Standards & Approvals

BBA - British Board Agreement Approval  
ETA - European Technical Approval  
EPD - Environmental Product Directive

Green Deal Certified  
ECO Registered  
Certificated Silver C2C

RoHS (Restriction of Hazardous Substances) - Compliant  
REACH - Compliant

Ozone Depletion Potential - Zero  
Global Warming Potential - Less than 5

### Thermal Conductivity

- Thermablok Aerogel: 0.018W/m<sup>2</sup>K @mean temperature of 10°C

### Fire

- Thermablok Aerogel A2: Fire rated to BS EN 13501-1:2007 - A2-s1, d0

### Impact Strength (Brinell)

- Thermablok Aerogel: 80kPa / 80 kN/m<sup>2</sup> at 10%

### Density (Dry) (ex works)

- Thermablok Aerogel: 150kg/m<sup>3</sup>

### Vapour Permeability

- Thermablok Aerogel: ISO 12572: 5to 5.5mu

### Specific Heat

- Thermablok Aerogel: 1000 J/kg/K

### Embodied Energy (10mm)

- Thermablok Aerogel: 5.3kgs / CO<sub>2</sub> per m<sup>2</sup>

### Mould / Bacteria

- Thermablok Aerogel: NIL / Hostile Platform

