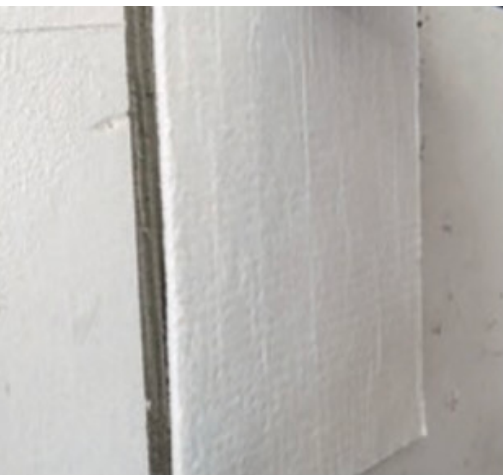
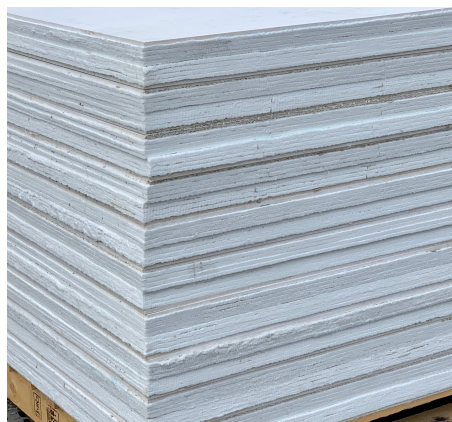


Thermablok Aerogel Insulation Blanket

Thermablok Aerogel A2 Insulation Blanket



- Unique insulation with the lowest Thermal Conductivity of any insulation product in class 0.016W/mK.
- Non Combustible Reaction to Fire Class A2-s1, d0 BS EN 13501-1
- Hydrophobic, extremely vapour permeable but non hydroscopic offering no transport for liquid.
- Breathable (Vapour Open).
- Hostile environment to mould offering no bacterial platform.
- Recyclable.
- Environmentally Friendly.
- Rodent / Vermin Resistant.



Introduction

Thermablok Aerogel Advanced Insulation an Environmentally Friendly Solution to Thermal Bridging

Thermablok Aerogel Insulation is an advanced, ultra high performance fibre reinforced silica aerogel blanket insulation suitable for thermal upgrades of solid walls, floors and roofs and associated thermal bridges 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 to 0.016W/mK), works by breaking this thermal bridging link.

Products

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

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 Insulation Blanket* increases the insulation factor by up to 67% whilst maximising Gross Internal Area (GIA) -(nb. guidance only / dependant on substrate).

It is 100% recyclable.

Thermablok Aerogel material 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 until mid 2022 held a British Board of Agreement (BBA) approval for the composite board systems of *Thermablok Aerogel ThermaSlim Board System* and installation as instructed.

Applications

- *Solid Wall (IWI)*
- *Partition Wall Returns*
- *Window & Door Reveals / Headers*
- *Floors*
- *Ceilings / Roofs*
- *Timber Frame, Steels, I Beams, Columns*
- *Soffits*
- *Balconies*
- *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 can be part of a complete natural lime based wall insulation upgrade designed to offer a heritage finish in an easy to install and finish system.

WUFI Consultancy

Hygrothermal simulation software / data package available where required.

Breathability / Vapour Control

Thermablok Aerogel is available in breathable and non breathable forms. 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 Board 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 Blanket* 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 IWI Board's ultra slim form represents an excellent treatment for the classic thermal bridge or partition walls to external solid wall junction.

Fire Classification

Thermablok Aerogel Blanket : C - s1,d0

Thermablok Aerogel A2 Blanket : A2 - s1,d0 in accordance with DIN EN 13501-1

The specific fire performance criteria required for each element of design within any given project should be firmly established by specifiers.

NBS Specification

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

Durability

Under normal conditions, the board systems are dimensionally stable, durable and will have a service life equal to the building in which they are installed. 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 gases 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. With 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 (EPD) is available on request.

Specification Terms

The specific insulation will be:

Thermablok Aerogel Insulation Blanket

Thermablok Aerogel A2 Insulation Blanket

Thermablok Aerogel Isolation Strips (Blanket)

Thermablok Aerogel ThermaSlim Wall (IWI),

Thermablok Aerogel ThermaSlim Reveal / Return,

Thermablok Aerogel ThermaSlim Impact Floor (IFI)

Thermablok Aerogel ThermaSlim Basement Rail

Thermablok Aerogel Insulation Slab and Frame

Ozone Depletion Potential (ODP) - 0

Global Warming Potential (GWP) less than 5

Product Description

Thermablok Aerogel A2 10mm Insulation Blanket

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

Thermablok Aerogel A2 is fire classification of A2 - s1, d0 in accordance with DIN EN 13501-1

Thermablok Aerogel A2 unique properties - lowest thermal conductivity 0.016W/mK, superior flexibility, compression resistance, hydrophobicity, vapour permeability, A2 fire rating and ease of use - make it essential for those seeking the ultimate in thermal protection.

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 non burning, flexible High Performance Insulation based on Silica-Aerogel.

Exterior and interior use for minimising thermal bridging such as around doors, windows, window reveals or roller shutter cases.

Exterior and interior optimisation of thermal performance within the facade such as: thermal decoupling of ventilated facade elements, ventilated facade insulation boards and insulation for exterior insulation finishing systems (EIFS)

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, RSJs, columns, lintels.

- Non -burning
- Excellent thermal insulation
- Water vapour diffusion open
- Flexible
- Temperature range -200°C to +650°C



<i>ThermaBlok Aerogel A2 (calculated on 0.016W/mK)</i>	<i>R value (m²K/W)</i>	<i>U value* (W/m²K)</i>
10mm	0.625	1.60
20mm	1.250	0.80
30mm	1.875	0.53
40mm	2.500	0.40
50mm	3.125	0.32
60mm	3.750	0.27
70mm	4.375	0.23
80mm	5.000	0.20

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 - Product variants should be selected based on an appropriate condensation risk assessment.

NB - Thermablok Aerogel Insulation Blanket is a direct fix solution 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 A2 Insulation Blanket

Characteristics / Test Method / Value, Note

Characteristic	Test Method	Value
Colour		White
Thermal Conductivity (λ_D)	UNI-EN 13162:2015	0,016 W/(m×K)
Nominal Density	DIN EN 1602	200 (± 30)kg/m ³
Material Thickness		10 mm
Panel Thickness		10/20/30/40/50 mm
Water Vapour Permeability, μ -Value	UNI EN 12086: 1999	$\mu=7$ / Sd (m) = 0,07
Dimensional Stability at def. Temperature (70°C, 48h)	EN 1604	< 1%
Commitment Limit Temperatures		-50°C to +450°C
Compressive Strength at 10% Compression -(10mm)	EN 826	30kPa
Compressive Strength at 10% Compression -(20mm - 50mm)	EN 826	48kPa
Tensile Strength Perpendicular to Faces	EN 1607	σ (MPa) $\geq$ 15.32
Behaviour Under Point Load	EN 12430	F _p > 2482 kN
Long Term Water Absorption by Immersion (48)	DIN EN 1609	W _p < 0,01 kg/m ²
Specific Heat	ASTM E 826	1.000 J/kgK
Values given for characteristics are average values.		
Reaction to Fire Classification	EN 13501-1:2019	A2-s1, d0

The classification applies to the following end-use conditions:

- The building product may be used on all wooden substrates of Euroclass D-s2, d0 and all substrates of Euroclass A1 and A2-s1, d0 with a minimum thickness of 10 mm and a minimum density of 510 kg/m³.
- The building product may be used on metal substrates with a minimum thickness of 0,6 mm, a minimum density of 5887,5 kg/m³ and a minimum melting point of 1000 °C.
- The building product must be fixed mechanically to the substrate.
- The building product may be used with vertical and horizontal joints.
- The building product must be protected from soaking and weathering influences.
- Certificates / Reports: Available on request.
- CE Declaration of Conformity.

The data contained in this document as well as advice or other support services are based on our current knowledge and experience and are provided according to our best knowledge. In view of many factors that may affect processing and application of our products, this data does not relieve designers, installers or processors from carrying out their own investigations and tests, particularly with regards to the suitability of the goods supplied for the processes and purposes they intend to use them for; neither does this data imply any guarantee of certain properties, or the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, measured values etc. given herein may change without prior notice and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.



SAFETY DATA SHEET

THERMABLOK AEROGEL A2 BLANKET INSULATION

Revision Date: 01/01/20

1. IDENTIFICATION OF PRODUCTS AND MANUFACTURER

Product Name:	AEROGEL A2 THERMABLOK AEROGEL
Acronym / Synonym:	Silica Aerogel (White) High performance thermal insulation
Manufacturer	Distributor
	Thermablok Aerogel Ltd
	The Oasts, Church Farm Estates,
	Ulcombe, Kent ME17 1DN
	UK
	+44 1622 840289
	info@thermablok.co.uk

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	EINECS Number	Percent
Amorphous silica	112945-52-5	231-545-4	35-60%
Glass fiber	None	None	20-50%
Al ₂ O ₃	1344-28-1	215-691-6	5-10%

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

Product is not classified as a dangerous material or preparation as defined in National List of Hazardous Chemicals, in GB 6944-2005 Classification and Number of Hazardous Chemicals and in Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

CARCINOGENICITY:

Component	ACGIH	IARC
Amorphous silica	None	None
Glass fiber	A4	3
Al ₂ O ₃	Not Listed	None

ACGIH: American Conference of Governmental Industrial Hygienists

IARC: International Agency for Research on Cancer

Eye Contact: Exposure to dust from this product can produce a drying sensation and irritation of the eyes. Seriously, it can cause pain and redness.

Skin Contact: Skin contact with dust from this product can produce a drying sensation and irritation of the skin and mucous membranes. Excessive contact may aggravate existing dermatitis.

Ingestion: This material is not intended to be eaten. If ingested in large quantity, the material may produce irritation and blockage.

Inhalation: Inhalation of airborne dusts may cause irritation of the upper respiratory tract. Excessive inhalation may aggravate pre-existing chronic lung conditions including, but not limited to, bronchitis, emphysema, and asthma.

Environmental hazards: No harm to the environment as per National Catalogue of Hazardous Wastes.

Explosion Hazards: This product is not flammable, but the plastic encapsulations will burn in the event of fire.



SAFETY DATA SHEET

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Revision Date: 01/01/20

4. FIRST AID MEASURES

Eye Contact: Immediately wash with large amounts of water for at least 15 minutes, occasionally lifting lids. If irritation occurs and persists, get medical treatment.

Skin Contact: Remove contaminated clothing and shoes, and wash skin thoroughly with soap and plenty of water. Wash clothing before reuse.

Ingestion: If symptoms persist, seek medical attention immediately.

Inhalation: Remove to fresh air. If symptoms persist, seek medical attention immediately.

5. FIRE-FIGHTING MEASURES

FLAMMABILITY PROPERTIES:

Auto ignition Temperature: Not Applicable

Flash Point: Not Applicable

Flammability Limits: (Lower Explosive Limit): Not Applicable

Flammability Limits: (Upper Explosive Limit): Not Applicable

Harmful Combustion Products: In the scene of a fire, primary combustion products are carbon monoxide, carbon dioxide and dihydrogen oxide.

Fire Fighting Procedures: Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases produced by a fire. Protective clothing are needed. Firefighters should stand in the tuzere, and use the fire-fighting facilities for surrounding environment.

Suitable extinguishing agent: Dry powder, foam, mist shape water or carbon dioxide

Hazards: The product is a super-insulation material. Rolls of material can retain heat within internal layers and re-ignite combustible materials if heat is not removed.

6. ACCIDENTAL RELEASE MEASURES

Personal Protective: Chemical protective clothes and dustproof mask are needed(full cover).

Environmental Precautions: Insoluble in water. It is strictly prohibited to environmental emissions without treatment to avoid block.

NOTES: Powder and fragments should be cleaned up using a method that will avoid the creation of dust in the workplace atmosphere. A vacuum cleaner is recommended.

7. HANDLING AND STORAGE

Handling: Aerogel blankets will generate dust when handled. Workplace exposure to all dusts should be controlled with standard industrial hygiene practices. Because aerogel dust is hydrophobic, dry vacuuming is the preferred method for cleaning up dust.



SAFETY DATA SHEET

THERMABLOK AEROGEL A2 BLANKET INSULATION

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It is suggested to wear approved respiratory protective equipment, protective glasses and gloves. Don't make dust touches the skin, eyes or clothes. Clean thoroughly after handling.

Storage: It should be stored in cool, dry and ventilated warehouse.
Aerogel blankets should be kept in their packaging until they are ready to be used. It will help to minimize the area where dust exposure may occur.
The waste after cutting should be promptly packed in disposal bags.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Values

AVERAGE VALUE (8 HOURS)					
Component	CAS Number	US OSHA PEL (TWA)		UK WEL	
		Total inhalable fraction	Inhalable fraction	Total inhalable fraction	Inhalable fraction
Amorphous silica	112945-52-5 68909-20-6	15mg/m ³	5mg/m ³	6mg/m ³	2.4mg/m ³
Al ₂ O ₃	1344-28-1	15mg/m ³	5mg/m ³	10mg/m ³	4mg/m ³
Glass fiber	—	5mg/ m ³	2mg/ m ³	—	—

Ventilation: Local exhaust in accordance with general industrial hygiene practices is recommended to control dust.
Respiratory Protection: A properly fitted, NIOSH or CE approved respirator should be worn.
Eye Protection: Safety glasses, or chemical goggles as needed to provide greater protection from dust.
Skin Protection: Nitrile, latex, or other impermeable coat should be worn when handling aerogel blankets.
Hand Protection: Nitrile, latex, or other impermeable gloves should be worn when handling aerogel blankets.

Other Protection: Keep a good Hygienic Practice. Smoking, eating and drinking are not allowed in work area. Wash hands before eating or drinking. Wash thoroughly after using the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White fabric blanket
PH: Not applicable
Boiling Point: Not applicable
Relative density (water=1): Not applicable
Melting Point: Not applicable
Vapor pressure: Not applicable
Solubility: Insoluble
Key property: Insulation

10. STABILITY AND REACTIVITY

Chemical stability: Stable
Materials to Avoid: Organic solvent.



SAFETY DATA SHEET

THERMABLOK AEROGEL A2 BLANKET INSULATION

Revision Date: 01/01/20

Conditions to Avoid:	Temperatures above the recommended use temperature
Hazardous:	None
Decomposition products:	Primary combustion products are carbon monoxide, carbon dioxide and dihydrogen oxide.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: Dust may cause irritation and dryness to eyes and skin.

Amorphous Silica:

LD50: >5,000 mg/kg (Oral)

LC50: >2,000 mg/m³ (Inhalation)

LD50: >3,000 mg/kg (Dermal)

Eye Irritation: It is not irritating to eyes under experimental conditions, but may produce dryness following prolonged and repeated exposure.

Skin Irritation: It is not irritating to skin under experimental conditions, but may produce dryness following prolonged and repeated exposure.

Aluminum oxide LD50: >5,000 mg/kg (Oral)

Eye Irritation: Slightly irritating.

Skin Irritation: Non-irritating

Reproductive Toxicity: None

Carcinogenicity: None.

Mutation: None

Teratogenic toxicity: None

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Amorphous Silica Fish: LC50 > 10,000 mg/L (Brachydanio rerio: 96 hour), Method OECD 203

Daphnia magna: EC50 > 10,000 mg/l (24 hours), Method OECD 202

Aluminum oxide Fish: LC50 > 10,000 mg/L

Persistence and Biodegradability : Not applicable for inorganic material.

Bioaccumulative Potential : None, due to insoluble nature of product.

Other Adverse Effects : None.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: It is not classified as hazardous waste, and can be disposed of at a normal landfill site that has been licensed for the disposal of industrial waste.

14. TRANSPORT INFORMATION

Shipping Name: Not regulated for transport

Hazard Class: None

UN Number: None

Packing Group: None



SAFETY DATA SHEET

THERMABLOK AEROGEL A2 BLANKET INSULATION

Revision Date: 01/01/20

Required Label(s): None
Additional Information: None

NOTES: Try to keep packing integrity, and avoid dust, heat, and fire on the prescribed route. Organic solvents are not allowed to be mix shipped with.

15. REGULATION INFORMATION

Regulations on the Safety Use of Chemicals in Workplace (File No.423 by Ministry of Labor in 1996)
Classification and Mark of Common Dangerous Chemicals (No.344 by the State Council of PRC)
National Catalogue of Hazardous Wastes (2008 Appendix by Ministry of Environmental Protection)
Catalogue of Dangerous Chemicals (2002 Edition)
GB 6944-2005 Classification and code of dangerous goods
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
American Conference of Governmental Industrial Hygienists (ACGIH)
International Agency for Research on Cancer (IARC)
Occupational Safety and Health Act (OSHA)

16. OTHER INFORMATION

All information within this MSDS is intended for use by persons who have or should obtain professional knowledge and experience in the subjects discussed.

All information, advice or other support services are based on our current knowledge and experience and are provided according to the best of our knowledge for the applications and installations as they are understood. This information does not relieve designers, installers or contractors from carrying out their own investigations, analysis and feasibility particularly with regards to the suitability of the materials and systems specified within any proposed installation.

Thermablok Aerogel Ltd makes no warranty, express or implied, as to the accuracy, completeness or reliability of information herein except that such information is, to the best of our knowledge and belief, accurate as of the revision date indicated. We recommend that customers independently test and evaluate its products and their products and processes in which our products are used in order to decide their safety and effectiveness.