

Wedge India

Wall Insulation

Heat, Cold, Fire Protection | Low Thickness

- External Wall Insulation
- Internal Wall Insulation
- 7- 8 Hours Heat Protection
- 10 -12 Hours Cold Protection
- High Strength, Low Thickness



Wedge Heat Insulation Solutions

Improved solutions to heat problems are constantly required in most applications and processes starting from (-) 60 °C to 1750 °C to improve operational performance and durability of equipments, reduce heat loss, save energy, save space, and protect environment.

Finding heat insulation system with highest insulation performance (lowest thermal conductivity), high mechanical strength, high service temperature, easiest application, long lasting, and lowest cost is almost impossible. However, thanks to the modern insulation technologies and latest developments in combining wide range of technical properties making it available a wide range of insulation materials & systems to achieve optimized high performance at low cost and long lasting insulation systems at extremely low maintenance cost.

Heat insulating materials usually have a total porosity of at least 45%, in practice mostly from 60 to 90%, and in extreme cases up to 99%. Besides low thermal conductivity, high porosity causes reduced mechanical strength, high gas permeability and low corrosion resistance. The thermal conductivity not only depends on the total porosity of the material, but also on the pore size and shape, the structure composition and the mineralogical composition.

Depending on temperature, the factors responsible for the flow of heat – solid state conduction, convection and radiation – vary in influence. Maximum pore diameters of < 1 mm are necessary. Micro -porous insulating materials with pores < 0.1 µm have the lowest thermal conductivity.

Wedge manufactures and offers wide range of Insulation solutions designed in-house, manufactured with high quality raw materials, and fabricated to highest precision.



Wedge Insulation systems satisfy the demand for optimum planning, thermal profiles, ready to use shapes, lower thickness, easy installation, high insulation performance, long life, and lower maintenance cost. Our insulation materials are most suitable for all types of surfaces straight and cylindrical.

Our wide range of insulation products include: Microsilica, Fumed Silica, Nano-porous, Microporous, Millboards, Magnesium Silicate, Calcium Silicate, Perlite, Vermiculite, Refractory Fibre Cement, Ceramic Fibre, Glass Wool, Slag Wool, Foam Glass, Aerogel, Vacuum Insulation.



What is Insulation?

Insulation is a property of any material that explains the resistance to transfer or transmit any form of energy it could be sound, heat, electricity, fire, cooling, vibrations. In general term Insulation is used to describe material that creates barriers for transmission of electricity, heat, moisture, shock or sound.

What is thermal or heat Insulation?

Thermal insulation of any material (organic or inorganic) is the resistance to heat transfer or transmission. To understand insulation materials we need to understand the physics of heat transfer. Heat transfer can occur through conduction (solid & gaseous), convection and radiation. Usually the overall heat transfer comes from a combined effect of all of them. The driving force in this process is the temperature difference. In furnaces and plants with low mechanical load and without corrosion stress, a design with lightweight heat insulating materials has almost completely eliminated heavy designs with dense, refractory materials.

Heat insulating materials are products for the refractory lining of thermal industrial plants with the objective of reducing heat losses. Here the low thermal conductivity and the thermal capacity of air is used. Heat insulating materials usually have a total porosity of at least 45%, in practice mostly from 60 to 90%, and in extreme cases up to 99%. Besides low thermal conductivity, high porosity causes reduced mechanical strength, high gas permeability and low corrosion resistance. The thermal conductivity not only depends on the total porosity of the material, but also on the pore size and shape, the structure composition and the mineralogical composition. Depending on temperature, the factors responsible for the flow of heat solid state conduction, convection and radiation vary in influence. Maximum pore diameters of < 1 mm are necessary.

Wedge Micro Silica Aerogel Microporous FSMP insulating materials with pores < 0.1 μm have the lowest thermal conductivity. The thermal shock resistance of lightweight construction materials has a large influence on applications. High temperature wool products usually resist severe thermal shocks. Other lightweight construction materials are sensitive to thermal shock. The term "heat insulating bricks" covers those heat insulating materials which are applied up to 1000°C and which are often mistakenly referred to as rear insulation materials. These products are manufactured on the basis of naturally occurring lightweight raw materials (kieselguhr, vermiculite, perlite). They are assigned to the group of lightweight refractory bricks which are made out of refractory raw materials.



What is Heat transfer?

The heat energy transfer rate through a body is proportional to the temperature gradient across the body and its cross sectional area. In the limit of thickness and temperature difference, the fundamental law of heat transfer is:

$$Q = \lambda A \times dT / dx$$

Q is the heat transfer (W)

A is the cross-sectional area (m²)

dT/dx is the temperature/thickness gradient (K/m)

λ is defined as the thermal conductivity value (W/m.K)

Even the very best thermal insulation will not block heat completely. Every material will transfer some heat if a temperature gradient exists across its thickness. According to the known laws of thermodynamics, heat will always flow from a region of high temperature to one of lower temperature. This is simple physics. The effectiveness of a material as a thermal insulator can be expressed in terms of its thermal conductivity.

Solid Conduction Heat transfer

In a solid, a liquid, or a gas, as individual molecules heat up they vibrate more and more. In solid conduction heat energy is transferred from one adjacent molecule to another by this vibration. The transfer rate is related to the material's density or mass. The higher the mass, the higher the conduction will be. It is also related to the length and cross section of the conduction path. The rate of solid conduction is directly proportional to the cross sectional area of the conduction path, and inversely proportional to the length of that conduction path.

Convection Heat transfer

Convection is heat transfer by bulk movement within a heated fluid such as a liquid or a gas. Free convection is caused by expansion of gas or fluid when heated, causing hot regions to become less dense and buoyant and to rise. Circulation occurs as the hot fluid cools and sinks down again. Free convection systems can be very large and convey massive amounts of heat, for instance in weather systems and the circulation of molten rock inside the earth. The gas or liquid particles may be energised when passing by a warmer solid mass. A classic convector heater is a perfect example (hot air rises, and as it cools down, it falls). Convection currents are avoided by the inability of the air molecules to flow inside the microporous structure. Since a microporous material consists mostly out of entrapped air (> 95%), it cannot act as an intermediary solid material to allow convection of the surrounding air.

Radiation Heat transfer

All objects absorb and emit thermal radiation. Also called infrared radiation, the heat is transferred by the emission of electromagnetic waves. No particles are involved, unlike in the processes of conduction and convection, so radiation can even work through the vacuum of space. This is why we can still feel the sun's heat, although it's 150 million km away from the earth. The hotter an object is, the more infrared radiation it emits. The radiation rate is proportional to the fourth power of temperature, resulting in rapidly increasing heat loss when temperature rises.

Gaseous Conduction Heat transfer

All materials whether solid, liquid, or a gas, have mass and a thermal conductivity and can therefore conduct heat. When gas molecules are heated, the heat energy is converted to kinetic energy and they start moving faster. Gaseous conduction occurs when adjacent gas molecules collide and transfer their kinetic energy. The mean free path of a gas molecule is the average distance it will need to travel before it collides with another molecule. The mean free path of an air molecule at STP is around 93 nm (3.66 x 10⁻⁶ inches).



Wall Insulation

We design, develop, and manufacture best wall insulation materials board sheet roll for cavity, basement, garage, exterior, insulated wall panels, soundproof interior at low price at wedge India.

Types of Wall Insulation

The most common types of materials used for loose-fill insulation include cellulose, fiberglass, and mineral (rock or slag) wool. All of these materials are produced using recycled waste materials. Cellulose is primarily made from recycled newsprint. Most fiberglass products contain 40% to 60% recycled glass.

At wedge we supply and offer wide range of wall insulation materials including Fiberglass, Mineral wool, Cellulose, Natural fibers, Polystyrene, Polyisocyanurate, Polyurethane, Perlite, Cementitious foam, Phenolic foam, Insulation facings, etc.

- Walls insulated coveralls
- 2x6 wall insulation
- Blow in wall insulation
- Basement walls insulation
- Spray foam wall insulation
- Concrete wall insulation
- Insulation wall panels
- Sound insulation for walls
- Cavity wall insulation
- Insulate basement wall
- Insulating exterior walls
- Wall insulation board

Internal wall insulation

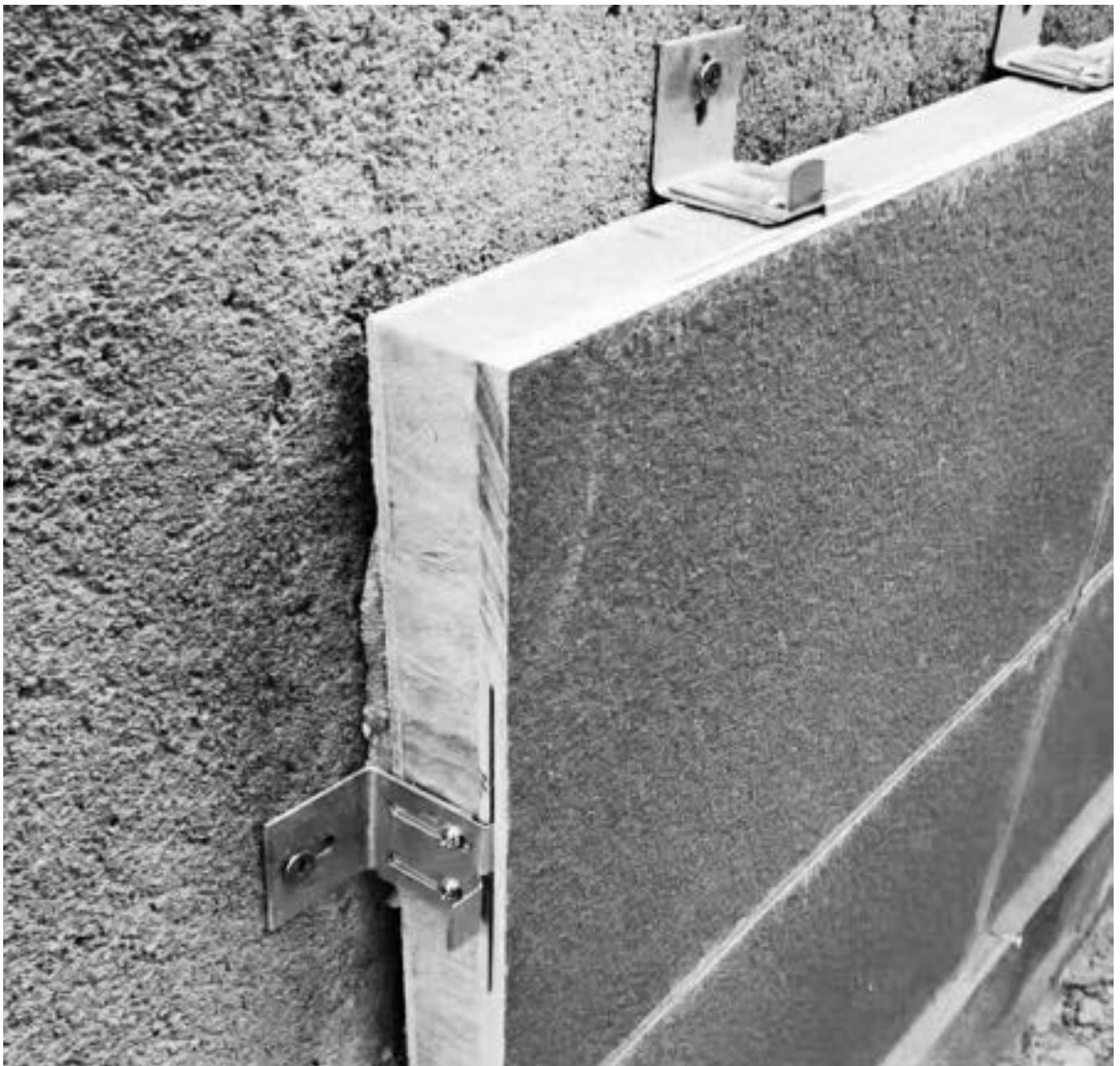
Internal wall insulation can be used in both commercial and residential properties to improve indoor comfort and boost energy efficiency. The thickness of thermal insulation is dependent on whatever type is required in order to create a partition with a heat transmission factor of $U=0.25-0.3 \text{ W/m}^2\text{K}$. When calculating the actual insulation requirements, consideration must be given to current Building Regulation standards. Consideration must also be given to exposure and durability, and whether the structure might be subjected to vandalism etc. In many older properties, special attention is required for concrete beams or lintels which act as thermal bridges providing poor insulation.



External wall insulation system (or EWIS)

External wall insulation is a thermally insulated, protective, decorative exterior cladding procedure involving the use of expanded polystyrene, mineral wool, polyurethane foam or phenolic foam, topped off with a reinforced cement based, mineral or synthetic finish and plaster.

- Benefits of External Wall Insulation
- Improve Thermal Comfort.
- Cooler Summers, Warmer Winters.
- Reduce Energy Bills.
- Improve External Aesthetics.
- Save Floor Space.
- Reduce Carbon Footprint.
- Increase Lifespan of Building Fabric.
- Acoustic Insulation and Fire Resistance.



What is Thermal conductivity λ Lambda value?

Thermal conductivity is the rate at which heat passes through a specified material, expressed as the amount of heat that flows per unit time through a unit area with a temperature gradient of one degree per unit distance. The thermal conductivity of a material is a measure of its ability to conduct heat. It is commonly denoted by k , λ , or κ . Heat transfer occurs at a lower rate in materials of low thermal conductivity than in materials of high thermal conductivity. A good high temperature insulator has a very low thermal conductivity at high temperatures. Not all materials transfer heat equally and the thermal conductivity (λ value) of a material is a physical property which describes its ability to transfer heat. The lower the thermal conductivity value, the more resistant a material is to the heat transmission. An insulator therefore has a low thermal conductivity, while a conductor has a high thermal conductivity. Examples of the thermal conductivity of some common materials or substances at ambient temperatures.

Formula to calculate Thermal Conductivity of any material.

$$K \text{ or } \lambda = Qd / A (T1 - T2)$$

K = thermal conductivity

Q = amount of heat transferred

d = distance between the two isothermal planes

A = area of the surface

$T1-T2$ = difference in temperature

λ value Copper = an excellent conductor 401 W/m.K

λ value Carbon steel = 54 W/m.K

λ value Glass = 1.05 W/m.K

λ value Air 0.026 = W/m.K

λ value Wedge Microporous insulation = 0.021 W/m.K

λ value Wedge HVIP (High Vacuum Insulation Boards) = < 0.0035 W/mK

λ value of Wedge Aerogel WAG650 = 0.015 W/m.K

Wedge Wall Insulation Products

- High Performance Aerogel Insulation Boards, Panels, Blanket, Silica Gel Powder
- Calcium Silicate Board, Calcium Silicate Building Boards, Fire Resistant Calcium Silicate, High Density Calcium Silicate Boards
- Fire Resistant Rockwool Boards, Fire Sleeve, Glass Wool / Fibreglass, Heat Loss Calculator
- MgO Boards for High Temperature Insulation, Fire Door Manufacturing, Partitions, Wall, Roof
- Millboard, Non Asbestos Millboards Gaskets, Strips, Discs for Stainless Steel Plant Roller
- Low Density High Strength Perlite Insulation for Cryogenic and High Temperature insulation
- Rigid Foam Spray PUF / PIR Insulation for Wall, Roof, SIP, Cold Storage
- Vacuum Insulation Panel Board for Cold and Hot Insulation
- Vermiculite Board for Wall & Roof Insulation, Fire Door, Steel Structure Fire Protection
- WAIFLEX Rubber Foam for AC Pipe Insulation, XPLPE Foam Insulation



W-LD 650, 900, 1000, 1100 | Low Density Calcium Silicate Boards

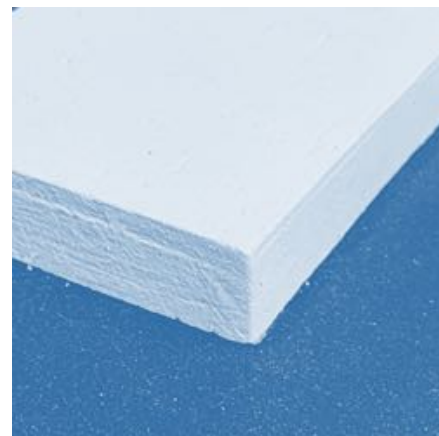
Wedge lightweight low density & medium density Calcium Silicate Boards are manufactured with Filter Press & Gel Tank Technology to achieve low density, high strength, high temperature insulation, machinability. These boards and machined ready to use designs are most suitable as thermal insulation for processes in various industrial applications.

Features and Advantages

- Low thermal conductivity.
- Resistant to H₂, CO, CH₄, NH₃, N₂.
- Low density & lightweight.
- High thermal resistance.
- High mechanical strength.
- Vibration resistant.
- Resistant to moisture and chemicals.
- Low heat storage.

Applications

- High temperature insulation and heat protection.
- Steel industry: smelting, heat distortion and heat treatment plants.
- Ceramic industry: chamber and tunnel furnaces.
- Glass industry: melting furnaces and cooling channels.
- Cement industry: heat exchangers and cyclone separators.
- Chemical and petrochemical industry: thermal cracking, reactors and processing plants.



Technical Properties

Quality		W-LD 650	W-LD 900	W-LD 1000	W-LD 1100	
Color		White	White	White	White	
Service temperature	°C	650	900	1000	1100	
Bulk density	kg/m ³	220 - 240	245	255	255	
Open Porosity	%	90	90	90	90	
Reversible thermal expansion	m/m K		5.4x10 ⁻⁶	5.4x10 ⁻⁶	5.5x10 ⁻⁶	
Cold compressive strength	MPa	0.75	1.5	1.6	1.6	
Flexural strength	MPa	0.35	0.5	0.5	0.5	
Linear shrinkage @ Service Temperature	%	1.8	0.9	1	1	
Thermal conductivity						
	200 °C	W/m K	0.062	0.075	0.075	0.075
	400 °C	W/m K	0.095	0.105	0.105	0.105
	600 °C	W/m K		0.145	0.145	0.145
	800 °C	W/m K		0.175	0.175	0.185
Specific heat capacity at 400 °C		kJ/kg K		1.03	1.03	1.05
Protective gas-resistance	CO, NH ₃ , H ₂ , CH ₄ , N ₂ atmosphere					
Standard Sizes						
	Length	mm	1000 - 600	1000 - 600	1000 - 600	1000 - 600
	Width	mm	600 - 300	600 - 300	600 - 300	600 - 300
	Thickness	mm	25 - 100	25 - 100	25 - 100	25 - 100

HSI 1100 | High Density Wollastonite Calcium Silicate Boards

Wedge HSI 1100 are calcium silicate & wollastonite fibres based boards ideal for high temperature backup insulation, fire protection, fire doors, electrical home appliances, electrical arcs, furnace backup insulation, high temperature gasketing, duct fire protection, pipe insulation, fire & insulation seals, high temperature electrical insulation, etc.

Applications

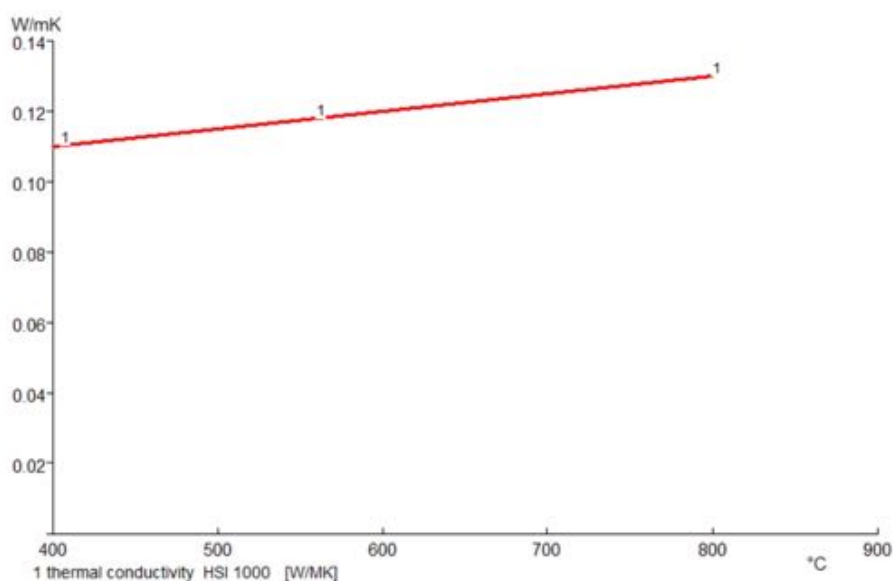
- Ladle & Tundish Insulation.
- Lime Kiln and Cement Kiln Insulation.
- High temperature gasket & sealings.
- Boiler & Furnace Insulation.
- Oil & Gas Burners Insulation.
- Furnace, Dryer, and Oven Insulation.
- Pipe & duct Insulation.
- Metal clad Gaskets fillers.
- Gaskets for centrifugal casting.
- Glass rollers as washers on mandrel.
- Stainless Steel Plant Rollers Insulation.
- Electrical & home appliances insulation gaskets.
- Fire Resistant Doors, Lifts, Safes, Cupboards.

Features & Benefits

- Very Strong Boards with high compressive strength.
- High temperature resistance upto 1100°C.
- Low Thermal Conductivity at high temperatures.
- High Electrical Resistance at high temperature.
- High fire resistance and heat shield properties.
- Easy to cut and punch.
- Available in pipe section for pipe insulation.

Technical Properties

Properties	HSI 1100	
Base Materials	Wollastonite fibres & Calcium Silicate	
Classification Temperature, °C	1000	
Density, Kg/M3	1000	
Thermal conductivity, W/m.K		
	400 °C	0.11
	600 °C	0.12
	800 °C	0.14
Tensile Strength, Mpa	5	
Flexural Strength, Mpa	6	
Shrinkage % @ 1000 °C	< 1	
Compressive Strength, Mpa	8 - 10	
Loss on Ignition %	8	



FP1000, SP1150 | High Density Calcium Silicate Insulation Board

FP1000 and SP1150 Insulating boards are made of high temperature resistance fireproof materials, cement, and calcium silicate based asbestos free minerals. These boards are large sized and very easy to handle and work for the production of mechanically strong, self-supporting constructions.

Features & Benefits

- Maximum short term temperature resistance up to 1200 Degree C.
- High fire resistance up to 240 Minutes with maximum 10 mm thickness.
- Continuous operating temperature resistance up to 450 Degree C.
- Longer guarantee life more than 15 Years.
- Good thermal insulation.
- High acoustic insulation.
- Unaffected by humidity.

Applications

- Structural steel protection, Self-supporting ceilings.
- Dryers & Oven Insulation.
- Industrial Furnaces, Apparatus Construction.
- Wet and Damp Rooms.
- Timber floor protection, upgrading of timber floors.
- Cladding to steel ducts, self-supporting ducts.
- M&E services enclosure, Smoke barrier, parapet/spandrel wall.
- Access panels and hatches, fire doors.
- Tunnel lining, concrete/brick floor and wall upgrading.
- Fire Door manufacturing for FD30, FD60, FD120, FD240.



Technical Properties

Properties	WIX1300	SP1150	
Color	White / Grey	White / Light Grey	
Application	External Insulation	Internal Insulation	
Short Term Service Temperature °C	900	1000	
Classification Temperature °C	80	100	
Density, Kg/M3	1300	1150	
Thermal conductivity, W/m.K			
	25 °C	0.19	0.17
	50 °C	0.27	0.22
Tensile Strength, Mpa	7.7	4	
Flexural Strength, Mpa	13	8	
Compression Strength, Mpa	21	8	
Fire Rating for 10 mm thick board, Minutes	60	120	
Building material class	Class 0, Non-Combustible	A1, Non-Combustible	
Sizes, mm	2440 x 1220	2440 x 1220	
Thicknesses, mm	4 – 30	4 – 30	
Thickness Tolerances, for < 12 mm	+/- 0.7	+/- 0.7	
Water content, %	< 10	< 10	
Moisture Movement	< 0.25	< 0.25	

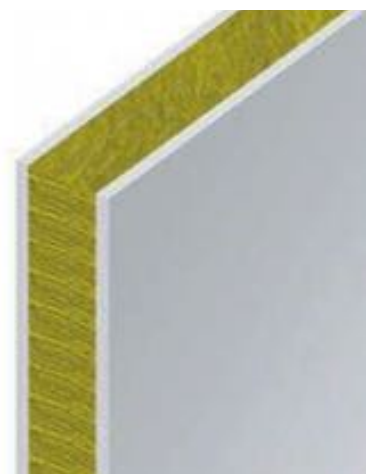
HDSP450 | Calcium Silicate Insulation Sandwich Panel

Wedge CalSil HD450 insulating boards are produced with a special cement technology, calcium silicate based and purely mineral, asbestos-free. These large-sized insulating boards are easy to work and have a favourable combination of special technical properties for the production of mechanically strong, self-supporting constructions.

Their physical behaviour permits combining techniques for thermal insulating, drying technology, humidity, ventilation, fire protection, noise protection, these materials are harmless and not subject to any classification.

Feature & Advantages

- Harmless in terms of working hygiene.
- Large-sized, self-supporting.
- Good insulating effect.
- High permanent temperature resistance.
- Minimum thermal bridges.
- Corrosion and rot-resistant.
- Good chemical resistance.
- Vibration-proof.
- Secure and variable fixings and connections.
- Uncomplicated breakthroughs producible.
- Diffusion open, no condensates.
- Long service life.
- Energy-saving.
- Dimensionally stable, low thermal expansion.
- Variable surface coatings are possible.
- Cost-reducing thanks to ready-to- assemble systems and easy processing.



Application

- Industrial Dryers.
- Apparatus construction.
- Wet and damp rooms.
- Industrial furnaces.
- Hospitals for partition Insulation.
- Fire Protection Walls.
- Fire Resistant Partitions.
- Heat Shield Barriers.
- Interior wall heat Insulation.
- Acoustic Insulation.
- Noise Reduction.
- Heat and moisture protection in industrial plants.
- Replacement for asbestos containing boards.

Technical Properties

Product Name	HDSP450
Color	Light grey / White
Classification temperature	450°C
Shrinkage @ 400 °C – 24h full soak	0.25
Bulk density ρ	870 kg / m ³
Compressive strength	9.3 N/ mm ²
Thermal conductivity λ	0.16 W/ m K
Length mm	2440
Width mm	1220
Thickness mm	6, 8, 9, 10, 12, 15, 20, 25

AG06 650 | MicroSilica Aerogel Boards

Wedge AG06 650 are low density, low thickness, flexible commercial grade Aerogel Blanket having extremely high performance in pipe insulation in both industrial and buildings applications. The AG06 650 aerogel insulation blankets are made of high quality silica aerogel and of glass fiber needled blanket.

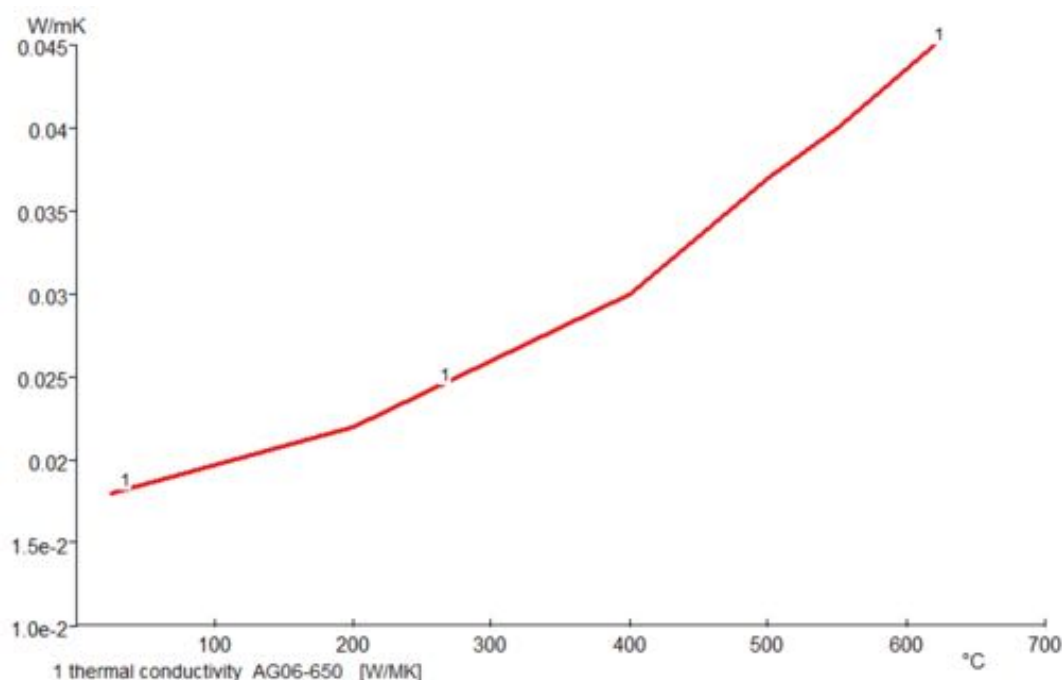
Applications

- Hot Water / Gas / Oil Pipeline
- High heat Steam Pipeline
- Petrochemical industry & power generation
- Back-up insulation in refractory lined pipes
- Exhaust systems
- Filler material for mattresses, cassettes, heat shields, expansion joints
- Prefabricated pipe with insulation
- Tanks, vessels and other equipment
- Pipe line insulation in Petrochemical plants
- Automobile, high-speed, train, and subway
- Building and Construction
- PFP (Passive Fire Protection)

Features & Benefits

- Lightweight, thin, custom made & very flexible
- Noncombustible & Environmentally friendly
- Resistant to most chemicals
- Superior Insulation Performance
- 4 to 5 times better than traditional insulation products with longer service life
- Reduced Insulation Thickness
- Hydrophobicity and Fire-proof
- Repel water from penetrating into pipes
- A1 rating of fire-proof
- Transportation Costs Savings
- Lower packing volume and lower weight can greatly cut down logistics costs

Properties	AG06 650
Base Materials	Aerogel Silica
Classification Temperature, °C	650 to (-) 50
Thickness, mm	5, 10
Density, Kg/M3	220
Thermal conductivity, W/m.K, at 25 °C	0.021



Perlite Insulation Boards & Pipe Sections

Wedge Perlite insulation board, also known as waterproof perlite insulation board, is made of expanded perlite bulk material as aggregate, adding waterproofing agent and binder for preparation, screening, pressure forming, drying processes. Expanded perlite is a white, ultra-lightweight aggregate ranging from a very fine powder to an aggregate with a particle size up to 6mm in size. It is inorganic, inert, neutral in pH, biologically stable and has no asbestos content. It has excellent thermal insulation properties over an extremely wide temperature range from cryogenics at minus 273°C (absolute zero) up to refractory applications at over 1000°C. It also has a highly adsorbent surface and a very low bulk density which makes it an ideal carrier or low cost filler for many compound formulations.

Advantages

- Light weight with very low bulk density.
- Waterproof with extremely high hydrophobicity.
- Low thermal conductivity.
- Most suitable for cryogenic applications -190°C.
- High temperature insulation up to 650 °C.
- Fireproof, rot proof, damp proof, sound proof.
- Construction safety is simple and easy, roof and wall.
- Environmentally friendly.
- Water repellent, non-flammable, loose-pour insulant improves the thermal performance on masonry walls and floors.
- Corrosion Under Insulation (CUI) resistant.

Applications

- High temperature insulation and heat protection
- Cryogenic application: Non-combustible ultra-lightweight mineral aggregate with excellent insulation & adsorption properties.
- Fire proofing and sound proofing.
- Swimming pools, cold storage, boilers and some insulation projects with special requirements for waterproofing.
- Perlite insulation is used in high temperature applications in the steel and foundry industries such as ladle topping, hot topping and riser.
- Expanded Perlite is suitable for a range of landscaping applications such as green roof construction, golf green renovation and construction, planters, drainage.
- Expanded perlite powder and board is a hydrophobic insulating aggregate.



Quality		W-Pearl220	W-Pearl250	W-Pearl350	
Colour		White	White	White	
Maximum Service temperature	°C	650	650	650	
Minimum Service temperature	°C	- 190	- 190	- 190	
Bulk density	kg/m3	220	250	350	
Water Repelency / Hydrophobicity	%	99 - 100	99 - 100	99 - 100	
Cold compressive strength	MPa	0.45	0.55	0.55	
Flexural strength	MPa	0.25	0.3	0.3	
Linear shrinkage @ Service Temperature	%	0.5 - 1.5	0.4 - 1.2	0.4 - 1.2	
Thermal conductivity					
	50 °C	W/m K	0.059	0.06	0.062
	100 °C	W/m K	0.062	0.065	0.067
	150 °C	W/m K	0.068	0.072	0.078
	200 °C	W/m K	0.078	0.081	0.084
Specific heat capacity @ 400 °C		kJ/kg K	1.03		
Chlorine Content			ASTM C795	ASTM C795	ASTM C795
Standard Sizes					
	Length	mm	600, 1050, 2100		
	Width	mm	300, 900, 950		
	Thickness	mm	25 to 100		
Dimensional Tolerance		mm	Length: +3 to -2 Thickness: +/-2		

Vermiculite Boards & Designs

Wedge W-VCL high temperature insulating boards are manufactured with base material exfoliated vermiculite and inorganic binders. The material is free of asbestos and organic substances. Vermiculite is an aluminium-magnesium layer silicate, which bloats to ultra-lightweight granulates through heating and is processed to boards, bricks and shaped parts through a compression mould procedure.

Advantages

- High thermal shock resistance.
- Can be applied in the furnace at fire side.
- Fireproof, Non-combustible A1, excellent fire protection.
- No smoke nuisance during heating-up.
- Low thermal conductivity.
- High electrical resistance.
- Easy handling and installation.
- High thermal resistance.
- Good chemical resistance to acids, alkalis and exhaust gases.

Applications

- Industrial furnace construction for thermal insulation.
- Hot face directly in the furnace and backup insulation.
- Widely used in Aluminium Melting furnace, Steel ladle, tundish, torpedo ladle, glass melting as backup insulation.
- Household appliances: Night storage heaters, Boilers, Hearths, Vessels and tanks.
- Fireplace linings, hot stove.
- Resistant to CO and CH₄ atmosphere;
- Non wetted by fluid aluminium, kryolite and flouride.



Quality			W-VC450	W-VC600	W-VC700	W-VC900
Colour			Brown	Brown	Brown	Brown
Service temperature		°C	1100	1100	1100	1150
Bulk density		kg/m ³	450 - 475	600	700	900
Porosity		%	81	76	74	57
Cold compressive strength		MPa	2.5	4.2	4.5	6.3
Flexural strength		MPa	0.6 - 0.8	1.6	2	2.1
Linear shrinkage at Service Temperature		%	1	1	1	1.2
Thermal conductivity						
	200 °C	W/m K	0.14	0.16	0.19	0.18
	400 °C	W/m K	0.17	0.18	0.2	0.19
	600 °C	W/m K	0.19	0.2	0.21	0.2
	800 °C	W/m K	0.21	0.22	0.22	0.23
Specific heat capacity @ 400 °C		kJ/kg K	0.94	0.94	0.94	1.14
Chemical Properties						
	SiO ₂	%	46	46	46	44
	MgO	%	19	19	19	25.9
	Al ₂ O ₃	%	7	7	7	6.3
	Fe ₂ O ₃	%	5.5	5.5	5.5	7.1
	CaO	%	3.5	3.5	3.5	3
	K ₂ O	%	10	10	10	6.9
	LOI	%	7	7	7	4
Standard Sizes						
	Length	mm	1000 - 1260			
	Width	mm	330, 610, 1000			
	Thickness	mm	25 - 100			

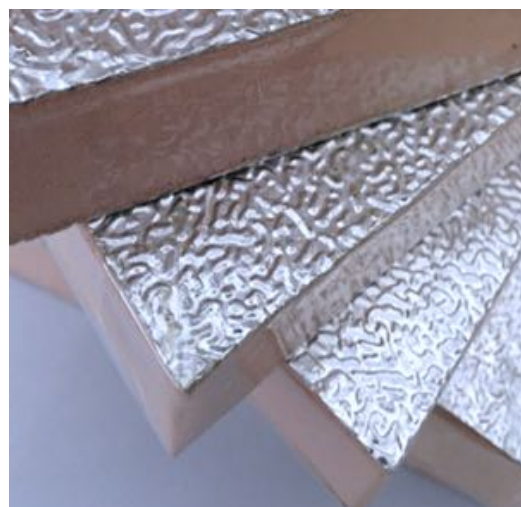
W-PIR50 | Rigid Polyisocyanurate PIR Insulation Boards

WPIR50 is rigid good quality high insulation PIR-Polyisocyanurate Insulation Boards with Aluminium foil covered. Its is used for Insulation of Roof and Wall for Chilled Water Tank, Cold Storage Wall and Roof.

It is also used as Pre-insulated Duct Panel and can offers a high performance light weight and good ductwork system that requires only a few single fix and installation process. It is widely used in the ventilation systems of central air conditioning units in hospital, hotel, market, mall, airport, and so on.

We can supply in various sizes and thicknesses and coverings:

Size : 1000 x 500 mm
Thickness : 10 to 100 mm



Technical Data

Technical Properties	Unit	Technical Data	Test Method
Density (at room temperature)	kg/m ³	≥50	ASTM D1622, GB6343
Thermal Conductivity (Ambient Temp.)	W/ (m.K)	≤0.022	ASTM C177, GB/T10294
Water Vapor Permeability	ng/(pa.m.s)	≤5.0	ASTM E96,GB/T17146
Water Absorption	%	≤5	ASTM D2842,GB/T8810
Closed Cell Concent	%	>90	ASTM D6226,GB/T10799
Compressive Strength	kpa	≥200	ASTM D1621,GB/T8813
Tensile Strength	kpa	≥320	ASTM D1623,GB/T8812
Oxygen Index		≥30	GB/T2406.2
Reaction to Fire		Class B1	GB 8624
Flame Spread Rate		≤25	ASTM E84
PH value		6.0~11.7	ASTM C871
Coefficient of Linear Thermal Expansion	1/K	≤70×10 ⁻⁶	ASTM D696
Service Temperature	°C	-196~120	

W-PUF50 | Rigid polyurethane PU Foam insulation board

Rigid Polyurethane Foam is a specialized cryogenic insulation material. It is mainly made from polyether polyols and isocyanate added with flame retardant, foaming agent and stabilizing agent, generating into closed-cell foaming body through chemical reaction after mixing and stirring. It has high closed cell content rate and low water absorption, it is applied to cryogenic thermal insulation.

Features & Advantages

- Thermosetting material with high fire-resistance.
- Low thermal conductivity, excellent cold insulation.
- Fluorine-free, environment-friendly, anti-corrosive, anti-mould.
- High mechanical strength, dimensional stability and durable Life.



Applications

It is widely used a in:

Petroleum Industry
 Chemical Industry
 Ethylene industries
 Cold storages
 Refrigeration
 Commercial & Residential Buildings

PUF can be prefabricated into different shape segments in workshop, it also can be spray or foamed on site.

We can supply in various sizes and thicknesses and coverings:

Size : 1000 x 500 mm
 Thickness : 10 to 100 mm

Technical Data Sheet

Technical Properties	Unit	Technical Data
Density (at room temperature)	kg/m ³	≥50
Thermal Conductivity at 25°C	W/(m.K)	≤0.023
Water Absorption	%	≤5
Compressive Strength	kpa	≥200
Tensile Strength	kpa	≥200
Oxygen Index		≥30
Service Temperature	°C	-80 to100



HDRW 850 | High Density Rockwool Boards

Wedge HDRW 850 are Refractory Insulation Boards are made of high quality refractory grade mineral fibers rockwool bonded with high temperature clays. These insulation boards possess unique combination of properties for various industrial applications in furnace backup insulation, fire rated doors, fire protection & heat shield, high temperature gasketing & seals.

- Strong Rigid Boards with high compressive strength.
- High temperature resistance upto 850 °C.
- Very low Thermal Conductivity at high temperatures.
- High Electrical Resistance at high temperature.
- High fire resistance and heat shield properties.
- Easy to cut, laminate, and punch.
- Adaptable by wet moulding for pipe insulation.



Applications:

- Furnace Insulation
- High Temperature Pipe Insulation
- Fire Doors Making / Lift Doors
- Heat Shield / Thermal Protection
- Fire Protection Systems
- Lime Kiln and Cement Kiln Insulation
- High temperature insulation Gaskets
- Boiler & Furnace Insulation
- Oil & Gas Burners Insulation
- Furnace, Dryer, and Oven Insulation
- Refractory insulation expansion joints
- Metal clad Gaskets fillers
- Induction Furnace Insulation
- Glass rollers as washers on mandrel
- Electrical & home appliances insulation gaskets

Technical Properties	HDRW 850	
Colour	Light Brown	
Classification Temperature, °C	850	
Density, Kg/M3	950	
Thermal conductivity, W/m.K		
	400 °C	0.10
	600 °C	0.11
	800 °C	0.12
Fire Resistance for 10 mm thickness, minutes	120	
Fire Resistance for 5 mm thickness, minutes	60	
Tensile Strength, Mpa	3.5	
Shrinkage % @ 1000 °C	2	
Compression @ 70 Kg/cm2	15	

WRRB | Rigid Mineral Wool Insulation Boards

Wedge RRB are Rigid Rockwool boards made of pure stone wool bonded with high quality thermosetting resin binders. These Rockwool boards are multifunction boards non-asbestos, non-combustible type having extremely high melting temperature. It do not produce toxic smoke in the event of a fire and are an excellent barrier against the spread of flames to help protect occupants and reduce property damage. We offer wide range of densities from 48 – 160 Kg/M3.

Features & Advantages:

- Very high acoustic / sound insulation performance.
- High Thermal Integrity.
- It will not slump, shrink, expand
- Excellent moisture control.
- Water proof / water repellent option available
- Non-combustible & High fire resistance
- Cost-efficient insulating effect
- Stable and jolt-proof
- High permanent temperature resistance
- Low thermal conductivity
- Low organic binder content
- Rot-resistant and non-ageing
- Chemically neutral
- Water-repellent
- Easy to machine



Applications:

- Production of Sandwich Panels
- Fire Doors Manufacturing
- Fireproof of power plant, oil depot.
- Exterior or interior thermal & acoustical insulation.
- External wall, roofing, partition, curtain wall, etc
- Fire Resistant Doors, Lifts, Safes, Cupboards.

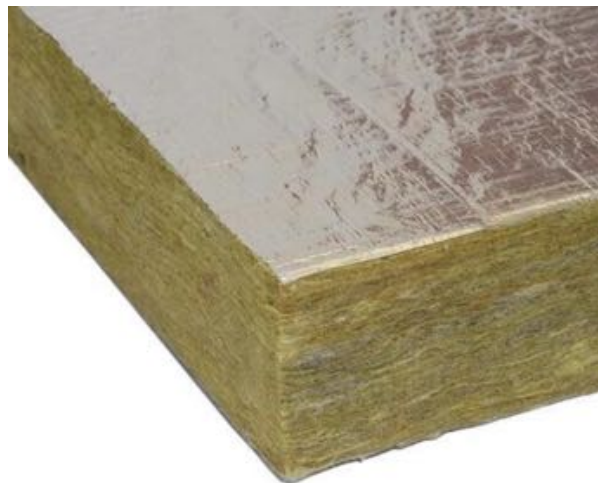
Rockwool Boards	Density, Kg/M3	Temperature, °C	Thickness, mm	Thermal conductivity 40 °C, W/m K
WRRB 48	48	750	50 - 200	0.039
WRRB 64	64	750	40 - 150	0.038
WRRB 80	80	750	25 - 150	0.038
WRRB 100	100	750	25 - 100	0.038
WRRB 128	128	750	25 - 100	0.038
WRRB 144	144	750	25 - 100	0.038
WRRB 160	160	750	25 - 75	0.038
WRRB 900	900	1000	1 - 25	0.08

WFRB | Flexible Mineral Wool Blankets

Wedge FRB are Flexible Rockwool mattresses made of pure stone wool for Pipe & Tanks Insulation purpose. These Rockwool flexible blankets are multifunction mattresses non-asbestos, non-combustible type having extremely high melting temperature. It do not produce toxic smoke in the event of a fire and are an excellent barrier against the spread of flames to help protect occupants and reduce property damage. We offer wide range of densities from 48 – 120 Kg/M3.

Features & Advantages:

- Very high acoustic / sound insulation performance.
- High Thermal Integrity.
- It will not slump, shrink, expand
- Excellent moisture control.
- Water proof / water repellent option available
- Non-combustible & High fire resistance
- Cost-efficient insulating effect
- Stable and jolt-proof
- High permanent temperature resistance
- Low thermal conductivity
- Low organic binder content
- Rot-resistant and non-ageing
- Chemically neutral
- Water-repellent
- Easy to machine



Applications:

- Production of Sandwich Panels
- Pipe Insulation
- Fire Doors Manufacturing
- Fireproof of power plant, oil deport.
- Exterior or interior thermal & acoustical insulation.
- External wall, roofing, partition, curtain wall, etc

Rockwool Boards	Density, Kg/M3	Temperature, °C	Thickness, mm	Thermal conductivity 40 °C, W/m K
WFRB 48	48	750	50 - 200	0.039
WFRB 64	64	750	40 - 150	0.038
WFRB 80	80	750	25 - 150	0.038
WFRB 100	100	750	25 - 100	0.038
WFRB 128	128	750	25 - 100	0.038
WFRB 144	144	750	25 - 100	0.038





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