

Insulation Boards for Steel Plant

Low Cost | High Performance



Insulation Boards Selection for Steel Plant Applications

Finding a most effective insulation material with high insulation performance (lowest thermal conductivity), high mechanical strength, high service temperature, extremely user friendly, and lowest cost is almost impossible because all these parameters affect each other. However, thanks to the high temperature insulation technologies making available a wide range of insulation materials and it is possible to find most suitable insulation material that can achieve optimized performance targets.

The comprehensive Wedge SSPL supply range satisfies the demand for optimum planning, calculation and design, right down to the smallest details. Coordinated planning presupposes that the designer determines the physical and chemical requirements and factors of influence according to the system in question. The most appropriate insulating materials, systems and components are then selected to provide maximum efficiency.

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. Micro -porous insulating materials with pores < 0.1 µm have the lowest thermal conductivity.

The selection of right insulation board for Ladle & Tundish depends on the target problem solving & performance objectives to be achieved. There is a wide range of insulation boards are available in the market; however, to select a suitable Insulation Board the main thermos-mechanical properties must be carefully observed and considered.

Wedge SSPL is glad to associate with you to offer more than 15 years technical expertise in insulation lining design, insulation materials selection, sourcing, supplying, and onsite application engineering for achieving your target insulation performance and problem solving.

Please contact us to get a comparison chart of wide range of Insulation Board for thermo-mechanical properties, performance, and cost.

Wedge RIM Boards	Wedge MP Board	Wedge MgSi Board	Wedge AISi Board	Wedge Vermiculite Board
Low Cost	Very High Cost	High Cost	Low Cost	High Cost
Very High Strength	Very Low Strength	High Strength	Low Strength	Medium Strength
High Insulation	Very High Insulation	Low Insulation	High Insulation	Low Insulation
Thickness: 2 - 50 mm	Thickness: 5 - 50 mm	Thickness: 10 - 50 mm	Thickness: 5 - 50 mm	Thickness: 10 - 20 mm
Very Hard	Very Soft	Hard	Soft	Hard



Wedge RIM Boards | Refractory Insulation Millboard Benefits

Wedge RIM Boards are non-asbestos refractory grade high temperature resistant millboards manufactured with excellent quality of high temperature refractory insulation mineral fibers. These Low cost, high strength, high temperature insulation millboards are widely used as back-up insulation, as heat-shields, and as splash-guards. This is not only in the steel industry, but in many industries involving the transfer of molten metals.

Wedge RIM Boards have excellent thermomechanical properties:

- Very high operating temperature of 1200 C.
- Very high flexural strength > 7 Mpa
- Very low thermal conductivity 0.12 W/m.K
- Very low shrinkage at 1000C: 1.6 %
- Reusable without losing original thermomechanical properties
- Remains intact and highly stable at high temperatures.

Benefits and Applications

- Reduce High Shell Temperature
- Increase Refractory Life
- Reduce High Heat Loss
- Lower Shell Temperature - Protecting Shell
- Increased Refractory Life - Cost Reduction
- Reduce Heat Loss - Cost Reduction
- Lower Safety Lining Thickness
- Increase Ladle Volume
- Increase Refractory Wear Lining Thickness
- Increase steel Production out put
- Reduce Maintenance Cost & Time

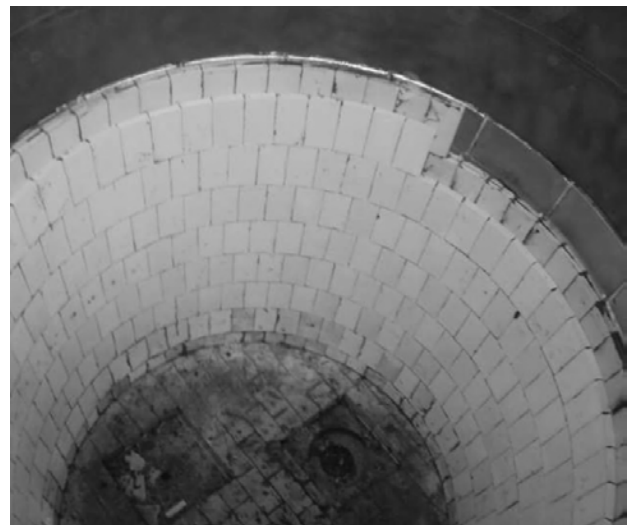
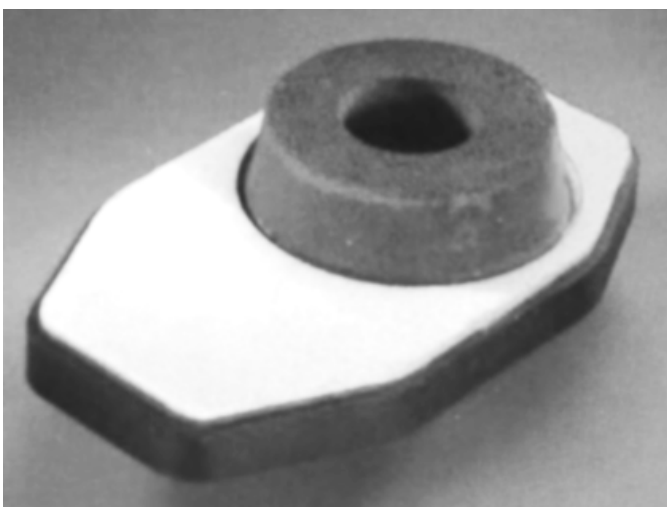
Technical Specifications

Insulation Boards	Service Temperature, C	Density, Kg/M3	Thermal Conductivity, W/m-K at Mean 500 - 600 C	Flexural Strength, Mpa	Cold Compressive Strength, MPa	Shrinkage @ 1000 C, %
Wedge RIM Boards	1200	1000	0.12	7	21	1.68
Wedge AlSi Boards	1200	280 - 360	0.13	0.3	NA	4
Wedge MgSi Boards	1000	1200	0.29	13.1	15	1.64
Wedge Vermiculite Boards	1100	900	0.20	2.10	6.30	1.2
Wedge Sindanyo Board	700	1750	0.49	30	115	0.36 @ 350
Wedge MP Boards	1000	280 - 360	0.032	0.3	NA	1.5

Ladle Insulation: Wedge Refractory Insulation Millboards are used as a ladle back-up insulator, absorbing heat that is transferred between the refractory fire bricks and the ladle body. This helps to increase the temperature in the ladle, and thus save energy, money, and time.

Wedge RIM Boards sliding gate gaskets give further control over steel flow out of the ladle. Our bespoke gaskets are easy to install and remove. They are highly resistant to steel penetration, and safe to handle.

It is ideally suited to the high temperatures experienced when transferring molten steel, excelling as **splash-guards** or temporary lids.



RIMB | Refractory Insulation Millboards & Gaskets Seals

Wedge RIMB are Refractory Insulation Millboards sheet, gaskets, and seals are made of high quality refractory mineral fibres such as wollastonite, calcium silicate, rockwool bonded with high temperature clays. These insulation boards possess unique combination of properties for various industrial applications in furnace backup insulation, high temperature gasketing & seals.

- Very Strong Boards with high compressive strength.
- High temperature resistance from 1000 to 1200°C.
- Very low Thermal Conductivity at high temperatures.
- High Electrical Resistance at high temperature.
- High fire resistance and heat shield properties.
- Easy to cut and punch.
- Adaptable by wet moulding for pipe insulation.



Applications:

- Ladle & Tundish Insulation.
- Lime Kiln and Cement Kiln Insulation.
- High temperature insulation Gaskets.
- Boiler & Furnace Insulation.
- Oil & Gas Burners Insulation.
- Furnace, Dryer, and Oven Insulation.
- High temperature Pipe Insulation.
- Refractory insulation expansion joints.
- 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.



RIMB-A | Technical Datasheet

Properties	RIMB 1000 A	RIMB 1100 A	RIMB 1260 A
Colour	Brown	Buff	White
Classification Temperature, °C	1000	1100	1260
Density, Kg/M3	1000	1000	1000
Thermal conductivity, W/m.K			
400 °C	0.11	0.12	0.11
600 °C	0.12	0.13	0.12
800 °C	0.14	0.14	0.13
Electrcial Resistance, ΩXx109 /cm2	7.9	4.2	2.4
Tensile Strenght, Mpa	5	5	5
Flexural Strength, Mpa	7	6	6
Shrinkage % @ 1000 °C	2	1.8	1.6
Compressive Strength, Mpa	8 - 10	8 - 10	8 - 10
Loss on Ignition %	6	6 - 8	7

RIMB-B | Technical Datasheet

Properties	RIMB 850 B	RIMB 1000 B	RIMB 1100 B	RIMB 1200 B
Colour	White	Beige	White	Brown
Classification Temperature, °C	850	1000	1100	1250
Density, Kg/M3	900	1000	950	950
Thermal conductivity, W/m.K				
400 °C	0.11	0.12	0.12	0.12
600 °C	0.12	0.13	0.13	0.13
800 °C	0.13	0.16	0.15	0.16
Tensile Strenght, Mpa	3.5	4	3.2	3.5
Shrinkage % @ 1000 °C	2	1	2	1
Compression @ 70 Kg/cm2	6 - 7	6 - 7	6 - 7	6 - 8
Loss at 800 °C, %	10 - 11	11 - 12	10 - 11	12 - 14

Wedge India

14th Floor, 143 Tower 120
SilverOaks Towers, DLF Phase 1
Gurgaon Faridabad Road, Gurgaon - 122002
New Delhi Region, Haryana India