

Rockinsul™

Twigainsul®

# INNOVATION IN INSULATION



# SAINT-GOBAIN AT A GLANCE



## INSULATION

- Started in 1937
- World leader in mineral wool (Isover)
- Presence in 32 countries
- 10,000+ employees

## INSULATION BUSINESS IN INDIA

Formed through acquisition of



- 2 Stone Wool Factories
- 2 Glass Wool Factories



Silvassa



Kaveli  
(near Hyderabad)



Ambarnath  
(near Mumbai)



Sikandrabad  
(near Delhi)

# WHY INSULATION

1

## Thermal Insulation

- Very low thermal conductivity, K value
- High thermal resistance, R value

### Benefits

-  Thermal comfort
-  Energy savings

2

## Acoustic Insulation

- Good sound absorption, NRC
- Low sound transmission, STC
- High impact sound insulation, IIC

### Benefits

-  Quieter ambience
-  Acoustic privacy
-  Better for ear health

3

## Fire Safety

- Non-combustible
- Least fire and flame propagation
- Least smoke emission

### Benefits

-  Gives occupants time to escape
-  Low smoke / Toxic gases

4

## Personnel Protection

- Prevents contact injuries and skin burns when working in vicinity of hot pipe and equipment surfaces

### Benefits

-  Enhances employees' safety

# KEY TECHNICAL FACTORS



## Building

### ECBC compliant

- Roof:  $U < 0.33 \text{ W/m}^2\cdot\text{K}$
- Wall:  $U < 0.4 \text{ W/m}^2\cdot\text{K}$

### NBC 2016 (building material, thermal insulation, all buildings)

- Non-combustible
- No toxic smoke

### PEB

- R: 0.64 to 3.33  $\text{m}^2\cdot\text{K/W}$
- Least Fire Spread: Class A, Class 0/Class 1
- FM Approved

### Infrastructure building

- U : 0.261 to 0.3  $\text{W/m}^2\cdot\text{K}$
- STC: 39 to 48 dB



## Industry

### IS 8183

- Thermal conductivity, K value :
  - $K < 0.078 \text{ W/m}\cdot\text{K}$  at 200°C
  - $K < 0.11 \text{ W/m}\cdot\text{K}$  at 300°C
- Max. Service Temperature: Up to 750°C
- Shot Content:
  - 500 micron  $< 2\%$
  - 250 micron  $< 10\%$
  - 150 micron  $< 13\%$
- Sulphur Content  $< 0.2\%$
- Corrosion under insulation (CUI) : Chloride Content  $< 10 \text{ ppm}$
- Moisture Content  $< 2\%$

### For personal protection

Exposed surface  $< 60^\circ\text{C}$

### Water absorption

By mass  $< 0.5 \text{ Kg/m}^2$  (BS 2972)



## Mobility

### Fire safety for Trains

- HL3 compliance (EN 45545-2)

### Interior wall acoustic

STC  $> 45 \text{ dB}$

### Metro coaches

- Water absorption  $< 2\%$

### Vibration and Jolting

- Fiber settlement  $< 3\%$



## HVAC

### ECBC compliant

- Supply duct:  $R > 1.4 \text{ m}^2\cdot\text{K/W}$
- Return duct:  $R > 0.6 \text{ m}^2\cdot\text{K/W}$
- Pipe : 0.7 to 1.2  $\text{m}^2\cdot\text{K/W}$
- FM Approved for duct wrap

### NBC 2016 (Duct insulation)

- Non-combustible
- No toxic smoke

# PRODUCT RANGE

**Rockinsul™**  **Twigainsul®**



Wide range of mineral wool insulation



Suited across applications



Solution for thermal, acoustic and fire insulation



Maximum Service Temperature

Glass Wool : upto 230°C

Stone Wool : upto 750°C

**LRB Mattress  
(Wired Mat)**

High density,  
low binder based  
semi-flexible mat for  
high temperature  
applications



**Range**

- Density** : 70 to 160 Kg/m<sup>3</sup>
- Thickness** : 25 to 100 mm
- Width** : 1.22 m
- Length** : 1.52 to 5 m
- Facing** : GI Wire Mesh, SS Wire Mesh

**Application**

- Industry / OEM:** Steam Pipe
- Boiler
- Furnace
- Tank
- Other hot applications

**RB Slab**

Rigid, strong  
and durable slab :  
plain or with factory  
applied facings



**Range**

- Density** : 40 to 180 Kg/m<sup>3</sup>
- Thickness** : 25 to 150 mm
- Width** : 0.6 m
- Length** : 0.6 to 1.2 m
- Facing** : Aluminium : FSK, Aluglass  
Tissue: BGT

**Application**

- Building** : Metal building (roof, wall), RCC underdeck,  
Overdeck, Masonry wall, Drywall, Facade
- HVAC** : Fire duct
- Industry/OEM** : Furnace, Tank, Boiler, Appliance,  
Acoustic enclosure

### Pipe Section

Pre-formed product for easy installation on pipe : plain and with factory applied facing



#### Range

Density	:	100 to 160 Kg/m <sup>3</sup>
Thickness	:	25 to 100 mm
Diameter	:	15 to 600 mm (NB)
Length	:	1.2 to 1.25 m
Facing	:	FSK

#### Application

Industry / OEM:	Steam pipeline, Process pipeline (medium to high temperature)
HVAC	: Chilled water pipe

### Tuffinsul slab

Slab with high compressive strength suitable for load bearing application



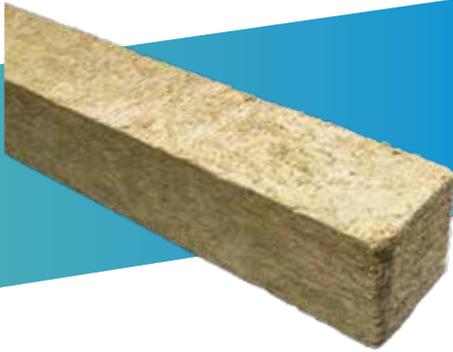
#### Range

Density	:	80 to 150 Kg/m <sup>3</sup>
Thickness	:	50 to 100 mm
Width	:	0.6 m
Length	:	1 to 1.2 m

#### Application

Building	:	Overdeck application Floor insulation Sandwich panels
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**Tuffinsul Lamella Bat**  
Rigid bat used  
as the core of fire  
rated sandwich panel



**Range**

Density	:	80 to 150 Kg/m <sup>3</sup>
Thickness	:	25 to 110 mm
Width	:	100 to 110 mm
Length	:	1 to 1.2 m

**Application**

Building	:	Sandwich panel, Fire door
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**Building Roll**  
Long and flexible  
blanket : plain  
or with factory  
applied facings



**Range**

Density	:	40 to 80 Kg/m <sup>3</sup>
Thickness	:	50 to 100 mm
Width	:	1.1 to 1.2 m
Length	:	5 to 10 m
Facing	:	Aluminium : FSK, Aluglass

**Application**

Building	:	Metal building (roof, wall) RCC underdeck Drywall Masonry wall
HVAC	:	Fire duct

## Loose wool

Loose stone wool fibers for in-fill applications in the Industry



### Range

Unbonded stone wool fibers without any specific density or thickness

Suitable for high temperature applications where shape or contour of the process equipments, valves etc. are complex

### Application

**Industry** : Oven, Tile manufacturing, Brake pad, Casting riser, Valves insulation, In-fill to insulate complex shape / irregular surface

**Roll**

Long, resilient and flexible blankets : plain or with factory applied facings



**Range**

- Density** : 10 to 48 Kg/m<sup>3</sup>
- Thickness** : 25 to 130 mm
- Width** : 1.1 to 1.2 m
- Length** : 7.5 to 30 m
- Facing** : Aluminium : FSK, R 3035 HD, Aluglass  
 Polypropylene : WMP 10, WMP 50, WMP VR R Plus  
 Tissue : FGT, BGT

**Application**

- Building** : Metal building (roof, wall)  
 RCC underdeck  
 Masonry wall  
 Drywall
- HVAC** : Duct thermal, Duct acoustic
- Industry/OEM** : Cryogenic/Low temperature applications  
 Geysers, Solar water heater
- Mobility** : Bus body insulation

**Board**

Rigid and semi-rigid product in short and long sizes



**Range**

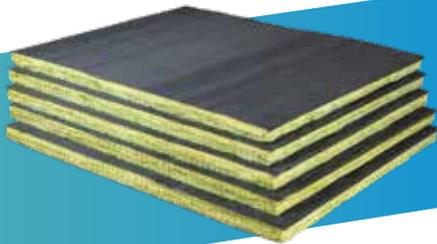
- Density** : 32 to 120 Kg/m<sup>3</sup>
- Thickness** : 15 to 100 mm
- Width** : 0.6 m
- Length** : 1.2 m
- Facing** : Aluminium : FSK, R 3035 HD, Aluglass  
 Polypropylene : WMP 10, WMP 50, WMP VR R Plus  
 Tissue : FGT, BGT  
 Glass Cloth : WGC, BGC

**Application**

- Building** : RCC underdeck  
 Masonry wall, Facade & spandrel insulation  
 Drywall
- HVAC** : Duct thermal, Duct acoustic, AHU room
- Industry/OEM** : Cold storage, Small furnaces
- Mobility** : Train coach

## Eco Insul

Soft product with green binder in roll and board form



### Range

	Rolls	Boards
<b>Density</b>	: 10 to 48 Kg/m <sup>3</sup>	32 to 120 Kg/m <sup>3</sup>
<b>Thickness</b>	: 25 to 130 mm	15 to 100 mm
<b>Width</b>	: 1.1 to 1.2 m	0.6 m
<b>Length</b>	: 7.5 to 30 m	1.2 m
<b>Facing</b>	: Aluminium : FSK, R 3035 HD, Aluglass Polypropylene: WMP 10, WMP 50, WMP VR R Plus Tissue: FGT, BGT Glass Cloth: WGC, BGC	

### Application

<b>Building</b>	: Metal building (roof, wall), RCC underdeck, Masonry wall, Drywall
<b>HVAC</b>	: Duct thermal, Duct acoustic
<b>Mobility</b>	: Train coach

## Pipe Insulation

Preformed Pipe section and Lamella mat



### Range

<b>Density</b>	: 80 Kg/m <sup>3</sup>
<b>Thickness</b>	: 25 to 75 mm
<b>Diameter</b>	: Pipe-Section : 25 to 450 mm (NB) Lamella Mat : 350 to 1400 mm (NB)
<b>Length</b>	: Pipe section : 1.2 m Lamella Mat : 0.9 m
<b>Facing</b>	: Aluminium : FSK

### Application

<b>HVAC</b>	: Chilled water line Hot water line
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## Flexible Duct

Insulated and  
Uninsulated



### Range

- Inner Core** : Double laminated film on coated wire helix
- Outer jacket** : Alu or Met foil with reinforcement
- Insulation** : Glass wool : 16 to 32 kg/m<sup>3</sup>
- Diameter** : 4 to 20 inch
- Length** : 10 to 25 ft

### Application

- HVAC** : Connect Grills and diffuser with Metal ducts

## Acoustic Board

Rigid board with  
textile facings for  
acoustic sensitive area



### Range

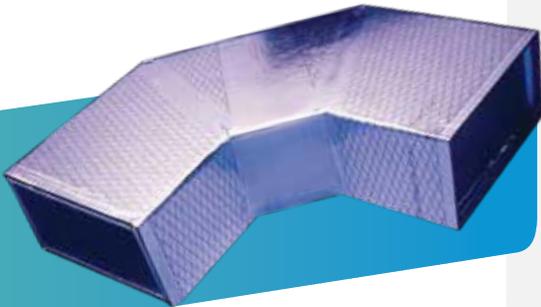
- Density** : 70 to 80 Kg/m<sup>3</sup>
- Thickness** : 25 and 50 mm
- Width** : 0.6 and 1.2 m
- Length** : 1.2 and 2.5 m
- Facing** : Aluminium: FSK  
Glass Cloth: BGC

### Application

- Building** : Underdeck  
False Ceiling  
Masonry wall
- HVAC** : AHU room, Duct acoustic
- Industry/OEM** : Genset  
Crash testing pit (Automotive lab)
- Mobility** : AC Ducts in metro train coaches

## Duct Board

Long insulation boards with both face laminated and having profiled edges. These boards are converted to duct pieces and duct network for comfort air conditioning systems



### Range

<b>Density</b>	: 70 to 80 Kg/m <sup>3</sup> (120 at profiled edges)
<b>Thickness</b>	: 25 mm
<b>Width</b>	: 1.19 m
<b>Length</b>	: 2.5 to 3 m
<b>Facing</b>	: External: Aluminium+FGT Internal: Aluminium+FGT BGC+FGT

### Application

<b>HVAC</b>	: Duct thermal, duct acoustic
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## Mineral Fiber Marine Board (MFMB)



### Range

<b>Density</b>	: 56 Kg/m <sup>3</sup>
<b>Thickness</b>	: 25 to 75 mm
<b>Width</b>	: 0.6 m
<b>Length</b>	: 0.9 m
<b>Facing</b>	: Glass Cloth: WGC

<b>Application</b>	: Ship building
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# FACING PRODUCT FOR INSULATION

- Aluminium
- Polypropylene
- Acoustic
- Industry

# ALUMINIUM



## Foil-Scrim-Kraft, FSK

### Description

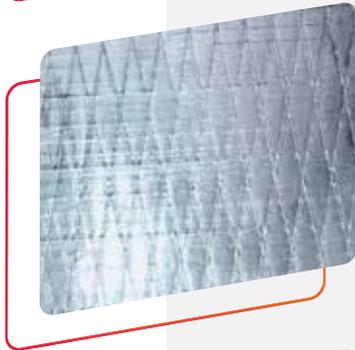
Multi-purpose aluminium facing

### Utility

Duct insulation, Underdeck, Pipe insulation, wall insulation

### Strength

Up to 7.6 KN/m



## R 3035 HD

### Description

High strength FSK

### Utility

PEB roof and wall

### Strength

Up to 9.6 KN/m



## PERFORATED FSK

### Description

Perforated FSK

### Utility

Acoustic application in train coach

### Strength

Up to 2.7 KN/m



## DOUBLE SIDED FSK

### Description

Double sided foil

### Utility

Metro train coaches

### Strength

Up to 5.5 KN/m



## ALU GLASS CLOTH

### Description

Aluminium and glass cloth based high strength facing

### Utility

PEB roof and wall

### Strength

Up to 16 KN/m

# POLYPROPYLENE

White Metalized Polypropylene, WMP



## WMP 50

### Description

High strength white polypropylene with reinforcement, kraft and metalized polyester

### Utility

PEB roof and wall -weld mesh free application

### Strength

Up to 11 KN/m



## WMP 10

### Description

White kraft backed polypropylene facing

### Utility

PEB roof and wall

### Strength

Up to 7 KN/m



## WMP VR R PLUS

### Description

Kraft free white polypropylene with metalized film lamination on the other side

### Utility

HVAC duct thermal

### Strength

Up to 6 KN/m



### BLACK GLASS CLOTH, BGC

**Description**

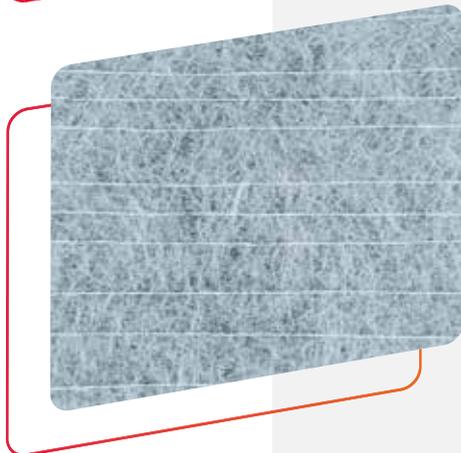
Black coloured textile made of glass yarns

**Utility**

Acoustic sensitive area  
e.g AHU room, home studio

**Advantage**

Perforated metal covering not required



### FIBERGLASS TISSUE, FGT

**Description**

Lightweight white fiberglass tissue

**Utility**

Used as acoustic lamination in duct lining and AHU room, corrosion protection for pipeline, Waterproofing

**Advantage**

Can be used in versatile applications



### BLACK GLASS TISSUE, BGT

**Description**

Lightweight black fiberglass tissue

**Utility**

Used as acoustic lamination in duct lining and AHU room behind the perforated metal sheet

**Advantage**

Aesthetic, can be used for various acoustic applications



### HEXAGONAL WIREMESH- GI

**Description**

Used with LRB mattress for high temperature application

**Utility**

All major industrial application

**Advantage**

Durable facing for high density insulation



### HEXAGONAL WIREMESH- SS

**Description**

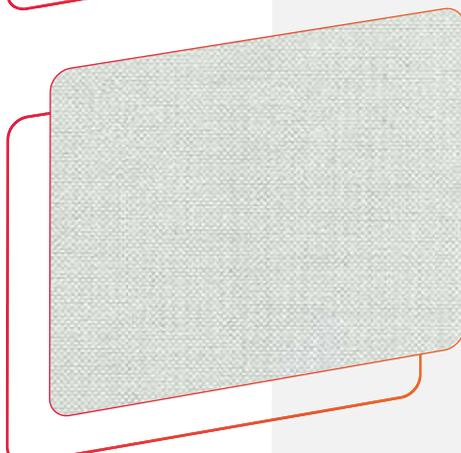
Used with LRB mattress for high temperature application

**Utility**

All major industrial application

**Advantage**

Durable facing for high density insulation with least risk of corrosion



### WHITE GLASS CLOTH

**Description**

White and paintable glass cloth for marine application

**Utility**

Bulkhead, deck and duct application in ships

**Advantage**

Durable facing, superior aesthetic and fire safe

# MAJOR CERTIFICATION



Fire safety certification for Metal building and Duct wrap



BIS License in conformance with IS 8183 standard



Health safe fibers: Certification on Bio-solubility



Singapore Green Building Council: Green Product certification



Indian Green Building Council: Green Product certification



The Energy Resource Institute: Green Product certification

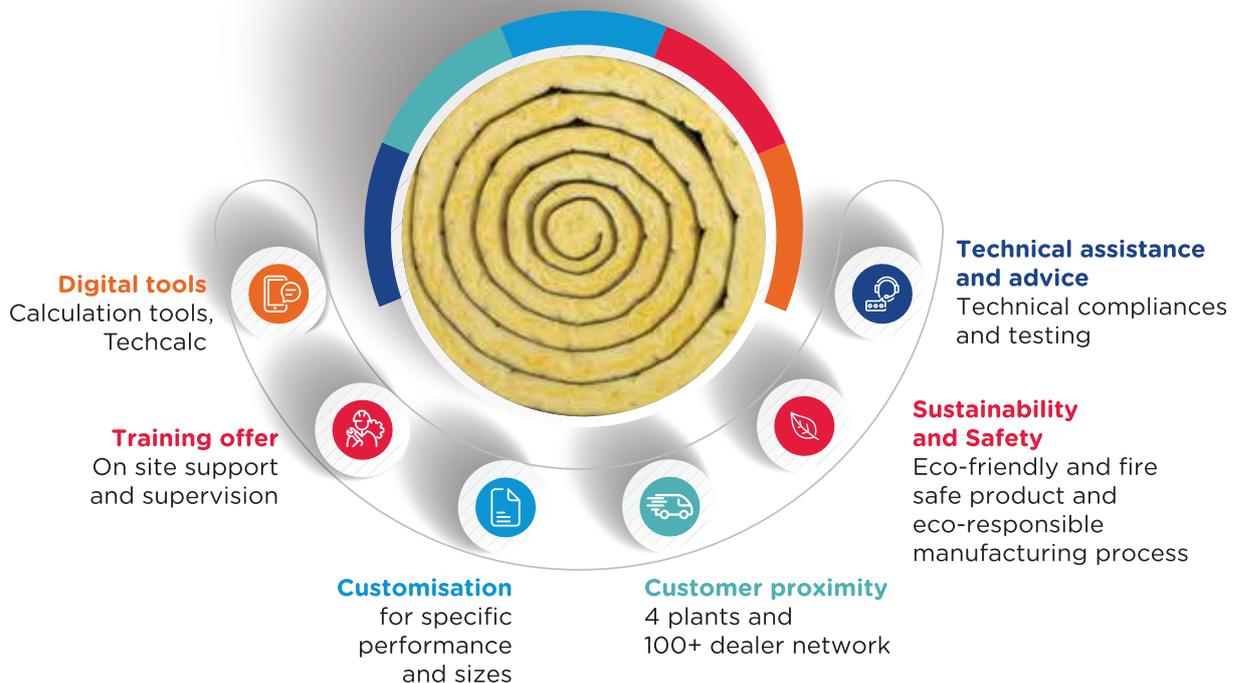


Product quality certification to supply in Malaysia



Fire safety certification on Flame spread and Smoke development criteria (UL 723)

# WHY SAINT-GOBAIN INSULATION



# OUR PRESENCE



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