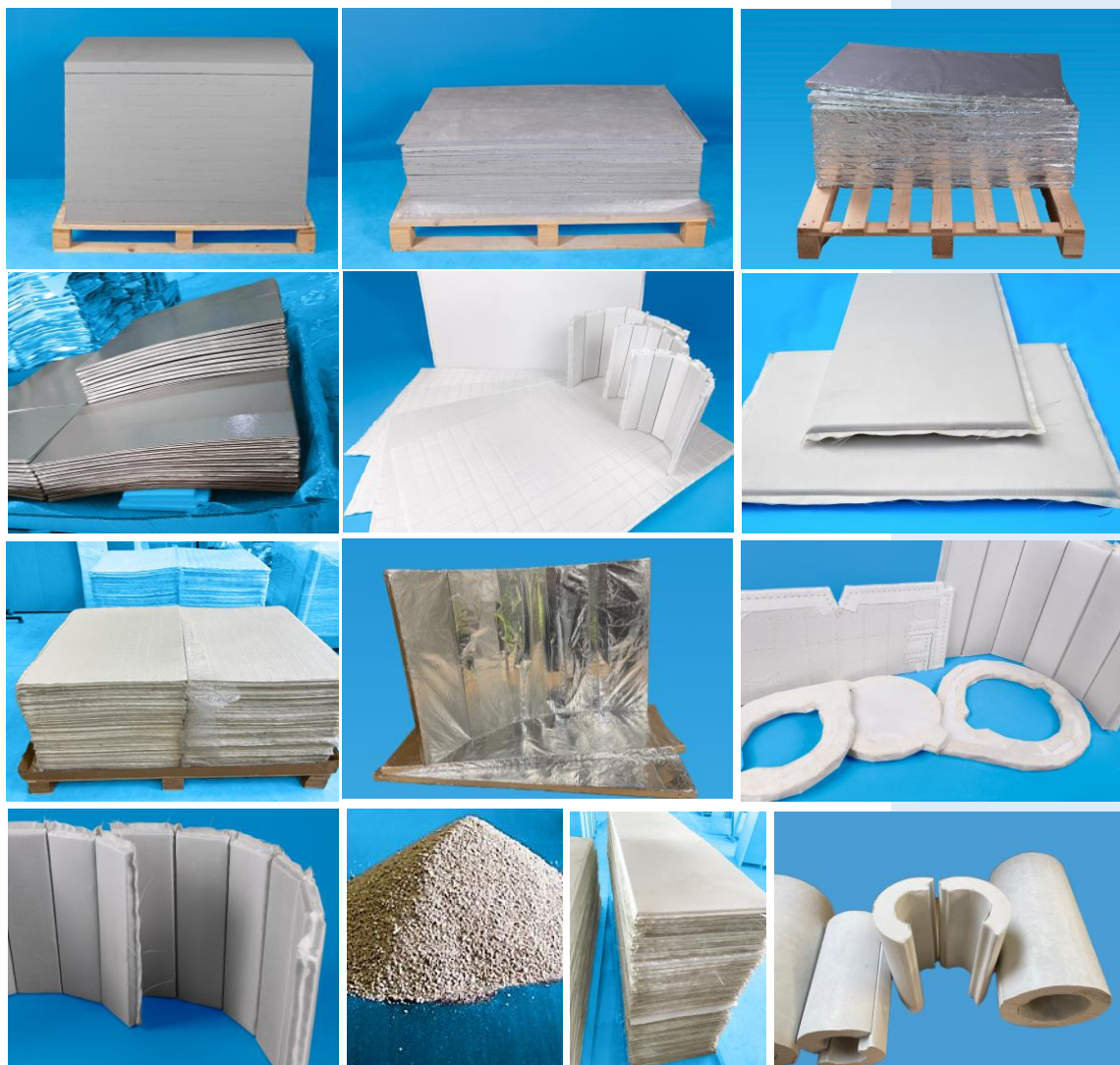


*Your partner in economical and **high-performance**, **high temperature resistant** and **fireproof insulation** for your applications and thermal industrial processes .*

REFIAL[®] -MPI

Microporous Insulation



REFIAL® -MPI Microporous Insulation

The base ingredient of microporous insulation is pyrogenic silica (SiO₂), different opacifiers for minimizing infrared radiation and the particles are held together mechanically with glass filaments. This inorganic reinforcement matrix gives the material its handling strength and machining capability and has the big advantage that no organics can burn off or oxidize.

Microporous Insulation have extremely low thermal conductivity or λ value, close to the lowest theoretically possible minimum according to the laws of physics.

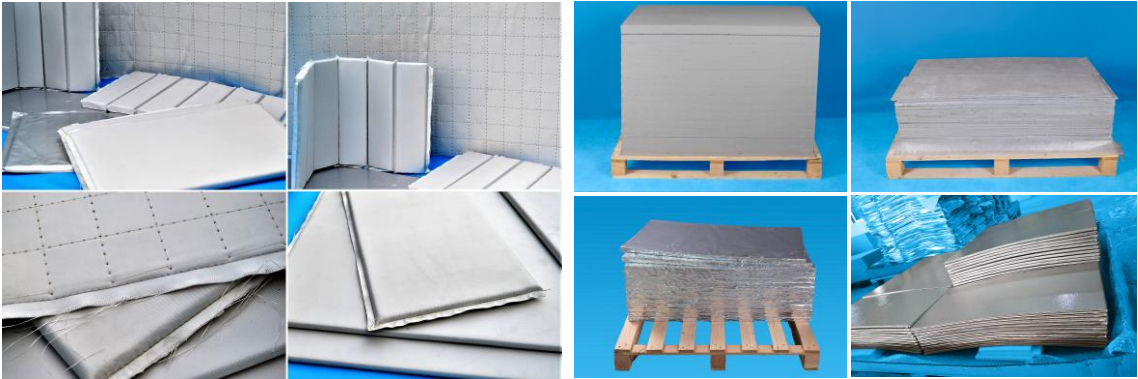
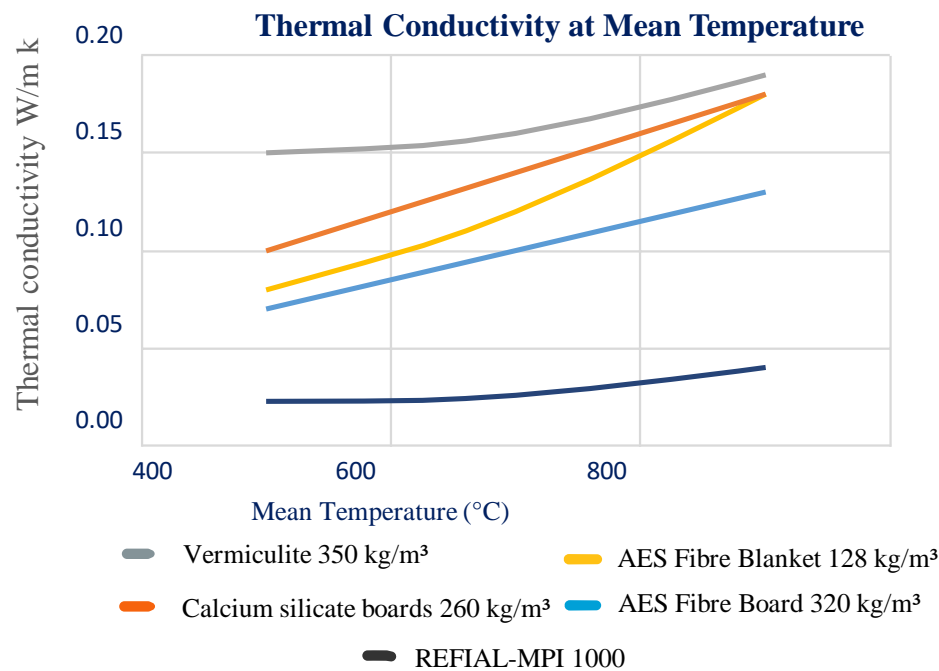
Microporous Insulation have the best possible insulation values at temperatures up to 1200 ° C, our microporous products are in use in all sectors of industry.

With Microporous Insulation, it is possible to achieve with the thinnest possible thickness the best possible thermal insulation.

Microporous insulation reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure.

Therefore , microporous insulation are also available with a hydrophobic coating. The material goes during the production process through a special coating treatment, which makes the material insensitive to water and humidity (up to 300°C).

REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards. The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.



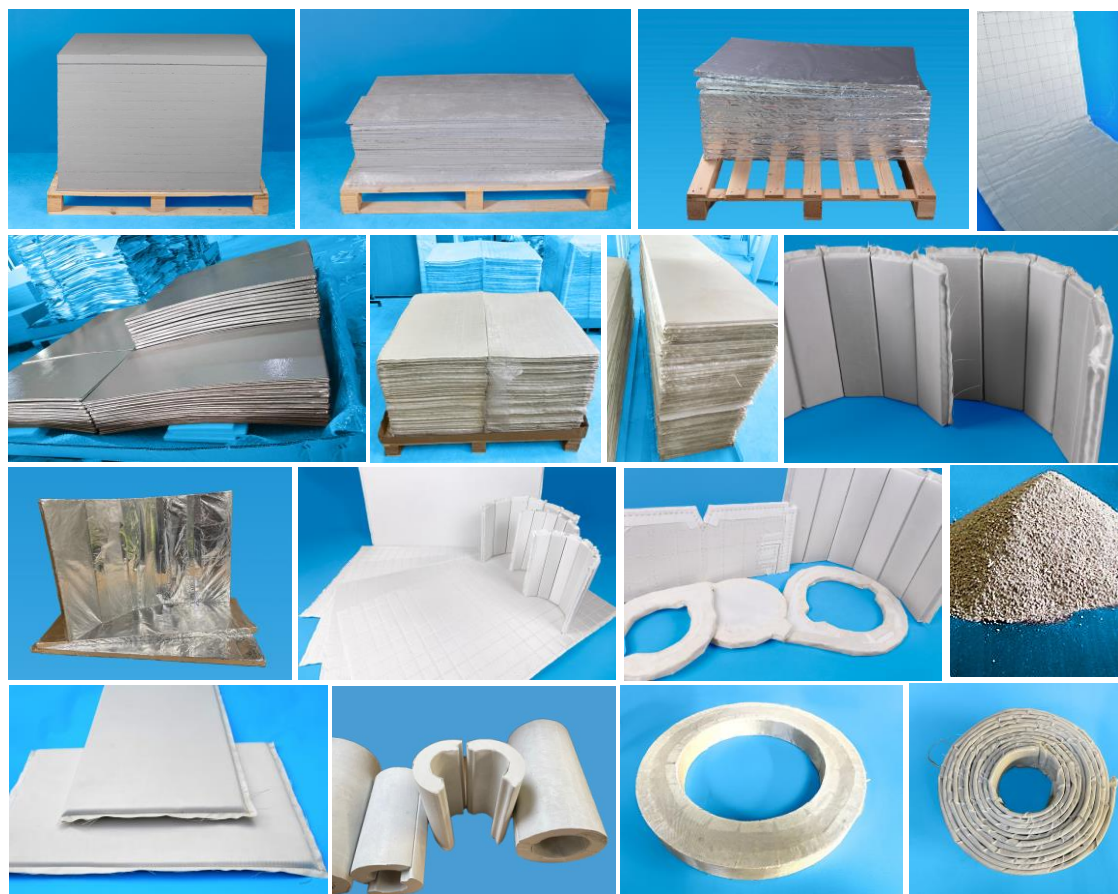
REFIAL® -MPI *Microporous Insulation*

REFIAL MPI is available in bulk, rigid boards, rigid and flexible panels, half-pipe segments, shape parts....

Our own workshop is equipped for laser and machine cutting, CNC 5D milling, gluing and stitching, the REFIAL MPI into custom MPI shape parts according to customer requirements and drawings. REFIAL MPI is alternatively available with PE film-, glass fleece-, aluminum foil- and E-glass fiber cloth-covering.

REFIAL® 's standard range of microporous insulation consists of :

- **REFIAL® -MPI Board**
- **REFIAL® -MST Panel**
- **REFIAL® -MPI Panel**
- **REFIAL® -MPI FP Panel**
- **REFIAL® -MPI Stitchflex**
- **REFIAL® -MPI Slatflex**
- **REFIAL® -MPI Alu Slatflex Panel**
- **REFIAL® -MPI Pipe**
- **REFIAL® -MPI Feeder Bowl Kit**
- **REFIAL® -MPI Flow**
- **REFIAL® -MPI Prefab Parts**



REFIAL®-MPI Board

Rigid, high integrity microporous board offering superior insulation properties combined with good handleability.

Produced from an opacified blend of pyrogenic silica with a filament reinforcement, this board is available in a 1000 ,1100 and 1200°C grade. in a raw sate (is no encapsulation) and are available with different coverings : Aluminium Foil (2/6 sides), E-Class Fibre Cloth and Glass Fibre fleece

Features and Benefits

- Extremely low thermal conductivity over a wide temperature range
- High thermal stability
- Low shrinkage
- Low in weight
- Wide range of sizes available to order
- Alternative grades available to suit the application
- Inorganic and non-combustible
- Simple to handle, cut, and shape
- No harmful respirable fibres
- Environmentally friendly
- Resistant to most chemicals

Cutting and Fixing

REFIAL®-MPI Board can be cut and shaped with conventional woodworking hand tools and machinery and fixed as with other similar insulation materials using glue, retaining pins or anchors.

Typical Applications

For use as back up insulation in:

- Steel forging furnaces, reheating furnaces, soaking pit covers
- Oil and Gas (crackers, distillation units, reformers)
- Aluminium pyrolysis cells, holding furnaces, remelters and launder metal transfer systems
- All types of kilns (roller, tunnel, shuttle) Kiln Cars
- Glass melting furnaces, regenerators, refiners, forehearths

Fuel cells :

- In and around BOP and Stack in SOFC

Data Loggers

- Used to protect and control temperature inside the device, data logger, monitor, portable measurement instruments, temperature recorders



Technical Data

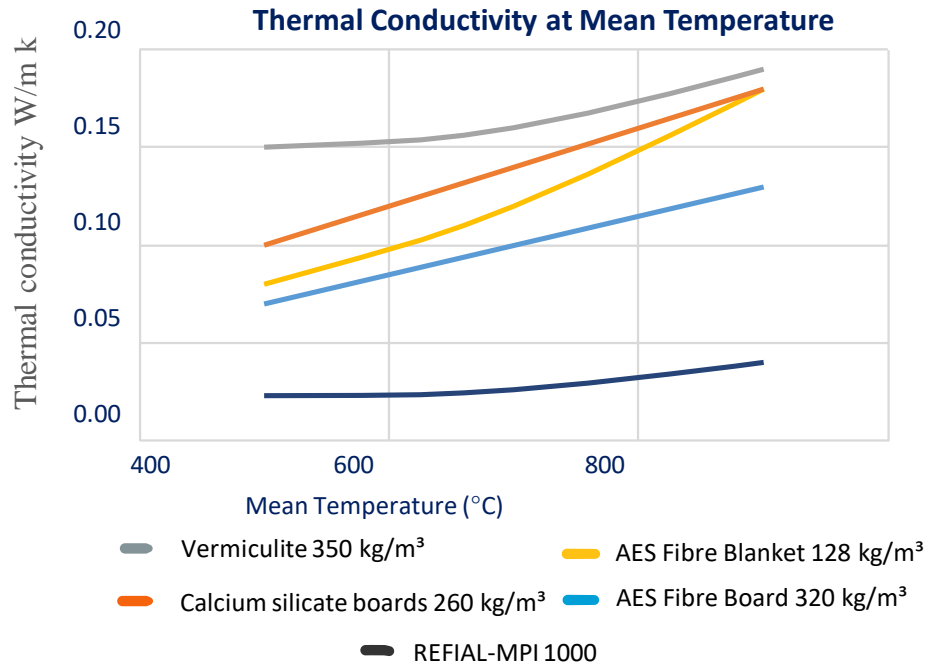
Classification temperature (1)		1000°C	1100°C
Long-time exposure		950°C	1050°C
Nominal Density		280 kg/m³	300 kg/m³
Compressive Strength at 10% deformation		0,33 MPa	0,67 MPa
Thermal Conductivity at	200°C	0,022 W/m K	0,028 W/m K
	400°C	0,023 W/m K	0,029 W/m K
	600°C	0,027 W/m K	0,032 W/m K
	800°C	0,034 W/m K	0,037 W/m K
Specific Heat Capacity at	200°C	0,86 KJ/kg K	0,93 KJ/kg K
	400°C	0,94 KJ/kg K	0,96 KJ/kg K
	600°C	0,96 KJ/kg K	1,02 KJ/kg K
	800°C	0,99 KJ/kg K	1,07 KJ/kg K
Linear Shrinkage; 24h full soak at 950°C		≤ 2,5 %	≤ 0,5 %
24h full soak at 1050°C		-	≤ 2,5 %

(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension& Size Availability*

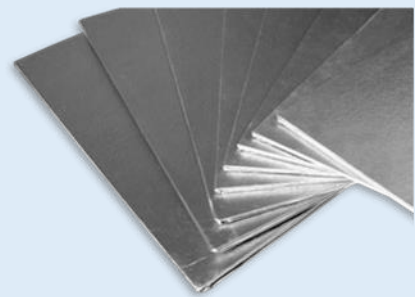
Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MPI BOARD	1000*600(±3)	10-50(±1)
Coverings Available	Raw / Alu-Foil / Thin Glass fleece / PE Film / E-Class Fibre Cloth	

* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards. The thermal resistance provided by REFIAL®-MPI products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MST Panel

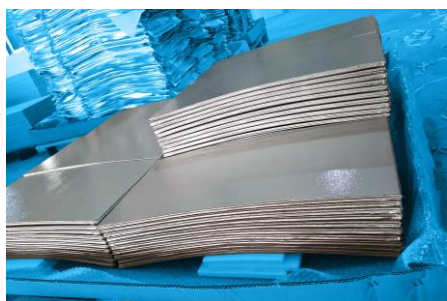
Flexible Microporous Insulation Panel, specifically developed for use in the steel industry and other molten metal applications.

REFIAL-MST Panel is encapsulated in an aluminised envelope, making the panel clean and easy to handle and manipulate.

The microporous insulation core is an opacified blend of pyrogenic silica with a filament reinforcement. The aluminised covering is water repellent to ensure the stability of the microporous core if contact is made with moisture laden castables and mortars.

Features and Benefits

- Extremely low thermal conductivity, high thermal stability
- Low shrinkage
- Low in weight
- High strength
- Wide range of sizes and customised shapes available to order
- Alternative grades available to suit the application
- Inorganic and non-combustible
- Shock and vibration resistant
- Simple to handle, cut, and shape
- No harmful respirable fibres
- Environmentally friendly
- Resistant to most chemicals.



Cutting and Fixing

REFIAL®-MST Panels can be easily cut with a sharp knife and fixed in a variety of ways similar to most conventional insulations with glue, retaining pins or anchors, straps or wire.

Cut edges can be sealed with aluminium self-adhesive tapes.

Typical Applications

Ladles

- ⇒ Used in steel plants and ferrous metals industry

Tundish

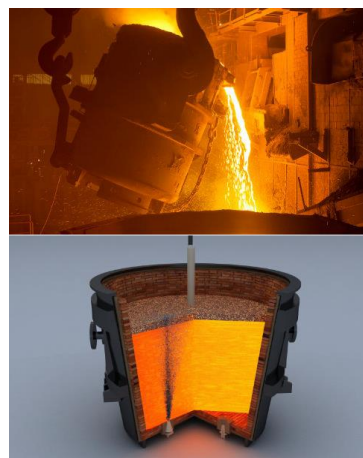
- ⇒ Containers used to feed molten metal into a mould

Torpedo cars (torpedo ladles)

- ⇒ Transfer containers, equipment used in steel plants

Degassers

- ⇒ Used to mechanically remove entrained air and/or gases from pipe lines and/or liquid systems



Technical Data

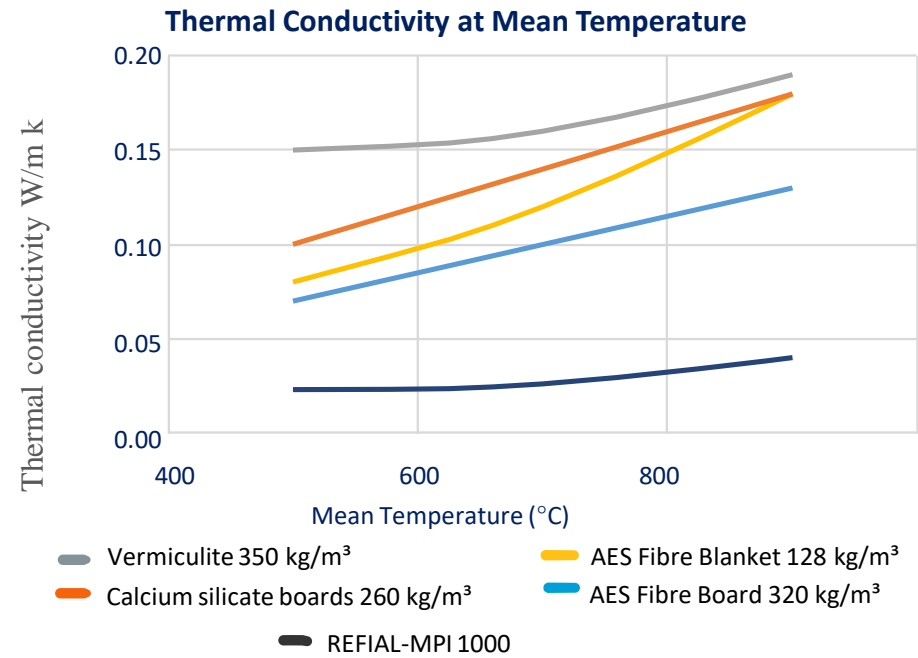
Classification temperature (1)	1000°C	1100°C
Long time exposure	950°C	1050°C
Nominal Density	325 kg/m³	375 kg/m³
Compressive Strength at 10% deformation	0,80 MPa	0,11 MPa
Thermal Conductivity		
200°C	0,022 W/m K	0,028 W/m K
400°C	0,023 W/m K	0,033 W/m K
600°C	0,027 W/m K	0,044 W/m K
800°C	0,032 W/m K	0,057 W/m K
Specific Heat Capacity		
200°C	0,92 KJ/kg K	0,92 KJ/kg K
400°C	1,01 KJ/kg K	1,01 KJ/kg K
600°C	1,04 KJ/kg K	1,04 KJ/kg K
800°C	1,08 KJ/kg K	1,08 KJ/kg K
Linear Shrinkage		
24h at 950°C	≤ 2,5 %	≤ 0,5 %
24h at 1050°C	-	≤ 2,5 %

(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension& Size Availability*

Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MST Panel	500 X 300(±3)	3,5,7,10(±1)

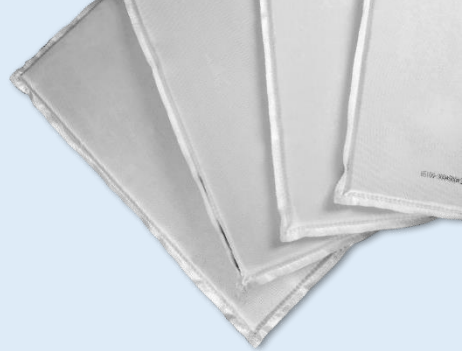
* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MPI Panel

Rigid large sized microporous insulation panel

REFIAL® -MPI Panel is manufactured in a glass cloth outer envelope, making the panel clean and easy to handle and manipulate. The microporous insulation core is an opacified blend of pyrogenic silica with a filament reinforcement

Features and Benefits

- Extremely low thermal conductivity over a wide temperature range
- High thermal stability
- Low shrinkage
- Low in weight
- Wide range of sizes available to order
- Inorganic and non-combustible
- Shock and vibration resistant
- Simple to handle, cut, and shape
- No harmful respirable fibres & organic binders
- Large single size for easy installation
- Environmentally friendly

Cutting and Fixing

REFIAL®-MPI Panel can be easily cut with a sharp knife and fixed in a variety of ways similar most conventional insulations with glue, retaining pins or anchors, straps or wire.

Typical Applications

For use as back up insulation in :

- Steel forging furnaces, reheating furnaces, soaking pit covers, ladles, tundish
- Oil and Gas (crackers, distillation units, reformers)
- Aluminium holding furnaces, re-melters, launder metal transfer systems
- All types of kilns (roller, tunnel, Shuttle) Kiln cars
- Glass melting furnaces, regenerators, refiners, forehearths

Night Storage Heaters

- Used to converse stored energy, improving efficiency

Data Loggers

- Used to protect and control temperature inside the device, data logger, monitor, portable measurement instruments, temperature recorders.



Technical Data

Classification temperature (1)		1000°C
Long-time exposure		950°C
Nominal Density		280 kg/m³
Compressive Strength at 10% deformation		0,20 MPa
Thermal Conductivity (ASTM C 177:2013)	200°C	0,022 W/m K
	400°C	0,023 W/m K
	600°C	0,027 W/m K
	800°C	0,034 W/m K
Specific Heat Capacity	200°C	0,93 KJ/kg K
	400°C	1,03 KJ/kg K
	600°C	1,06 KJ/kg K
	800°C	1,10 KJ/kg K
Linear Shrinkage	12h full soak at 1000°C	≤ 0,5 %
	24h full soak at 1000°C	≤ 5 %

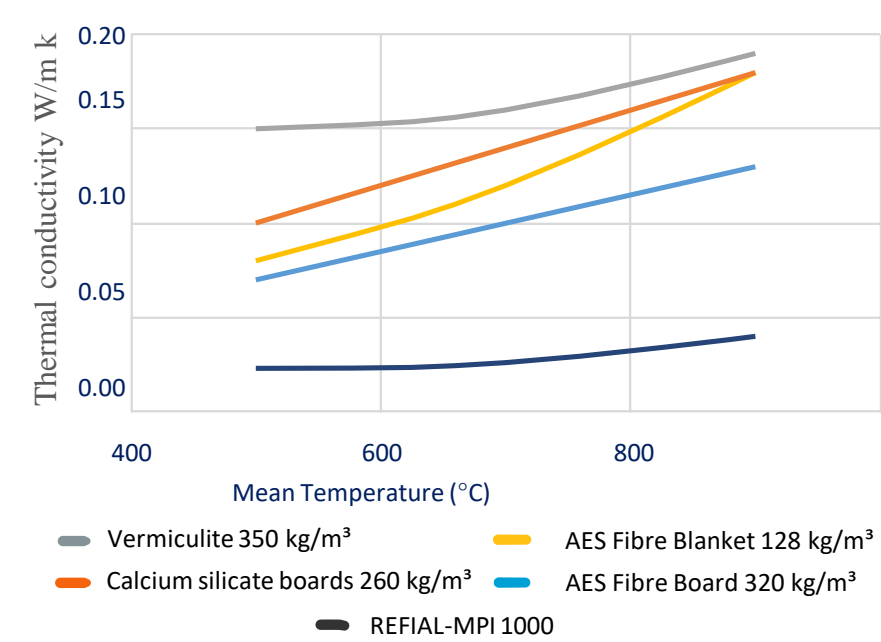
(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension& Size Availability*

Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MPI Panel Flat Edge	1200*1100	10-50
REFIAL®-MPI Panel Curved Edge	2450*650	3-35

* Other sizes available upon request

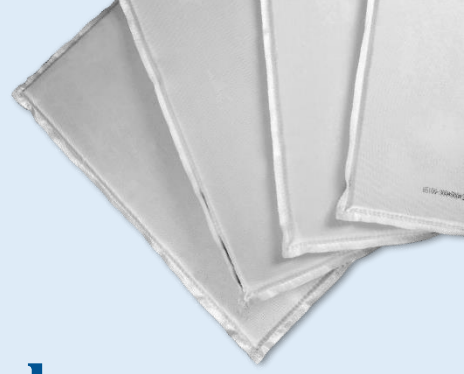
Thermal Conductivity at Mean Temperature



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MPI FP-Panel

Rigid large sized microporous insulation panel.

REFIAL® -MPI FP-Panel is manufactured in a glass cloth outer envelope, making the panel clean and easy to handle and manipulate. The microporous insulation core is an opacified blend of pyrogenic silica with a filament reinforcement.

REFIAL® -MPI FP-Panels are specially designed for landing/lift doors systems combining the requirements and standards based on EN 81-58

REFIAL® -MPI FP-Panels is a good answer to A class fire ratings with the thinnest and lightest available solutions

Features and Benefits

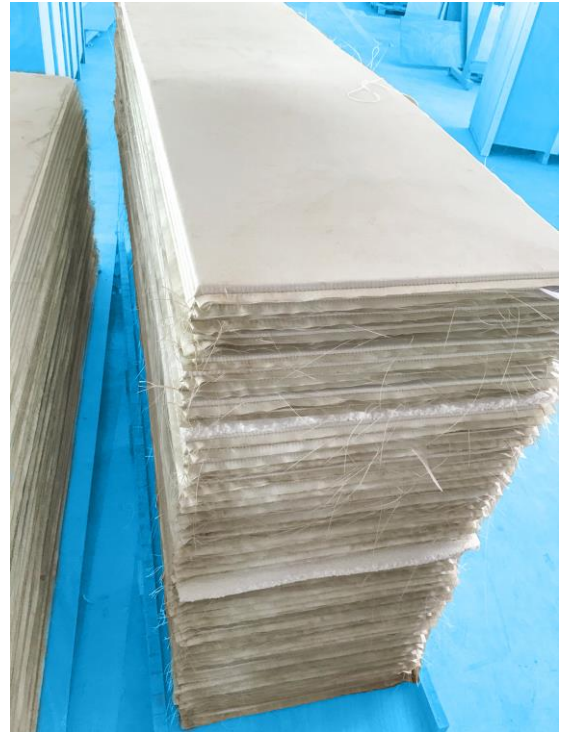
- Extremely low thermal conductivity over a wide temperature range
- High thermal stability
- Low shrinkage
- Low in weight
- Wide range of sizes available to order
- Inorganic and non-combustible
- Shock and vibration resistant
- Simple to handle, cut, and shape
- No harmful respirable fibres & organic binders
- Large single size for easy installation
- Environmentally friendly

Cutting and Fixing

REFIAL®-MPI FP-Panel can be easily cut with a sharp knife and fixed in a variety of ways similar most conventional insulations with glue, retaining pins or anchors, straps or wire.

Typical Applications

- Passive Fire Protection systems
- Elevating landing doors (EI60, EI190 , EI120 ratings)
- Industrial fire doors (A60,A90,EI120 ratings)



Technical Data

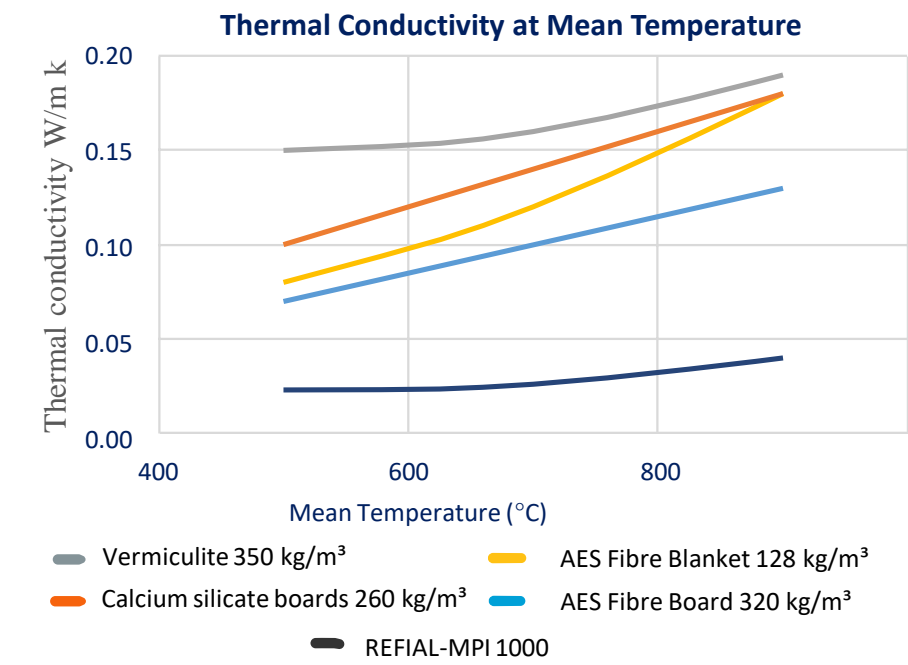
Classification temperature of core (1)	1000°C
Colour	white
Covering	High temp. resistant E glass-cloth.
Bulk Density ± 10%	280 kg/m³
Compressive Strength at 10% deformation	0,20 MPa
Linear Shrinkage 12h one side at 1000°C 24h full soak at 1000°C	≤ 0,5% ≤ 5%
Fire classification according DIN 4102	Class A1 - non-combustible
Thermal Conductivity	200°C 0,022 W/mK 400°C 0,023 W/mK 600°C 0,027 W/mK 800°C 0,034 W/mK
Specific Heat Capacity at	200°C 0,93 KJ/kg.K 400°C 1,03 KJ/kg.K 600°C 1,06 KJ/kg.K 800°C 1,10 KJ/kg.K
Storage instruction	Can be stored without shelf life limitation . The material has to be stored in dry conditions.
Fire Ratings & Thickness	A60/EI60 : ±15 mm ; A90/EI90: ±18 mm ; A120/EI120: ±20 mm

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info@refialbv.com

Dimension& Size Availability*

Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MPI FP Panel	2700 X 700 max.	15-18-20
Tolerance	+ - 6 mm	+ -1 mm

* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MPI Stitchflex

Flexible large sized overstitched microporous insulation panel.

REFIAL® -MPI Stitchflex is a flexible and customized microporous insulation solution for insulating pipes, curved surfaces and for complex or irregular shapes.

REFIAL® -MPI Stitchflex is available with stitching squares of 25 x 25 mm, and of 50 x 50 mm. Due to the overstitched pattern, the panel is 3D flexible and can be used for most different shapes.

REFIAL®-MPI Stitchflex is also semi-overstitched available (overstitched in one direction). These panels are 2D flexible and can be used for simple pipe or duct geometries.

REFIAL® -MPI Stitchflex panels are based on inorganic materials, especially fumed silica and different opacifiers for minimizing infrared radiation.

Features and Benefits

- Extremely low thermal conductivity over a wide temperature range
- High thermal stability
- Low shrinkage
- Low in weight
- Wide range of sizes available to order
- Inorganic and non-combustible
- Shock and vibration resistant
- Simple to handle, cut, and make into complex shapes
- Can be combined with other flexible insulation products to form customised composite insulation systems
- No harmful respirable fibres
- Environmentally friendly
- Resistant to most chemicals

Cutting and Fixing

REFIAL® -MPI Stichflex can be shaped easily with a simple cutter. They can be fixed in place with glue or anchors , pins , or clips. The panels can be installed with wire and straps , identical to conventional insulation materials.

Typical Applications

- Due to the overstitched pattern, the panel is 3D flexible and so Ideal for the insulation of round and complex shapes.
- Oil and Gas and Power Generation
- Process piping, hot pipe supports, inside high temperature jacketing systems on pipes and valves, or in cassettes and heat shields
- Concentrated Solar power
- Process piping and flexible Joints
- Transport (automotive, marine, rail, aerospace)
 - Inside heat shields and jacketing systems
 - Exhaust systems
 - Passive fire protection
- For use as back up insulation in:
 - Steel production process, in pipes and vessels, eg tuyere stocks on blast furnace.
 - Rotary kilns and crucible furnaces.
- Used to protect and control temperature inside the device, data logger, monitor, portable measurement instruments, temperature recorders
- Filler material for mattresses, cassettes , heat shields, expansion joints



Technical Data

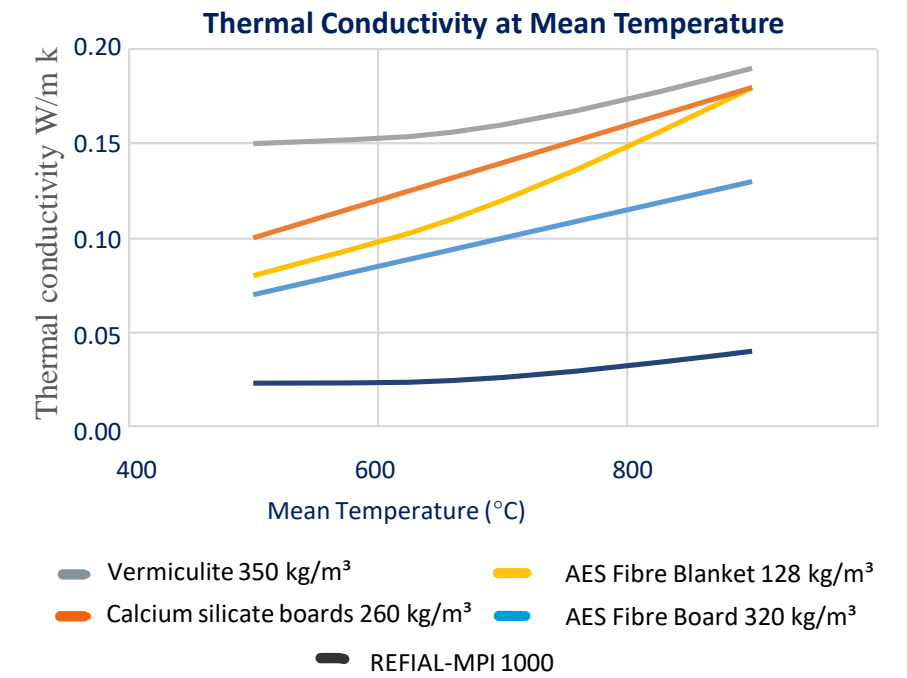
Classification temperature of core (1)	1000°C	1100°C
Long time exposure	950°C	1050°C
Colour	White/Grey	
Nominal Density	200 kg/m³	220 kg/m³
Linear Shrinkage	24 full soak at 950°C	≤ 2,5%
	24 full soak at 1050°C	≤ 0,5%
Specific heat capacity @	200°C	0,92 KJ/kgK
	400°C	1,01 KJ/kgK
	600°C	1,04 KJ/kgK
	800°C	1,08 KJ/kgK
Thermal Conductivity @ (ASTM C 177: 2013)	200°C	0,023 W/mK
	400°C	0,026 W/mK
	600°C	0,032 W/mk
	800°C	0,039 W/mK

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info@refialbv.com

Dimension& Size Availability*

Product	Length x Width (mm)	Thickness (mm)	Stitching Centres (mm)
REFIAL® -MPI Stitchflex	1000 x 600	3, 5, 6, 10, 12.5	(25 x 25 mm) / (50 x 50 mm)

* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards. The thermal resistance provided by REFIAL®-MPI products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MPI Slatflex

Flexible large sized slatted Microporous Insulation

REFIAL® -MPI Slatflex is produced in a glass cloth outer envelope, making the panel clean and easy for handling. The formulation is opacified blend of filament reinforced fumed silica.

REFIAL® -MPI Slatflex is customized flexible panel which is suitable for pipes.

REFIAL® -MPI Slatflex HY with hydrophobic treatment can be optional for where contact with liquid water or condensation. Either treated covering or Core board or both is available.

Features and Benefits

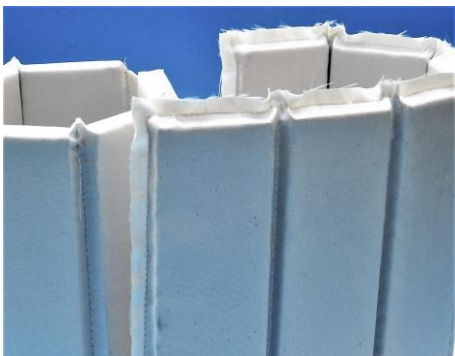
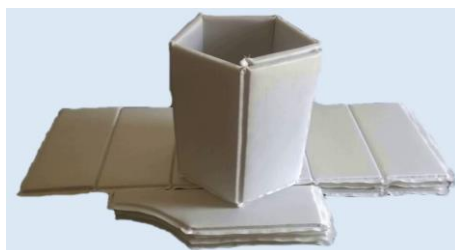
- Extremely low thermal conductivity
- High thermal stability
- Shock and vibration resistant
- No harmful respirable fibres
- Simple to cut and shape
- Environmentally friendly
- Resistant to most chemicals
- Non combustible
- Clean and easy to handle

Cutting and Fixing

REFIAL® -MPI Slatflex can be shaped easily with a simple cutter. They can be fixed in place with glue or anchors, pins, or clips. The panels can be installed with wire and straps, identical to conventional insulation materials.

Typical Applications

- Petrochemicals & Power generation
- Back-up insulation in refractory lined pipes
- Piping line solutions
- Concentrated Solar Power
- Vessels and reactors Exhaust



Technical Data

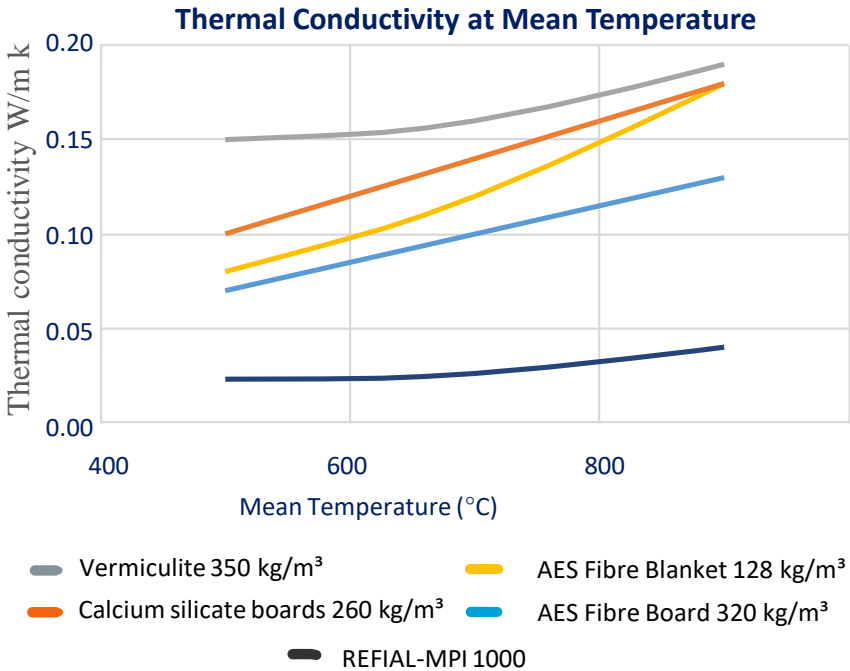
Classification temperature (1) Long-time exposure		1000°C 950°C
Nominal Density		280 kg/m³
Compressive Strength at 10% deformation		0,20 MPa
Thermal Conductivity	200°C	0,022 W/m K
	400°C	0,023 W/m K
	600°C	0,027 W/m K
	800°C	0,034 W/m K
Specific Heat Capacity	200°C	0,93 KJ/kg K
	400°C	1,03 KJ/kg K
	600°C	1,06 KJ/kg K
	800°C	1,10 KJ/kg K
Linear Shrinkage	12h full soak at 1000°C	≤0,5 %
	24h full soak at 1000°C	≤5 %

(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension& Size Availability*

Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MPI Slatflex	1000*600(±3)	10-50(±1)

* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL® -MPI Alu Slatflex

Flexible large sized slatted Microporous Insulation

REFIAL® -MPI Alu Slatflex panels are based on inorganic materials, especially fumed silica and different opacifiers for minimizing infrared radiation. **REFIAL® -MPI Alu Slatflex** panels are covered with aluminium foil, making the panel clean and easy for handling.

REFIAL® -MPI Alu Slatflex insulation are bendable for diameters from 100mm diameter and more, but they have to be adjusted to the requested diameter in advanced.

Special shapes can be milled according to customer specifications. They are also available in a totally hydrophobic version (up to 300°C).

Features and Benefits

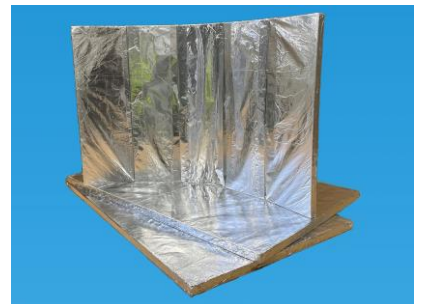
- Extremely low thermal conductivity
- High thermal stability
- Shock and vibration resistant
- No harmful respirable fibres
- Simple to cut and shape
- Environmentally friendly
- Resistant to most chemicals
- Non combustible
- Clean and easy to handle

Cutting and Fixing

REFIAL® -MPI Alu Slatflex microporous Insulation panels can be shaped easily with a simple cutter . The panels can be installed with glue or by metal anchors, pins and clips. On request, these panels can also be custom made according to customer's specification . For insulation of pipes , the flexible panels are installed with wire, straps and or self-adhesive aluminium foil tape.

Typical Applications

- Due to the slatted pattern, the panel is flexible and so Ideal for the insulation of round or curved shapes .
- Energy producing industries, especially in power plant, refineries and lots of other applications, where pipe have to be insulated with most effective insulation materials
- Piping insulation (ideal for large diameters)
- Back-up insulation in refractory lined pipes
- Rotary kiln insulation
- Vessels & reactors
- Hot pipe support insulation
- Exhaust systems



Technical Data

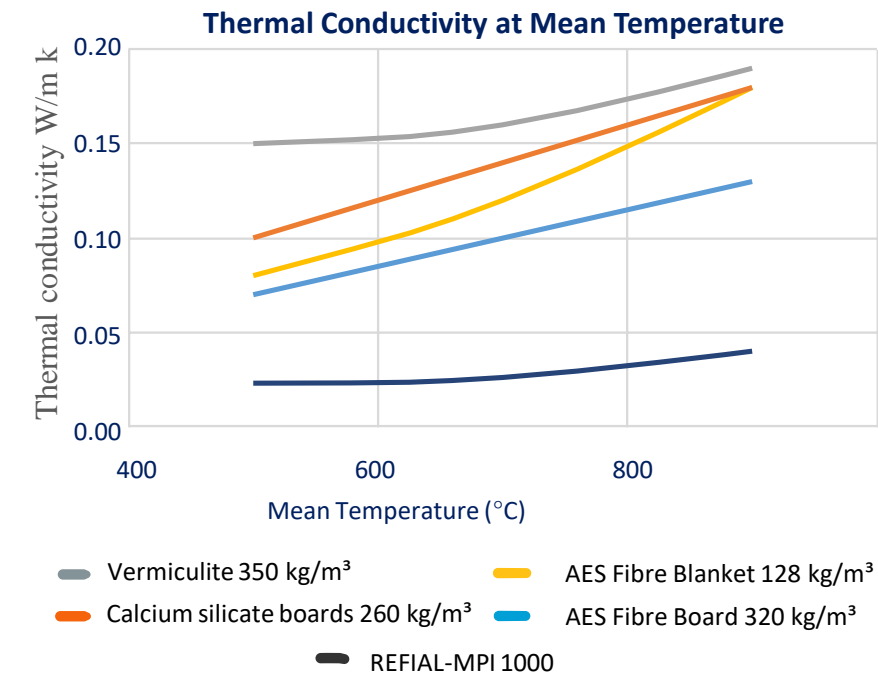
Classification temperature (1)	1000°C	
Colour	Grey/beige/White	
Covering	Aluminium foil	
Bulk Density ± 10%	300 kg/m³	
Compressive strength according DIN 53421	1,1 N/mm²	
Bending strength	0,16 N/mm²	
Shrinkage at 1000°C/ 12 hours	< 0,5%	
Fire classification according DIN 4102	Class A1 - non-combustible	
Chemical analysis	SiO ₂	± 80%
	SiC	± 15%
	Others	± 5%
Thermal Conductivity	200°C	0,020 W/mK
	400°C	0,024 W/mK
	600°C	0,031 W/mK
	800°C	0,040 W/mK
Storage instruction	Can be stored without shelf life limitation . The material has to be stored in dry conditions.	

(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension & Size Availability*

Product Type	Length & Width (mm)	Thickness (mm)
REFIAL®-MPI Alu Slatflex	700*1100	10,15,20,25

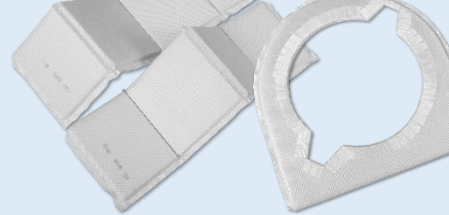
* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by **REFIAL®-MPI** products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL® -MPI Feeder Bowl Kits

Tailor made kits of Microporous Insulation for glass feeder bowls

REFIAL® -MPI Feeder Bowl Kits are tailor made kits of microporous insulation for glass feeder bowls, produced in a glass cloth outer envelope, making the panel clean and easy for handling. The formulation is opacified blend of filament reinforced fumed silica.

REFIAL® -MPI Feeder Bowl Kit fits well for forehearth, Spout kits insulation, feeder bowl parts.

REFIAL® -MPI Feeder Bowl Kit are tailor made following customer's specification and are based on inorganic materials, especially fumed silica and different opacifiers for minimizing infrared radiation.

Typical Applications

- Glass Feeder Bowls
- Spout Kits Insulation
- Forehearth



Features and Benefits

- Extremely low thermal conductivity
- High thermal stability
- No harmful respirable fibres
- Resistant to most chemicals
- Environmentally friendly
- Easy and simple to shape
- Non combustible



Cutting and Fixing

REFIAL® -MPI Feeder Bowl Kits are tailor made following the customer's specifications. If some cutting would be required, the kit can be shaped easily with a simple cutter. They can be fixed in place with glue or anchors, pins, or clips.

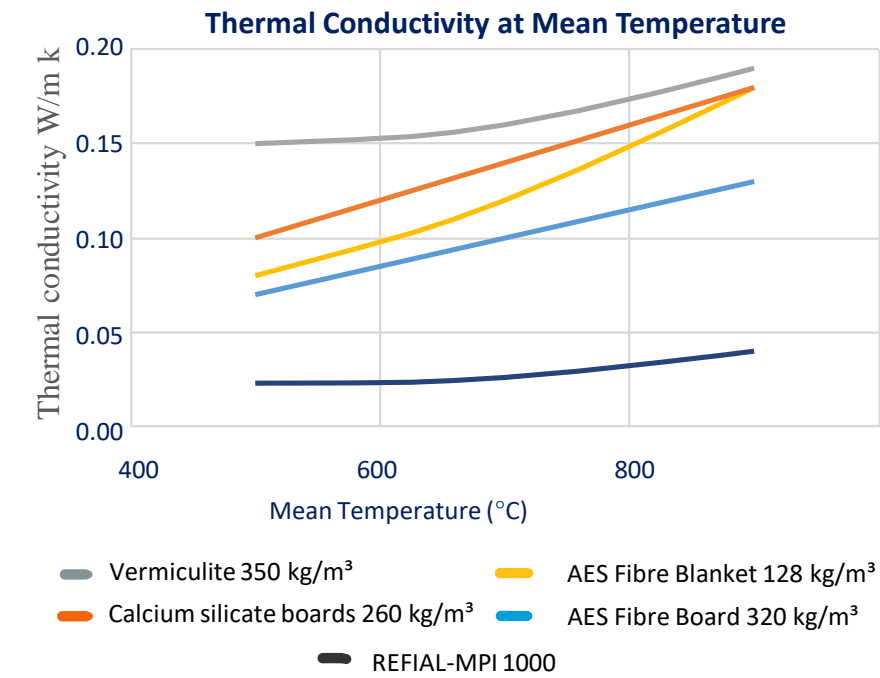
Technical Data

Classification temperature (1)		1000°C
Long-time exposure		950°C
Nominal Density		280 kg/m³
Compressive strength at 10% deformation		0,20 MPa
Thermal Conductivity	200°C	0,022 W/m K
	400°C	0,023 W/m K
	600°C	0,027 W/m K
	800°C	0,034 W/m K
Specific Heat Capacity	200°C	0,93 KJ/kg K
	400°C	1,03 KJ/kg K
	600°C	1,06 KJ/kg K
	800°C	1,10 KJ/kg K
Linear Shrinkage 12h one side at 1000°C		≤ 0,5 %
24h full soak at 1000°C		≤ 5 %

- (1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com
- (2) Standard density of thinner panels maybe higher

Dimension& Size Availability*

All the dimensions are specified based on the customer’s drawings



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by REFIAL®-MPI products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).



REFIAL®-MPI Pipe

Rigid Microporous half pipe shell insulation

REFIAL® -MPI Pipe insulation is a microporous insulation composed of inorganic materials, especially fumed silica and different opacifiers for minimizing infrared radiation.

REFIAL® -MPI Pipe are ready-made half pipes pipes segments and are available with glass cloth, glass fleece or aluminium foil coverings. They are also available in a totally hydrophobic version (up to 300°C). The half pipes are standard available up to 200 mm inner diameter, wall thickness of up to 50 mm and length of 0,5 up to 1,5 m. Special shapes can be milled according to customer specifications. The shells are also provided with a tongue and groove connection, to save time when installing.

Typical Applications

- Half pipe Microporous Insulation are Ideal for the insulation of pipes .
- Energy producing industries, especially in power plant, refineries and lots of other applications, where pipe have to be insulated with most effective insulation materials
- Petrochemical industry & power generation
- CSP (Concentrated Solar power)
- Hot pipe support insulation
- Exhaust systems

Features and Benefits

- Extremely low thermal conductivity over a wide temperature range
- High thermal stability
- Low shrinkage
- Low in weight
- Wide range of sizes available to order
- Can be manufactured into fabricated elbows and bends
- Inorganic and non-combustible
- Simple to handle
- No harmful respirable fibres
- Environmentally friendly
- Resistant to most chemicals

Cutting and Fixing

REFIAL® -MPI Pipe microporous Insulation half pipes and shells can be shaped both manually with hand tools and with stationary wood processing machinery. The shells or half pipes can be cut, sawn and drilled. For insulation of pipes, the half pipes or shells are installed with wire, straps and self-adhesive aluminium foil tape. On request, these shells can also be custom made according to customer's specification



Technical Data

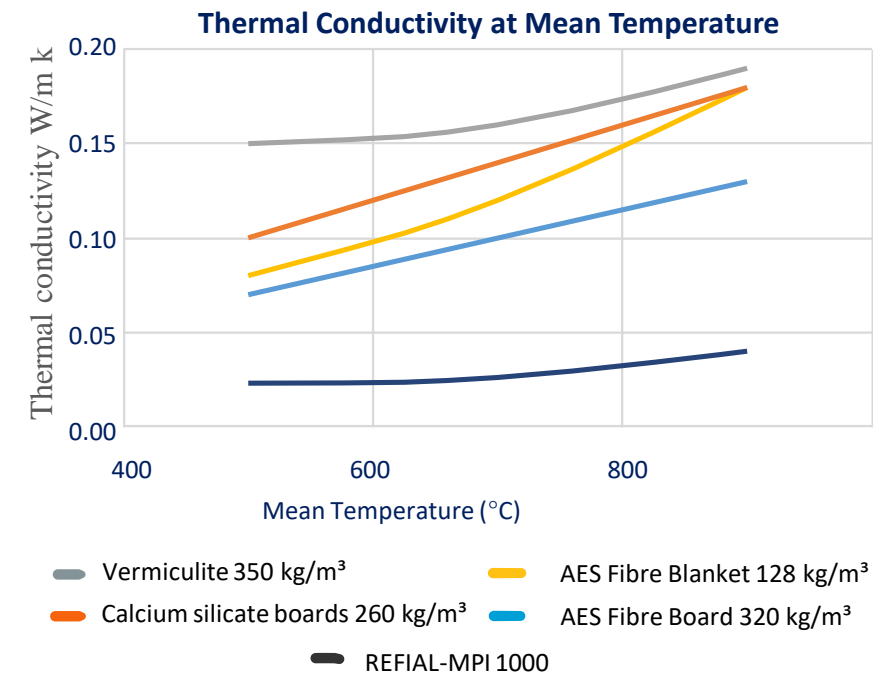
Classification temperature (1)	1000°C
Colour	Grey/beige/White
Covering	Aluminium foil/E-glass fabric
Nominal Density	280 kg/m³
Shrinkage at 950°C/24 hours	< 2,5%
Fire classification according DIN 4102	Class A1 - non-combustible
Thermal Conductivity @ (ASTM C 177 : 2013)	200°C 0,022 W/mK 400°C 0,023 W/mK 600°C 0,027 W/mK 800°C 0,034 W/mK
Specific Heat Capacity	200°C 0,86 KJ/kg.K 400°C 0,94 KJ/kg.K 600°C 0,96 KJ/kg.K 800°C 0,99 KJ/kg.K
Storage instruction	Can be stored without shelf life limitation . The material has to be stored in dry conditions.

(1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com

Dimension& Size Availability*

Product Type	Diameter (mm)	Thickness (mm)	Length (m)
REFIAL®-MPI Pipe	up to 200 mm inner diameter	25-50 mm(±10%)	0,5-1,5 m (±10%)

* Other sizes available upon request



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

The thermal resistance provided by REFIAL®-MPI products is a cost competitive alternative to the other lightweight insulation solutions on the market, whilst also delivering benefits in terms of space optimization and reduced weight.

REFIAL® - MPI products reacts sensitively towards all wet materials such as water, oil, gasoline etc., as these materials destroy its pore structure). Therefore , special coverings and Hydrophobic grade are available, which makes the material insensitive to water and humidity (up to 300°C).

REFIAL® -MPI Flow

Granular Microporous Insulation

REFIAL® -MPI Flow is a specially designed pourable microporous insulation product with flow characteristics which make them ideal for filling of voids and complex shapes and cavities.

REFIAL® -MPI Flow is an opacified blend of filament reinforced pyrogenic silica.

REFIAL® -MPI Flow is the superb choice for applications like complex shapes, voids or closed joints where conventional insulation or rigid microporous insulation cannot be applied.

Features and Benefits

- Extremely low thermal conductivity
- High thermal stability
- No harmful respirable fibers
- Free of organic binders
- Environmentally friendly
- Great flow properties
- Easy to install

Cutting and Fixing

REFIAL® -MPI Flow is a pourable microporous powder and can be easily install due to their good flowing properties for pouring and tapping. Similar installation as with dry castables. To obtain the optimal thermal performance, it is necessary to achieve the specified "tap density", for example by filling under vibration.

Typical Applications

- Fuel cells and reformers
- High temperature voids in refractory Gaps or joints filling for furnace
- Exhaust systems
- Other areas that rigid boards are not suitable for using



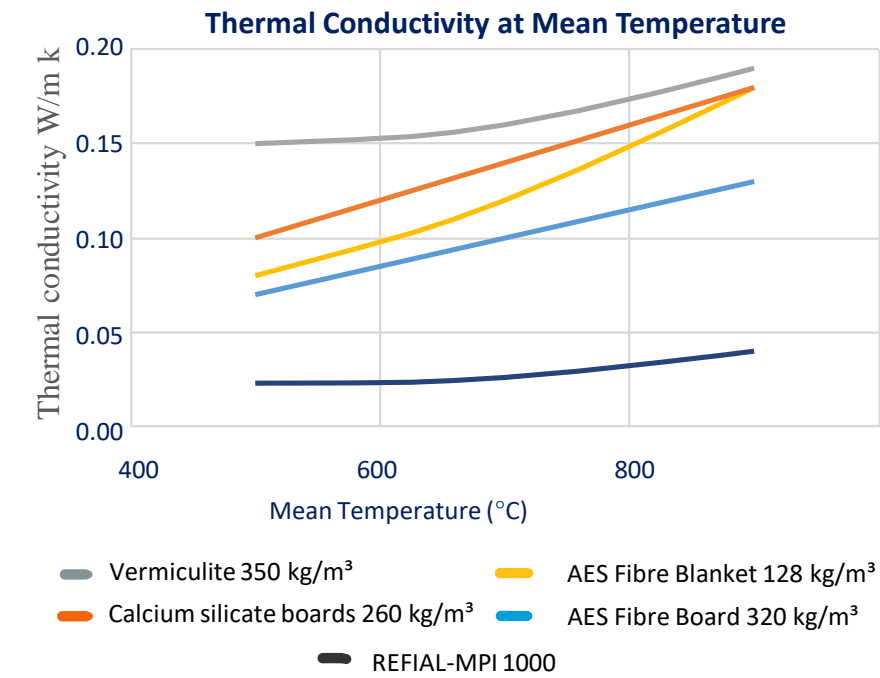
Technical Data

Classification temperature (1)	1000°C
Long-time exposure	950°C
Nominal Density	230 kg/m³
Taped Density	280 kg/m³
Thermal Conductivity	200°C 400°C 600°C 800°C
	0,026 W/m K 0,035 W/m K 0,044 W/m K 0,062 W/m K
Specific Heat Capacity	200°C 400°C 600°C 800°C
	0,96 KJ/kg K 1,02 KJ/kg K 1,08 KJ/kg K 1,12 KJ/kg K
Linear Shrinkage	24h full soak at 850°C 24h full soak at 950°C
	≤ 0,5 % ≤ 2,5 %

- (1) Classification Temperature is not a definition of the operational limit of these products, especially when long term physical or dimensional stability is a factor. For certain applications operational temperature limits may be significantly reduced. For assistance or clarification please contact REFIAL office. info@refialbv.com
- (2) Other packaging , dimensions may be available on request subject to minimum order requirements.

Dimension& Size Availability*

Particle size : 0,3 – 2,5 mm
Density tolerance : 30 kg/m³
Packaging : 5 kg/Bag , 10 kg/Bag



REFIAL®-MPI products offer a realistic alternative compared to other lightweight insulation solutions, such as low-density calcium silicate, vermiculite, fibre or wool based blankets and boards.

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