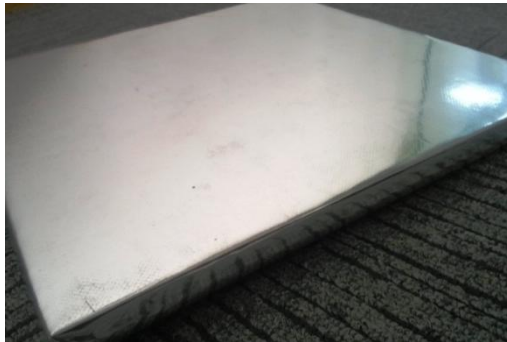




## Microporous Insulation Panel in Steel Industry

MIP, short for Microporous Insulation Panel, is a microporous insulation material with exceptional thermal performance based on powdered silica. MIP is produced in self-standing panels, insensitive to thermal shocks and with very low linear shrinkage. Non combustible and completely asbestos free.



MIP-Alumi



MIP-PA/PE

TECHNICAL DATA		
Description	U.M.	MIP-Standard
Norminal density	[kg/m <sup>3</sup> ]	260-350
Max application temperature	C°	950
Linear shrinkage 12h	800°C	1.7 %
	900°C	1.9 %
Compressive strength	[N/mm <sup>2</sup> ]	1-3
Specific heat	[KJ/Kg K]	1.05
Thermal conductivity at an temperature of	100°C	0.018
	200°C	0,021
	300°C	0,022
	400°C	0,023
	500°C	0,025
	600°C	0,028
	700°C	0,030
800°C	0,033	
Reaction to fire	Non-combustible	

With its outstanding low conductivity which is even lower than still air, MIP was widely used in different sectors of Steel industry.

## A. Steel ladle



Application on Steel ladle

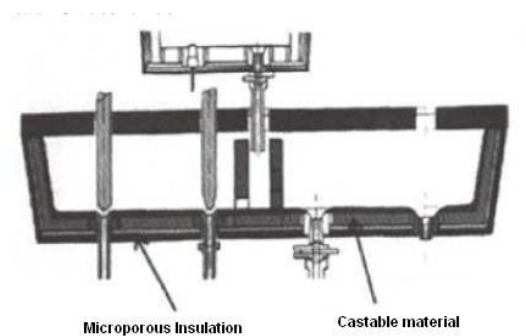
Installation method:

Using SILTHERM MIP-Alumi at the outmost insulation layer that close to the ladle shell. To replace the lightweight insulation bricks or other insulation material.

Benefit:

1. Reduce the heat loss of steel ladle shell.
2. Cooler shell makes less expansion and tighter lining.
3. Reduce the insulation layer thickness and enlarge the production capacity.
4. Lower temperature gradient makes firebricks less prone to thermal shock.
5. Reduce time and heat necessary for heating the ladle.
6. Can slightly lower down the molten metal temperature when comes out from last sector.

## B. Tundish



Application on tundish

Installation method:

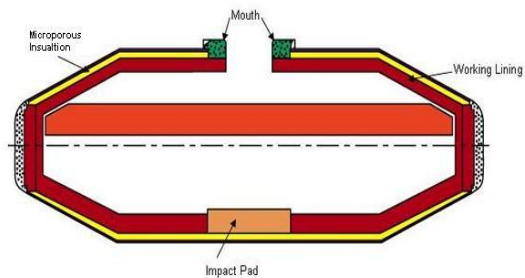
Using SILTHERM products at the outmost insulation layer that close to the shell and keeping

anchors at the panels' gap.

Benefit:

1. Reduce the heat loss of from the shell.
2. Maintain the liquid steel temperature and viscosity.

### C. Torpedo ladle



#### Application on Torpedo Ladle

Installation method:

Using SILTHERM products between the working lining of firebricks and the steel shell

Benefit:

1. Reduce the heat loss of from the shell.
2. Maintain the liquid steel temperature in transportation.
3. Reduce lining thickness and enlarge ladle capacity.
4. Save the energy for re-heating the liquid steel in next sector.

Microporous Insulation Panels can also be used in other sectors in Steel making, including:

- Electric Arc Furnace
- Blast furnaces:
- Launder & Launder cover
- RH Degasser
- Annealing lines
- Cokes Batteries