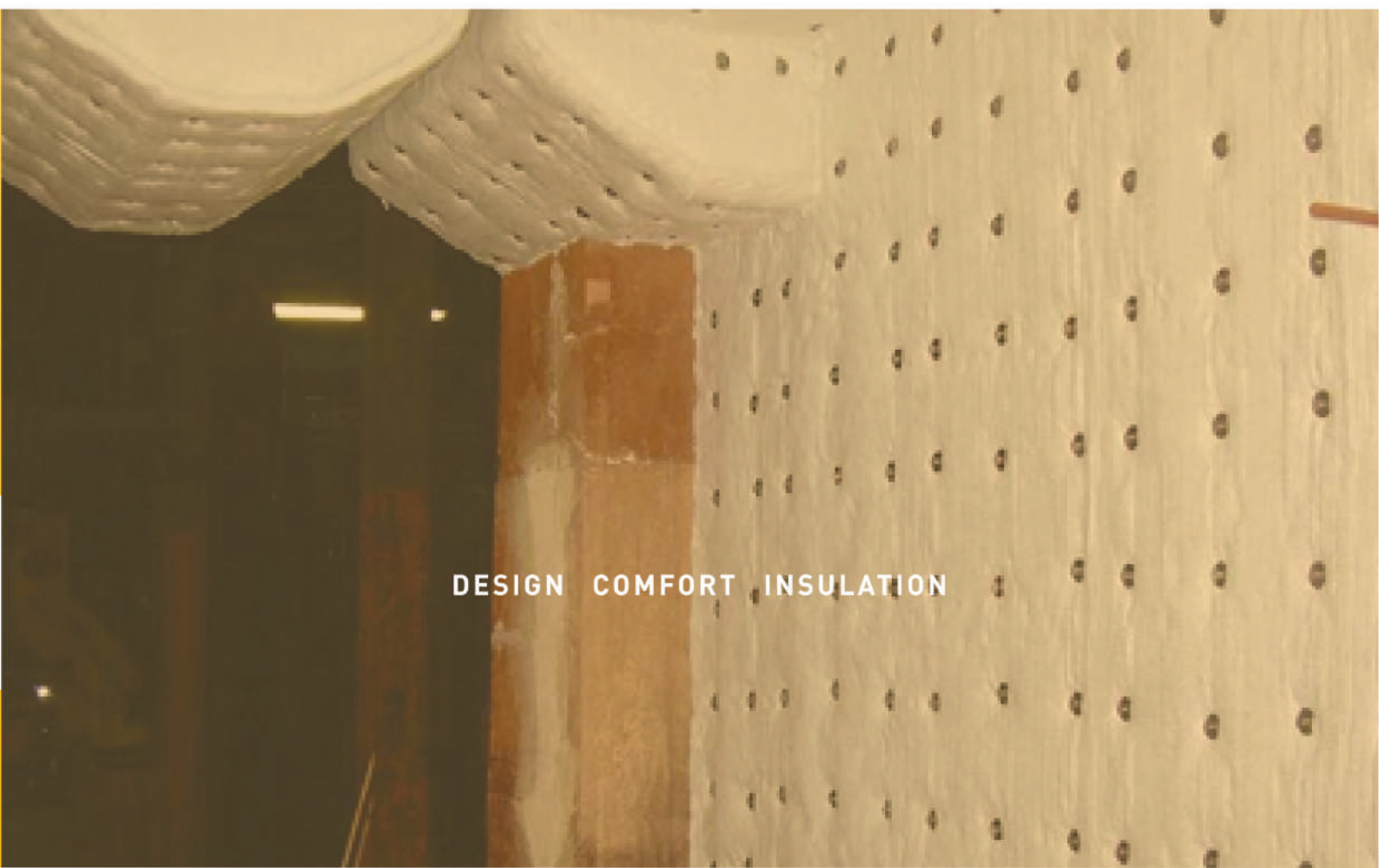


# Effective Heat Resistance

**INSERA<sup>®</sup>**  
CERAMIC WOOL BLANKETS

DESIGN • COMFORT • INSULATION



## INSERA® - CERAMIC WOOL BLANKETS

- **INSERA®** is ceramic wool blankets manufactured from polycrystalline materials. Alumina & silica are used as a raw material for manufacturing of ceramic wool blanket.
- It is having high temperature stability, low thermal conductivity, excellent thermal shock resistance, light weight & superior corrosion resistance.
- It is completely inorganic & available in two temperature grades RT (1260 °C) and HTZ (1425 °C) and available in various densities, sizes & thicknesses.
- It is highly durable continuous blanket with no added organic constituents & binders.

<b>Brief Description</b>	It is manufactured from bulk fibers produced using latest spinning process. It is generally used in high temperature applications.
<b>Material Type</b>	Open cell material having high temperature resistance property
<b>Color</b>	White
<b>Applications</b>	Industrial furnace lining, hot water piping, low pressure steam line, DG exhaust duct, steam turbine, oil lines, high temperature lines

### STANDARD DIMENSIONS :

<b>Thickness (mm)</b>	25	50
<b>Density (Kg/m³)</b>	64/80/96/128/160	64/96/128/160
<b>Length (mm)</b>	7300 or 7620	3650 or 3810
<b>Width (mm)</b>	610	610

### THERMAL CONDUCTIVITY (K VALUE) TABLE (AS PER IS 15402/IS 3346) :

Mean Temperature (°C)	Thermal Conductivity (W/mK)			
	Density (kg/m³)			
	64	80	96	128
100	0.050	0.047	0.045	0.043
200	0.06	0.06	0.058	0.052
400	0.11	0.09	0.087	0.082
600	0.18	0.15	0.14	0.12
800	0.29	0.24	0.21	0.18
1000	0.42	0.36	0.29	0.25

## THERMAL RESISTANCE (R VALUE) TABLE :

Mean Temperature (°C)	Thermal Resistance (Ft <sup>2</sup> .hr.°F/BTU) [For 25 mm thickness]			
	Density (kg/m <sup>3</sup> )			
	64	80	96	128
100	2.81	3.01	3.15	3.30
200	2.37	2.37	2.45	2.73
400	1.29	1.58	1.63	1.73
600	0.79	0.95	1.01	1.18
800	0.49	0.59	0.68	0.79
1000	0.34	0.39	0.49	0.57

Mean Temperature (°C)	Thermal Resistance (Ft <sup>2</sup> .hr.°F/BTU) [For 50 mm thickness]			
	Density (kg/m <sup>3</sup> )			
	64	80	96	128
100	5.62	6.01	6.31	6.60
200	4.73	4.73	4.89	5.46
400	2.58	3.15	3.26	3.46
600	1.58	1.89	2.03	2.37
800	0.98	1.18	1.35	1.58
1000	0.68	0.79	0.98	1.14

## PART CHEMICAL COMPOSITION TABLE (AS PER IS15402/IS 1335/IS 1527/IS 10085/IS 12107-5 & 6) :

Alumina Content (Al <sub>2</sub> O <sub>3</sub> )	Silica content (SiO <sub>2</sub> )	Zirconium oxide (ZrO <sub>2</sub> )	Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	Titanium Dioxide (TiO <sub>2</sub> )	Magnesium oxide (MgO)	Calcium oxide (CaO)
44.36 %	54.29 %	1.07%	0.0022 %	0.18 %	0.022 %	NIL

## TECHNICAL DATA :

Temperature Range	RT grade - Up to 1260 °C HTZ grade - Up to 1425 °C	
Surface Burning Characteristics	Flame Spread index (FSI) : <b>25 Max.</b> Smoke Developed Index (SDI) : <b>450 Max.</b> Fire Classification : <b>Class A</b>	As per ASTM E 84, NFPA 90A, 90B & Life Safety Code 101

Reaction to Fire Tests	Non-Combustible Material Fire Classification: <b>Class A1</b>	As per BS EN ISO 1182/BS EN ISO 1716/EN 13501-1
Linear Shrinkage at 1200 °C	1.92 %	As per IS 15402/IS 14656
Shot Content Received on 212 Micron Sieve	1.54 %	As per IS 15402/IS 14656
Fiber Diameter	3 Microns	As per IS 15402/IS 14656
Tensile Strength	64 kg/m <sup>2</sup> - 16.7 kPa 96 kg/m <sup>2</sup> - 64.4 kPa	As per IS 15402/IS 14656

\*Blankets are available in roll form packed in polythene bags and further encased in cardboard cartons.

## FEATURES :

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Excellent thermal &amp; chemical stability</li> <li>• Light weight</li> <li>• Resistant to thermal shock</li> <li>• High temperature resistance</li> <li>• Excellent corrosion resistance</li> </ul> | <ul style="list-style-type: none"> <li>• Non-combustibility</li> <li>• High thermal &amp; fire performance</li> <li>• Asbestos free</li> <li>• Excellent tensile strength</li> <li>• Easy to cut &amp; install in critical areas due to its flexibility</li> </ul> |
|---|--|

## INSERA® BLANKETS INDUSTRIAL APPLICATION AREA :

### INDUSTRIAL FURNACE LINING :

- The traditional solution for heat-treatment furnaces was to use hard refractory firebricks and lightweight firebricks with high heat losses & long heating time to stability which leads to more fuel consumption and ultimately results in higher fuel costs.
- In modern heat-treatment furnaces, these problems are reduced by lining each & every component of furnace (walls, roof, doors, flues & stack) with less density & thickness of **INSERA®** compared to firebricks.
- **INSERA®** is flexible and having lighter in weight compared to traditional fire bricks. So, it reduces load on support structure which makes the installation quick & easy.
- **INSERA®** has chemical composition such a way that it avoids chances of corrosion of lead, copper, aluminium which makes it ideal as a lining material.
- By using **INSERA®** as a lining material contains heat inside of a furnace by reducing heat loss & keep outside surface of furnace at a normal temperature and helps in maintain a safe working area.
- **INSERA®** has lower thermal conductivity compared to traditional fire bricks which results in lower fuel consumption and cost saving.
- It takes less time to reach an equilibrium condition in furnace by using **INSERA®** as a lining material and helps in lower fuel consumption.
- **INSERA®** has good thermal shock resistance so that furnace insulated with ceramic blanket can be heated up and cooled down quickly to improve furnace efficiency.
- Maintenance is easy as **INSERA®** can be replaced easily with minimum down time.
- Due to its lower weight, furnace lining with **INSERA®** can be made off site and then delivered to construction site without any damage.



## LOW PRESSURE STEAMLINE :

- Pipes made up of SS & MS are used to supply steam from one end to the other end through long distances in commercial applications like any process industries, factories, refineries etc.
- Low pressure steam has tendency to give up its latent heat of condensation and it condenses & turns into water when its temperature goes down below its saturation temperature at that pressure. In most of cases, we cannot get steam at the end of pipe as it condenses at somewhat midway of pipe length and even if we get steam at the end, then we cannot get steam at a required temperature at the end of pipe. This is a general problem for steam lines having long lengths.
- To minimize this problem, low pressure steam lines are insulated with **INSERA®** blankets so that we get the desired steam temperature at the end of pipe by reducing heat transfer to the surrounding.
- **INSERA®** blanket has excellent fire property as it is non-combustible material. It does not burn if exposed to fire & has very low smoke developed index and flame spread index which complies with international standards.
- **INSERA®** blankets also provide personnel protection by preventing risk of injury to workers due to physical contact in case of steam pipelines are installed in working areas by keeping surface temperature of insulation material in safe range that complies with international standards.
- **INSERA®** blankets also help in reducing the noise coming from steam pipelines or its vibrations & makes the surrounding comparatively noise free.



## DG SET EXHAUST PIPE :

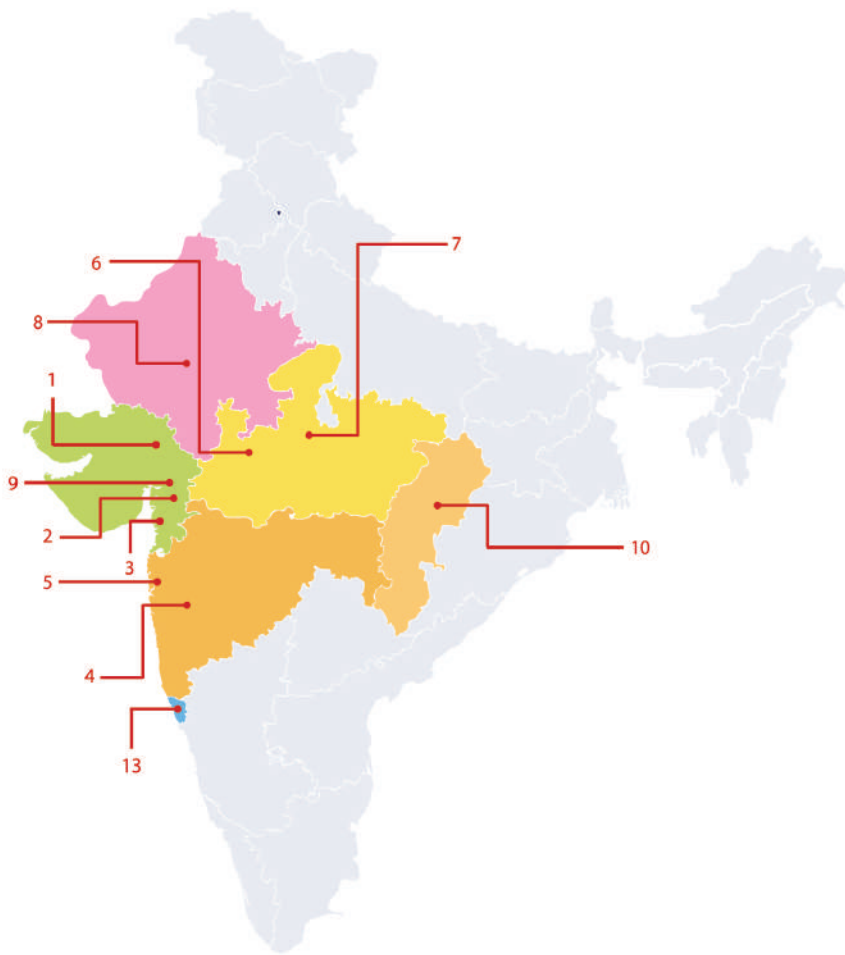
- DG Set Exhaust Piping is used in various industries to release the smoke or waste gases from boilers, generators etc. DG Sets are often taken under maintenance and are in personnel accessible areas. So there is a chance of skin damage due to physical contact as they are extremely hot & temperature may go as high as 900 C.



- **INSERA®** blankets provide personnel protection by preventing risk of injury to workers due to physical contact by keeping surface temperature of insulation material in safe range that complies with international standards.
- **INSERA®** blankets also help in reducing the noise coming from DG set exhaust pipelines or its vibrations & makes the surrounding comparatively noise free.
- **INSERA®** blanket has excellent fire property as it is non-combustible material. It does not burn if exposed to fire & has very low smoke developed index and flame spread index which complies with international standards.
- Generally, DG set exhaust pipings are installed in critical areas where there is less space for insulation. **INSERA®** blanket is the best material to be used as it is flexible and easy to cut which makes installation easy. It may reduce installation cost.







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