

# Insulation system for high temperature industries



# SkamoCeramic intro

SkamoCeramic is a durable acid resistant back up insulation system, which is used in a wide range of high-temperature systems.

As energy prices soar, greater efficiencies are necessary in an energy conscious world.

Emissions of CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, and other noxious gases are receiving a high level of political awareness, which means it is important to address improved designs in many industrial processes. This can be achieved by implementing good insulation materials in the linings.

Many high temperature industries such as ceramic, cement, lime, glass, petrochemical, and others are already using Skamol systems, with documented savings in energy consumption and reduced CO<sub>2</sub> emissions.

Benefit from the SkamoCeramic system offering.

## **Moler bricks**

- Superior acid corrosion resistance

## **Vermiculite boards and cut-to-size pieces**

- Good thermal properties
- High thermal shock resistance
- Reasonable wear resistance

## **Calcium silicate boards and cut-to-size pieces**

- Extremely low weight
- Excellent insulating value
- High mechanical strength
- Good heat resistance

On the following pages, you will find basic information about the three product groups within SkamoCeramic. For further information, please check [www.skamol.com](http://www.skamol.com)

Beside SkamoCeramic, we have the following insulation systems for industrial applications:

- SkamoAlu for aluminium applications
- SkamoSteel for iron and steel applications





# Moler

Our moler bricks:

- Are characterized by their excellent insulating properties, high mechanical strength, low weight, and increasing strength at rising temperatures.
- Are sanded on all sides, which results in exemplary dimensional stability of the material.
- For a porous material, they offer low permeability to gases and are capable of withstanding mild acid attacks.
- Heat expansion and contraction factors are negligible resulting in high resistance to thermal shock.

The bricks are fired and are designed for a maximum service temperature of 900 to 1,000°C (1,652 to 1,832°F).

Our moler bricks cover various combinations of bulk density, mechanical strength and thermal conductivity.

By using our moler bricks as the last insulating layer, the external wall temperature can be lowered below the corrosive acid dew point. Only the use of acid-resistant insulation can reduce the temperature of the external wall below dew points of corrosive acids.

## What makes moler so applicable?

The unique mix between minuscule opaline honeycomb structured algae skeletons and montmorillonitic plastic clay combines good insulating properties at high temperatures with high strength.

## Application

Moler bricks are primarily used for back up insulation, typically in industrial kilns and furnaces behind a refractory lining.

The SkamoCeramic bricks are categorized into two groups: porous and solid.

## Porous bricks

- SkamoCeramic Hipor
- SkamoCeramic Poros

The lightweight porous bricks have very low thermal conductivity, moderate to adequate mechanical strength, low heat storage, minimal creep in compression, and low thermal expansion.

The porous bricks are suitable for temperatures up to 950°C (1,742°F) and are used for low to medium loadbearing constructions as back up insulation of refractory linings offering a high degree of thermal efficiency and cost savings.

A variety of uses includes carbon baking furnaces, ceramic kilns, incinerators, combustion plants, cement pre-calciners and grate coolers.

## Solid bricks

- SkamoCeramic M-Extra  
Is characterized by the best ratio of mechanical strength to insulation, which makes it a commonly used and ideal material for rotary kiln insulation.
- SkamoCeramic Supra

The solid bricks have a natural porosity combining high mechanical strength with good insulating qualities.

The solid bricks are suitable for temperatures up to 1,000°C (1,832°F) and are used in load-bearing constructions as back up insulation of refractory linings combining high mechanical strength with good insulating properties.

A variety of uses includes hot holding furnaces, chimneys, hot blast stoves, air ducts, and heat exchangers.

## Jointing mortar recommended

As insulating mortar to be used with moler bricks, we recommend SkamoCeramic Mortar 1550.



# Vermiculite

Our vermiculite boards:

- Have excellent resistance to thermal shocks
- Retain thermal insulation properties during operation
- Have various combinations of good strength with low thermal conductivity.
- High strength allows them to be used in very demanding applications such as cyclical load, cyclical temperature changes, heavy loads, etc.

The boards are designed for a maximum service temperature of 1,100°C (2,012°F).

Our vermiculite boards cover several combinations of bulk density, insulation properties and compressive strength.

## **Application**

The vermiculite boards are suitable for hot-face or back-up insulation of all refractory constructions. They will not decompose even when subjected to direct flame. The maximum operating temperature, however, should be taken into consideration.

## **Vermiculite boards**

- SkamoCeramic V-1100 (375)
- SkamoCeramic V-1100 (475)
- SkamoCeramic V-1100 (600)
- SkamoCeramic V-1100 (700)
- SkamoCeramic V-1100 (700) WR

## **Surface treatment**

Vermiculite boards can be delivered with a waterrepellent (WR) surface treatment on one side. Water repellence is achieved by application of a coat of potassium silicate identified by a light blue colour.

## **Handling and machining**

The product composition allows for easy cutting and shaping on site using ordinary woodworking tools. Derivatives cut from standard boards, and special shapes to meet specific design requirements are made on request. Extensive know-how on special shapes and designs is available.



# Calcium silicate

Our calcium silicate boards:

- Second to none combination of compressive strength, low density and high insulation.
- The physical properties make it the best class insulation material for high-temperature industrial equipment.

The calcium silicate boards are designed for maximum service temperatures of 1,000°C (1,832°F) or 1,100°C (2,012°F), they are light grey and have smooth, rigid and non-dusting surfaces.

Our calcium silicate boards cover a range of extremely lightweight insulating boards with excellent insulating value, high mechanical strength and good heat resistance.

## Application

Our calcium silicate boards are designed for the application as back-up insulation of all refractory constructions – dense firebrick, insulating firebrick, castables, plastic refractories, etc. The combination of high performance features makes the range of calcium silicate boards the ideal choice for efficient insulation of kilns, furnaces, ovens, stoves, boilers, soaking pits, regenerators, mains and other combustion or high-temperature process equipment.

Due to their high resistance to carbon monoxide and hydrocarbons our calcium silicate boards can be used in furnaces with reducing atmospheres. No disintegration of carbon deposition is found after 200 hours' exposure to CO at 450°C (842°F).

Our calcium silicate boards have an exceptional heat resistance and will withstand continuous heat up to their full temperature use limit. The low thermal conductivity provides top insulation throughout the temperature range.

## Calcium silicate boards

- SkamoCeramic S-1100E
- SkamoCeramic S-1100E WR
- SkamoCeramic S-Isol
- SkamoCeramic S-Isol WR

## Surface treatment

Calcium silicate boards can be delivered with a waterrepellent (WR) surface treatment on one side. Water repellence is achieved by application of a coat of potassium silicate identified by a light blue colour.

## Handling and machining

The product composition allows for easy cutting and shaping on site using ordinary woodworking tools. Derivatives cut from standard boards, and special shapes to meet specific design requirements are made on request. Extensive know-how on special shapes and designs is available.



**All in**  **one**



Learn more at [www.skamol.com](http://www.skamol.com)