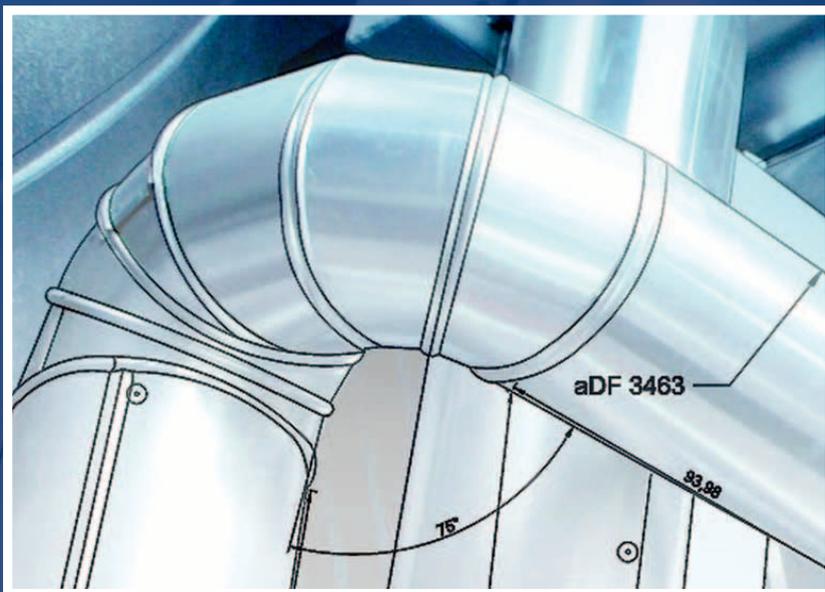


HOLLOWED SPHERES MATRIX COMPOUNDS



Different
from
the others



The intelligent technical insulation with mortar



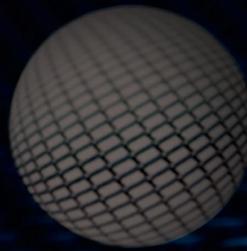
Whether in the air, on the water or on the ground – Vatral® mortar makes new effective solutions for fire protection and insulation possible for industrial facilities, ships or civil engineering.

We meet the challenges in fire protection and heat insulation with new innovative products and constructive solutions. Stable insulation material free from heat bridges can be established with Vatral® mortar and its molding parts which allows the realization of thin insulation layers even in difficult areas.

Own laboratories and the cooperation with universities make it possible that we can support you with new solutions for your challenges.

UNIVERSAL and SPECIFIC is not contradictory for us

Vatral® stands for light mortar with a variable fibre matrix, ceramic and nano-based inorganic hybrid binder, different mineral closed-cell micro hollow spheres and functional aggregates. Vatral® mortar resembles a kneading material which can easily be distributed and adjusted to different forms. Due to easy handling of the material even complex constructions can be insulated fast and free of heat bridges or joints.



Insulation of remaining gaps with Vatral® Defence A1 or Vatral® 200





Articulated panel door with custom-fit moulding made of fire protective insulation material Vutral® 125/150

Our matrix is open for your requirements

Flexible, smokeproof – preventing rust and mould

Filling hollow space, compensating faults or irregularities, preventing convection: these are our strengths. Vutral® mortar is applied on its own or as optimization/reduction of conventional insulation in civil engineering, industry, offshore or shipbuilding.

Vutral® mortar makes solutions possible which cannot be realized by conventional insulation material, for example:

Production of individual molded parts, joint-free fillings of sheet-capsulated insulations, sterile sealing of sheets by welding and combinations of mortar and molding parts with the same insulation quality.

The mortar can be combined with any conventional insulation material in order to provide optimal insulation

Vutral® is ideal as the first layer of insulation material before insulate with glass or rock wool as well as the complete solution for molding parts which are difficult to insulate, e. g. boilers with external heating spirals, exhaust manifolds etc.

Mortar for reparation Vutral® 1235 for the sealing of combustion chambers

High variability through customization of qualities with selected functional raw materials

Vutral® mortar resists temperatures of up to 1200 °C – depending on the product – and is non-combustible, hydrophobic and does not age. A reason for the stability of the mortar is the high content of uniform hollow sphere components made of chemical inert borosilicate glass and closed-cell volcanic ash in the matrix.

- ➔ **High flow resistance**
= low convection
= low thickness of insulation layer

Because the processed micro hollow spheres are closed-cell, they do not only provide the outstanding homogenous insulation effect, they also prevent convec-

tion by creating flow resistances $r \geq 6000$ kPa·s/m² and specific flow resistances $R_s \geq 400$ kPa·s/m.

Vutral® mortar is therefore ideal for combustible applications like for oil and gas pipelines or refineries.

➔ Low and slow oil absorption

The high flow resistance prevents the supply of oxygen to contaminated areas in our Vutral® insulation materials. A self-ignition or permanent glowing – as it can be observed in other insulation material which is contaminated – is prevented in our material. Even in case of exposure to fire the contaminated area in the Vutral® material is only affected on the surface. This supports and shortens fire-fighting operations. Furthermore the intrusion of dust or fluids is limited by the closed-cell structure.





Create a positive future

Practical test of German Navy: Vatral® increases considerably the use duration of sea containers

Mobile containers are often equipped with high-quality gauges or military hospitals. These containers must be usable worldwide and therefore have to meet high requirements and resist extreme temperatures. A solid and effective insulation is therefore important for mobile containers but also for many other modular systems such as transportation, sanitary or kitchen containers. Cavities, irregularities or faults are difficult to fill with conventional insulation material. They often support the development of heat bridges in the material. The loss of energy is not

➔ Vratral®: the safe solution against mould and rust

Vatral® can be obtained as a ready to use mortar, plates or moldings which secures a custom-fit insulation. Vatral® mortar can be formed and dried in prefabricated forms. Time consuming cutting of the material is not necessary. Faults, joints or gaps are prevented.

Fast and easy for renovation

Another advantage: damages to the insulation material can be fixed quickly and easily with Vatral® mortar. Furthermore, surfaces can be concealed additionally

Heat-bridge-free insulation = low thickness of insulation layer

By the combination of Vatral® glues, mortars and moldings heat-bridge-free and stable insulation can be realized even on problematic areas. The homogenous insulation improves the control of temperature dependant processes. Depending on construction savings of up to 50 percent of the layer thickness are possible.



Sterile insulated components for the navy by Vratral® boards welded together into steel

the only negative effect. Heat bridges can allow the intrusion of condensation water which results in the humidification of the components and the growth of mould.

with fleeces, fabrics or aluminium foils after the mortar has dried. Foils and glues are also available in our product line.

„Fill the gaps“

Variable in application, convincing in quality

Boiler tubes/ heat exchanger tubes

Filling of cavities between boiler tubes and membrane walls. Reduction of conventional insulation thickness above the boiler tubes from 240 mm to 80 mm.



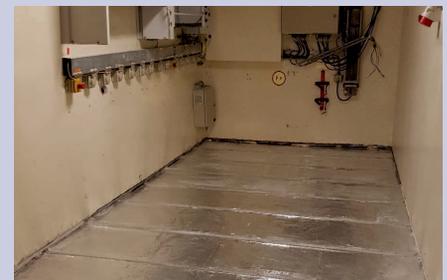
Exhaust manifolds

With Vutral® 150/650 modeled insulation, coat with Vutral® 200 soaked glass fabric for mechanical stabilization. Non-combustible, high-temperature-resistant and shock-resistant.



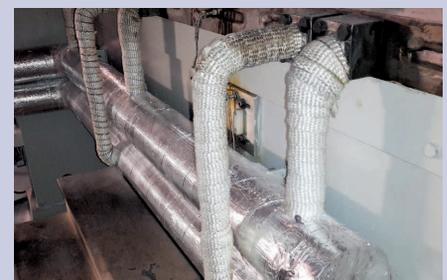
Container

Constructive solution for a cavity free insulation of standard sea containers. Prevention of mould and rust with high fire protection heat insulation.



Thermal oil pipeline

Reduction of fire hazard on insulation material contaminated with oil by reduction of oxygen supply as well as a homogenous, hotspot-free insulation.



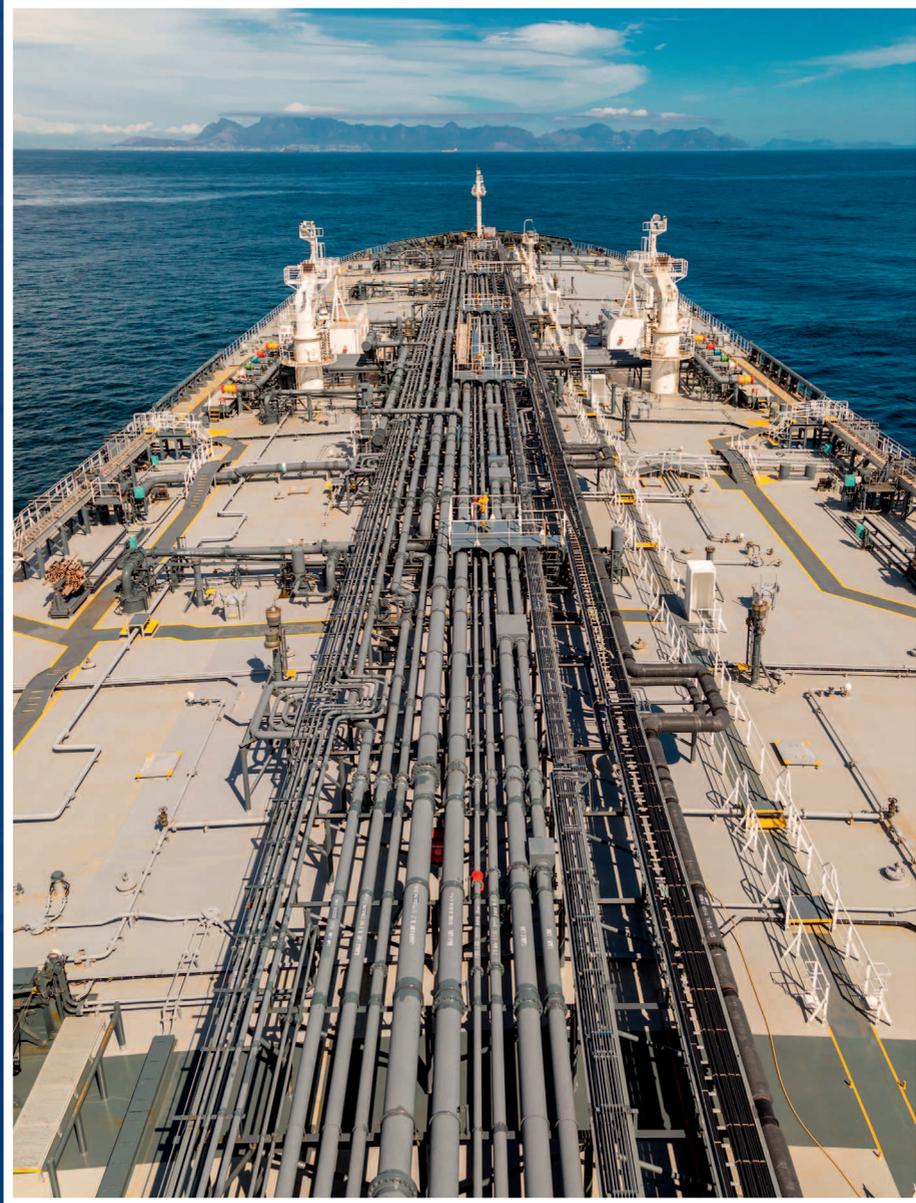
Salvage vessel, special vessels

Homogenous and heat-bridge-free insulation of exhaust gas pipelines for the safe entry and rescue of vessels with highly flammable freight.





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**HSMC[®] – the specialist for
technical insulation mortar**

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