

THERMAL PROTECTION FOR ENERGY PRESERVATION COMPONENTS & NOISE REDUCTION, SOUND ADSORBENT

OUR SELECTED CERAMIC FIBERS FOR THE MANUFACTURING OF OGFLEX® BLANKETS:

In the traditional blanket inside we have, under the stainless steel, the ceramic fiber as insulating material to the fire but, of course, this material is also a thermal insulation and has also effect of noise reduction as hereafter we will detail.

Reduce equipment operation costs by conserving heat and improve plant efficiency through fitting efficient thermal insulation jackets

The normal used thermal protections materials for reducing the heat losses and the noise reduction change their characteristics if they are wet, remote possibility that may happen in this area and, even if happen it will evaporate shortly, in any case we cannot consider this concept and then the scope of the ceramic fiber is also to protect from humidity the under thermal and noise reduction materials that will be added to the ceramic for having **double function** :

- 1 Passive fire protections having the scope of thermal insulation for heat preservation
- 2 Passive fire protections having the scope of acoustic insulation for noise reduction.

Or even a triple function

- 3 Passive fire protections having the scope to be a thermal insulation with noise reduction

These triple combinations need even ad addition of specific materials to the ceramic fibers blanket then the ceramic blanket must have even the scope to protect the under materials in combination and in the thickness wished for obtaining the above scopes.

For this reason, we use ceramic blankets that are classified as WR (water repellent/resistant) in density of 128 kg/cu. Mt. with the highest grade of health safety as detailed in the attached specific technical bulletin of the manufacturer.

The important characteristic of our selected material respect other similar are:

1. Reduction in thermal conductivity
2. 30% more fibers
3. Effective in restricting thermal energy transfer
4. Less energy loss
5. Less mass of fiber required to give the same performance
6. Lower shot content than all other alkaline earth silicate, as example (AES) and refractory ceramic (RCF) fibers

And the most important for coupled operation is the value of the Permanent linear shrinkage of the selected material otherwise in the internal blanket material will the result will be in gap formation at joints, which can give a path for heat to penetrate deeper into the insulation structure and will not keep in position the added material for the secondary scope of the protection/insulation.

A low linear shrinkage is therefore highly desirable at the maximum continuous use temperature and the material selected by us has led to the 4% shrinkage temperature rising from >1100°C (2012°F) to >1200°C (2192°F) and the classification temperature of the product used by us is of 1.300°C and may be used even at higher temperature with consequent increase of shrinkage.

The selected Water Repellent Blankets for our OGFlex® has all the excellent handling and fire performance features higher than other standard similar materials providing excellent resistance to water ingress due to the water repellent treatment being applied throughout the entire blanket thickness.

THERMAL STABILITY

Ceramic WR fibers having the thermal stability up to 1200°C and his linear shrinkage start to increase significantly at 1260°C.

Melting temperature of Ceramic WR onset 1310°C and at peak 1348°C.

Insulfrax was invented 30 years ago and has been used in continuous high temperature applications

Its thermal stability is well established (see below results)

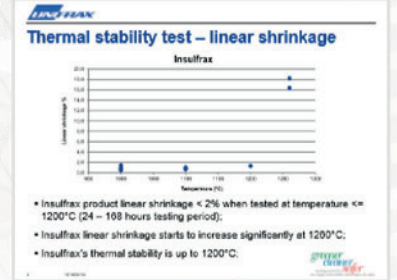
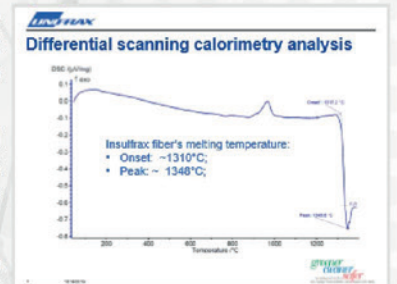
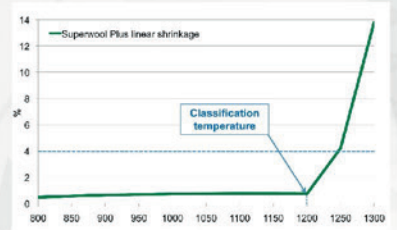
This characteristic is the proper protection to the combined material that will be added for the scope above detailed of thermal protections and noise reduction in addition to the passive fire protections.

Furthermore, the small amount of additive used ensures the blanket retains the non-combustibility performance of the base blanket and it's good to evidence that these materials are totally inert and resistant to mould growth and vermin attach.

Thanks to the low density of the blanket give significant weight savings to the components where are applied and has the above detailed functions integrant part of all the low-density components.

Thermal insulation properties (R value) of one of the two ceramic WR fibers used by us under ambient conditions are under detailed and may be used for the calculation of overall thermal transmittance (U value) and will give you the data of what has to be added to our blanket composition to reach the value you want to obtain for the thermal insulation.

Attached is the original manufacturer documentation for your knowledge and the above value may be helpful for calculating and selecting the added materials to be placed inside the OGFlex®.



Thickness of blanket	R value (m² K/W)
25mm	0.73
38mm	1.11
50mm	1.46
75mm	2.19
100mm	2.92



المكتب الإيطالي للصناعة والتجارة في دولة الإمارات العربية المتحدة

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APPLICATION OF THERMAL INSULATION

- Gas Turbines And Diffusers
- Marine Gas Turbines
- Steam and gas turbines
- Compressors / expanders
- Skid packages
- Turbochargers
- Acoustic isolation of valves, flanges, compressors and expanders
- Tyre Press
- Plant Room Hot Water
- Gas turbine exhausts
- Exhaust system
- Valves cover
- Steam generation and distribution
- Generator set / CHP silencer, turbo, exhaust and manifold
- Heat traced pipework
- Vessels and tanks
- Sewage Treatment Works/ Water Treatment
- Plant heat exchangers
- Candle filter
- Diesel Engines
- HVAC
- Marine / mobile generator exhaust Pumps
- Desulfurisation
- Plastic injection moulding heater barrels
- Aluminium / steel smelting or billet rolling
- Carbon Capture

High temperature jackets are used extensively on turbines, marine and power generation exhausts where application temperatures exceed 240°C.

CONCLUSIONS : We want to give you some important reasons why selecting our standard product OGTherm points which are the best customer guarantee either for the quality or for comparing our high-tech products with others:

- 1 A product made with only European product certified for the scope;
- 2 An well experience engineering backgrounds.
- 3 An internal ceramic having a density of 128 kg/m3 as filling element certified WR (water repellent), healthy and environment friendly. In the market are available even products of lower density, non WR and that are classified as cancer producer. All components are in AISI 304L and 316L. No aluminum is used as well any galvanized mesh or black / galvanized steel shits.
- 4 A P.F.P. that has type approval certificate and not a witness certificate.
- 5 P.F.P. that may have 10 years guarantee through an inspection each two year at site.
- 6 P.F.P. that have the easiest way of assembly and disassembly without any tools with dedicated hinged inspection doors.
- 7 Passive fire protection having equally the scope of thermal insulation and noise reduction.
- 8 A low linear shrinkage is therefore highly desirable at the maximum continuous use temperature and the material selected by us has lead to the 4% shrinkage temperature rising from >1100°C (2012°F) to >1200°C (2192°F) and the classification temperature of the product used by us is of 1.300°C and may be used even at higher temperature with consequent increase of shrinkage.
- 9 Other systems for the opening for the control boards have serious problems for opening and closing. Our doors remain always connected to the protections, for easy controls and further closing operation using the belts and buckles.
- 10 In case it is requested a component replacement, thanks to the engraved Stainless-steel plate installed on each component of the protection, there is the possibility of an immediate component manufacturing, for direct shipment in 48 hours.
- 11 As said in the above points, all components are numbered, including even internal steel structure, and in the installation and book manual, there are 3D exploded drawings of structure and protections for a quick and easy installation, that doesn't require any specialists, and no tools and it is impossible to make any mistakes; all assembly is made by belts internally reinforced with stainless steel and buckles. No springs, no laces, no wires, no holes are requested for our installations and even a repair is the simplest way to do in respect to all the others.



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