GEO

WEAVING THE FUTURE

SAFE

Famas has been working in Trivero, in the province of Biella, since 1976. Our company specialises in the production of technical fabrics, and we have maintained UNI EN ISO 9001 since 1999.

The GEOSAFE Project arose from studies and experience that grew inside a large project: "Navaltex".

Navaltex started life as a national project, and was then financed by the Piedmont region with the support of the Polo di Innovazione Tessile (Textile Innovation Pole) established in our Città Studi (Biella).

With this first project our company acquired important knowledge about the heat insulation characteristics of basalt and developed the production techniques required for using it as a fabric. Research continued even at other levels and in different fields.

CLIMATE PROTECTION

The total cost-effective savings potential of industrial insulation is so high.

The savings potential exists across all regions, sectors, equipment and operating temperatures

WHY INSULATE

Insulating all surfaces to cost-effective levels would avoid about 66% of current heat loss.

Not enough space available is most often the reason why cost-effective and energy-efficient insulation levels can't be realized.

Geosafe is produced with a standard thickness of half an inch, but can be easily coupled to obtain higher performance insulation.

We can help you find the best solution according to your needs and the standards of your sector.

GEO WEAVING THE FUTURE SAFE

BASALT

Basalt is an effusive rock of volcanic origin, dark or black in colour, that contains silica. **Basalt fibres** belong to the mineral fibre category, together with carbon and glass fibres. **The fibre diameters range from 9 to 13 µm, much higher than the breathability limit (which is approx. 5 µm).** Basalt fibres are excellent thermal and acoustic insulators, they maintain their mechanical properties even at high and extremely low temperatures, and they are very stable chemically (both in acid and alkaline environments). To produce basalt fibre, the rock must be made to exceed its melting temperature (around 1400 °C) in order to guarantee suitable viscosity for making yarn. To do this, a kiln with a refractory lining is used. The melted material is then extruded using a matrix that contains several platinum-rhodium bushings to produce continual basalt yarn. These yarns are wound onto a coil, an operation that also irons the fibres in order to reduce their diameter and increase their mechanical properties.

Geosafe is an extremely insulating and flameproof material, and it maintains its properties over a wide range of temperatures (-150 °C to +750 °C). It can be recycled because made totally of basalt, a natural material obtained from volcanic rocks. It can be used in different environments and, in comparison with the performance of other materials currently on the market, it is:

- **Lighter**
- **Less bulky**
- **More suitable for uneven surfaces**
- **More ecological**

SOME TECHNICAL DATA:

CLASS A1 MATERIAL (FIREPROOF)

EUROCLASSES								
REACTION TO FIRE CLASSES			SMOKE ISSUE s1, s2, s3			DROPS OF INCANDESCENT MATERIAL d0, d1, d2		
A1	INCOMBUSTIBILE		NO TEST NECESSARY				NO TEST NECESSARY	
A2		NOT COMBUSTIBILE	s1		Absent or limited	d0		Absent during the first 10 minutes
B		Performance level decreases from reaction classes B to E	s2		Present	d1		Limited dripping of incandescent material in less than 10 seconds
C								
D			s3		Significant	d2		Significant
E			E		No test	E		No indication or d2
F	NO PERFORMANCE DECLARED							

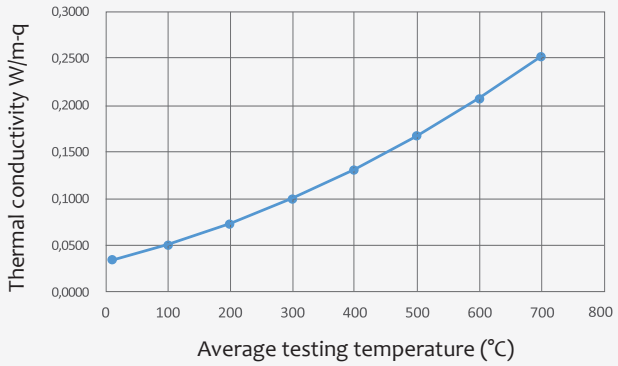
Combustibility test (ISO 1182:2010 - FTPC IMO)

Rina Laboratory • Test report 2014CS012999/i

Heat resistance	1 panel 3 panel	(0.5 INCHES) (1,5 INCHES)	0.297 m²*K/W 0,890 m²*K/W
Thermal conductivity	0,0341 W/m*K		
Thermal conductance	1,12 W/m*K		
Giordano Institute	RP 327366/9409/CPR		UNI EN 12667 : 2007

THERMAL CONDUCTIVITY AT SET TEMPERATURES

INTERPOLATION CURVE



Tm (°C)	λeq(Tm) W/(m·q)
10	0,0337
100	0,0503
200	0,0729
300	0,0999
400	0,1310
500	0,1670
600	0,2070
700	0,2520

Giordano institute RP 328400/9468/CPR UNI EN 12667 : 2007

Maximum working temperature	750°C.	
Giordano Institute	RP 328319	UNI EN 14706:2012

The results are all within the limits given by the UNI EN 14303:2013 Harmonised Standards, pursuant to Regulation 305/2011, which deals with tests for CE marking on Construction Products, factory-produced items made from mineral fibre (basalt rock wool) for the thermal insulation of buildings and industrial installation plants.

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TECHNICAL CHARACTERISTICS

TECHNICAL DATA	VALUE	UNIT OF MEASUREMENT	TEST METHOD
Non combustibility test	A1		ISO 1182:2010
Thermal resistance	0,297	m^2 x K/W	UNI EN 12667:2007
Thermal conductance	1,12	W/m x K	UNI EN 12667:2007
Thermal conductivity	0,0341	W/(m x K)	UNI EN 12667:2007
200°	0,0729	W/(m x K)	UNI EN 12667:2007
400°	0,131	W/(m x K)	UNI EN 12667:2007
700°	0,252	W/(m x K)	UNI EN 12667:2007
Maximum working temperature	750°	°C	UNI EN 14706:2012

Pursuant to Regulation 305/2011, the results are compatible with the UNI EN 14303:2013 Harmonised Standard for CE marking purposes on building products made with mineral fibre for the thermal insulation of building plants and industrial installations.

FAMAS

Famas s.r.l.
fraz. Oro, 145/A - 13835 Trivero (BI) - Tel. 015756593
info@famas.it - www.famas.it

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C.C.I.A.A. Biella R.E.A. 115147 M.BI 006782 Tribunale di Biella
Capitale Sociale € 93.600,00 I.V.