fibran®

200

PRODUCT CATALOGUE

FIBRAN*geo*

Stonewool thermal insulation, sound insulation
and fire protection products for **building** applications

FIBRAN*geo*

stonewool building insulation

Manufacturing of FIBRAN*geo*

FIBRAN*geo* stonewool products are industrially produced from molten rock spun into fibres. They are classified as mineral wool products for use in building insulation, according to the European Standard EN 13162 (Mineral Wool insulation products for buildings).

All FIBRAN*geo* stonewool insulation products meet the QUALITY and SAFETY requirements of the European Standards.

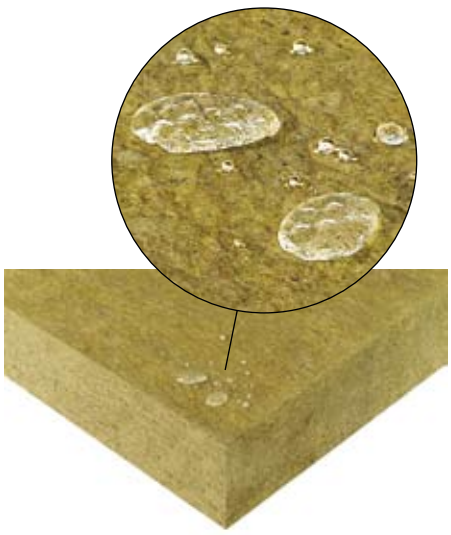
Stonewool insulation is a natural inorganic fibrous material, widely recognised for its thermal and sound insulating properties, as well as its excellent performance towards fire protection.

FIBRAN*geo* is produced from mineral rock, initially fused in an electric furnace at 1520°C and then spun into fibres. The use of electric furnace technology for its production allows for the precise control of the melt's temperature, in comparison to the blast furnace method employed by more than 90% of stonewool manufacturers. The maintenance of steady temperatures during the melting process ensures the fibres' dimensional stability and provides excellent technical characteristics to the final products. Moreover, non-use of fossil fuels (e.g. coke) as a main production fuel minimises polluting gas emissions in the environment.

Once past the spinning phase, the loose stonewool fibres, with the addition of adhesive resin, oil and special silicon compounds that provide hydrophobicity, become cohesive, elastic and water-repellent.

FIBRAN*geo* stonewool is formed in boards, rolls and loose fill in a variety of dimensions, and is, finally, packed.

Boards and rolls may also be manufactured with facings.



Advantages of FIBRAN*geo*

Thermal insulation

Excellent thermal insulation, with a very low thermal conductivity coefficient and maximum thermal resistance even at high temperatures.
The fibres' softening temperature is over 1.000 °C and their binder starts to evaporate when its temperature exceeds 200 °C, the materials' insulating properties remaining unchanged. Therefore, FIBRAN*geo* products are also suitable for applications where high temperatures occur.

Sound insulation

High sound absorption coefficient and optimum air flow resistivity. These properties provide increased sound reduction and improved acoustic performance of spaces. Facings maximise sound reduction required in certain frequencies.
High compressive strength and very low dynamic stiffness, i.e. very rigid, yet efficiently resilient. These properties reduce impact noise transmission, such as in floating floor applications.

Fire Protection

Non-combustible materials (Class A1 in accordance to EN 13501-1) which maintain their insulating properties in high temperatures, contributing to the inhibition of the spread of fire, saving lives and protecting built structures and properties.
Therefore, they constitute key parts of fire resistant walls, floors, roofs, prefabricated panels, doors or other passive fire protective systems.

Passive Ventilation

Open hive structure materials with water vapour diffusion resistance similar to the resistance of air (μ=1). These properties enhance the construction elements' breathability, by allowing the flow of very small quantities of air and vapour through the building envelope, due to air pressure differences occurring between indoors and outdoors (Passive Ventilation).
Ventilation replenishes oxygen, regulates the spaces' relative humidity and removes unpleasant smells, smoke, dust, airborne bacteria and carbon dioxide.
FIBRAN*geo* products assure the maximum passive ventilation of buildings, satisfying the requirements of Bioclimatic Design.

Water Repellence - non-hygroscopic

The fibres' hydrophobicity renders FIBRAN*geo* products water repellent and non-hygroscopic. Stonewool fibres are not affected by moisture or water. If stonewool gets wet, it dries fast via passive ventilation and fully regains its initial properties. Further, it does not accumulate moisture, when in contact with other wet parts of the construction.

Resistant to mechanical loads

FIBRAN*geo* stonewool products, depending on the fibres' knit and orientation, have high mechanical strength even in relatively low densities.

Natural, inorganic, odourless, chemically inert (practically neutral Ph)

It does not chemically erode construction elements it remains in contact with, nor is it eroded by them, even in conditions of increased humidity.

Lightweight, easy to handle, cut and install

Resistant to vibrations

Does not allow the development of micro-organisms, insects or rodents

Recyclable

Friendly to the environment and to the end user

Types of FIBRAN*geo*

FIBRAN*geo* products are manufactured either in rigid, semi-rigid and flexible boards, rolls and loose fill. The standard unfaced FIBRAN*geo* product range is:

Rigid boards:	BP 70, BP 50, BP 40, BP-021, B-571, B-051
Semi-rigid boards:	B-001, B-570
Flexible boards:	B-050, B-040
Rolls:	R-050
Loose fill:	XS-LOOSE

For standard product dimensions please refer to pages 08 to 14.
For extra technical information on particular FIBRAN*geo* products, please refer to the products Technical Data Sheets (www.fibran.gr).

Facings of FIBRAN*geo*

FIBRAN*geo* products are available with the following standard facings to meet particular application requirements:

AX: Aluminium kraft paper foil reinforced with fibreglass net
AL: Aluminum foil reinforced with fibreglass net
YM: Black non-woven fibreglass fleece
YA: White non-woven fibreglass fleece
XA: Kraft paper
BIT: Bitumen coating

Packaging of FIBRAN*geo*

FIBRAN*geo* products are supplied packed.
The appropriate number of boards and individual rolls are shrink-wrapped in PE film, in packages and rolls.
The appropriate number of packages is shrink-wrapped weather tightly, with an extra outer PE film, in pallets.

For details about packages and pallets for particular FIBRAN*geo* product types, please refer to pages 08 to 14 (www.fibran.gr).

Applications of FIBRAN*geo*

FIBRAN*geo* products are suitable for use in all building types. They are applicable for the insulation of all building elements, such as walls, floors, ceilings, roofs, terraces, building equipment, mechanical installations, sound insulating and passive fire prevention systems.

For selection of the suitable product type, please refer to the Product Selector by Application on page 07.

Certifications of FIBRAN*geo*

CE 0751 · EUCEB · FIW München · TÜV CERT EN ISO 9001 · ISTITUTO GIORDANO Qualità al Plurale · ZAG · iBMB MPA · FhG Gesellschaft

All FIBRAN*geo* stonewool insulation products meet the QUALITY and SAFETY requirements of the European Standards.

CE certification

All FIBRAN*geo* stonewool insulation products conform to the European Directive 89/106/EEC since 2004. In compliance with the above Construction Products Directive, all types of FIBRAN*geo* stonewool products hold the CE marking and are in conformity with the European Norm EN 13162, which refers to mineral wool insulation products used in building applications. In accordance with the aforementioned European Standard, every insulation product acquires a designation code which declares its technical characteristics.

For example:

MW - EN 13162 – Ti - CS(10)i – TRi - PL(5)i – CPi – WS - WL(P) – MUi – SDi - AFri – AWi

- MW – Factory made mineral wool insulation material, industrially manufactured from molten rock, slag or glass.
- EN 13162 – The European Standard number.
- Ti – Thickness Tolerances. Classes for thickness tolerances from the nominal thickness (e.g. Class T4 : - 3mm + 5mm).
- CS(10)i – Minimum compressive stress at 10% thickness deformation (kPa).
- TRi – Minimum tensile strength perpendicular to faces (kPa).
- PL (5)i – Point Load (N). Minimum compressive load (applied on a small area of 50 cm^2) at 5 mm thickness deformation.
- CPi – Compressibility (mm). The max. difference between the thickness d_L, under a light load of 0.25 kPa, and the thickness d_B, under a load of 2 kPa (+ - 48 kPa).
- WS – Short Term Water Absorption (kg/m^2) with partial immersion in water for 24 hours <1 kg/m^2.
- WL(P) – Long Term Water Absorption (kg/m^2) with partial immersion in water for 28 days <3 kg/m^2.
- MUi – Water Vapour Transmission. The maximum ratio (factor μ) of water vapour diffusion resistance of the material to the resistance of an equal thickness of air.
- SDi – Dynamic Stiffness (MN/m^3). The maximum ratio (factor s') of dynamic compressive stress to dynamic change in thickness.
- AFri – Air flow resistivity (kPa s/m^2). The minimum air flow resistance coefficient of 1m thickness material >5 kPa s/m^2.
- AWi -Weighted Sound Absorption Coefficient. The value of the sound absorption coefficient αw in the frequency of 500Hz, measured on the standard weighted sound absorption curve.

The **thermal conductivity λ_D** and the **thermal resistance R_D,** as well as the **fire classification** should also be declared.

- λ_D - Declared Thermal Conductivity (W/mK). The maximum expected nominal thermal conductivity during the material's working life, at mean temperature 10 °C (greater than the test results), in accordance with EN 13162.

Thermal conductivity λ (W/mK) is the heat amount transmitted through a layer of material, with 1 m^2 surface area and 1 m thickness, when a constant temperature difference of 1 K is maintained between the layer's faces.

- R_D - Declared Thermal Resistance (m^2K/W). The minimum expected nominal thermal resistance during the material's working life, at mean temperature 10 °C (less than the test results), in accordance with EN 13162.

Thermal resistance R (m^2K/W) is the ratio of the material's thickness d to the material's thermal conductivity λ.

- Fire Classification – Building materials are classified depending on their reaction to fire in Classes A1 (non-combustible), A2, B, C, D, E to F (no performance determined), in accordance with EN 13501-1.

CE 0751

The quality of FIBRAN*geo* products is assured in accordance with EN 13162 and EN 13172 standards.
These standards establish the type and frequency of measurements executed both by recognized and independent institutions, as well as by FIBRAN laboratories.

EUCEB Certification

All FIBRAN*geo* stonewool insulation products also carry the certification mark EUCEB (European Certification Board for Mineral Wool Products). EUCEB is an independent organisation whose procedures ensure compliance of mineral wool insulation products with the Directive's 97/69/EC, Note Q, regarding their fibres biosolubility and their non-classification as 'carcinogenic' materials.

Moreover, according to EC Regulation 790/2009 (August 10, 2009) stonewool insulation products are no longer classified as products causing skin irritation (R38).

ISO 9001:2008 Certification

The quality management system of FIBRAN S.A. complies with EN ISO 9001:2008 for the design and manufacture of Mineral Wool (MW), as certified by the independent body TÜV NORD CERT, with initial Certificate Registration No. 04 100 960680.

FIBRAN S.A. shall not be held liable for any damage caused by improper use of the products, transportation, storage and handling.

Technical data / Product Type	Symbol according to EN 13162	Unit	BP 70	BP 50	BP 40	BP - 021	B - 571	B - 051	B - 001	B - 570	B - 050	B - 040	R - 050	EN standard
Thickness	d_N	mm	40-150	40-150	30-160	40-180	20-100	20-120	20-160	20-160	30-160	30-160	30-100	EN 823
Thickness tolerance	Ti	Class	T7	T7	T7	T7	T7	T6	T4	T4	T4	T4	T4	EN 13162
Length	L	mm	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	2500 - 10000	EN 822
Width	B	mm	1200	1200	600	600	600	600	600	600	600	600	1000	EN 822
Thermal conductivity declared at 10° C	λ_D	W/mK	0.039	0.038	0.040	0.040	0.035	0.035	0.033	0.033	0.035	0.035	0.035	EN 13162 EN 12667 EN 12939
Fire classification		Class	A1 (non combustible)											EN 13501-1
Softening temperature	-	°C	> 1000 °C											
Specific heat capacity	C	kJ/kgK	0.84											
Compressive stress at 10% thickness deformation	CS(10)i	kPa	70	50	40	30	20	20	5	3				EN 826
Point load for 5mm thickness deformation	PL(5)i	N	600	550	350	350	350	200						EN 12430
Compressibility ($c_p=d_L-d_B$)	CPi	mm	CP2	CP2	CP2	CP2	CP2	CP4						EN 13162 EN 12431
Design compressive load	-	kN/m²	15	12	10	7	7	5						
Tensile strength perpedicular to faces	TRi	kPa	20	15	7.5	10			1					EN 1607
Tensile strength parallel to faces	σ_t	kPa			12	10					14	12		EN 1608
Short term water absorption (24 hours))	WS	kg/m²	< 1											EN 1609
Long term water absorption (28 days)	WL(P)	kg/m²	< 3											EN 12087
Water vapour diffusion resistance factor (μ)	MUi	-	1											EN 12086
Air flow resistivity (r)	AFr i	kPa s/m²			140	91		120	66	49	31	15		EN 29053
Weighted sound absorption coefficient (α_w)	d_N	mm		50	50	50		50	50	50	50	50		EN ISO 354 EN ISO 11654
	AWi	-		1	0.95	0.95		0.95	1	1	1	1		
Dynamic stiffness (s')	d_N	mm	80	80	50	50	80	50						EN 29052-1
	SDi	MN/m³	32	23	27	20	9	10						

PRODUCT SELECTOR FIBRAN*geo*

Application Area / Product Type	BP 70	BP 50	BP 70 BIT BP 50 BIT	BP 40	BP-021	B-571	B-051	B-001	B-570	B-570 AX	B-570 YM	B-050	B-040	R-050	R-050 AX
	Rigid Boards							Semi Rigid Boards				Flexible Boards/Rolls			
FLAT ROOFS															
External insulation of concrete roof / steel deck with polymer waterproofing membrane on insulation	•	•		•	•	•	•								
External insulation of concrete roof / steel deck with bitumen waterproofing membrane on insulation			•												
Insulation on roof with floating concrete screed	•	•		•	•	•	•								
Exposed internal insulation of steel deck										•	•				•
PITCHED ROOFS															
Metal stonewool composite roof panel					•			•							
Twin-skin metal roof cladding (on site construction) with core insulation								•	•			•	•	•	
Insulation between roof frame elements (rafters, beams, joists)								•	•	•	•	•	•	•	•
Insulation on attic ceiling lining								•	•	•	•	•	•	•	•
PILOTIS - CEILINGS															
Pilotis external thermal insulation composite system (ETICS)					•										
DRY CONSTRUCTION															
Pilotis external insulation with dry board cladding								•	•	•	•	•	•		
Insulation of dry construction ceiling (gypsum board, etc.)								•	•	•	•	•	•		
Insulation on non-perforated suspended ceiling lining								•	•	•	•	•	•		
Insulation on perforated ceiling lining										•	•				
FLOORS															
Floating concrete screed floor (e.g. marble, tile, industrial floor finish)	•	•		•	•	•	•								
Floating dry floor (e.g. solid wood/laminate flooring finish)	•	•		•	•	•	•								
Insulation between wooden floor timber joists								•	•		•	•	•	•	
WALLS															
Metal stonewool composite wall panel					•			•							
Twin-skin metal wall cladding (on site construction) with core insulation								•	•			•	•		
Masonry cavity wall with core insulation								•	•			•	•		
Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)				•	•			•	•		•				
Wall external thermal insulation composite system (ETICS)					•										
DRY CONSTRUCTION															
Partition wall with core insulation (gypsum board, etc.)								•	•			•	•		
Insulation of masonry wall with dry lining/cladding (gypsum board, cement board, etc.)								•	•			•	•		
Insulation of wall with perforated dry lining (gypsum board, etc.)										•	•				
SPECIAL APPLICATIONS	For special applications special products can be produced														

Product Selector presents the most indicative building solutions. For any other solution please contact the technical support department of FIBRAN S.A.

FIBRAN*geo*
BP 70

- Thermal Conductivity λ_D: 0.039 W/mK
- Point Load > 600 N
- Compressive stress > 70 kPa
- A1 - Non combustible
- Edge Profile: I, L*, L L* (*only in 1200x2000)

MW-EN 13162-T7-CS(10)70-TR20-PL(5)600-WS-WL(P)-MU1-SD32-CP2

Thickness [mm]	Boards per package	Quantity per package [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
40	**5**	3,60	1,00	**15**
50	**4**	2,88	1,25	**15**
60	**4**	2,88	1,50	**15**
70	**3**	2,16	1,75	**15**
80	**3**	2,16	2,00	**15**
100	**2**	1,44	2,55	**15**
120	**2**	1,44	3,00	**15**
140	**2**	1,44	3,55	**15**
150	**2**	1,44	3,80	**15**

Board dimensions: **1200 x 600 mm or 1200 x 2000 mm**

FIBRAN*geo*
BP 50

- Thermal Conductivity λ_D: 0.038 W/mK
- Point Load > 550 N
- Compressive stress > 50 kPa
- A1 - Non combustible
- Edge Profile: I, L*, L L* (*only in 1200x2000)

MW-EN 13162-T7-CS(10)50-TR15-PL(5)550-WS-WL(P)-MU1-SD23-CP2

Thickness [mm]	Boards per package	Quantity per package [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
40	**6**	4,32	1,00	**12**
50	**5**	3,60	1,30	**12**
60	**4**	2,88	1,55	**12**
70	**3**	2,16	1,80	**12**
80	**3**	2,16	2,10	**12**
100	**3**	2,16	2,60	**12**
120	**3**	2,16	3,15	**12**
140	**2**	1,44	3,65	**12**
150	**2**	1,44	3,90	**12**

Board dimensions: **1200 x 600 mm or 1200 x 2000 mm**

FIBRAN*geo*
BP 70-BIT

BP 70 with bituminous coating
- Thermal Conductivity λ_D: 0.039 W/mK
- Point Load > 600 N
- Compressive stress > 70 kPa

MW-EN 13162-T7-CS(10)70-TR20-PL(5)600-WS-WL(P)-MU1-SD32-CP2

Thickness [mm]	Boards per pallet	Quantity [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
40	**27**	32,40	1,00	**15**
50	**22**	26,40	1,25	**15**
60	**18**	21,60	1,50	**15**
70	**16**	19,20	1,75	**15**
80	**14**	16,80	2,00	**15**
100	**11**	13,20	2,55	**15**
120	**9**	10,80	3,00	**15**

Board dimensions: **1200 x 1000 mm**

FIBRAN*geo*
BP50-BIT

BP 50 with bituminous coating
- Thermal Conductivity λ_D: 0.038 W/mK
- Point Load > 550 N
- Compressive stress > 50 kPa

MW-EN 13162-T7-CS(10)50-TR15-PL(5)550-WS-WL(P)-MU1-SD23-CP2

Thickness [mm]	Boards per pallet	Quantity [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
40	**27**	32,40	1,00	**12**
50	**22**	26,40	1,30	**12**
60	**18**	21,60	1,55	**12**
70	**17**	20,40	1,80	**12**
80	**14**	16,80	2,10	**12**
100	**12**	14,40	2,60	**12**
120	**9**	10,80	3,15	**12**

Board dimensions: **1200 x 1000 mm**

RECOMMENDED USES

FLAT ROOFS:
- with polymer waterproofing membrane on insulation
- with floating concrete screed

FLOORS:
- Floating concrete screed floor (eg. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

Construction of a steel roof with polymer waterproofing membrane on FIBRAN*geo* **BP 70**

FLAT ROOFS:
- with polymer waterproofing membrane on insulation
- with floating concrete screed

FLOORS:
- Floating concrete screed floor (eg. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

Steel roof construction with FIBRAN*geo* **BP 70** *with edge profile L cut for the elimination of thermal bridges*

FLAT ROOFS:
- with bitumen waterproofing membrane on insulation

Accessible steel roof with FIBRAN*geo* **BP 70**

Steel roof with double layer of insulation with FIBRAN*geo* **BP 50 + BP 70**

FIBRAN*geo*
SI 080

Special product for trapezoidal metal roof cladding

- Dimensions of trapezoidal (bases height) upon request
- Length 1m
- Packaging 600 pieces/pallet

FIBRAN*geo*
BP 40

- Thermal Conductivity λ_D: 0.040 W/mK
- Tensile Strength perpedicular to faces, TR > 7.5 kPa
- Point Load >350 N
- Compressive stress > 40 kPa
- A1 - Non combustible

MW-EN 13162-T7-CS(10)40-TR7,5-PL(5)350-WS-WL(P)- MU1-SD27-CP2-AW0,95-AF140

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
30	**8**	5,76	20	115,20	0,75	**10**
40	**6**	4,32	20	86,40	1,00	**10**
50	**5**	3,6	20	72,00	1,25	**10**
60	**4**	2,88	20	57,60	1,50	**10**
80	**3**	2,16	20	43,20	2,00	**10**
100	**2**	1,44	24	34,56	2,50	**10**
120	**2**	1,44	20	28,80	3,00	**10**
140	**2**	1,44	18	25,92	3,50	**10**
160	**2**	1,44	16	23,04	4,00	**10**

Board dimensions: **1200 x 600 mm or 1200 x 2000 mm**

FIBRAN*geo*
BP-021

Certified according to ETAG 004 for ETICS
- Thermal Conductivity λ_D: 0.040 W/mK
- Tensile Strength perpedicular to faces, TR > 10 kPa
- Point Load >350 N
- Compressive stress > 30 kPa
- A1 - Non combustible

MW-EN 13162-T7-CS(10)30-TR10-PL(5)350-WS-WL(P)-MU1-SD20-CP2-AW0,95-AF91

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
30*	**8**	5,76	20	115,20	0,75	**7**
40	**6**	4,32	20	86,40	1,00	**7**
50	**6**	4,32	16	69,12	1,25	**7**
60	**5**	3,60	16	57,60	1,50	**7**
80	**4**	2,88	14	40,32	2,00	**7**
100	**3**	2,16	16	34,56	2,50	**7**
120	**2**	1,44	20	28,80	3,00	**7**
140	**2**	1,44	18	25,92	3,50	**7**
160	**2**	1,44	16	23,04	4,00	**7**
180	**2**	1,44	14	20,16	4,50	**7**

Board dimensions: **1200 x 600 mm or 1000 x 600 mm**

* product **BP-051**

FIBRAN*geo*
B-571

- Thermal Conductivity λ_D: 0.035 W/mK
- Dynamic Stiffness, s' < 9 MN/m³ at 80mm
- Point Load >350 N
- Compressive stress > 20 kPa
- A1 - Non combustible

MW-EN 13162-T7-CS(10)20-PL(5)350-WS-WL(P)-MU1-SD9-CP2

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
20	**12**	8,64	20	172,80	0,55	**7**
30	**8**	5,76	20	115,20	0,85	**7**
40	**6**	4,32	20	86,40	1,10	**7**
50	**5**	3,60	20	72,00	1,40	**7**
60	**4**	2,88	20	57,60	1,70	**7**
80	**3**	2,16	20	43,20	2,25	**7**
100	**2**	1,44	24	34,56	2,85	**7**

Board dimensions: **1200 x 600 mm**

FIBRAN*geo*
B-051

- Thermal Conductivity λ_D: 0.035 W/mK
- Dynamic Stiffness, s' < 10 MN/m³ at 50mm
- Point Load >200 N
- Compressive stress > 20 kPa
- A1 - Non combustible

MW-EN 13162-T6-CS(10)20-PL(5)200-WS-WL(P)-MU1-SD10-CP4-AW0,95-AF120

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)	Design compressive load kN/m²
20	**12**	8,64	20	172,80	0,55	**5**
30	**8**	5,76	20	115,20	0,85	**5**
40	**6**	4,32	20	86,40	1,10	**5**
50	**5**	3,60	20	72,00	1,40	**5**
60	**4**	2,88	20	57,60	1,70	**5**
70	**3**	2,16	22	47,52	2,00	**5**
80	**3**	2,16	20	43,20	2,25	**5**
100	**2**	1,44	16	34,56	2,85	**5**
120	**2**	1,44	-	-	3,40	**5**

Board dimensions: **1200 x 600 mm**

RECOMMENDED USES

FLAT ROOFS:
- External insulation of concrete roof/steel deck with polymer waterproofing membrane on insulation
- Insulation on roof with floating concrete screed

FLOORS:
- Floating concrete screed floor (e.g. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

WALLS:
- Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)

Twin-skin metal roof cladding with insulation FIBRAN*geo* **BP-021**

Steel deck with waterproofing membrane with double layer of FIBRAN*geo* **BP 40**

FLAT ROOFS:
- External insulation of concrete roof/steel deck with polymer waterproofing membrane on insulation
- Insulation on roof with floating concrete screed

PILOTIS - CEILINGS:
- Pilotis external thermal insulation composite system (ETICS)

FLOORS:
- Floating concrete screed floor (e.g. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

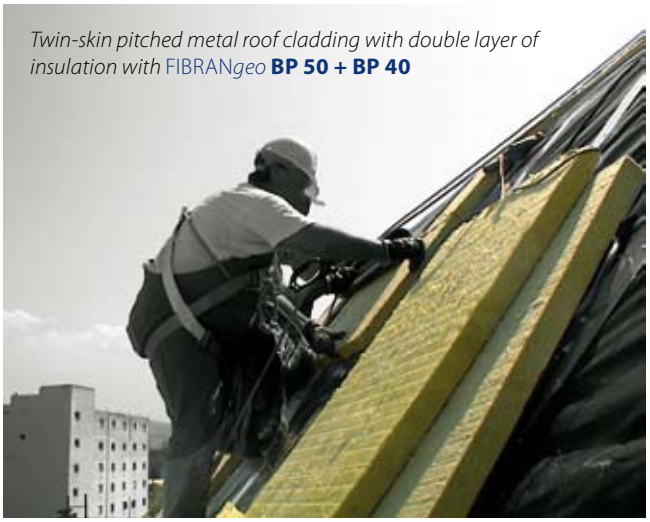
WALLS:
- Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)
- Wall external thermal insulation composite system (ETICS)

ETICS system with FIBRAN*geo* **BP-021**

FLAT ROOFS:
- External insulation of concrete roof/steel deck with polymer waterproofing membrane on insulation
- Insulation on roof with floating concrete screed

FLOORS:
- Floating concrete screed floor (e.g. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

Twin-skin pitched metal roof cladding with double layer of insulation with FIBRAN*geo* **BP 50 + BP 40**



FLAT ROOFS:
- External insulation of concrete roof / steel deck with polymer waterproofing membrane on insulation
- Insulation on roof with floating concrete screed

FLOORS:
- Floating concrete screed floor (e.g. marble, tile, industrial floor finish)
- Floating dry floor (e.g. solid wood/laminate flooring finish)

Steel deck with double layer of insulation with FIBRAN*geo* **BP70 + BP 40**

FIBRAN*geo* **B-001**

- Thermal Conductivity λ_D: 0.033 W/mK
- Air Flow Resistivity: 66 kPa s/m²
- Sound absorption aw=1 at 50 mm
- A1 - Non combustible

MW-EN 13162-T4-CS(10)5-TR1-WS-WL(P)-MU1-AW1-AF66

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
20	**15**	10,80	16	172,80	0,60
30	**10**	7,20	16	115,20	0,90
40	**8**	5,76	14	80,64	1,20
50	**6**	4,32	16	69,12	1,50
60	**5**	3,60	16	57,60	1,80
70	**5**	3,60	14	50,40	2,10
80	**4**	2,88	14	40,32	2,40
100	**3**	2,16	16	34,56	3,00
120	**2**	1,44	20	28,80	3,60
140	**2**	1,44	18	25,92	4,20
160	**2**	1,44	14	20,16	4,80

Board dimensions: **1200 x 600 mm**

FIBRAN*geo* **B-570**

- Thermal Conductivity λ_D: 0.033 W/mK
- Air Flow Resistivity: 49 kPa s/m²
- Sound absorption aw=1 at 50 mm
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)-MU1-AW1-AF49

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
20	**20**	14,4	12	172,80	0,60
30	**13**	9,36	12	112,32	0,90
40	**10**	7,20	12	86,40	1,20
50	**8**	5,76	12	69,12	1,50
60	**7**	5,04	12	60,48	1,80
70	**6**	4,32	12	51,84	2,10
80	**5**	3,60	12	43,20	2,40
100	**4**	2,88	12	34,56	3,00
120	**4**	2,88	10	28,80	3,60
140	**3**	2,16	12	25,92	4,20
160	**3**	2,16	10	21,60	4,80

Board dimensions: **1200 x 600 mm**

FIBRAN*geo* **B-570-AX**

Semi rigid boards with reinforced aluminum kraft paper foil

- Thermal Conductivity λ_D: 0.033 W/mK
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
30	**13**	9,36	12	112,32	0,90
40	**10**	7,20	12	86,40	1,20
50	**8**	5,76	12	69,12	1,50
60	**7**	5,04	12	60,48	1,80
70	**6**	4,32	12	51,84	2,10
80	**5**	3,60	12	43,20	2,40
100	**4**	2,88	12	34,56	3,00
120	**4**	2,88	-	-	3,60

Board dimensions: **1200 x 600 mm**

FIBRAN*geo* **B-570-YM**

Semi rigid boards with black non-woven fibreglass fleece

- Thermal Conductivity λ_D: 0.033 W/mK
- Sound absorption aw=1 at 50 mm
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)-MU1-AW1

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
30	**13**	9,36	12	112,32	0,90
40	**10**	7,20	12	86,40	1,20
50	**8**	5,76	12	69,12	1,50
60	**7**	5,04	12	60,48	1,80
70	**6**	4,32	12	51,84	2,10
80	**5**	3,60	12	43,20	2,40
100	**4**	2,88	12	34,56	3,00
120	**4**	2,88	-	-	3,60

Board dimensions: **1200 x 600 mm**

RECOMMENDED USES

PITCHED ROOFS:
- Metal stonewool composite roof panel
- Twin-skin metal roof cladding (on site construction) with core insulation
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

WALLS:
- Metal stonewool composite wall panel
- Twin-skin metal wall cladding (on site construction) with core insulation
- Masonry cavity wall with core insulation
- Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)

DRY CONSTRUCTION
- Partition wall with core insulation (gypsum board, etc.)
- Insulation of masonry wall with dry lining/ cladding (gypsum board, cement board, etc.)

Ventilated facade with FIBRAN*geo* **B-570-YM**

PITCHED ROOFS:
- Twin-skin metal roof cladding (on site construction) with core insulation
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

WALLS:
- Twin-skin metal wall cladding (on site construction) with core insulation
- Masonry cavity wall with core insulation
- Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)

DRY CONSTRUCTION
- Partition wall with core insulation (gypsum board, etc.)
- Insulation of masonry wall with dry lining/ cladding (gypsum board, cement board, etc.)

Ventilated facade with FIBRAN*geo* **B-570-YM**

FLAT ROOFS:
- Exposed internal insulation of steel deck

PITCHED ROOFS:
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining
- Insulation on perforated ceiling lining

WALLS:
DRY CONSTRUCTION
- Insulation of wall with perforated dry lining (gypsum board, etc.)

Exposed internal insulation of metal roof cladding with FIBRAN*geo* **B-570-AX**

FLAT ROOFS:
- Exposed internal insulation of steel deck

PITCHED ROOFS:
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining
- Insulation on perforated ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

WALLS:
- Insulation of ventilated facade (e.g. dry board cladding, marble, ceramic tile, metal panels)

DRY CONSTRUCTION
- Insulation of wall with perforated dry lining (gypsum board, etc.)

Insulation of underground parking lot ceiling with FIBRANgeo **B-570-YM**

FIBRAN*geo* **B-050**

- Thermal Conductivity λ_D: 0.035 W/mK
- Air Flow Resistivity: 31 kPa s/m²
- Sound absorption aw=1 at 50 mm
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)-MU1-AW1-AF31

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
30	**16**	11,52	10	115,20	0,85
40	**12**	8,64	10	86,40	1,10
50	**10**	7,20	10	72,00	1,40
60	**8**	5,76	10	57,60	1,70
70	**7**	5,04	10	50,40	2,00
80	**6**	4,32	10	43,20	2,25
100	**5**	3,60	10	36,00	2,85
120	**4**	2,88	10	28,80	3,40
140	**3**	2,16	12	25,92	4,00
160	**3**	2,16	10	21,60	4,50

Board dimensions: **1200 x 600 mm**

FIBRAN*geo* **B-040**

- Thermal Conductivity λ_D: 0.035 W/mK
- Air Flow Resistivity: 15 kPa s/m²
- Sound absorption aw=1 at 50 mm
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)-MU1-AW1-AF15

Thickness [mm]	Boards per package	Quantity per package [m²]	Packages per pallet	Quantity per pallet [m²]	Thermal Resistance R (m²K/W)
30	**16**	11,52	10	115,20	0,85
40	**12**	8,64	10	86,40	1,10
50	**10**	7,20	10	72,00	1,40
60	**8**	5,76	10	57,60	1,70
70	**7**	5,04	10	50,40	2,00
80	**6**	4,32	10	43,20	2,25
100	**5**	3,60	10	36,00	2,85
120	**4**	2,88	10	28,80	3,40
140	**3**	2,16	10	25,92	4,00
160	**3**	2,16	10	21,60	4,50

Board dimensions: **1200 x 600 mm**

FIBRAN*geo* **R-050**

- Thermal Conductivity λ_D: 0.035 W/mK
- A1 - Non combustible

MW-EN 13162-T4-WS-WL(P)-MU1

Thickness [mm]	Width [mm]	Length [mm]	Quantity in one package [m²]	Thermal Resistance R (m²K/W)
30	1000	10000	10	0,85
40	1000	8000	8	1,10
50	1000	6000	6	1,40
60	1000	6000	6	1,70
80	1000	5000	5	2,25
100	1000	2500	2,5	2,85

RECOMMENDED USES

PITCHED ROOFS:
- Twin-skin metal roof cladding (on site construction) with core insulation
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

WALLS:
- Twin-skin metal wall cladding (on site construction) with core insulation
- Masonry cavity wall with core insulation

DRY CONSTRUCTION
- Partition wall with core insulation (gypsum board, etc.)
- Insulation of masonry wall with dry lining/cladding (gypsum board, cement board, etc.)

Mansory cavity wall with core insulation with FIBRAN*geo* **B-050**

PITCHED ROOFS:
- Twin-skin metal roof cladding (on site construction) with core insulation
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

PILOTIS - CEILINGS:
DRY CONSTRUCTION
- Pilotis external insulation with dry board cladding
- Insulation of dry construction ceiling (gypsum board, etc)
- Insulation on non-perforated suspended ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

WALLS:
- Twin-skin metal wall cladding (on site construction) with core insulation
- Masonry cavity wall with core insulation

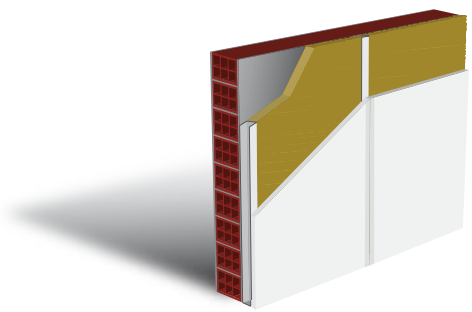
DRY CONSTRUCTION
- Partition wall with core insulation (gypsum board, etc.)
- Insulation of masonry wall with dry lining/cladding (gypsum board, cement board, etc.)

Mansory cavity wall insulation with FIBRAN*geo* **B-040**

PITCHED ROOFS:
- Twin-skin metal roof cladding (on site construction) with core insulation
- Insulation between roof frame elements (rafters, beams, joists)
- Insulation on attic ceiling lining

FLOORS:
- Insulation between wooden floor timber joists

Insulation of mansory wall with dry lining with FIBRAN*geo* **B-050**



Insulation between roof frame elements with FIBRAN*geo* **R-050**

We design and create together

with the top European architects, engineers and building contractors

fibran ENERGYSHIELD.

...manufactures products for thermal, sound insulation and fire protection for building, industrial and naval applications

...places particular emphasis on the health and safety of its employees, as well as their constant and specialised training

...hires employees with a sense of social responsibility, to actively support local communities

...specialises in the production of extruded polysterene and stonewool insulation products, which it distributes worldwide through its network of subsidiaries, representative offices and commercial partners

...observes the needs of its associates and cultivates relationships of mutual trust

...participates, in cooperation with associations and universities, in research programmes

...is an active member of International Associations involved in European Development and Environmental Protection

...contributes to the improvement of the energy efficiency and thermal comfort of buildings by producing high quality thermal insulation materials

...has factories in six European countries, as well as commercial partners and agencies in eleven countries

... communicates efficient solutions to engineers, developers, contractors and end users via technical publications and participation in scientific conferences

FIBRAN is a Greek company with commercial activities in more than 40 countries in Europe and worldwide

HANDLING AND STORAGE

FIBRAN*geo* products should be stored indoors. If stored outdoors, they must be protected from impregnation. Pallets shrink-wrapped weather tightly in PE film may be stored outside. Separate packages should be placed on a flat pallet, not in direct contact with the ground.

If part of the product gets wet, it must be dried before installation. Stonewool dries quickly and its insulating properties remain unchanged after drying.

FIBRAN*geo* products are chemically inert and do not allow the growth of micro-organisms, insects or rodents.

Handling, loading and unloading of the products should be carried out with care, to avoid damage both of the packaging and the boards' edges.

APPLICATION AND PERSONAL PROTECTION

For the selection and application of FIBRAN*geo* products all design requirements should be taken into consideration.

FIBRAN*geo* products should be protected from impregnation, prior to and during application. The packaging film should be removed with care just before installation.

Working areas should be kept clean. Unnecessary or extensive contact of the skin and eyes with product off-cuts, fibres and dust should be avoided, and protective wear should be used (gloves, goggles, hats).

Sufficient ventilation of the working areas should be ensured, whilst power cutting tools should always be provided with a mechanical system of dust intake.

Stonewool products are not considered hazardous waste. Waste disposal should be carried out according to State and Local regulations.

FIBRAN S.A.
Production of insulation materials

6th klm. Thessaloniki - Oreokastro
P.O. Box 40 306 - A.C. 560 10
Thessaloniki, Greece

Tel: +30 2310 682 425
+30 2310 692 700
Fax: +30 2310 683 131

info@fibran.com
www.fibran.com

Design: FIBRAN S.A. - September 2011