

BASFIBER® ADVANCED TEXTILES BI-AXIAL FABRICS

The biaxial fabric (0° & 90°) made by stitching two layers are different from woven fabric (0° & 90°). The stitched biaxial fabrics are non-crimp fabrics, which means rovings will not be interlaced as woven fabric. Woven fabric composite tends to fail in high fatigue due to the crimp. This stitched bidirectional fabric avoid the problem and provides excellent fatigue resistance.



Basalt fabrics could be used in different compositions for fire, sound and heat protection, in laminates production, in construction elements and equipment – as a replacement to glass fabrics.

NOMENCLATURE

Our nomenclature is based on three letter followed by three numbers.

Example: FBA-400

The first letters will be always F which stands for our Fabrics line of products. The following letter the type of woven ie. PL-Plain , TW-Twill, BA-Bi-Axial, TA-Tri-axial and so on. The number represents the weight of the Fabrics in grams by square meters.



THERMAL PROPERTIES

Melting Range:	1460-1500 °C
Crystalization temperature:	1250 °C
Sintering Temperature:	1050 °C
Thermal Conductivity, W/(m·K)	0.031-0.038

MECHANICAL PROPRIETIES:

WEAVE	BI-AXIAL - 400	BI-AXIAL - 600	BI-AXIAL - 800
Weight (g/sqm):	400 ±8%	600 ±8%	800 ±8%
Weight per Layer (Yarn Type) + 45°(g/sqm):	200 ±8%	300 ±8%	400 ±8%
Weight per Layer (Yarn Type) - 45°(g/sqm):	200 ±8%	300 ±8%	400 ±8%
Stitching : (g/sqm):	8 ±8%	8 ±8%	8 ±8%
Thickness (mm):	127 ±3%	127 ±3%	127 ±3%
Breaking Load + 45°(N/25mm):	>0.45	≥0.5	≥0.7
Breaking Load - 45°(N/25mm):	>5025	>5025	>5025
Density (g/cm ²):	>5025	>5025	>5025
Melting Point (°C):	2.67	2.67	2.67
Combustibility (M0)	1350	1350	1350
Moisture content (wt%) Fabric:	< 0.3	< 0.3	< 0.3
UV Stability 6 6 6	6	6	6
Colour Fasteness	6	6	6

TECHNICAL COMPARISON WITH OTHER FIBERS:

CHEMICAL STABILITY	BASFIBER®	GLASSFIBER	SILICA
Max. Application Temperature (°C):	982	650	1100
Operation Temperature (°C):	700	400	1000
Min. Operation Temperature (°C):	-200	-60	-170
Thermal Conductivity (W/m K):	0.031-0.038	0.029-0.035	0.035-0.04
Melting Temperature (°C):	1450	1120	1550
Thermal Expansion Coefficient (ppm/°C):	8.0	5.4	0.05

PHYSICAL / MECHANICAL PROPRIETIES	BASFIBER®	GLASSFIBER	SILICA
Density (g/cm ²):	2.8	2.57	2.15
Filament diameter (µm):	13-20	9-13	9-15
Tensile Strength (MPa):	4840	3450	4750
Elastic Modulus (GPa):	89	77	66
Elongation at Break (%):	3.15	4.7	1.2
Linear Expansion Coefficient (x10K):	5.5	5	0.5
Absorption of Humidity (65% RAH):	<0.1	<0.1	<0.1
Stability at tension (20°C):	100	100	100
Stability at tension (200°C):	95	92	94
Stability at tension (400°C):	82	52	80

ACOUSTIC PROPRIETIES	BASFIBER®	GLASSFIBER	SILICA
Sound Absorption Coefficient (%):	0.9-0.99	0.8-0.93	0.85-0.95

CHEMICAL PROPRIETIES	BASFIBER®	GLASSFIBER	SILICA
Specific Volume resistance (Ohm's):	1*10x12	1*10x11	1*10x11
Loss angle tangent frequency (1 MHz):	0.005	0.0047	0.0049
Relative dielectric permeability (1 MHz):	2.2	2.3	2.3

CHEMICAL COMPARISON	BASFIBER®	E-GLASS
Silicon Dioxide (SiO ₂)	48 - 59%	52 - 56%
Baron Oxide (B ₂ O)	1%	5 - 10%
Calcium Oxide (CaO)	6 - 9%	21 - 24%
Titanium Dioxide (TiO ₂)	0.8 - 2.3%	0 - 1.5%
Iron Oxide (Fe ₂ O ₃ FeO)	7 - 12%	1%
Alumina (Al ₂ O ₃)	15 - 18%	12 - 14%
Magnesium Oxide (MgO)	3 - 5%	0 - 5%
Sodium + Potassium (NaO + K ₂ O)	4 - 5%	0 - 1%

	CHEMICAL STABILITY			
	Cem FIL	Basfiber®	E-glass	Silica
Weightlessness:	-	-	-	-
3-hour boiling in water	-	0.2%	-	0.05%
3-hour boiling in saturated cement solution (pH 12,9)	0.15%	0.35%	4.5%	-
3-hour boiling in 2N solution HCl (hydrochloric acid)	-	2-7%	38.5%	15.7%
3-hour boiling in 2N solution NaOH (sodium hydroxide)	-	6%	-	5.0%
30 minutes and in 180 minutes in H ₂ SO ₄ (sulphuric acid)	-	2% - 6%	14% - 22%	-

PACKAGING

Standard rolls 100m, others lengths available on request. Tube interior diameter is 76 mm. Fabrics rolls are individually wrapped in foil and delivered on a pallet.

STORAGE

Basalt fabrics should be stored in the package at the stock (indoor conditions). Rolls should be placed parallel to each other.

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