

BASFIBER® ADVANCED TEXTILES PLAIN WOVEN FABRICS

Woven fabric of high chemical (acidic and subalkali or cement) and thermal resistance are made of basalt rovings or twisted yarns with epoxy-compatible sizing. The sizing is designed to ensure the fabric compatibility with epoxy matrix and good handling and mechanical properties of the fabric. Besides standard epoxy-compatible sizing (12), fabric with multi-compatible sizing (11- epoxy and polyester and vinyl-ester) could be produced on request.

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: FPL-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.

MECHANICAL PROPERTIES:

WEAVE		PLAIN - 150	PLAIN - 200
Weight, g/m2	ISO 3374:2000	150 ± 20	200 ± 20
Thread type warp		Basalt Yarn	Basalt Yarn
Thread type weft		Basalt Yarn	Basalt Yarn
Thread count, F/10 cm, warp		100 ± 5	100 ± 5
Thread count, F/10 cm, weft		95 ± 5	95 ± 5
Tenacity, N, warp		> 106	> 784
Tenacity, N, weft		> 101	> 784
Width, cm	ISO 5025:1997	100 ± 1	100 ± 1
Thickness, mm	ISO 4603:1993	0.13 ± 0.02	0.19 ± 0.04
Combustibility, MO	NF P92-503:1995	Pass	Pass
Loss on ignition, % weight	ISO 1887:1995*	0.4 - 0.6	0.4 - 0.6
UV stability	ISO 105-B02	6	6
Color stability	ISO 1005-BX12	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 PROPERTIES	BASFIBER®	GLASSFIBER	SILICA
Density (g/cm³):	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 PROPERTIES	BASFIBER®	GLASSFIBER	SILICA
Sound Absorption Coefficient (%):	0.9-0.99	0.8-0.93	0.85-0.95

CHEMICAL PROPERTIES	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 250m (150gsm) and 200m (200gsm), 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.

Disclaimer of Liability: This data is offered solely as a guide in the selection of reinforcement. The information contained in this publication is based on actual laboratory data and field test experience. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume any liability arising out of its use or performance. The user, by accepting the products described herein, agrees to be responsible for thoroughly testing any application to determine its suitability before committing to production. It is important for the user to determine the properties of its own commercial compounds when using this or any other reinforcement.



THERMAL PROPERTIES

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

