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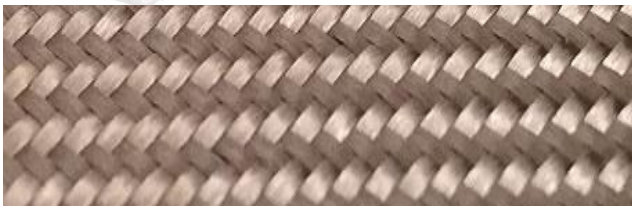
Australian Made

BASALT FIBER TECH
Advanced Composite and Concrete Solutions



BASFIBER® ADVANCED TEXTILES TWILL WEAVE FABRICS

A twill weave is a basic weave characterized by a diagonal rib, or twill line. Each end floats over at least two or more consecutive picks enabling a greater number of yarns per unit area than a plain weave, while not losing a great deal of fabric stability. This type of fabric looks different on one side than on the other.

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: FTW-350

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 Temerature:	1050 ˚C
Thermal Conductivity, W/(m·K)	0.031-0.038

MECHANICAL PROPRIETIES:

WEAVE		2 x 2 TWILL – 220	2 x 2 TWILL - 270	2 x 2 TWILL - 350	3 x 1 TWILL - 370
Weight, g/m²	ISO 3374:2000	220 ± 10	**270 ± 10**	**350± 10**	**370± 10**
Thread type warp		Basalt Yarn	Basalt Yarn	Basalt Yarn	Basalt Yarn
Thread type weft		Basalt Yarn	Basalt Yarn	Basalt Yarn	Basalt Yarn
Width, cm	ISO 5025:1997	127 ± 1	127 ± 1	127 ± 1	127 ± 1
Breaking Load (Warp) N:		1275 ± 10%	2005 ± 10%	2795 ± 10%	3120 ± 10%
Breaking Load (Weft) N:		1150 ± 10%	1985 ± 10%	2570 ± 10%	3105 ± 10%
Thickness, mm	ISO 4603:1993				
Combustibility, M0	NF P92-503:1995	Non-combustible	Non-combustible	Non-combustible	Non-combustible
Loss on ignition, % weight	ISO 1887:1995*	0.4 - 0.6	0.4 - 0.6	0.4 - 0.6	0.4 - 0.6
UV stability	ISO 105-B02	6	6	6	6
Color stability	ISO 1005-BX12	6	6	6	6
Weight, g/m²	ISO 3374:2000	220 ± 10	220 ± 10	220 ± 10	220 ± 10
Fiber Specific weight (g/cm³)		2.67 ± 5%	2.67 ± 5%	2.67 ± 5%	2.67 ± 5%

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/cm²):	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_2O)	1%	5 - 10%
Calcium Oxide (CaO)	6 - 9%	21 - 24%
Titanium Dioxide (TiO_2)	0.8 - 2.3%	0 – 1.5%
Iron Oxide ($Fe2O_3$ FeO)	7 - 12%	1%
Alumina (Al_2O_3)	15 - 18%	12 – 14%
Magnesium Oxide (MgO)	3 - 5%	0 – 5%
Sodium + Potassium (NaO + K_2O)	4 - 5%	0 – 1%

CHEMICAL STABILITY

Weightlessness:	Cem FIL	Basfiber®	E-glass	Silica
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 H2SO4 (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.