

Fibre-reinforced Geosynthetic Clay Liner (GBR-C)

Bentofix® X5F NSP 4900



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Bentofix® X5F NSP 4900 is a shear strength transmitting geosynthetic clay barrier (GBR-C), continuously needle-punched through all components. A GBR-C is also known as geosynthetic clay liner (GCL) or bentonite mat. Following its needling process a structured polyethylene layer is coated to the entire surface of the woven side. The 300 mm length longitudinal overlapping areas are marked on the coating side.

Property	Test method*	Unit	Values
Geotextile layers:			
Polypropylene nonwoven:			
Mass per unit area	EN ISO 9864	g/m ²	220
Polypropylene woven:			
Mass per unit area	EN ISO 9864	g/m ²	110
Bentonite layer (sodium bentonite powder):			
Mass per unit area	EN 14196 (ρ_{CLAY})	g/m ²	4,670
Swell index	ASTM D5890	ml/2g	24
Fluid Loss	ASTM D5891	ml	≤ 18
Water content	DIN 18121 / ISO 11465 (5hrs, 105 °C)	%	approx. 10
Polyethylene coating (structured):			
Mass per unit area	EN ISO 9864	g/m ²	≥ 500
Bentofix X5F NSP 4900:			
Mass per unit area	EN 14196 ($\rho_{\text{GBR-C}}$)	g/m ²	approx. 5,550
Thickness	EN ISO 9863-1	mm	6.3
Max. tensile strength, md/cmd**	EN ISO 10319 / ASTM D6768	kN/m	12.0 / 12.0
Elongation at break, md/cmd**	EN ISO 10319 / ASTM D6768	%	10.0 / 6.0
Peel strength (nonwoven vs. woven/coating)	ASTM D6496	N/10 cm***	≥ 60
		N/m	≥ 360
Shear strength of the structured upper surface vs. Geotextile (300 g/m ²)	ASTM D6243 at a load of 20 kPa, average value of several samples taken over the roll width	kPa	≥ 9
Static puncture strength	EN ISO 12236 / ASTM D6241	N	2,000
Permeability	EN 14150 (10 m water head, coating only)	m ³ /m ² /day	3 x 10 ⁻⁶
Permeability / Hydraulic Conductivity (calculated by testing according to EN 14150)	EN 14150 (10 m water head, coating only)	m/s	≤ 10 ⁻¹⁴
Index Flux (q ₁₀)	EN 16416 / ASTM D5887 (GBR-C only)	(m ³ /m ²)/s	4 x 10 ⁻⁹
Roll dimensions:			
width x length, / diameter (e.g.)	-	m x m / m	4.85 x 35 / Ø 0.60

* = based on; **md = machine direction, cmd = cross machine direction; ***max. peak

The listed technical values are guiding values, achieved in our laboratories and/or independent testing institutes. Our products are subject to changes without prior notice.