Fibre-reinforced Geosynthetic Clay Liner (GBR-C)

Bentofix® X5F NSP 4900

Australia / New Zealand

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0799-CPR-20

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/m²	≥ 200
Polypropylene woven:			
Mass per unit area	EN ISO 9864	g/m²	≥ 100
Bentonite layer (sodium bentonite powder):			
Mass per unit area	EN 14196 (ρ_{CLAY}, 0%)	g/m²	≥ 3,700
Swell index	ASTM D5890	ml/2g	≥ 24
Fluid Loss	ASTM D5891	ml	≤ 18
Montmorillonite content	VDP69 (Methylene blue)	mg/g	≥ 300
Polyethylene coating (structured):			
Mass per unit area	EN ISO 9864	g/m²	≥ 500
Bentofix X5F NSP 4900:			
Mass per unit area	EN 14196 (ρ_{GBR-C}, 0%)	g/m²	≥ 4,500
Thickness	EN ISO 9863-1	mm	≥ 5.7
Max. tensile strength, md/cmd**	EN ISO 10319 / ASTM D6768	kN/m	≥ 10.8 / ≥ 10.8
Elongation at break, md/cmd**	EN ISO 10319 / ASTM D6768	%	≥ 8 / ≥ 5
Peel strength (nonwoven vs.woven/coating)	ASTM D6496	N/m	≥ 360
Static puncture strength	EN ISO 12236 / ASTM D6241	N	≥ 1,800
Permeability	EN 14150 (10 m water head, coating only)	m³/m²/day	3×10^{-6}
Permeability / Hydraulic Conductivity (calculated by testing according to EN 14150)	EN 14150 (10 m water head, coating only)	m/s	$\leq 10^{-14}$
Permeability / Hydraulic Conductivity (k_{10})	EN 16416 / ASTM D5887 (GBR-C only)	m/s	$\leq 2.5 \times 10^{-11}$
Index Flux (q_{10})	EN 16416 / ASTM D5887 (GBR-C only)	(m³/m²)/s	$\leq 9 \times 10^{-9}$
Roll width	-	m	4.85

** = based on; **md = machine direction, cmd = cross machine direction, ≥ = MARV, ≤ = MaxARV*

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