

Fibre-reinforced Geosynthetic Clay Liner (GCL)



NAUE GmbH & Co. KG
Gewerbestrasse 2
32339 Espelkamp-Fiestel, Germany

Phone: +49 5743 41-0 · Fax: +49 5743 41-240
E-Mail: info@naue.com · Internet: www.naue.com

Bentofix® X5F NSP 4900

The following table lists properties of **Bentofix® X5F NSP 4900**, a shear strength transmitting geosynthetic clay liner, continuously needle-punched through all components. A structured polyethylene layer is coated to the woven side. The 30 cm longitudinal overlapping area is marked on the bottom side.

Property	Test method*	Unit	Values
Geotextile layers:			
Cover layer (polypropylene nonwoven):			
Mass per unit area	EN ISO 9864	g/m ²	220
Carrier layer (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 D 5890	ml/2g	24
Fluid Loss	ASTM D 5891	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
Geosynthetic Clay Liner:			
Mass per unit area	EN 14196 ($\rho_{\text{GBR-C}}$)	g/m ²	approx. 5,550
Thickness	EN ISO 9863-1	mm	6.0
Max. tensile strength, md/cmd**	EN ISO 10319 / ASTM D 4595	kN/m	12.0 / 12.0
Elongation at break, md/cmd**	EN ISO 10319 / ASTM D 4595	%	10.0 / 6.0
Peel strength (nonwoven vs.woven/coating)	ASTM D 6496	N/10 cm***	≥ 60
		N/m	≥ 360
Shear strength of the structured upper surface vs. Geotextile (300 g/m ²)	ASTM D 6243 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 D 6241	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	ASTM D 5887 (GBR-C only)	(m ³ /m ²)/s	5 x 10 ⁻⁹
Roll dimensions:			
width x length, / diameter	-	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.