

# Fibre-reinforced Geosynthetic Clay Liner (GBR-C)



## Bentofix® NSP 4000

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**Bentofix® NSP 4000** 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. Additional bentonite powder is impregnated into a 500 mm overlapping area on both longitudinal sides of the cover layer. The 300 mm length longitudinal overlapping areas are marked on the carrier layer.

Property	Test method*	Unit	Values
<b>Geotextile layers:</b>			
<b>Cover layer</b> (polypropylene nonwoven):			
Mass per unit area	EN ISO 9864	g/m <sup>2</sup>	220
<b>Carrier layer</b> (polypropylene woven):			
Mass per unit area	EN ISO 9864	g/m <sup>2</sup>	110
<b>Bentonite layer</b> (sodium bentonite powder):			
Mass per unit area	EN 14196 ( $\rho_{CLAY}$ )	g/m <sup>2</sup>	3,670
Swell index	ASTM D5890	ml/2g	24
Fluid Loss	ASTM D5891	ml	≤ 18
Water content	DIN 18121 / ISO 11465 (5hrs, 105 °C)	%	approx. 10
<b>Geosynthetic Clay Liner:</b>			
Mass per unit area	EN 14196 ( $\rho_{GBR-C}$ )	g/m <sup>2</sup>	4,000
Thickness	EN ISO 9863-1	mm	6.0
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	ASTM D6496	N/10 cm*** N/m	≥ 60 ≥ 360
Static puncture strength	EN ISO 12236 / ASTM D6241	N	2,000
Permeability / Hydraulic Conductivity ( $k_{10}$ )	EN 16416 / ASTM D5887	m/s	$2 \times 10^{-11}$
Index Flux ( $q_{10}$ )	EN 16416 / ASTM D5887	(m <sup>3</sup> /m <sup>2</sup> )/s	$5 \times 10^{-9}$
<b>Roll dimensions:</b>			
width x length, / diameter (e.g.)	-	m x m / m	5.00 x 50 / Ø 0.70

\* = 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.

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