

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

## Bentofix® B 5200 a GRI GCL3

South Africa



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**Bentofix® B 5200 a GRI GCL3** 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. There is a 200 mm overlapping of the slit film woven on both sides. The 300 mm length longitudinal overlapping areas are marked on the carrier layer. This product fulfills the requirement of GRI GCL3.

Property	Test method*	Unit	Values	Test frequency
<b>Geotextile layers:</b>				
<b>Cover layer</b> (polypropylene nonwoven):				
Mass per unit area	ASTM D5261	g/m <sup>2</sup>	≥ 200	1/20,000 m <sup>2</sup>
<b>Carrier layer</b> (polypropylene woven 110g/m <sup>2</sup> / nonwoven 240g/m <sup>2</sup> composite):				
Mass per unit area	ASTM D5261	g/m <sup>2</sup>	≥ 315	1/20,000 m <sup>2</sup>
Geotextile*****	-	%	≥ 65	yearly
<b>Bentonite layer</b> (sodium bentonite powder):				
Mass per unit area	ASTM D5993 ( $\rho_{CLAY,0\%}$ )	g/m <sup>2</sup>	≥ 3,700	1/4,000 m <sup>2</sup>
Swell index	ASTM D5890	ml/2g	≥ 24	1/50,000 kg
Fluid Loss	ASTM D5891	ml	≤ 18	1/50,000 kg
Water content	ISO 11465 (5hrs, 105 °C)	%	≤ 15	1/4,000 m <sup>2</sup>
<b>Geosynthetic Clay Liner:</b>				
Mass per unit area	EN 14196 ( $\rho_{GBR-C}$ )	g/m <sup>2</sup>	approx. 5,250	1/4,000 m <sup>2</sup>
Mass per unit area	ASTM D5993 ( $\rho_{GBR-C,0\%}$ )	g/m <sup>2</sup>	≥ 4,215	1/4,000 m <sup>2</sup>
Max. tensile strength, md/cmd**	ASTM D6768	kN/m	≥ 14.4 / ≥ 27.0	1/20,000 m <sup>2</sup>
Elongation at break, md/cmd**	ASTM D6768	%	≥ 45 / ≥ 45	1/20,000 m <sup>2</sup>
Peel strength	ASTM D6496	N/10 cm***	≥ 100	1/4,000 m <sup>2</sup>
		N/m	≥ 600	1/4,000 m <sup>2</sup>
CBR puncture	ASTM D6241	N	≥ 3,150	-
Permeability / Hydraulic Conductivity ( $k_{10}$ )	ASTM D5887	m/s	≤ 5 x 10 <sup>-11</sup>	1/25,000 m <sup>2</sup>
Index Flux ( $q_{10}$ )	EN 16416 / ASTM D5887	(m <sup>3</sup> /m <sup>2</sup> )/s	≤ 1 x 10 <sup>-8</sup>	1/25,000 m <sup>2</sup>
Permeability at a load of 35 kPa****	ASTM D6766	m/s	≤ 1 x 10 <sup>-8</sup>	yearly
Permeability at a load of 500 kPa****	ASTM D6766	m/s	≤ 5 x 10 <sup>-10</sup>	yearly
<b>Roll dimensions:</b>				
width x length	-	m x m	5.00 x 30	

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

\*\*\*\* = permeability after permeation with 0.1 M calcium chloride solution

\*\*\*\*\* strength retained from as manufactured value after oven aging at 60°C for 50 days

  
Production Management

  
Quality Assurance

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.