

# GSE BentoLiner HSL Geosynthetic Clay Liner

METRIC - EMEA

GSE BentoLiner “HSL” is a needle-punched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of sodium bentonite encapsulated between a woven and a nonwoven geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.



## AT THE CORE:

This composite clay liner is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.

## Product Specifications

Tested Property	Test Method	Frequency	Value <sup>(1)</sup>		
			3.0	4.0	5.0
<b>Geotextile Property</b>					
Cap Nonwoven, Mass/Unit Area <sup>(2)</sup>	ASTM D 5261 EN ISO 9864	1/20,000 m <sup>2</sup>	200 g/m <sup>2</sup>		
Carrier Woven, Mass/Unit Area <sup>(2)</sup>	ASTM D 5261 EN ISO 9864	1/20,000 m <sup>2</sup>	100 g/m <sup>2</sup>		
<b>Bentonite Property</b>					
Swell Index	ASTM D 5890	1/50,000 kg	24 ml/2g		
Fluid Loss	ASTM D 5891	1/50,000 kg	18 ml max		
<b>Finished GCL Property</b>					
Bentonite, Mass/Unit Area <sup>(2),(3)</sup>	ASTM D 5993	1/4,000 m <sup>2</sup>	3.0 kg/m <sup>2</sup>	4.0 kg/m <sup>2</sup>	5.0 kg/m <sup>2</sup>
Tensile Strength, MD & CMD	ASTM D 6768	1/4,000 m <sup>2</sup>	12 kN/m		
Peel Strength	ASTM D 6496	1/4,000 m <sup>2</sup>	660 N/m		
CBR Puncture Strength	ASTM D 6241 ISO 12236	1/4,000 m <sup>2</sup>	1.8 kN		
Thickness <sup>(2)</sup>	EN ISO 9863	1/4,000 m <sup>2</sup>	5.8 mm	6.6 mm	7.4 mm
Hydraulic Conductivity <sup>(4)</sup>	ASTM D 5887	1/Week	< 5 x 10 <sup>-11</sup> m/s		
Index Flux <sup>(1)</sup>	ASTM D 5887	1/Week	<1 x 10 <sup>-8</sup> m <sup>3</sup> /m <sup>2</sup> /sec max		
<b>TYPICAL ROLL DIMENSIONS</b>					
Width x Length <sup>(5)</sup>	Typical	Every Roll	5.0 m x 60 m	5.0 m x 55 m	5.0 m x 45 m
Area per Roll	Typical	Every Roll	300 m <sup>2</sup>	275 m <sup>2</sup>	225 m <sup>2</sup>
Packaged Weight	Typical	Every Roll	990 kg	1183 kg	1193 kg

NOTES:

- <sup>(1)</sup>All values - unless otherwise noted - are minimum average roll values within the 96% confidence interval.
- <sup>(2)</sup>Nominal value with maximum tolerance of 10%.
- <sup>(3)</sup>Bentonite mass per unit area is calculated with 12% moisture content.
- <sup>(4)</sup>Deaired deionized water at a total stress of 550 kPa and a back pressure of 515 kPa with an influent pressure of 530 kPa.
- <sup>(5)</sup>Roll widths and lengths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.



**[ DURABILITY RUNS DEEP ]** For more information on this product and others, please visit us at [GSEworld.com](http://GSEworld.com), call 0049.40.767420 or contact your local sales office.

