

# GSE BentoLiner HWL Geosynthetic Clay Liner

METRIC - EMEA

GSE BentoLiner "HWL" is a needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of sodium bentonite encapsulated between a nonwoven and a scrim-nonwoven geotextile for dimensional stability. 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 composed of a uniform layer of sodium bentonite between a nonwoven and scrim-nonwoven textile for dimensional stability.

## Product Specifications

| Tested Property                                       | Test Method                | Frequency               | Value <sup>(1)</sup>  |
|---|----------------------------|-------------------------|---|
| <b>Geotextile Property</b>                            |                            |                         |   |
| Cap Nonwoven, Mass/Unit Area <sup>(2)</sup>           | ASTM D 5261<br>EN ISO 9864 | 1/20,000 m <sup>2</sup> | 200 g/m <sup>2</sup>  |
| Carrier Scrim Nonwoven, Mass/Unit Area <sup>(2)</sup> | ASTM D 5261<br>EN ISO 9864 | 1/20,000 m <sup>2</sup> | 200 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>  | 4.0 kg/m <sup>2</sup>   |
| Tensile Strength, MD & CMD                            | ASTM D 6768                | 1/4,000 m <sup>2</sup>  | 20 kN/m   |
| Peel Strength   | ASTM D 6496                | 1/4,000 m <sup>2</sup>  | 600 N/m   |
| CBR Puncture Strength                                 | ASTM D 6241<br>ISO 12236   | 1/4,000 m <sup>2</sup>  | 2.1 kN  |
| Thickness <sup>(2)</sup>                              | EN ISO 9863                | 1/4,000 m <sup>2</sup>  | 6.7 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 40 m  |
| Area per Roll   | Typical                    | Every Roll              | 200 m <sup>2</sup>  |
| Packaged Weight                                       | Typical                    | Every Roll              | 880 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.

