

# GSE BentoLiner EC Geosynthetic Clay Liner

GSE BentoLiner “EC” is a lightly needle-punched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a woven and a nonwoven geotextile. The product is intended for use on relatively flat slope surfaces and low load applications where minimal internal shear strength is required.



## AT THE CORE:

This composite clay liner is intended for use on relatively flat slope surfaces and low load applications where minimal internal shear strength is required.

## Product Specifications

| Tested Property                          | Test Method                               | Frequency                 | Value  |
|--|---|---------------------------|--|
| <b>Geotextile Property</b>               |   |                           |  |
| Cap Nonwoven, Mass/Unit Area             | ASTM D 5261                               | 1/200,000 ft <sup>2</sup> | 3.0 oz/yd <sup>2</sup> MARV <sup>(1)</sup>                   |
| Carrier Woven, Mass/Unit Area            | ASTM D 5261                               | 1/200,000 ft <sup>2</sup> | 3.1 oz/yd <sup>2</sup> MARV                                  |
| <b>Bentonite Property</b>                |   |                           |  |
| Swell Index                              | ASTM D 5890                               | 1/100,000 lb              | 24 ml/2 g min  |
| Moisture Content                         | ASTM D 4643                               | 1/100,000 lb              | 12% max  |
| Fluid Loss                               | ASTM D 5891                               | 1/100,000 lb              | 18 ml max  |
| <b>Finished GCL Property</b>             |   |                           |  |
| Bentonite, Mass/Unit Area <sup>(2)</sup> | ASTM D 5993                               | 1/40,000 ft <sup>2</sup>  | 0.75 lb/ft <sup>2</sup> MARV                                 |
| Tensile Strength <sup>(3)</sup>          | ASTM D 6768                               | 1/40,000 ft <sup>2</sup>  | 30 lb/in MARV  |
| Peel Strength                            | ASTM D 6496<br>ASTM D 4632 <sup>(4)</sup> | 1/40,000 ft <sup>2</sup>  | 1 lb/in MARV<br>6 lb MARV                                    |
| Hydraulic Conductivity <sup>(5)</sup>    | ASTM D 5887                               | 1/Week                    | 5 x 10 <sup>-9</sup> cm/sec max                              |
| Index Flux <sup>(5)</sup>                | ASTM D 5887                               | 1/Week                    | 1 x 10 <sup>-8</sup> m <sup>3</sup> /m <sup>2</sup> /sec max |
| Internal Shear Strength <sup>(6)</sup>   | ASTM D 6243                               | Periodically              | 150 psf Typical  |
| <b>TYPICAL ROLL DIMENSIONS</b>           |   |                           |  |
| Width x Length <sup>(7)</sup>            | Typical                                   | Every Roll                | 15.5 ft x 150 ft   |
| Area per Roll                            | Typical                                   | Every Roll                | 2,325 ft <sup>2</sup>  |
| Packaged Weight                          | Typical                                   | Every Roll                | 2,600 lb   |

NOTES:

- <sup>(1)</sup>Minimum Average Roll Value.
- <sup>(2)</sup>At 0% moisture content.
- <sup>(3)</sup>Tested in machine direction.
- <sup>(4)</sup>Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- <sup>(5)</sup>Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- <sup>(6)</sup>Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- <sup>(7)</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 800.435.2008 or contact your local sales office.