

GSE BentoLiner CNSL Geosynthetic Clay Liner

GSE BentoLiner “CNSL” is a 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 with a uniform polypropylene geofilm coating applied to the woven surface to lower the hydraulic conductivity. The product is intended for applications that require excellent hydraulic conductivity properties and/or bentonite protection 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 applications that require excellent hydraulic conductivity properties and/or the self-seaming characteristics of bentonite clay.

Product Specifications

Tested Property	Test Method	Frequency	VALUE
Geotextile Property			
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft ²	6.0 oz/yd ² MARV ⁽¹⁾
Carrier Woven, Mass/Unit Area	ASTM D 5261	1/200,000 ft ²	3.1 oz/yd ² MARV
Bentonite Property			
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
Finished GCL Property			
Bentonite, Mass/Unit Area ⁽²⁾	ASTM D 5993	1/40,000 ft ²	0.75 lb/ft ² MARV
Tensile Strength ⁽³⁾	ASTM D 6768	1/40,000 ft ²	40 lb/in MARV
Peel Strength	ASTM D 6496 ASTM D 4632 ⁽⁴⁾	1/40,000 ft ²	3.5 lb/in MARV 21 lb MARV
Hydraulic Conductivity ⁽⁵⁾	ASTM D 5887	Periodically	5 x 10 ⁻¹⁰ cm/sec max
Index Flux ⁽⁵⁾	ASTM D 5887	Periodically	1 x 10 ⁻⁹ m ³ /m ² /sec max
Internal Shear Strength ⁽⁶⁾	ASTM D 6243	Periodically	500 psf Typical
TYPICAL ROLL DIMENSIONS			
Width x Length ⁽⁷⁾	Typical	Every Roll	15.5 ft x 150 ft
Area per Roll	Typical	Every Roll	2,325 ft ²
Packaged Weight	Typical	Every Roll	2,600 lb

NOTES:

- ⁽¹⁾Minimum Average Roll Value.
- ⁽²⁾At 0% moisture content.
- ⁽³⁾Tested in machine direction.
- ⁽⁴⁾Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- ⁽⁵⁾Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
Hydraulic Conductivity and Index Flux are performed only on a periodic basis because the polypropylene coating is essentially impermeable.
- ⁽⁶⁾Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- ⁽⁷⁾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, call 800.435.2008 or contact your local sales office.