

BENTOMAT® ST CERTIFIED PROPERTIES

CETCO® Bentomat® ST is a reinforced geosynthetic clay liner (GCL) consisting of a layer of sodium bentonite between a polypropylene woven geotextile and a polypropylene nonwoven geotextile, which are needle-punched together.

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY	CERTIFIED VALUES
Bentonite Moisture Content ¹	ASTM D2216	1 per 50 tonnes	12% max.
Bentonite Swell Index ¹	ASTM D5890	1 per 50 tonnes	24 mL/2g min.
Bentonite Fluid Loss ¹	ASTM D5891	1 per 50 tonnes	18 mL max.
Bentonite Mass/Area ²	ASTM D5993	40,000 ft ² (4,000 m ²)	0.75 lb/ft ² (3.7 kg/m ²) min.
Total Mass/Area ²	ASTM D5993	40,000 ft ² (4,000 m ²)	0.81 lb/ft ² (4.0 kg/m ²) min.
GCL Moisture Content	ASTM D5993	40,000 ft ² (4,000 m ²)	35% max.
GCL Grab Strength ³	ASTM D6768	200,000 ft ² (20,000 m ²)	30 lbs/in (5.3 kN/m) min.
GCL Peel Strength	ASTM D6496	40,000 ft ² (4,000 m ²)	3.5 lbs/in (610 N/m) min.
GCL Hydraulic Conductivity ⁴	ASTM D5887	250,000 ft ² (25,000 m ²)	5 x 10 ⁻¹¹ m/s max.
GCL Index Flux ⁴	ASTM D5887	250,000 ft ² (25,000 m ²)	1 x 10 ⁻⁸ m ³ /m ² /s max.
GCL Hydrated Internal Shear Strength ⁵	ASTM D6243	1,000,000 ft ² (100,000 m ²)	500 psf (24 kPa) typ. @ 200 psf (9.6 kPa)

Notes:

- ¹ Bentonite property tests performed before the bentonite is incorporated into the finished GCL product.
- ² Reported at 0% moisture content.
- ³ All tensile strength testing is performed in the machine direction using ASTM D6768.
- ⁴ Index flux and hydraulic conductivity testing with deaired distilled/deionized water at 80 psi (550 kPa) cell pressure, 77 psi (530 kPa) headwater pressure and 75 psi (515 kPa) tailwater pressure.
- ⁵ Peak values measured at 200 psf (9.6 kPa) normal stress for a specimen hydrated for 48 hours. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.