

BENTOMAT® CL

GEOSYNTHETIC CLAY LINER

DESCRIPTION

BENTOMAT CL GCL 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 and laminated to a polyethylene geofilm.



TESTING DATA

PHYSICAL PROPERTIES			
MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY	REQUIRED VALUES
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.
GCL Grab Strength ³	ASTM D6768	200,000 ft ² (20,000 m ²)	45 lbs/in (78 N/cm) MARV
GCL Peel Strength ³	ASTM D6496	40,000 ft ² (4,000 m ²)	3.5 lbs/in (6.1 N/cm) min.
GCL Hydraulic Conductivity ⁴	ASTM D5887	Periodic	5 x 10 ⁻¹⁰ cm/s max.
GCL Index Flux ⁴	ASTM D5887	Periodic	1 x 10 ⁻⁹ m ³ /m ² /s max.
GCL Hydrated Internal Shear Strength ⁵	ASTM D5321 ASTM D6243	Periodic	500 psf (24 kPa) typical

Notes:

¹ Bentonite property tests performed at a bentonite processing facility before shipment to CETCO's GCL production facilities.

² Bentonite mass/area reported at 0% moisture content.

³ All tensile strength testing is performed in the machine direction using ASTM D 6768. All peel strength testing is performed using ASTM D 6496. Upon request, tensile and peel results can be reported per modified ASTM D 4632 using 4 inch grips.

⁴ ASTM D5887 Index flux and hydraulic conductivity testing with deaired distilled/deionized water at 80 psi (551 kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 92 gal/acre/day. This flux value is equivalent to a permeability of 5x10-10 cm/sec for typical GCL thickness. ASTM D 5887 testing is performed only on a periodic basis because the membrane is essentially impermeable.

⁵ Peak value measured at 200 psf (10 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.