

BENTOMAT® CLT

GEOSYNTHETIC CLAY LINER

DESCRIPTION

BENTOMAT CLT GCL is a reinforced geosynthetic clay liner (GCL) consisting of a layer of sodium bentonite between two geotextiles, which are needlepunched together and laminated to a 20-mil (0.5 mm) double-sided textured HDPE geomembrane.

The geomembrane component of BENTOMAT CLT GCL is compliant with the GRI-GM-13 specification for HDPE geomembranes, adjusted for a 20-mil thickness. BENTOMAT CLT GCL is also available with textured HDPE geomembrane thicknesses of 30-mils (0.75 mm), 40-mils (1.0 mm), and 60-mils (1.5 mm).



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 (3.6 kg/m ²) min.
GCL Grab Strength ³	ASTM D6768	200,000 ft ² (20,000 m ²)	45 lbs/in (70 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 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 D6768. All peel strength testing is performed using ASTM D6496. Upon request, tensile and peel results can be reported per modified ASTM D4632 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. ASTM D5887 testing is performed only on a periodic basis because the geomembrane is essentially impermeable. The GCL component alone (without the geomembrane) has a hydraulic conductivity of 5 x 10⁻⁹ cm/s.
 - 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.