BENTOFIX® CNSL

CNSL

Thermal Lock® Geosynthetic Clay Liners

Bentofix Thermal Lock® CNSL Geosynthetic Clay Liner (GCL) is a needlepunched, thermally reinforced composite comprised of a core of natural sodium bentonite clay between two durable geotextile layers to form a low permeability hydraulic barrier. The top layer is a staple fiber nonwoven (NW) geotextile while the bottom layer is a woven (W) geotextile. The bottom woven (W) geotextile contains a rugged adhesive geofilm to provide a geomembrane type of hydraulic conductivity. The product is intended for applications that require excellent hydraulic conductivity properties.

Property	ASTM Test Method	Frequency	Value Imperial Units	Value Metric Units
Typical Geotextile Properties				
• Top / Cap Nonwoven	D 5261	200,000 sq ft (20,000 m^2)	6.0 oz./yd^2 MARV	200 g / m^2 MARV(1)
• Woven	D 5261		3.1 oz./yd^2 MARV	105 g / m^2 MARV
• Mass of flexible geofilm	D 5261		6 oz./yd^2 MARV	200 g/m^2 MARV
Bentonite Properties (SI Units Only)				
• Swell Index • Moisture Content • Fluid Loss	D 5890 D 4643 D 5891	100,000 lbs. (50,000 kg)	24 ml/ 2 g min 12 % max 18 ml max	24 ml/ 2 g min 12 % max 18 ml max
Finished GCL Properties				
• Bentonite Mass/Unit Area[2]	D 5993	40,000 ft^2 (4,000 m^2)	0.75 lbs/ft^2 MARV	3.66 kg/m^2 MARV
• Tensile Strength[3]	D 6768	200,000 ft^2 (20,000 m^2)	45 lb/in MARV	7.8 kN/m MARV
• Peel Strength	D 6496	40,000 ft^2 (4,000 m^2)	3.5 lbs/in min	610 N/m min
• Permeability[4]	D 5887	Weekly	5 x 10^{-10} cm/s max	5 x 10^{-10} cm/s max 5 x 10^{-13} cm/s E96
• Index Flux[4]	D 5887	Weekly	1 x 10^{-9} $m^3/m^2/s$ max	1 x 10^{-9} $m^3/m^2/s$ max
• Internal Shear Strength[5]	D 6243 D 5231	Periodic	500 psf Typical	24 kPa Typical

(1) Minimim Average Roll Value.
(2) Oven-dried measurement. Equates to 0.84 lb/sqft (4.1 kg/m^2) when indexed to 12% moisture content.
(3) Tested in machine direction.
(4) Deaired, deionized water @ 5 psi (34.5 kPa) maximum effective confining stress and 2 psi (13.8 kPa) head pressure.
(5) Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.

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