**BENTOFIX® SRNWL**

**Thermal Lock® Geosynthetic Clay Liners**

Bentofix Thermal Lock® SRNWL Series Geosynthetic Clay Liner (GCL) is a needlepunched, thermally reinforced composite comprised of a core of natural Wyoming 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 scrim reinforced nonwoven (SRNW) geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required. Product intended where subgrade conditions are rough in nature, prevent shrinkage below geomembranes, and/or where hydraulic head conditions may apply.

### Typical Geotextile Properties

- **Top / Cap Nonwoven**
  - ASTM Test: D 5261
  - Frequency: 200,000 sq ft
  - Value: 6.0 oz./yd² MARV
  - Value: 200 g / m² MARV

- **Scrim Reinforced Nonwoven**
  - ASTM Test: D 5261
  - Frequency: (20,000 m²)
  - Value: 6.0 oz./yd² MARV
  - Value: 200 g / m² MARV

### Bentonite Properties (SI Units Only)

- **Swell Index**
  - ASTM Test: D 5890
  - Frequency: 100,000 lbs.
  - Value: 24 ml/2 g min
  - Value: 24 ml/2 g min

- **Moisture Content**
  - ASTM Test: D 4643
  - Frequency: (50,000 kg)
  - Value: 12 % max
  - Value: 12 % max

- **Fluid Loss**
  - ASTM Test: D 5891
  - Frequency: 100,000 lbs.
  - Value: 18 ml max
  - Value: 18 ml max

- **Smectite (Montmorillonite)**
  - Method: XRD
  - Frequency: Periodic
  - Value: 90% min
  - Value: 90% min

### Finished GCL Properties

- **Bentonite Mass/Unit Area**
  - ASTM Test: D 5993
  - Frequency: 40,000 ft² (4,000 m²)
  - Value: 0.75 lbs/ft² MARV
  - Value: 3.66 kg/m² MARV

- **Tensile Strength**
  - ASTM Test: D 6768
  - Frequency: 40,000 ft² (4,000 m²)
  - Value: 50 lb/in MARV
  - Value: 8.8 kN/m MARV

- **Peel Strength**
  - ASTM Test: D 6496
  - Frequency: 40,000 ft² (4,000 m²)
  - Value: 3.5 lbs/in min
  - Value: 610 N/m min

- **Permeability**
  - ASTM Test: D 5887
  - Frequency: Weekly
  - Value: 5 x 10⁻⁹ cm/s max
  - Value: 5 x 10⁻⁹ cm/s max

- **Index Flux**
  - ASTM Test: D 5887
  - Frequency: Weekly
  - Value: 1 x 10⁻⁹ m³/m²/s max
  - Value: 1 x 10⁻⁹ m³/m²/s max

- **Internal Shear Strength**
  - ASTM Test: D 6243
  - Frequency: Periodic
  - Value: 500 psf Typical
  - Value: 24 kPa Typical

(1) Minimum Average Roll Value.
(2) Oven-dried measurement. Equates to 0.84 lb/sqft (4.1 kg/sqm) when indexed to 12% moisture content.
(3) Tested in machine direction.
(4) Modified ASTM D4632 to use a 4 in (100mm) wide grip. The maximum peak of five specimens averaged in machine direction.
(5) Deaired, deionized water @ 5 psi (34.5 kPa) maximum effective confining stress and 2 psi (13.8 kPa) head pressure.
(6) Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.

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