



## Technical Data Sheet

# BENTOFIX Thermal Lock “NS Series” – Geosynthetic Clay Liner

The needlepunched fibers in the top layer of the “NS Series” GCL are thermally fused to the woven geotextile to enhance the reinforcing bond.

Bentonite Properties	Test Method	Frequency	Bentonite	
			Metric Units	English Units
<b>Swell Index</b> <i>(min.)</i>	ASTM D5890	1 / 50,000 kg (100,000 lbs)	24 ml / 2 g	24 ml / 2 g
<b>Moisture Content</b> <i>(max.)</i>	ASTM D4643	1 / 50,000 kg (100,000 lbs)	12%	12%
<b>Fluid Loss</b> <i>(max.)</i>	ASTM D5891	1 / 50,000 kg (100,000 lbs)	18 ml	18 ml

Geotextile Properties	Test Method	Frequency	Geotextiles	
			Metric Units	English Units
<b>Weight</b> <i>(MARV)</i> <i>Non-Woven Cap</i> <i>Woven Bottom</i>	ASTM D5261	1 / 20,000 m <sup>2</sup> (200,000 ft <sup>2</sup> )	200 g / m <sup>2</sup> 105 g / m <sup>2</sup>	6.0 oz / yd <sup>2</sup> 3.1 oz / yd <sup>2</sup>

GCL Properties	Test Method	Frequency	NS Series	
			Metric Units	English Units
<b>Dimensions</b> <i>Width x Length</i> <i>Area per Roll</i>	Nominal	Every Roll	4.7 x 45.72 m 216 m <sup>2</sup>	15.5 x 150.0 ft 2325 ft <sup>2</sup>
<b>Bentonite Mass</b> <i>(per Unit Area, MARV)</i> <sup>1</sup>	ASTM D5993	1 / 4,000 m <sup>2</sup> (40,000 ft <sup>2</sup> )	4.34 kg / m <sup>2</sup>	0.893 lb / ft <sup>2</sup>
<b>Permeability</b> <i>(max.)</i> <sup>2</sup>	ASTM D5084 ASTM E96	1 / 10,000 m <sup>2</sup> (100,000 ft <sup>2</sup> )	5 x 10 <sup>-9</sup> cm / sec	5 x 10 <sup>-9</sup> cm / sec
<b>Index Flux</b> <i>(max.)</i> <sup>2</sup>	ASTM D5887	Weekly	1 x 10 <sup>-8</sup> m <sup>3</sup> / m <sup>2</sup> / sec	1 x 10 <sup>-8</sup> m <sup>3</sup> / m <sup>2</sup> / sec
<b>Peel Strength</b> <i>(min.)</i> <sup>3</sup>	ASTM D4632	1 / 4,000 m <sup>2</sup> (40,000 ft <sup>2</sup> )	93 N	21 lbf
<b>Tensile Strength</b> <i>(MARV)</i> <sup>4</sup>	ASTM D4632	1 / 4,000 m <sup>2</sup> (40,000 ft <sup>2</sup> )	5 kN / m	30 lbs / in
<b>Internal Shear Strength</b> <sup>5</sup>	ASTM D6243	Periodic	24 kPa	500 lbs / ft <sup>2</sup>

1. Oven-dried measurement. Equates to 0.84 lbs when indexed to a 12% moisture content.
2. De-Aired Tap Water @ 5 psi maximum effective confining stress and 2 psi head.
3. Modified to use a 4-inch wide grip. The maximum peak of five specimens averaged.
4. Tested in machine direction.
5. Typical peak value for specimen hydrated for 24 hr. and sheared under a 200 psf normal stress.
6. All Bentofix NS Series will contain 0.75 lb/sq.ft. (3.66 kg/sq.m.) MARV unless specified by the client to be higher or lower in bentonite content.

Updated: 4/17/2014