

# BENTOFIX<sup>®</sup> Thermal Lock “NS Series” Geosynthetic Clay Liner

## • Technical Bulletin •

Bentofix Thermal Lock “NS Series” is a needlepunch reinforced GCL comprised of a uniform layer of granular sodium bentonite encapsulated between a slit-film woven and a virgin staple fiber nonwoven geotextile. The needlepunched fibers are thermally fused to the woven geotextile to enhance the reinforcing bond.

GEOTEXTILE PROPERTIES	TEST METHOD	MINIMUM TEST FREQUENCY	VALUE - ENGLISH -	VALUE - SI -
Cap Nonwoven Mass/Unit Area	ASTM D 5261	1/200,000 sq. ft (1/20,000 sq. m)	6.0 oz./yd <sup>2</sup> MARV	200 g / m <sup>2</sup> MARV
Woven Scrim Mass/Unit Area	ASTM D 5261	1/200,000 sq. ft (1/20,000 sq. m)	3.1 oz./yd <sup>2</sup> MARV	105 g / m <sup>2</sup> MARV

BENTONITE PROPERTIES	TEST METHOD	MINIMUM TEST FREQUENCY	VALUE - ENGLISH -	VALUE - SI -
Swell Index	ASTM D 5890	1/100,000 lbs. (50,000 kg)	24 ml / 2g min.	24 ml / 2g min.
Moisture Content	ASTM D 4643	1/100,000 lbs. (50,000 kg)	12 % max.	12 % max.
Fluid Loss	ASTM D 5891	1/100,000 lbs. (50,000 kg)	18 ml max.	18 ml max.

FINISHED GCL PROPERTIES	TEST METHOD	MINIMUM TEST FREQUENCY	VALUE - ENGLISH -	VALUE - SI -
Bentonite Mass Per Unit Area <sup>1</sup>	ASTM D 5993	1/40,000 sq. ft (1/4,000 sq. m)	0.75 lb. / sq. ft MARV Unless specified <sup>6</sup>	3.66 kg / m <sup>2</sup> MARV Unless specified <sup>6</sup>
Grab Strength <sup>2</sup>	ASTM D 4632	1/40,000 sq. ft (1/4,000 sq. m)	95 lbs MARV	422 N MARV
Peel Strength <sup>3</sup>	ASTM D 4632	1/40,000 sq. ft (1/4,000 sq. m)	15 lbs. min.	66 N
Permeability <sup>4</sup>	ASTM D 5084	1/100,000 sq. ft (1/10,000 sq. m)	5 x 10 <sup>-9</sup> cm/sec max	5 x 10 <sup>-9</sup> cm/sec max
Index Flux <sup>4</sup>	ASTM D 5887	1/Week	1 x 10 <sup>-8</sup> m <sup>3</sup> /m <sup>2</sup> /sec max	1 x 10 <sup>-8</sup> m <sup>3</sup> /m <sup>2</sup> /sec max
Internal Shear Strength <sup>5</sup>	ASTM D 6243	Periodic	500 psf Typical	24 kPa Typical

DIMENSIONS	TEST METHOD	MINIMUM TEST FREQUENCY	VALUE - ENGLISH -	VALUE - SI -
Width x Length	nominal	Every Roll	15.5 x 150 ft	4.7 x 45.72 m
Area per Roll	nominal	Every Roll	2325 ft <sup>2</sup>	216 m <sup>2</sup>
Packaged Weight	typical	Every Roll	2600 lbs	1179 kg

1. Oven-dried measurement. Equates to 0.84 lbs when indexed to a 12% moisture content.
2. Measured at maximum peak, in weakest principal direction.
3. Modified to use a 4 inch wide grip. The maximum peak of five specimens averaged.
4. De-Aired Tap Water @ 5 psi maximum effective confining stress and 2 psi head.
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.