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# Bentoliner™

## Geosynthetic Clay Liner (GCL) Lining Systems

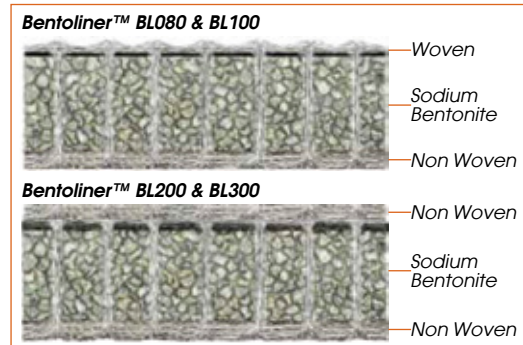
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# Bentoliner™ Geosynthetic Clay Liner (GCL)

**Bentoliner™** is a reinforced Geosynthetic Clay Liner (GCL) composite, consisting of a layer of sodium bentonite granules encapsulated by layers of durable geotextiles and shear reinforced by needle punching together all components. When the sodium bentonite is hydrated under confinement, it swells to form a low permeability layer.

Bentoliner™ is joined by overlapping sheets by 300mm - 600mm. All longitudinal overlaps are sealed by a proprietary process called Super Groove™ that comes standard on both longitudinal edges. This enriches the overlap with additional sodium bentonite creating a water tight seam. Additional bentonite can also be added into the overlapping area on both longitudinal sides. For all the transverse overlaps use supplemental bentonite.

Applications for Bentoliner™ include use in landfills (floor, wall and cap liner); ponds, dams and dam wall liner; containment areas; cut of walls; canal linings; etc., as an alternative to Compacted Clay Liners (CCL) and Plastic Liners. Also used in road and rail embankments to stop the ingress of water and to isolate contaminated fills.



## Technical Data

Bentoliner™ Properties	Standard	Units	Bentoliner™ Grades			
			BL080	BL100	BL200	BL300
Geotextile Cover Layer (PP Non Woven)	AS3706-1	g/m2	≥220	≥270	≥270	≥270
Bentonite Layer @ 0% MC			≥3600	≥4000	≥3700	≥4500
Geotextile Carrier Layer (PP Woven)			≥110	≥110	≥110	≥110
Geotextile Reinforcing Layer (PP Non Woven)			-	-	≥270	≥270
Bonding Process			Needle Punching			
Total Mass/Area @ 0% MC	AS3706-1	g/m2	≥3930	≥4380	≥4350	≥5150
Grab Strength MD/CD	ASTMD4632	N	≥500/600	≥600/800	≥1000/1200	≥1000/1200
Peel Strength	ASTMD6496	N/m	>450	>600	>800	>800
CBR Burst Strength	AS3706.4	N	≥1500	≥1700	≥2500	≥3000
CBR Burst Elongation	AS3706.4	%	>20	>20	>40	>40
Hydraulic Conductivity	ASTMD5587	m/s	≤5 x 10 <sup>-11</sup>	≤3 x 10 <sup>-11</sup>	≤3 x 10 <sup>-11</sup>	≤2 x 10 <sup>-11</sup>
Tensile Strength	ASTMD4595	kN/m	≥10	≥10	≥14	≥14
Hydrated Internal Shear Strength @ 30kPa	ASTMD6243	kPa	≥50	≥70	≥100	≥100
Bentonite Properties						
Swell Index	ASTMD5890	ml/2g	≥27			
Fluid Loss	ASTMD5891	ml	≤15			
Overlap Treatment						
Super Groove™			Standard			
Bentonite Enhancement		mm	300-600 (Optional)			
Roll Size						
Standard Length (Other Lengths on request)		m	40	35	30	30
Standard Width (Other Widths on request)		m	5.0	5.0	5.0	5.0

## Test Frequency

- Bentonite Swell Index: 1 per 50 tonnes
- Bentonite Fluid Loss: 1 per 50 tonnes
- Bentonite Mass: 1 per 4,000m<sup>2</sup>
- Grab Strength: 1 per 20,000m<sup>2</sup>
- Peel Strength: 1 per 4,000m<sup>2</sup>
- Hydraulic Conductivity: Weekly
- Hydrated Internal Shear Strength: Periodic

## Grade Applications

Application	BL080	BL100	BL200	BL300
Floor Liner	Recommended	Recommended	Recommended	Recommended
Wall Liner	Slope ≤1V:3H	Slope ≤1V:3H	Slope ≥1V:3H	Slope ≥1V:3H
Cap Liner	Not Recommended	Recommended	Recommended	Recommended
Cut off Walls	Not Recommended	Recommended	Recommended	Recommended

Consult Polyfabrics Australia Pty Ltd or a certified Engineer for site specific installation instructions.