

# ZHONGLONG GEOSYNTHETIC CLAY LINER

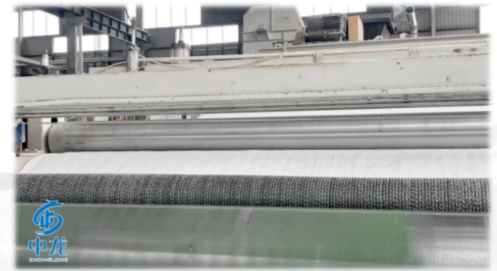
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Product Specifications / Technical Data Sheet

# Natural Sodium Bentonite Geosynthetic Clay Liner (GCL)

Natural Sodium Bentonite Geosynthetic Clay Liner (GCL) is a type of highly effective impermeable liner material, serving as a superior sealing solution for civil and environmental engineering applications.

**Zhonglong GCL** employs a needle-punched three-layer composite process, which mechanically locks bentonite components between a nonwoven geotextile and a woven fabric through random needle punching, thereby preventing bentonite layer from slippage after hydration



## Structure:

- [1] Top layer: Non-woven Short Fiber Geotextile (PET)
- [2] Core layer: Natural Sodium-Bentonite Component
- [3] Bottom layer: Woven Fabric

## Dimension

Item	Unit	Spec. (g/m <sup>2</sup> )		
		4000	5000	6000
Thickness	mm	≥2	≥3	≥4
Width	m	3–6		
Length	m	15–30		

## Mechanical Parameter

Item	Unit	Spec. (g/m <sup>2</sup> )		
		4000	5000	6000
Tensile Strength	kN/m	≥6		
Peel Strength	N/m	≥400		
Elongation at Maximum Load	%	≥10		
Puncture Strength	N	≥445		
Hydraulic Conductivity	m/s	≤5.0×10 <sup>-12</sup>		
Hydrostatic Pressure Resistance	MPa/h	0.4, No leakage		

## Bentonite Performance

Item	Unit	Value
Bentonite Particle Content (0.2–2 mm Particle Size )	%	≥80
Swelling Index	mL/2g	≥24
Methylene Blue Absorption (MBA)	g/100g	≥30



Natural Sodium-based Bentonite Sample

### Bentonite Selection:

Zhonglong Environmental Protection applies high-quality natural sodium bentonite as the core material for GCL, which has a better swelling coefficient and sealing capacity compared to non-natural bentonite or other types of bentonite.

GCL made from natural sodium bentonite can be applied to large and medium-sized rail transit projects and municipal waterproofing engineering.

### Experiment Process:

1. We took four samples of bentonite powder, each with a unit mass of 2g (including two non-standard samples and two samples we adopted), and added them to containers at the same time, filled with the same volume of distilled water.
2. After 24 hours for full water absorption and swelling, the results are shown in the figure below. As illustrated, the two samples on the left expanded to less than 10ml in volume, while the two samples on the right expanded significantly more than those on the left, meeting the index  $\geq 24\text{mL}/2\text{g}$  in standard.



Comparison of Swelling Index in GCL

