

PRODUCT GCL-S

Kontain GCL Standard

Needle-punched bentonite barrier with a woven carrier.

GCL-S is the standard construction for confined soil lining applications where cover grading, chemistry and stability suit the selected GCL. The reference schedule below uses sodium bentonite granules between a polypropylene (PP) nonwoven cap and woven carrier.



Construction schematic. Layers exaggerated; confirm supplied face orientation.

Reference technical data - GCL-S-3700

Property	Declared value	Test method
Dry bentonite mass	$\geq 3,700$ g/m ²	ASTM D5993
PP cap / woven carrier mass	210 / 110 g/m ² reference	EN ISO 9864 / ASTM D5261
Total GCL mass	$\geq 4,000$ g/m ² reference	ASTM D5993; moisture basis to confirm
Bentonite moisture content	$\leq 13\%$	ASTM D5993
Fluid loss	≤ 18 mL	ASTM D5891
Swell index	≥ 24 mL/2 g	ASTM D5890
Tensile strength - MD / cross-MD	≥ 10 / ≥ 10 kN/m	ASTM D6768
Peel strength	≥ 600 N/m	ASTM D6496
Static puncture resistance (CBR)	$\geq 1,800$ N	EN ISO 12236 / ASTM D6241
Hydraulic conductivity, k	$\leq 5 \times 10^{-11}$ m/s	ASTM D5887, declared
Hydrated peak internal shear ¹	≥ 30 kPa at 10 kPa normal stress	ASTM D6243

¹ A single peak shear result is not a design friction angle or a residual strength envelope. Test conditions and the hydraulic result basis require confirmation for the supplied construction. MD = machine direction.

Reference values are data-sheet declarations for the stated construction. They are not independent test results, certified acceptance limits or minimum average roll values (MARV). Final values, tolerances, test conditions and quality records are agreed in the order-specific supply schedule.

PRODUCT GCL-S

Selection and installation

Specify the complete lining system, including the contact soils.

Where this construction fits

Suitable for evaluation in ponds, channels, caps, secondary containment and composite liner systems. Bentonite source, chemistry, dry mass and project regulatory requirements must be specified; a standard GCL designation does not establish landfill compliance or natural, unactivated bentonite.

Overlaps and confinement

Use 300 mm minimum direct GCL-to-GCL overlap unless the approved project detail requires more. Factory-treated longitudinal edges are self-sealing when correctly overlapped, hydrated and confined. Cut edges, roll ends, repairs and penetrations need the specified matching bentonite treatment. Keep contact faces clean and flat.

Deploy only what can be inspected and covered promptly. Protect stored rolls and uncovered panels from rain, standing water, wind and uncontrolled hydration. No plant may traffic directly on exposed GCL. Place and compact approved cover without dragging or displacing the liner.

Cover soils and slopes

Select the maximum contact-soil particle size for the supplied grade, angularity, cover stress and placement plant. This sheet does not assign a universal aggregate limit to GCL-S. Provide a finer protective layer where required. Lime-bearing or lime-stabilised contact soils are unsuitable without compatibility validation.

A slope of 1V:4H is a common starting point for ordinary GCL layouts, not a product slope rating. The design must check hydrated internal strength, both interfaces, cover stability and anchorage under project loads.

Options and quality records

Granular and powder bentonite options can be considered. Granular handling can reduce airborne dust, but this does not prove superior hydraulic performance. Polymer modification or a laminate changes the construction and requires its own confirmed schedule.

Supply item	Order requirement
Common roll	5 m × 30 m = 150 m ² gross; allow separately for overlaps and cutting.
Custom manufacture	Roll dimensions, bentonite mass, formulation and compatible constructions can be specified, subject to confirmation.
Core and handling	Plastic or steel core to client preference. Confirm bore, roll mass, roll diameter and mandrel compatibility before lifting.
Accessories	Matching bentonite, paste or sealant; penetration and termination details to the approved project schedule.

Before supply: confirm dry bentonite mass and form, cap/carrier construction, acceptance values, test methods and conditions, overlap treatment, roll/core details, batch traceability and the agreed certificate of analysis or conformance.

Installation details: [Kontain GCL Installation Guide](#)

Product selection and project supply: kontainsolutions.com/products/gcl-systems