

GEOSYNTHETIC CLAY LINER (GCL)

Product Description

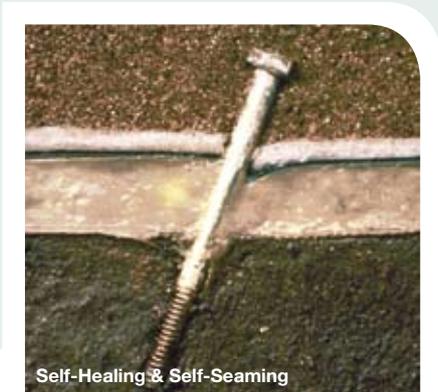
CETCO® Geosynthetic Clay Liners (GCLs) are high performance environmental liners manufactured with durable high-strength geotextiles and a uniform layer of low-permeability sodium bentonite. The bentonite's high swelling capacity and low permeability provide an effective hydraulic seal.

Sodium Bentonite is a non-metallic clay composed mostly of the mineral montmorillonite. It is formed from volcanic ash. Montmorillonite is a layered clay mineral with broad, flat platelets that are ideally shaped to provide a hydraulic barrier. Sodium ions located between these platelets allow water to hydrate the bentonite in a remarkable fashion that results in the high swelling characteristic.

Because of its high swelling capability, bentonite is able to seal around penetrations, giving geosynthetic clay liners their self healing characteristic.

GCL is used primarily as a substitute for compacted clay liners and provide advantages in cost and ease of installation. CETCO® GCL has a total thickness of less than 15mm and provides better hydraulic performance than 600mm of compacted clay. A fully hydrated layer of sodium bentonite will result in a hydraulic conductivity of less than 5×10^{-9} cm/sec. This is approximately twenty times lower than a typical compacted clay liner.

CETCO® GCLs meet stringent Quality Control and Assurance testing for strength, durability and consistency. Production and research laboratories are GAI-LAP Certified. CETCO® also uses independent laboratories to verify their results. Manufacturing Quality Control data is available for each project.



Bentomat®

CETCO® Bentomat products offer needle-punched reinforcement to meet the high internal shear strength requirements of steep slope projects.

The Bentomat ST and DN product lines are enhanced with Supergroove. This edge treatment technology allows the GCL to be overlapped without the need for adding accessory bentonite. This efficient installation allows for a cost-effective liner system.



GEOSYNTHETIC CLAY LINER (GCL)

Product Selection Guide

Product	Hydraulic Condition	Shear
BENTOMAT® ST	For low hydraulic head applications Permeability 5×10^{-9} cm/sec	Most waste containment applications with slopes <3H:1V
BENTOMAT® DN	For low hydraulic head applications Permeability 5×10^{-9} cm/sec	Landfill caps and liners with slopes >3H:1V
BENTOMAT® CL	For low or high hydraulic head applications Permeability 5×10^{-10} cm/sec	Landfill and liquid applications with slopes >10H:1V

ASTM D 5887 @ 34kPa Confining Pressure

Advantages over Compacted Clay Liners

Self-Healing & Self-Seaming

Bentomat® geosynthetic clay liners contain sodium bentonite, which is a naturally occurring clay with a high affinity for water. When hydrated, sodium bentonite swells up to 15 times its original volume. This provides the ability to seal around penetrations, self-heal punctures, and self-seam at the overlaps.

Better Hydraulic Performance

Geosynthetic clay liners have a total thickness of less than 15mm and provide better hydraulic performance than several feet of compacted clay. A fully hydrated GCL typically has a permeability of 5×10^{-9} cm/sec, approximately 20 times lower than a typical compacted clay liner permeability.

Resistant to Varying Weather Conditions

A geosynthetic clay liner is less likely to be impacted by freeze-thaw or desiccation-rewetting cycles. Freeze-thaw cycles frequently cause compacted clay liners to crack and lead to increased leakage. A geosynthetic clay liner provides consistent performance and is not subject to performance decreases resulting from varying moisture content, density, or clay content, like compacted clay liners.

Ease of Installation & Increased Air Space

Geosynthetic clay liners are an environmentally friendly alternative to clay liners because they require significantly less installation effort than a compacted clay liner. One truckload of GCL is equivalent to 150 truckloads of compacted clay, thereby using up fewer natural resources. When a GCL is used in place of a thicker compacted clay liner it also takes up less air space, which leaves more room for waste.

General Areas of Application

- Landfill Liners and Caps
- Secondary Containment
- Chemical Containment
- Reservoir, pond, canal and irrigation liners

Roll Dimensions

5.0m x 40.0m

Refer to the Viking Containment Website www.containment.co.nz for downloadable technical information.

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