PRODUCT SHEET

SOLMAX

BENTOLINER

Fabric Enchased GCLs

BENTOLINER® GCL (geosynthetic clay liner) is produced by distributing a uniform layer of the sodium bentonite between two geotextiles. Fibers from the upper nonwoven geotextile are needle-punched through the layer of bentonite and incorporated into the lower geotextile (either a woven or a scrim nonwoven). This process results in a strong mechanical bond between the fabrics. A heat-treating process is then used to modify and permanently lock the needle-punched fibers into place.

The sodium bentonite clay utilized in our BENTOLINER GCL is a naturally occurring clay mineral that swells as liquid enters between its clay platelets. When hydrated under confinement, the bentonite swells to form a low permeability clay layer with a hydraulic conductivity value of $5x10^{-9}$ cm/sec.

This is equivalent to the hydraulic performance of several feet of compacted clay. Unique properties, including increased internal shear resistance and long-term creep resistance, make BENTOLINER GCL ideal for a wide range of containment lining applications.

Needle-punching makes a difference

By needle-punching fibers through the sodium bentonite clay layer, a completely uniform, reinforced GCL is produced with shear strength, creep resistance, and stability advantages important to any application. The heat bonding step further enhances these properties.

A composite liner system that combines the low permeability of an HDPE geomembrane with the self-seaming characteristics of bentonite clay to provide the best leak protection in the industry.

High-shear resistance

Needle-punching reinforces the otherwise weak layer of sodium bentonite clay. Unreinforced bentonite is susceptible to shear failure, even on gentle slopes. Our needle-punching process consistently reinforces the bentonite layer with thousands of high tenacity fibers that resist and transfer the shearing stresses into the encapsulating geotextiles.

Uniform Bentonite content

The uniform confinement provided by the fibers from the needle-punching process resist lateral migration of the bentonite clay within the Solmax BENTOLINER GCL in either the dry or hydrated state. As a result, a consistent bentonite content is preserved throughout the composite, in turn resulting in a consistent low permeability.

Greater installation durability

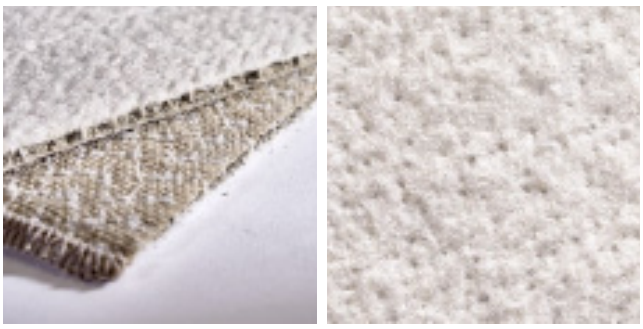
During installation, the needle-punched fibers hold the bentonite in place and prevent the GCL from separating. Our BENTOLINER GCL is more durable over a wider range of installation conditions, and, because it is needle-punched, it can greatly reduce the adverse effects of premature hydration during installation.

Superior GCL slope performance

With our BENTOLINER GCL, the clay component is no longer the limiting factor on side slopes. You can use BENTOLINER GCL to replace compacted clay layers on steep side slopes and be assured of low permeability without sacrificing slope stability. The inherent confining stress from the needle-punching also improves the hydraulic properties of our GCL under low confining stress applications.

Quality control

Because our BENTOLINER GCL is factory manufactured, the controlled environment of the production facility allows for greater control over critical performance characteristics. Our intensive manufacturing quality control program ensures consistent hydraulic and physical properties through the latest ASTM testing procedures. The thorough manufacturing quality control minimizes the expensive and time consuming on-site quality assurance testing required for compacted clay liners. Our BENTOLINER GCL provides consistent high quality performance.



BENTOLINER GCL

Our BENTOLINER GCL is the widest fabric encased GCL in the industry. The widest width, coupled with available custom lengths, makes our BENTOLINER the most versatile GCL available.

More versatile than compacted clay

Our BENTOLINER GCL is part of an important trend towards the combined use of geosynthetics and clay materials in containment applications. In a typical composite liner system, GCL works synergistically with polyethylene and other geomembrane materials to maximize liner system efficiency.

Increased airspace and liner efficiency

In a composite landfill liner system, our GCL can in many cases completely replace or significantly reduce the required thickness of the compacted clay layer. This results in less excavation and re-compaction as well as increased containment volume.

Caps and closures

Our BENTOLINER GCL is ideally suited for use in landfill caps and closures. Used alone, or in conjunction with a geomembrane, our GCL is resistant to the deleterious effects of differential settlement and seasonal temperature fluctuations.