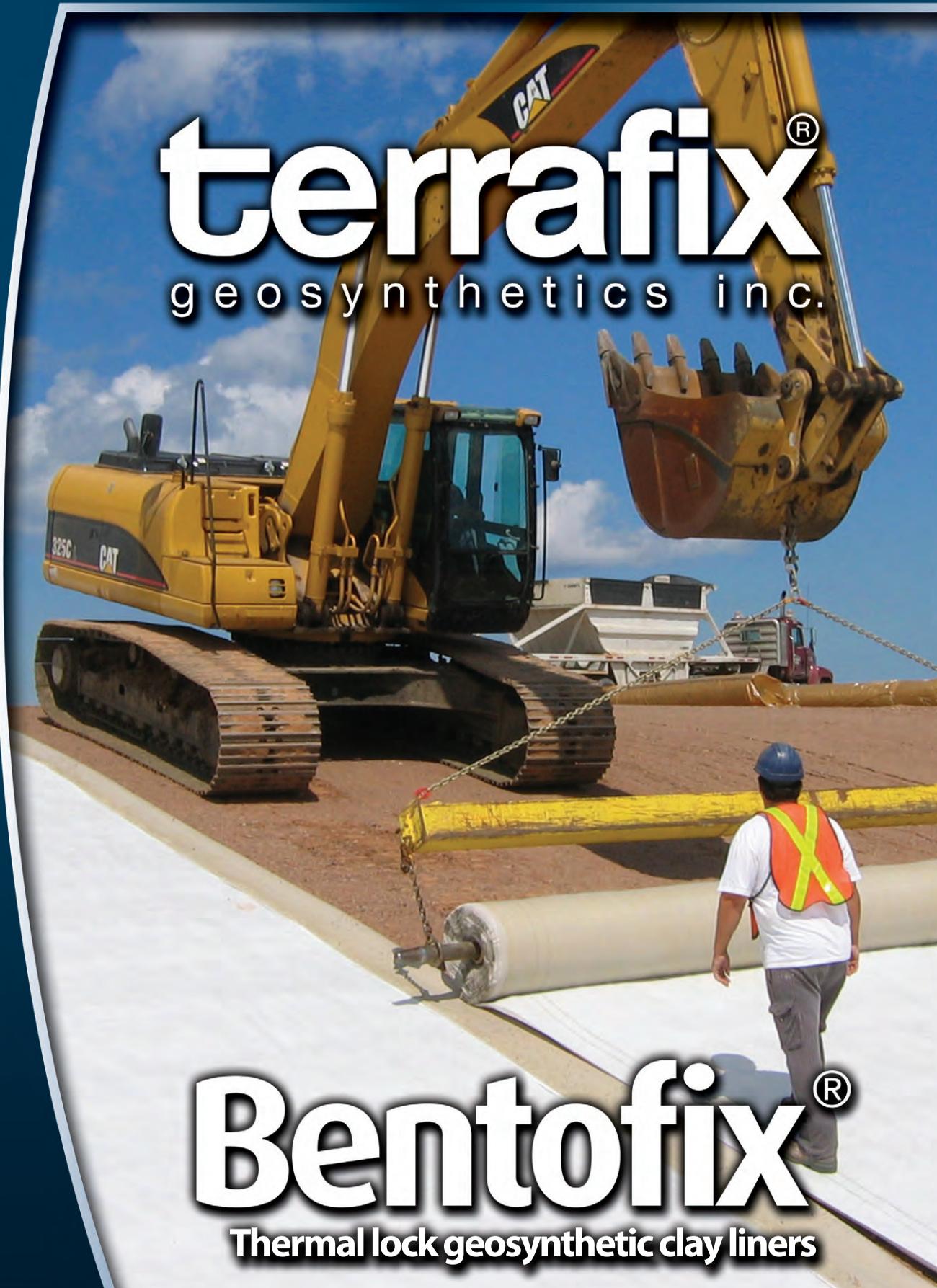


Canada's leader of complete geosynthetic solutions



**terrafix**<sup>®</sup>  
geosynthetics inc.

**Bentofix**<sup>®</sup>  
Thermal lock geosynthetic clay liners

Bentofix<sup>®</sup> Thermal Lock Geosynthetic Clay Liners (GCLs) are needle-punched reinforced composites which combine two durable geotextile outer layers with a uniform core of natural sodium bentonite clay to form a hydraulic barrier.

The sodium bentonite clay utilized in Bentofix<sup>®</sup> Thermal Lock GCL is a naturally occurring clay mineral that swells as water enters between its clay platelets. When hydrated under confinement, the bentonite swells to form a low permeability clay layer with the equivalent hydraulic protection of several feet of compacted clay.

Bentofix<sup>®</sup> GCLs are produced by distributing a uniform layer of the sodium bentonite between two geotextiles. Fibers from the non-woven geotextile are then needle-punched through the layer of bentonite and incorporated into the other geotextile (either a woven or a non-woven). This process results in a strong mechanical bond between the fabrics. A proprietary heat treating process - the Thermal Lock process - is then used to modify and more permanently lock the needle-punched fibres into place. Properties include increased internal shear resistance and long term creep resistance.



## Superior GCL Performance

Since the late 1980s, GCLs have been specified and used by design engineers, contractors, agencies, and owners as an alternative to soil barriers in various applications.

The growing interest in these products stems from the unique properties and advantages they offer. They are very effective as a hydraulic barrier even under high gradient conditions; they are easy to install; more robust against installation stresses and can withstand elongation as well as settlement stresses without significant impact on hydraulic performance.

The wide range of GCL uses include landfill caps and base liner applications, dams, canals, ponds, rivers and lakes, and even waterproofing of buildings and similar structures. Numerous laboratory studies have shown the excellent performance capable with natural sodium bentonite GCLs.



## Multi-Functional

By needle-punching fibres through the sodium bentonite clay layer, a completely uniform, reinforced GCL is produced - with shear strength and stability advantages important to any application, such as:

- Golf course ponds.
- Stormwater management ponds.
- Recreational ponds.
- Landfill cap closures / base liner.
- Dams/dikes.
- Vertical trench cutoff Barrier.
- Groundwater protection cover.
- Environmental protection barrier under roads and railways.
- Secondary containment for above ground tanks.

# Thermal Lock Clay Liners



## Efficient

Bentofix® Thermal Lock GCLs represent a cost effective solution, which is both simple and economical. To install, a core bar is inserted through the core, and the roll is suspended from a spreader bar. Ease of installation using a spreader bar allows the contractor to roll out the Bentofix® rolls with a minimal amount of labour. Please contact our technical team for detailed installation recommendations.

One truckload of GCL can carry over 6,000 m<sup>2</sup> compared to a truckload of native clay which will only cover an area of 40 m<sup>2</sup> ( based on a 50 cm compacted clay layer ).

## Conclusion

Simple, cost-effective installation techniques make Bentofix® Thermal Lock GCL a practical alternative to a compacted clay liner or other lining systems. GCLs do not require an experienced installation contractor and can be installed by a local general contractor. Site supervision is offered by either your local geosynthetic representative and/or provided by our technical staff.

# Bentofix®

## Thermal Lock Clay Liners

- The industry's only Thermal Lock Geosynthetic Clay Liner
- The industry's only Scrim-Reinforced Geosynthetic Clay Liner
- The only Canadian made Geosynthetic Clay Liner
- Now available as a geomembrane

### Features and Benefits

As a replacement for thick clay liners or as a replacement to geomembranes, whether as part of a composite liner or as a stand-alone liner, GCLs offer several advantages:

- Installation is relatively simple, requiring unrolling and lapping of adjacent panels, as opposed to the placement, compaction, and detailed testing of multiple lifts of clay materials comprising a clay liner.
- Due to the significantly reduced thickness, GCL's either require less excavation to develop a given containment volume, or consume a significantly reduced portion of the available containment volume.
- No welding or seaming required.
- Due to the simplified installation process, it is possible to place the covering layer immediately upon placement of the GCL, whereas multi-lift clay layers could take several days or weeks to install, during which time the liner is susceptible to the elements, especially precipitation and freezing temperatures, which can usually lead to considerable rework or repair.
- No additional protective layers such as additional textiles are required for GCLs due to its self healing characteristics, whereas other geomembranes will require protective layers such as thick textiles to avoid punctures.

DISTRIBUTED BY

The information contained herein has been compiled by Bentofix® Technologies, Inc. and is, to the best of knowledge, true and accurate. All suggestions and recommendations are offered without guarantee. Final determination of suitability for use based on any information provided is the sole responsibility of the user. There is no implied or expressed warranty of merchantability or fitness of the product for the contemplated use. Bentofix® is a registered trademark of Naue Fasertechnik, GmbH.

Thermal lock geosynthetic clay liners. Made in Canada 

**terrafix**®  
geosynthetics inc.

455 Horner Avenue  
Toronto, Ontario • M8W 4W9  
**Telephone** (416) 674-0363  
**Fax** (416) 674-1159