

GEOTUBE®

Dewatering for mining and mineral processing



Solmax GEOTUBE® dewatering technology is our one total solution for mining and mineral processing

GEOTUBE® dewatering technology provides a simple and cost effective way of dewatering large and small volumes of mining and mineral wastes.

This proven technology can accommodate dewatering and containment in one, cost-effective operation. Utilizing our **GEOTUBE®** containers is an effective alternative to mechanical processing that enables the capture of precious metals and the efficient management of mine tailings, coal sludge, and other mine waste streams. With volume reduction as high as 90%, high solids levels make removal and disposal easy.

GEOTUBE® containers can be customized to fit available space and be easily removed when dewatering is complete. Dewatered solids can be safely stored on site, reutilized to build dykes and berms, or disposed of in a landfill without expensive dredging or transportation.



Sludge before (left) and after (right) treatment with **GEOTUBE®** dewatering technology



Filling

Sludge is pumped into the **GEOTUBE®** container. Environmentally safe polymers are added, which make the solids bind together and water separate.



Dewatering

Clear effluent water simply drains from the **GEOTUBE®** container. Over 99 percent of solids are captured, and clear filtrate can be collected and recirculated through the system.



Consolidation

Solids remain in the container. Volume reduction can be up to 90 percent. When full, the **GEOTUBE®** container and contents can be deposited at a landfill, stored on site, or land reclaimed.



Application

- Slurry management
- Tailings management
- Water resource management (water reclamation and reuse)
- Beneficial reuse (dyke and berm construction)
- Precious metals recovery
- Emergency and disaster management (uninterrupted mining operations)
- Acid mine drainage (for active or inactive mines)
- Specialty applications

Slurry management

In an open-pit or open-cut mine with a large catchment area, thousands of cubic meters of rainfall runoff slurry may flow into the pit every day. The slurry should be removed from the pit to allow the continuation of mineral extraction by pumping it out into settling ponds. When the settling ponds are full of sediments and where there are no options in mine extraction planning, cost budgeting and space availability, the mining corporation faces a threat of ceasing its operations.

GEOTUBE[®] dewatering technology is the answer to the problems that occur in slurry management. Slurry in the pit and settling ponds can be managed according to the needs of the mining operations with effective long term planning that will bring cost benefits to the mining corporation without compromising environmental and safety aspects.



Tailings management

“Tailings” refer to the end of the mining process, constituting what is left over after the substances of economic value have been removed. They generally consist of ground rock and process effluents that are generated in a mine processing plant. Tailings are commonly stored in an impoundment – an engineered structure – used as a settling basin/storage container. Management of these storage basins is critical to a mining operation to ensure there is sufficient capacity to keep the mine running.

Adding additional capacity is often done by raising the perimeter of the basins, or removing and dewatering the built up sediments in the storage ponds. **GEOTUBE®** dewatering technology delivers a high volume, low cost solution reducing disposal costs by consolidating higher solids with very little maintenance.

Dewatered solids can be safely stored on site, within the container, eliminating the spread of airborne particles or mechanically removed and transported to an approved location. In many cases, dewatered tailings contained inside the **GEOTUBE®** units can be used as a structure within the pond or placed on top of the perimeter of the berm to provide additional capacity.





Water resource management

Water is often limited in supply in mining applications making it a precious commodity that needs to be reclaimed and recycled through the process. Solmax **GEOTUBE**[®] dewatering technology, in combination with proper coagulant or polymer conditioning, will begin releasing water from the suspended solids the moment they enter the tube.

The specially engineered **GEOTUBE**[®] textile retains the solids while releasing clear water through the pores of the fabric. The effluent is typically of a quality that can be reused for mine processing operations, making this an economical and sustainable technology for mine water management.

Beneficial reuse

Beneficial reuse of mining by-products to create structures can positively impact the environment by preserving limited landfill space that otherwise would be consumed by normal tailings disposal. Using **GEOTUBE**® dewatering and containment technology and a proper chemical conditioning regimen, a high solids content can be achieved with dewatered mine waste to create stable structures including raising embankments, creation of dams, diversion dykes, and levees. This effort helps drive sustainability initiatives in the industry.

From an economic perspective, the use of **GEOTUBE**® containers can eliminate the costly disposal of semi-liquid or paste waste by-products to the extent that waste streams can be diverted into useful and safe products. These uses can include good quality, economically attractive alternative structural fill materials for use in construction projects. In many cases, mine waste will dewater without the need for polymer conditioning offering even greater savings.





Precious metals recovery

Precious metal recovery through heap leaching is an industrial mining process to extract precious metals, copper, uranium, and other compounds from ore via a series of chemical reactions that absorb specific minerals and then re-separates them after their division from other earth materials. Inherent in this process is the creation of slurries that need to be dewatered.

GEOTUBE® dewatering and containment technology is well suited for 1) dewatering the waste stream from the precious metals recovery process such as barren solution ponds and 2) capturing of dewatered slurries that still contain precious metals so they can be reintroduced into the ore processing system.

By capturing and containing valuable metals using **GEOTUBE®** containers, the expense of treating mine waste can be offset and become a valuable income stream.



Emergency and disaster management

When emergency situations or disaster strikes a mining operation, causing disruption of normal tailings management, the economic impact can be severe. Having a simple, proven, effective solution at hand is paramount. Utilizing **GEOTUBE**® containment and dewatering technology to allow for continuous operation of mining activities, in a situation when traditional methods are not viable, is often the preferred choice.

Whether it be a natural disaster, a catastrophic event affecting tailing ponds, permit restrictions, interruptions of mechanical dewatering processes, above or underground capacity limitations, or a sudden increase in slurry production that strains the existing dewatering facility, **GEOTUBE**® containers, in a variety of sizes to fit almost all situations, are readily available to restore tailings operations.





Acid mine drainage

During the mining process sulfides can be exposed which, when they come in contact with water and air, can form sulfuric acid. This acid can and often does dissolve other harmful metals and metalloids in the surrounding rock. Acid mine drainage can occur anywhere in the mine where sulfides are exposed to air and water — including waste rock piles, tailings, open pits, underground tunnels, and leach pads which can endanger local streams and groundwater. This can be a problem at both active and abandoned mines.

The treatment process of an AMD waste with **GEOTUBE**[®] dewatering technology is accomplished through the containment and dewatering of the precipitated solids. The dewatered solids can then be safely and economically disposed of in an approved landfill site thus eliminating an environmental problem.

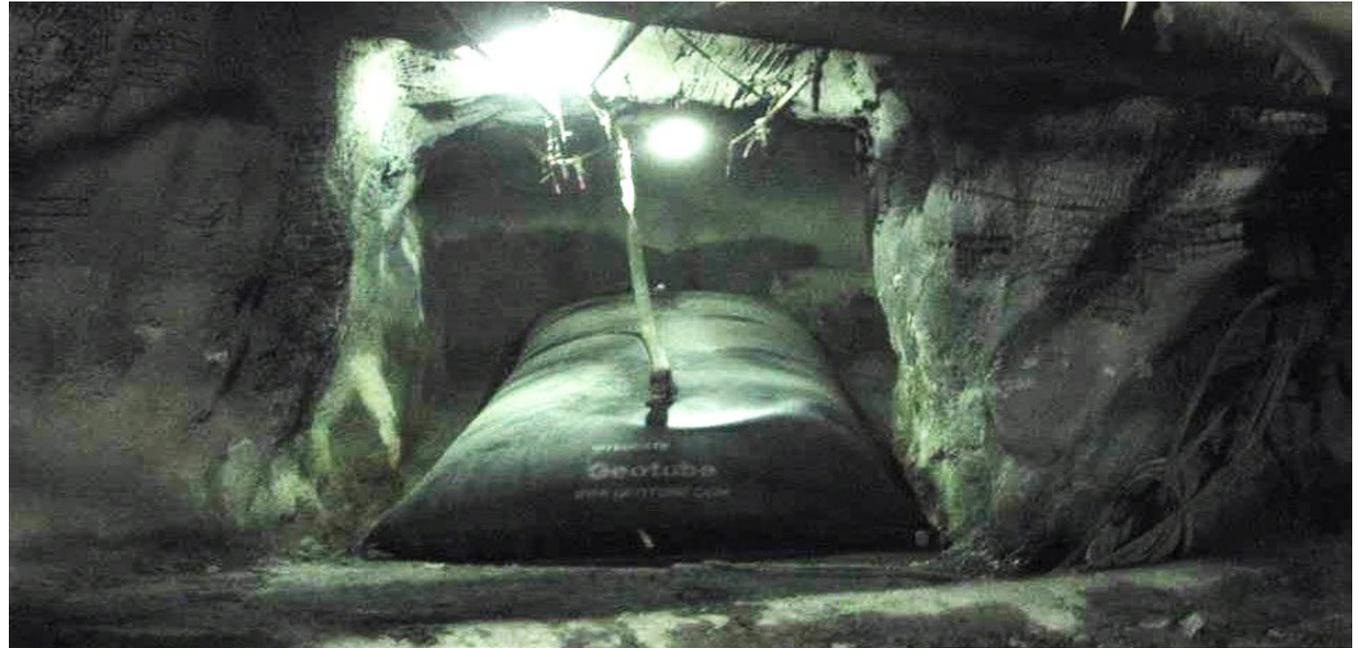
Specialty applications

The very nature of mining and mineral processing operations are that no two locations are exactly alike. Location, weather, topography, mining conditions, local and state regulations related to water quality and tailings management are but a few of the challenges that operators must face. This requires a dewatering

technology that is uniquely flexible to adapt to individual site requirements to meet specific needs.

GEOTUBE® dewatering and containment technology is a simple, low tech solution ideal for remote or highly industrialized locations. Our **GEOTUBE**® containers can

be customized in size and shape to meet almost any need. Whether an individual **GEOTUBE**® unit is required to fit into an underground gallery, or multiple, large tubes need to be stacked above ground to accommodate large volumes within a specific footprint; whatever the situation, we can customize a dewatering solution right for you.



About Solmax

Solmax is a world leader in sustainable construction solutions, for civil and environmental infrastructure. Its pioneering products separate, contain, filter, drain and reinforce essential applications in a more sustainable way – making the world a better place. The company was founded in 1981, and has grown through the acquisition of GSE, TenCate Geosynthetics and Propex. It is now the largest geosynthetics company in the world, empowered by more than 2,000 talented people. Solmax is headquartered in the province of Quebec, Canada, with subsidiaries and operations across the globe. To find out more, contact infoasia@solmax.com.

Uncompromised quality

Our products are manufactured to strict international quality standards. All our products are tested and verified at our dedicated and comprehensive laboratories which maintain numerous accreditations. We offer our partners a wide scope of testing according to published standards to ensure products delivered to sites meet specified quality requirements.

Let's build infrastructure better

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