

GEOTUBE[®]

Dewatering technology



GEOTUBE[®] is used for projects large and small, and there is good reason; simplicity and low cost.



GEOTUBE® DEWATERING TECHNOLOGY

The method of choice for organizations around the world

Since **GEOTUBE®** dewatering technology works without belts or gears, there are less moving parts, less wear, less downtime and less spare parts in conventional techniques.

GEOTUBE® containers are available in a variety of sizes, depending on your volume and space requirements. **GEOTUBE®** systems can even be mounted in mobile roll-off containers that can be transported around your property as necessary. It's one of the most versatile dewatering technologies available.

Thereby it is one of the most effective solutions available. Volume reduction can be as much as 90%, with high solid levels that make removal and disposal easy.



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



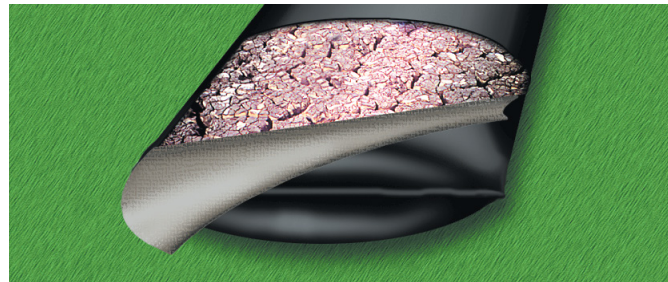
Filling

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



Dewatering

Clear effluent water simply drains from the **GEOTUBE®** container. Over 99% 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%. When full, the **GEOTUBE®** container with its contents can be deposited at a landfill, or the solids removed and land-applied when appropriate.

ENVIRONMENTAL REMEDIATION

Effective containment for large and small-scale projects

Rivers, bays, harbors, marinas, ports, and dock facilities have been collecting contaminated sediments from industrial runoff for many years. In many cases, these sediments pose significant environmental hazards, and remediation is a difficult and expensive task.

Marine sediments can be contained and dewatered easily with the **GEOTUBE**® dewatering technology. This can be accomplished at or very near the site by utilizing a dewatering basin where **GEOTUBE**® containers can be stacked several layers high to minimize the space needed.

GEOTUBE® units can be sized for large-scale or smaller applications, and effectively contain even hazardous materials, reducing their volume dramatically and saving thousands in disposal costs.



Dewatered sludge being removed from a **GEOTUBE**® container with an excavator



PULP AND PAPER

Multiple uses

GEOTUBE® dewatering technology is used for a variety of applications within pulp and paper mills, including:

- Primary and secondary lagoon cleanout
- Fly ash and alum sludge
- Contaminated sediments
- Continuous systems clarifier, sentrate, process waste stream
- Process rejects
- Separation dykes
- Emergency uses, such as cleanouts, spills, dumps, or exceeding discharge limits.

The rapidity with which a **GEOTUBE**® dewatering operation can be set up, as well as the low investment involved have also been advantages in paper mill applications, particularly in emergency situations where mills ran the risk of having to shut down.



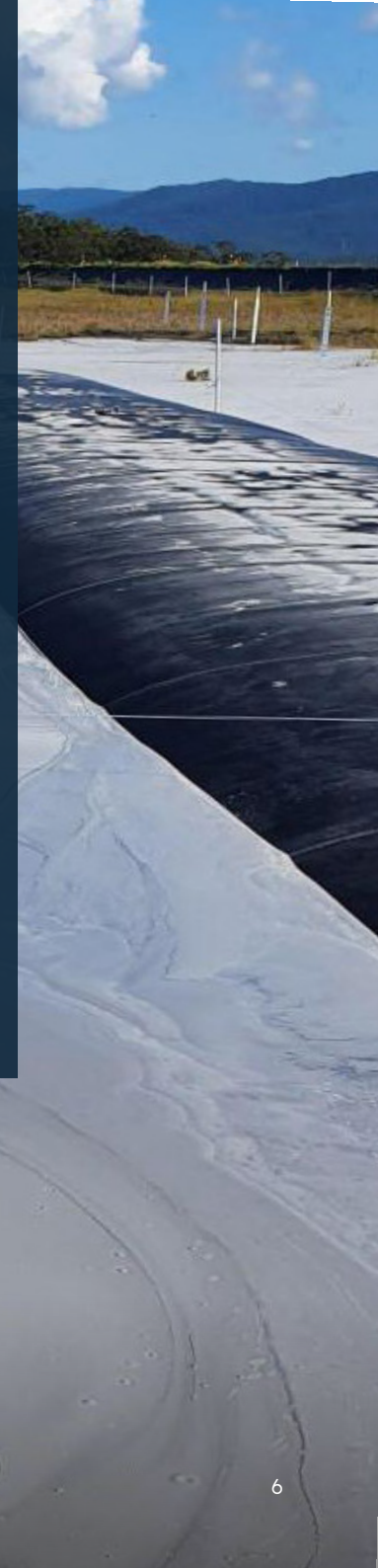


POWER GENERATION

A solution for fly ash and bottom ash

Power generation by-products such as fly ash and bottom ash can be a real challenge to remove and manage. But the simple technology of **GEOTUBE**® dewatering allows facilities large and small to easily consolidate these materials. Because of the low investment involved you can always adapt the volume according to your actual needs.

GEOTUBE® dewatering technology safely contains fly ash, preventing airborne particle contamination from windblown ash piles. The ash can then be used for road base applications or even to build up the berms around a lagoon to increase its capacity. In many fly ash operations, there is no need to add polymer to the dewatering process, making it simple and even more cost-effective.



MINERAL AND MINERAL PROCESSING

Flexible enough for available space

Mine tailings, coal sludge, and other materials can be managed and handled cost-effectively with **GEOTUBE**® dewatering technology.

Because **GEOTUBE**® containers can be custom-sized to the application, they can be placed in available space between other structures, and removed once dewatering is complete. **GEOTUBE**® dewatering technology is a cost-effective alternative to mechanical processes. It reduces disposal costs by consolidating higher solids with very little maintenance.

Effluent can be pumped directly from the process; or if a clarifier/thickener is used, effluent from the underflow can be diverted through the **GEOTUBE**® container, eliminating the requirement for an expensive mechanical dewatering device. **GEOTUBE**® units can be used to capture fines, silts, and clays from the tailings effluent prior to discharge into the ponds or directly into streams. **GEOTUBE**® units will separate and dewater the fines and allow disposal without expensive dredging and transporting operations. In some cases, conditioners or polymers are used to promote flocculation to improve solids retention and filtrate quality.

GEOTUBE® containers can also be used to utilize the fines to build dykes and containment berms.





LIGHT INDUSTRIAL

Managing an ongoing challenge

For many industrial applications, dewatering is a necessary evil. It disrupts operations, adds cost, and requires complicated and expensive equipment. But this doesn't have to be the case. One of the real values of **GEOTUBE**® dewatering technology is that it can provide a quick lagoon cleanout solution, or it can add capacity by making drying beds much more efficient.

In some cases, companies have dewatered the material in their lagoons using **GEOTUBE**® dewatering technology, then used the solid-filled **GEOTUBE**® containers as berms. Since they can be stacked on top of each other, you can use them to further add capacity to the lagoons.

With GEOTUBE® containers you can improve the dewatering efficiency. Dewatered solids are protected from becoming saturated again in wet weather.



WASTE AND WASTEWATER TREATMENT

For large and small applications

A common problem at small sewage treatment works, where sludge is dried on drying beds, is that the limited capacity of the beds can easily be exceeded. This could be due, for example, to an increase in sludge quantity resulting from an increasing population.

The **GEOTUBE**® system is increasingly being used as a means of both simplifying the sludge dewatering process and effectively increasing the volume of the drying beds. Whereas in the past the drying beds had to be emptied at regular intervals, the time for a complete fill of the **GEOTUBE**® unit can be increased to several months. A significant saving can therefore be made in terms of handling and transportation.

After the sludge has been treated with a flocculant it is pumped into the **GEOTUBE**® unit where the sediments remain and the water seeps through the pores of the tube. This process can be repeated over and over again until the **GEOTUBE**® unit reaches its maximum level.

Larger wastewater treatment plants can also utilize the **GEOTUBE**® system for sludge containment and dewatering as an alternative to belt-presses and/or centrifuges. It can also be used as an emergency kit if the available dewatering units are out of order.





AGRICULTURE

For animal wastes and agricultural process sludges

GEOTUBE® dewatering technology is an effective way of managing waste from animal feeding operations. It works for lagoon cleanout and closure, and manages nutrients very effectively (over 90% phosphorous and heavy metal removal; 50% or greater nitrogen reduction). It also minimizes odor and produces irrigation quality effluent water.

In a country with severe rules and legislations such as the USA, **GEOTUBE**® dewatering technology is designated as a Practice Standard.

Many economies in Asia are dependent on agriculture. Large scale plantations like palm oil, etc., have on-site integrated processing facilities which generate significant quantities of effluent wastes that are digested in lagoons. **GEOTUBE**® dewatering technology is ideal for cleaning out sludge lagoons and dewatering. The dewatered biosolids can be composted for use as fertilisers in the plantations.

AQUACULTURE

Simple, cost effective waste removal or applications large and small all over the world

GEOTUBE® technology is used all over the planet.

In the USA it has even been approved as a Best Management Practice for Aquaculture by the State of North Carolina, **GEOTUBE**® dewatering technology works for fresh water or marine fish, shrimp, and other aquatic species. It simplifies the process for water recirculation, and retains more than 99% of suspended solids.

GEOTUBE® dewatering technology reduces nutrient loading in filtrate. It can be used continuously or intermittently year-round in most climates. It is ideal for lagoon, retention pond, and filter waste applications. It can be used for cage waste removal, benthic table waste cleanup, recirculation waste removal for hatcheries, and processing plant waste dewatering. Dewatered solids can be land applied or disposed of in a landfill.

GEOTUBE® dewatering technology is a proven technology. It offers secure solutions that have been tested by many institutions world wide. More importantly, **GEOTUBE**® dewatering technology has been used in the field with solid success in many countries around the globe.



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.

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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