

## Geotube® Dewatering Technology Provides An Effective Solution For Dewatering Aggregate Tailings

**Simple and inexpensive, Geotube® dewatering technology can make management of tailings and fines much easier.**

**M**any aggregate plants experience high equipment and manpower costs associated with the handling and removing of tailings and fines from settling ponds.

The costs of maintaining pond operations can vary significantly from plant to plant. Not only is valuable space tied up during gravity settling and thickening the materials in the settling ponds, but the ability to calculate the overall costs for mechanical dewatering, removal, and disposal costs of fines can be difficult.

As a result, these costs are sometimes completely overlooked.

Smaller plants face a more difficult challenge since, in many cases the capital, maintenance, and operating expense of mechanical dewatering equipment for the removal of clays and fines from plant effluent is beyond their budgetary means. Aggregate plants, both large and small, find it necessary to explore and evaluate other dewatering options.

TenCate develops and produces materials that function to increase performance, reduce cost and deliver measurable results by working with our customers to provide advanced solutions. And a unique high volume, low cost dewatering system from TenCate Geotube can provide a very effective way of dewatering aggregate tailings.

Dewatering with Geotube® units is a cost-effective alternative to mechanical processes. Geotube® dewatering technology reduces disposal cost by consolidating higher solids with very little maintenance.

Plant 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



*Geotube® dewatering technology has been successfully used for tailings treatment in a variety of applications. In this project, Geotube® dewatering technology was used to help treat acid tailings from a mine. After treatment, water quality was good enough to release back into streams.*

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 dikes and containment berms. Weather will not hold up production. Geotube®

units can be manufactured in many configurations and sizes to fit the available footprint and application.

### **Regulatory Issues Coming To The Forefront**

Several states are revising permits aimed at protecting water quality from the pollution discharged by sand-and-gravel operations. The State of Washington Department of Ecology, as an example, has placed about 940 facilities under the sand-and-gravel general permit. These facilities include sand-and-gravel mines,

*(More)*



New environmental regulations may require operators to process aggregate tailings more thoroughly. Geotube® dewatering technology is a cost effective way to meet these new requirements.

rock quarries, clay mines, concrete batch plants, and asphalt plants.

Federal and state laws require the permit because these operations discharge water that may be polluted, such as sediment from gravel washing, oil and grease from trucks and heavy equipment, and alkaline waste water from concrete plants. The permit requires companies to take steps to ensure that surface and ground waters are protected and to monitor water quality on a regular basis.

Additional requirements for discharges to waters that are already impaired due to turbidity, pH, or temperature will soon fall under the permit regulations. Under the proposal, companies would with approved water cleanup plans, and certain concrete batch plants would have additional requirements to monitor be required to comply.



### Testing Demonstrates Effectiveness

How well can Geotube® dewatering technology work? Testing shows the efficiency of the process using aggregate tailings. The high dry solids achieved during these tests confirmed that Geotube®

Dewatering Technology is a viable alternative to traditional methods while delivering the following benefits:

- 1) At least a 50% savings versus mechanical filter press dewatering.
- 2) Elimination of settling ponds by moving to in-line processing.
- 3) Ability to reclaim and mine the land now used for settling ponds.
- 4) Geotube units can be expensed, eliminating capital request needs.
- 5) Opportunity to achieve high solids without the additional polymer cost for select materials.

To learn more, call 1-888-795-0808 or visit [www.geotube.com](http://www.geotube.com).

Type Material	Feed	Cake-Dry Solids 1-Day	Cake-Dry Solids 3-Days	Cake-Dry Solids 15-Days
Clarifier Inflow- with Polymer	8%	27%	45%	71%
Clarifier Outflow- with Polymer	31%	43%	55%	70%
Aggregate Tailings- with Polymer	26%	42%	67%	86%
Pond Material- No Polymer addition- (High solids in filtrate)	26%	-	36%	79%

Testing shows that Geotube® dewatering technology provides remarkably effective dewatering with cake – dry solids as high as 86%. Compared to mechanical dewatering, Geotube® dewatering technology can cost 50% less or even more.

Geotube® is a registered trademark of TenCate Geosynthetics North America

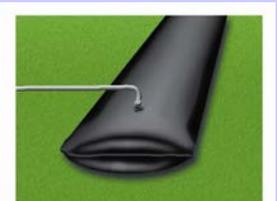
## How Geotube® Dewatering Technology Works

Dewatering with Geotube® technology is a three-step process.

In the **confinement** stage, the Geotube® container is filled with dredged waste materials. The Geotube® container's unique fabric confines the fine grains of the material.

In the **dewatering** phase, excess water simply drains from the Geotube® container. The decanted water is often of a quality that can be reused or returned for processing or to native waterways without additional treatment.

In the final phase, **consolidation**, the solids continue to densify due to desiccation as residual water vapor escapes through the fabric. Volume reduction can be as high as 90 percent.



Step 1: Filling



Step 2: Dewatering



Step 3: Consolidation

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