

Geotube® Dewatering Technology Provides Clean-up of Contaminated Waste.

Contaminated sites continue to use Geotube® containers for PCBs, Metals, BTEX, PAHs, Arsenics, etc via pumping or dredging - mechanical and hydraulic methods.

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

Contaminated waste needs to be removed to provide a healthy environment for today and tomorrow. Much of the waste that was disposed under earlier safe systems has been found harmful to the environment. Clean up must be accomplished by the safest, economical method available. The cost of these clean ups are funded with tax payer dollars and/or company funds. The contaminants can vary from carcinogenic such as PBCs to biological waste and minerals.

Geotube® containers provide:

- Economical Solution
- Containment of TSS solids in the 99+% range.
- Safe storage during and after filling from environment conditions such as: wind, rain, snow, flooding, freezing, storms.
- Ability to operate at high volumes, thousands of gallons per hour with high or varying % solids.
- Allow for all types of removal methods: pumping, excavation, hydraulic or mechanical dredging.
- Minimal or no auxiliary equipment.
- Minimal manpower.
- No Energy required.
- A Green Solution to your problem.
- Protection from airborne contaminants.



Geotube® containers yearly stacked 4 to 6 layers high over a five year period provided dewatering, containment and removal of PCBs at the headwaters of the Fox River, Little Lake Butte des Morts.

- Selection of different levels of contaminants into different Geotube® containers for specific isolation.
- Noiseless operating system, except the soothing sounds of a small brook.
- None or minimal odor while dewatering and containment of normal and hazardous materials.
- A clean filtrate requiring minimal, if any secondary treatment, which reduces size and level of treatment if required.
- Ability to fill while submerged.
- Stackability with increasing circumference for safety, maximization of capacity, without having to use fill material between units.
- Geoport fill ports are flanged ports for increased safety and strength, allowing increased fill heights.
- TenCate™ engineered fabric designed specifically for containment and dewatering.
- Circumferential seaming providing strongest fabrication design and exact circumference for applications.
- Technical support via TenCate™ engineers, agents, and certified contractors.



Geotube® containers provide permanent safe landfill storage for heavy metals with filtrate providing safe water for irrigation or option of returning filtrate to Geotube® containers for additional filtering.

TenCate™ provides assistance from the conception, through experience, using proven software that is site and waste material specific. This includes stress calculations, quantity estimation, stacking, loading of stacked systems, individual container drawings and layout drawings when site uses various lengths, circumferences, and layers. Geotube® installation manual provides information on everything from initial unloading to dewatered solids removal techniques. Special emphasis is placed on safety and safe operation procedures.

Examples of cleaning up the environment:

- USACE cleanup of metals from Badger Army Ammunition Plant in a nearby lake. Original cleanup resulted in a stacked system in a permanent, capped landfill. Years later, additional contaminated sediment was removed, stacked over existing landfill and capped. Direct filtrate was so clean it was used for field irrigation.
- PCB cleanup of the headwaters of the Fox River, Little Lake Butte des Morts, taking five years of dredging. Due to limited space stacking between 4 and 6 layers, filling and removal was accomplished simultaneously enabling continuous operation.
- A private industrial site contaminated with Creosol from a manufacture of railroad ties consisting of a small pond along with ground that had to be removed. All contaminated sites need some type of chemical treatment to ensure the contaminants are contained. Dewatering of Creosol was difficult but accomplished.

- PAC, a common contaminate that continues to be removed and contained from the environment. Sites using small Mobil Dewatering Systems™ (MDS) to full size units.
- Nuclear groundwater cleanup was accomplished with Geotube® GT500D in MDS™ systems.
- Mechanically dredging of PCB, TBT, and Hydrocarbures into a barge for pumping into Geotube® containers where they were dewatered, contained and removed with the filtrate water returning to its source.
- Hydraulic Dredging rates can be batched at few gpm or higher than 6,000gmp, 24 hours per day, 7 days a week. This is when TenCate™ experience in sizing, staging, design and operations is critical.

Geotube® units saving the environment one container at a time.



Making sure the chemistry is correct is critical when containing and dewatering contaminated material such as creosol.

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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