



CASE STUDY:

CHEMICAL MANUFACTURING

Sludge Dewatering

VIC
JUNE 2017

GEOTUBE DEWATERING CONTAINERS

Geotube dewatering containers are used for sludge dewatering projects of all sizes and there is good reason - simplicity and low cost.

There are no belts, gears, or complicated mechanics. Geotube containers use an engineered geotextile that is designed to separate liquids and solids. They are available in many sizes, depending on your volume and space requirements.

Geotube dewatering containers are supplied to site and placed into position. In some cases sludge is treated with specialist polymers then pumped into the containers to produce a clear effluent water. The effluent is then drained leaving the solids safely contained in the unit. Once dewatered the solids can be capped in place, dug out and removed, or used as structural units for dykes and dams.

Our client manufactures superphosphate at an Australian plant.

A byproduct of superphosphate manufacture is formation of silica in fluorosilicic acid (H_2SiF_6). The silica and acid, along with any entrained superphosphate dust is captured in the process ponds for storage, these ponds also include the wastewater runoff from around the facility to ensure no product ends up in the local waterways.

Solids need to be removed to restore storage capacity as the pond is not agitated and just continues to build up, the last time these ponds were cleaned out was approximately 10 years ago, Geotube Dewatering Containers were used then also, due to the corrosive nature of the acid and messiness of the product. Geotube Dewatering Containers have proven to be the most efficient, safest and cleanest method of removing the solids, with a key factor being they can carry out the process during normal operation and did not disrupt plant operations.

The objective of the project was to separate the solids in the process pond (primarily silica and superphosphate) from the liquid (approx 20% fluorosilicic acid). Sludge was supplied from the pond via a sludge pump, solids were suspended in the sludge using an aeration wand. The solids removed were then recycled back into the product, while the liquid was either bled back into the process or treated. In order to return the solids back into the process the level of moisture content in the solids had to be minimized, this was achieved by the drying time in the Geotube which is typically around two to three weeks and when they were ready the contents were removed via loader into covered storage for final drying and secondary conditioning.