

Geotube[®] Dewatering Technology
For Palm Oil Mill Effluent Sludge Dewatering



POME Sludge Dewatering

POME Sludge

POME (palm oil mill effluent) is the liquid waste resulting from palm oil production in a mill. Although non-toxic, raw POME has very high BOD and COD (typically 100 times that of municipal sewage) and is harmful to the environment. The very large oxygen depleting capability in the aquatic system is due to the high organic and nutrient contents present in POME.

Often, raw POME is treated using a ponding system comprising of three processes, i.e. anaerobic, facultative, and algae processes. Sludge builds up quickly in the anaerobic pond and requires regular desludging to maintain the functionality of the pond. A common practice is desludging using mechanical excavation which is then moved to storage ponds.

Geotube® Dewatering Technology

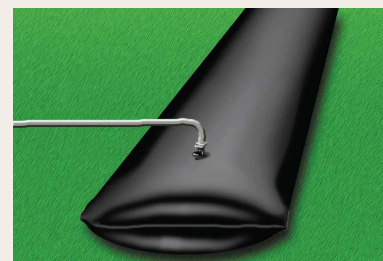
TenCate Geotube® Dewatering Technology functions as follows:

- Containment of POME sludge.
- Dewatering of POME sludge. Allows water to drain through the membrane while solids are contained within the Geotube® dewatering unit.
- Consolidation of POME sludge over extended time. Allows further drying of biosolids to take place inside the Geotube® dewatering unit.

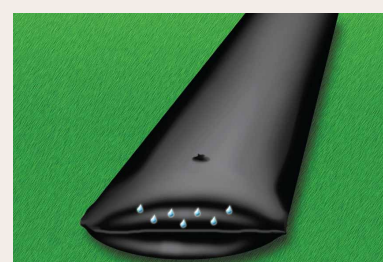
Advantages

The main advantages of the Geotube® Dewatering Technology are as follows:

- The Geotube® dewatering technology is simple and a total solution for management of POME sludge. Desludging and transfer to holding ponds only solves part of the problem. It clears the anaerobic pond to allow it to receive more POME but the sludge problem remains.
- Geotube® dewatering can be carried out at the perimeter of ponds and does not require additional land utilisation. Desludging and transfer to holding ponds requires the utilisation of large land area to construct the holding ponds.



Containment.



Dewatering.



Consolidation.





POME sludge.



Consolidated solids.

- Geotube® dewatering can within a short dewatering and consolidation period of 2 to 3 months result in an environmentally friendly residue that can be used as fertiliser, for land spreading or for disposal. Holding ponds only dewater the top sludge and although they may look firm at the surface but can be very soft underneath and will always remain as safety hazards until they are properly capped over.
- Geotube® dewatering is cost effective. The utilisation of large land area, the cost of constructing the holding ponds and the requirement for eventual capping of the disused holding ponds make the “mechanical desludging” solution more costly.

Geotube® Dewatering Operation

The Geotube® dewatering operation is simple and does not require special equipment that the POME treatment facility is not already using. The Geotube® dewatering operation can be summarised as follows:

1. Select a level strip of land beside the pond to be desludged.
2. Excavate the surface vegetation and topsoil away.
3. Layout an impermeable membrane over the prepared surface and then layout the Geotube® dewatering unit.
4. Connect the sludge delivery hose to the Geotube® dewatering unit and start pumping until the filling control height is reached and shut down. Then switch the sludge delivery hose to the next Geotube® dewatering unit and repeat the pumping process.
5. After 2 to 3 days, the filled Geotube® dewatering unit will reduce in height sufficiently to allow a second filling cycle for the Geotube® dewatering unit. After 3 to 4 cycles of filling, the Geotube® dewatering unit will reach a state whereby the Geotube® dewatering unit may be allowed to undergo consolidation.
6. At the end of the consolidation period, the Geotube® dewatering unit is cut open. The residue and Geotube® dewatering unit can then be removed.



TenCate develops and produces quality products that increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions.

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