



MEMBRANE THICKENED AEROBIC DIGESTION

Class B sludge quality standards

Capable of thickening up to 4% solids
without using polymers

Reuse quality permeate

Automation allows for lower
operational requirements

No daily start up or clean up
required



**Interested in
smaller sludge volumes
& enhanced pH?**

**Call 1-855-GO-OVIVO to
speak with an Ovivo
Expert.**

MEM-TAD™ PROCESS

OVIVO'S AEROBIC DIGESTION AND CERAMIC FLAT PLATE MEMBRANE IN ONE INTEGRATED SYSTEM.

The Mem-TAD (Membrane Thickened Aerobic Digestion) process brings together Ovivo's aerobic digestion and ceramic flat plate membrane experience into one integrated system. This combination provides owners with a truly revolutionary solids handling technology.

The system consists of two or more aerobic digesters operating in conjunction with a membrane thickener (MBT) and optional anoxic basin. One aerobic digester forms a recycle loop with the MBT and anoxic basin that causes the digested sludge to be continuously thickened while undergoing both nitrification and denitrification.

APPLICATION OPPORTUNITIES

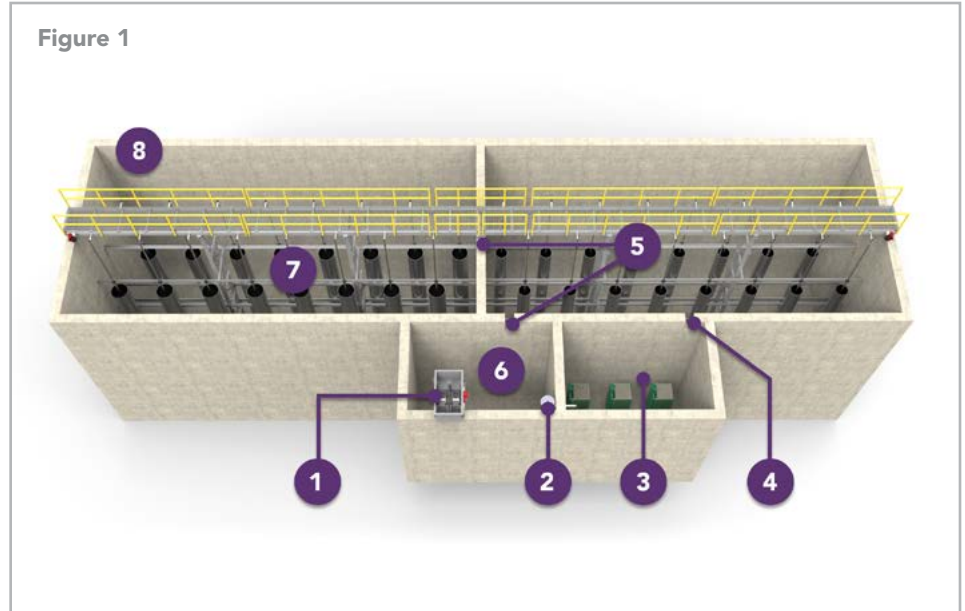
- Expand capacity of existing digestion systems
- Upgrade sludge holding tanks to Class B performance
- Decentralize treatment facilities
- Perfect complement to membrane bioreactors



HOW IT WORKS

Figure 1 describes the Mem-TAD process.

1. Waste Activated Sludge (WAS) is wasted from the main treatment process and enters the Anoxic Tank at a rate of $1Q$.
2. As the liquid level in the Anoxic Tank rises, sludge is pumped into the MBT tank at a recycle rate of $4Q$, ensuring the solids remain at the optimum thickness.
3. As WAS is pumped into the MBT from the Anoxic Tank, permeate is extracted through the membranes with a low suction pump. The permeate can go to the head of the plant, combined with the plant effluent, to disinfection or be used as a source of plant water.
4. When the maximum liquid level in the MBT is reached, the addition of sludge to this tank causes a corresponding overflow into the In-Loop Digester for first stage digestion.
5. When the maximum liquid level in the In-Loop Digester is reached, the addition of sludge to this tank will cause a corresponding overflow of sludge to either the Isolation-Digester or to the Anoxic Tank, completing a continuous process loop.
6. Nitrified sludge transferred from the In-Loop Digester to the Anoxic Tank is mixed with the incoming WAS, which serves as a fresh carbon source allowing for denitrification and anaerobic conditioning of the polyphosphorus accumulating organisms (PAOs) without having to cycle the air on and off in the digester tanks.
7. The small portion of sludge that is transferred from the In-Loop Digester to the Isolation Digester is aerated and mixed for second stage digestion for further pathogen removal and volatile solids destruction to achieve Class B stabilization.
8. Sludge is transferred out of the Isolation Digester tank to be dewatered or for final disposal.



TECHNICAL INFORMATION

For larger facilities or those with dilute Waste Activated Sludge, Ovivo offers the Two stage Mem-TAD process. The first stage is able to operate at a higher flux rate due to the relatively low concentration of solids while the second stage operates at a lower flux to prevent premature fouling of the membranes. This approach allows Ovivo to minimize the membrane area required thus lowering overall system costs.

OVIVO: AN ENGINEERING PROCESS POWERHOUSE

The Ovivo Aeration Process Team, which consists of decades of biological wastewater treatment plant design and innovation, has provided expertise and design assistance for wastewater treatment plants consisting of all shapes, sizes, and effluent permits.

CAPABILITIES

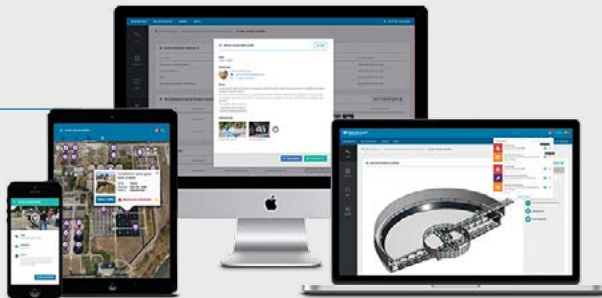
- Detailed Design Support
- Process Calculations
- Equipment Sizing
- Process Guarantees
- Extended Warranties
- Retrofit Expertise
- Process Training
- Equipment Startup
- WaterExpert™



**ALL OF YOUR MANUALS,
ALL OF YOUR KNOWLEDGE,
ALL IN ONE PLACE.**

Get your team on the same page.
Upload and share documents & media.
Create and manage service logs and
maintenance schedules.

Learn more at WaterExpert.com



LEARN MORE!
Scan to view online.



1-855-GO-OVIVO

info@ovivowater.com
ovivowater.com