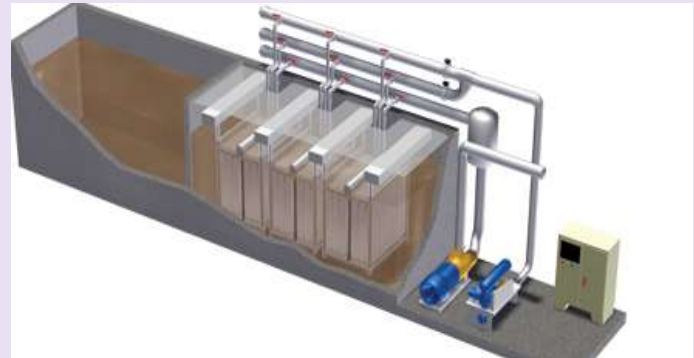


MEMBRANE BIOREACTORS



MEMBRANE BIOREACTORS

MBR is a combination of two basic processes – biological degradation and membrane separation – into a single process where suspended solids and microorganisms responsible for degradation are separated from the treated water by membrane filtration units.

So, in addition to removing biodegradable organics, suspended solids, and inorganic nutrients, MBRs retain particulate and slow-growing organisms, and remove a very high percentage of pathogens. They also require less space than traditional activated sludge systems because of less hydraulic residence time.

Membrane bioreactor systems may be used in such applications such as water reuse. With the limited supply of water to support communities and industries, the increased cost of water and wastewater treatment and stricter environmental regulations the MBR process is a viable solution for current and future wastewater treatment.

UNIQUE FEATURES

- ✓ Capable of simultaneously biological treating and bacterial removal from the effluent;
- Reduces biologically degradable solids and also inorganic nutrients (such as nitrogen and phosphorous).
- Retain particulate and microorganisms (thereby intensifying treatment efficiency).
- Remove a very high percentage of pathogens (thereby reducing chemical disinfection requirements).
- Require less space than traditional activated sludge systems because less hydraulic residence time (HRT) is needed to achieve a given solids retention time (SRT).
- Produces high quality treated wastewater for agricultural industrial and municipal uses.

MEMBRANE BIOREACTOR PLANTS

High MLSS concentrations promote several process benefits, including stable operation, complete nitrification and reduced biosolids production reducing biological volume requirements (and plant footprint) to only 20 – 30% of conventional biological processes. Further membranes provide extremely space efficient solids separation and not require a clarifier in the system.

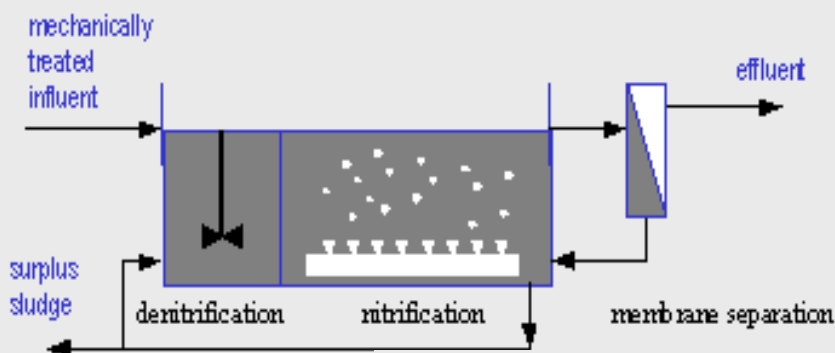
There are many equipment variations configurations and options that can be used, in TECNIA we design build and integrate all the equipments for the MBR systems to provide the necessary treatment for each wastewater project. The equipment selection is dependent on effluent requirements, ease of maintenance and operation and initial capital investment.

MBR's provide a reliable, high quality, reusable effluent. For example its particle free effluent allows more effective post disinfection as required before us. Moreover MBR's provide excellent pre-treatment when reverse osmosis is needed to generate very high quality reclaimed water.

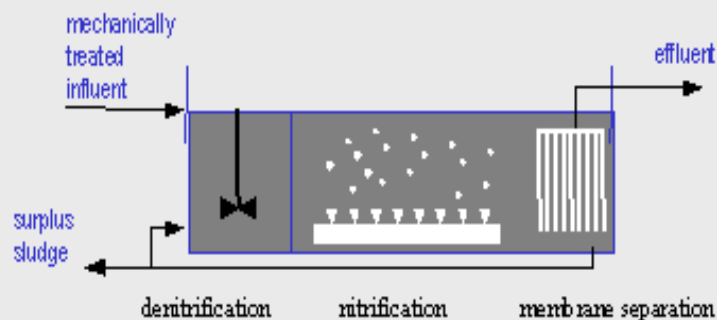
TECNIA MBR

- Efficient low pressure ultrafiltration without fouling.
- Compact design with small footprint.
- Low system and operation costs.
- No offensive odour.
- No chemicals needed.
- High loading rate capability.
- Low/zero sludge production.
- Complete solids removal (TSS)
- Removal of COD, Solids and Nutrient in a single unit.
- No problems with sludge bulking.
- Rapid start up.
- Custom made solutions.

MBR process (external membranes)



MBR process (internal membranes)



TECNIA LDA

Processos e Equipamentos Industriais e Ambientais

www.tecni.net - tecni@tecni.net

Tecnia Portugal

Tel. +351 261 912 470 – Fax. +351 261 912 472 1461
Polígono Industrial do Alto do Ameal – Pav. C6
AMEAL - 2565 Ramalhal
Portugal

Tecnia Saudi Arabia

Tel. +966 1 218 1460 – Fax. +966 1 218 1461
Erdevel Europa S. A. R. L., KSA Branch
12/F Abraj Atta'awuneya, South Tower
King Fahd Road, Saudi Arabia