

Eco Friendly Sewage Treatment Solutions



MBBR

(Moving Bed Biofilm Reactor)

SBR

(Sequential Batch Reactor)

Recycling with MBR & RO

About MBBR (Moving Bed Biofilm Reactor)

When number of micro organisms grow on surfaces of moving parts, they are called Bio-film. In Moving Bed Biofilm Reactor technology, the Bio-film grow, in the protected way, on engineered plastic packing with high internal surface area, which are freely suspended, thorough mixed through the liquid phase and in continuous movement within the reactor of specified volume, degrade the contaminant. These contaminant that need to be removed in order to treat the wastewater are food for growth of the Bio-film.

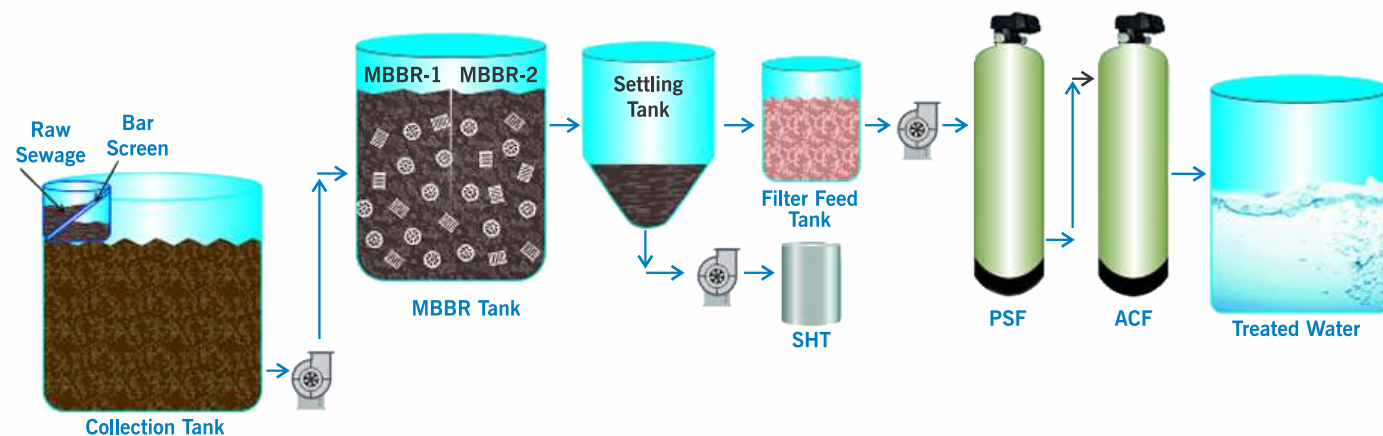
Therefore, the Bio-carrier design is critical due to requirements for sufficient transfer of food and oxygen to the microorganisms. The Bio-carriers are usually made of polypropylene (PP) and have specific gravity somehow alike wastewater. Engineered design of aeration systems of the reactor supplies oxygen to the Bio-film along with the mixing energy required to keep the Bio-carriers suspended and completely mixed within the reactor. Aerated water flows from reactor through a grid or a sieve, which retains the Bio carriers in the reactor. In order to remove the sloughed off biomass from the aerated wastewater, sedimentation is employed after the aeration tank.

Advantages of MBBR Process

- Smaller footprint area
- Ease in operation and maintenance
- Operator skills required are minimal
- System less susceptible to upset conditions (shock loading, power failure etc.)
- Lower energy requirements
- No clogging or chocking of the media



MBBR Process Diagram



About SBR (Sequential Batch Reactor)

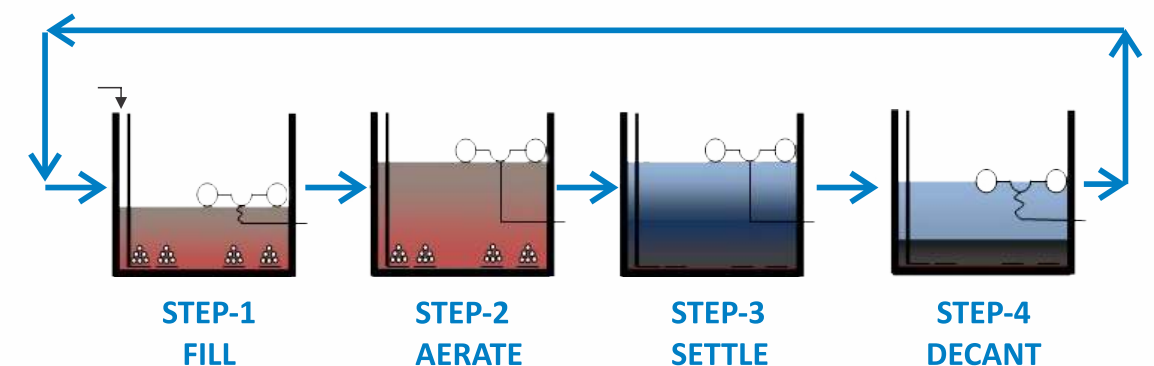
Sequential batch reactor (SBR) is nothing but the batch operation in sequence. SBR is a fill-and-draw activated sludge system for wastewater treatment. In this system, wastewater is added to a single "batch" reactor, treated to remove undesirable components, and then discharged.

The unit processes of the SBR and conventional activated sludge systems are the same. The SBR is no more than an activated sludge system which operates in time rather than in space. The difference between the two technologies is that the SBR performs biological treatment, and secondary clarification in a single tank using a timed control sequence. In a conventional activated sludge system, these unit processes would be accomplished by using separate tanks.

Advantages of SBR

- Small Footprint
- PLC Control System Provides High Degree of Reliability and Flexibility
- Worm gear screw jack decanting mechanism with SS accessories
- Decanting rate of 10-50 mm/min. ensures low TSS
- It can consistently perform Nitrification as well as Denitrification and Phosphorous removal
- Sludge bulking problem is avoided
- Biological treatment, and secondary clarification can be achieved in a single reactor vessel.
- Potential capital cost savings by eliminating clarifiers and other equipments.

SBR Process Diagram



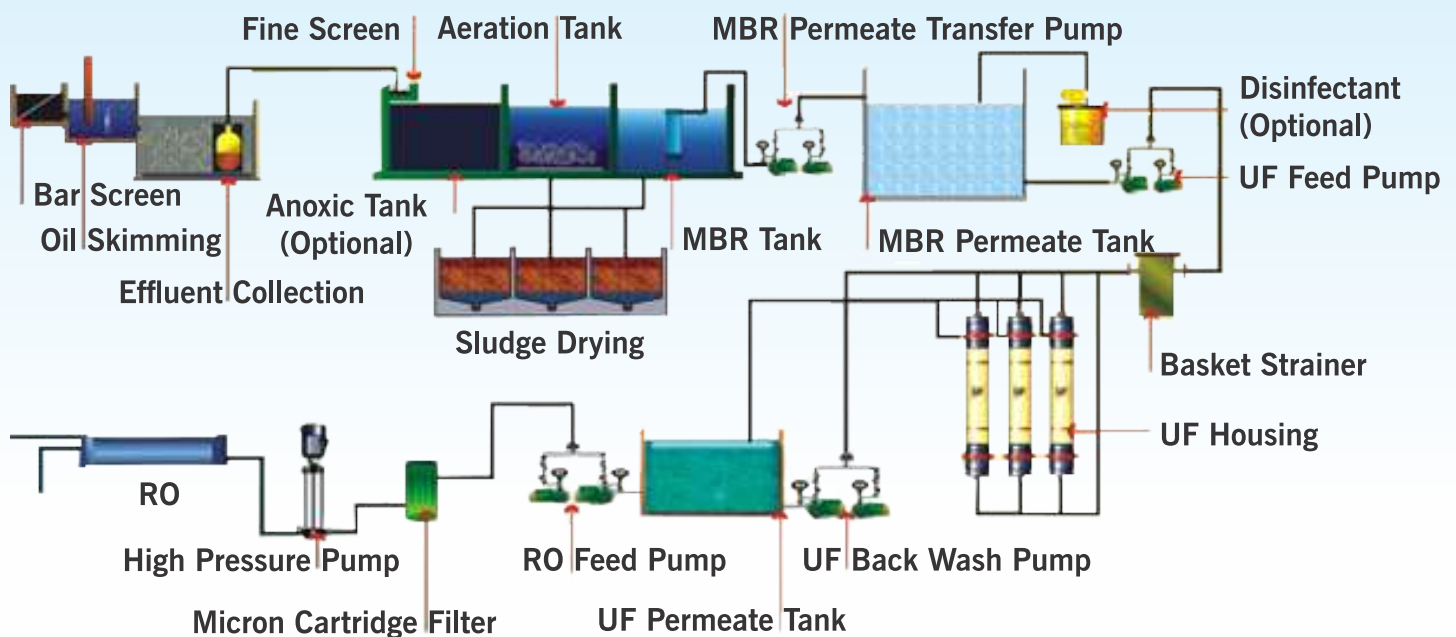
About MBR

The membrane bioreactor (MBR) is a biological system coupled with a membrane to enhance solid-liquid separation and filtration. The membrane is made of cost effective non-woven fibrous material. It has many outstanding properties, such as controllable pore sizes and easy fabrication of the membrane module to achieve desired surface area. The MBR can achieve desired permeation rate at low trans-membrane pressure.

Benefits

- ✓ Stable operation and superior effluent quality
- ✓ Easy revamping of existing plants
- ✓ Easy process control
- ✓ Small footprint
- ✓ Less sludge production
- ✓ It can perform with uneven inlet load by adjusting the operating condition

Recycling with MBR & RO



IWW Eco-Chem Water Works Pte Ltd.

No.2, Alexandra Road, # 05-02, Delta House, Singapore
Mobile: +62-819-0418-1106

+62-819-0418-1106 | customercare@ecochemlab.org | www.ecochemlab.org

Algeria | Australia | Bangladesh | Dubai | Egypt | Ethiopia | India | Indonesia | Iran
Maldives | Morocco | Myanmar | Oman | Peru | Philippines | Singapore | Sri Lanka | Sudan | Tunisia