Moving Bed Biofilm Reactor

Minimal investment, maximum cost reduction

With the Moving Bed Biofilm reactor (MBBR) Triqua International offers an economically solution for wastewater treatment or if applicable discharge regulations are not as strict.

Process

The MBBR system consists of an activated sludge aeration system where the sludge is collected on recycled plastic carriers. These carriers have an internal large surface for optimal contact water, air and bacteria. See elements underneath.

Figure 1 Picture carrier material

The bacteria/activated sludge grow on the internal surface of the carriers. The bacteria break down the organic matter from the waste water. The aeration system keeps the carriers with activated sludge in motion. Only the extra amount of bacteria growth, the excess sludge will come separate from the carriers and will flow with the treated water towards the final separator.

The system can consist of a one stage or more stage system (see underneath schedule), depending on the specific demands. The specific bacteria remain in their own duty tank because of the fact that the carriers remain in only 1 tank, protected by screens.

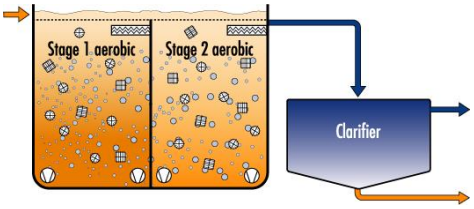

Figure 2 Schedule MBBR system with double stage biology

Selection criteria

Influent.
Especially for easy degradable bulk of wastewater.
Effluent
When less strict effluent regulations are necessary.

Industrial applications

- All types of industrial and domestic wastewater
- Both organic as nitrogen removal
- New plants or system upgrades
- Limited footprint

The MBBR process is used for the removal of organic substances, nitrification and denitrification.

Special advantages are gained at industrial wastewater plants where sedimentation of activated sludge is difficult, such as some applications in the foodstuff industry.

Benefits

- Cost efficient
- Minimize Process Complexity and Operator Attention
- Fast recovery from Process Upsets
- Flexible & innovative technology
- Durable & stable
- Environmentally friendly

Bioreactor and buffertank
FrieslandCampina Maasdam

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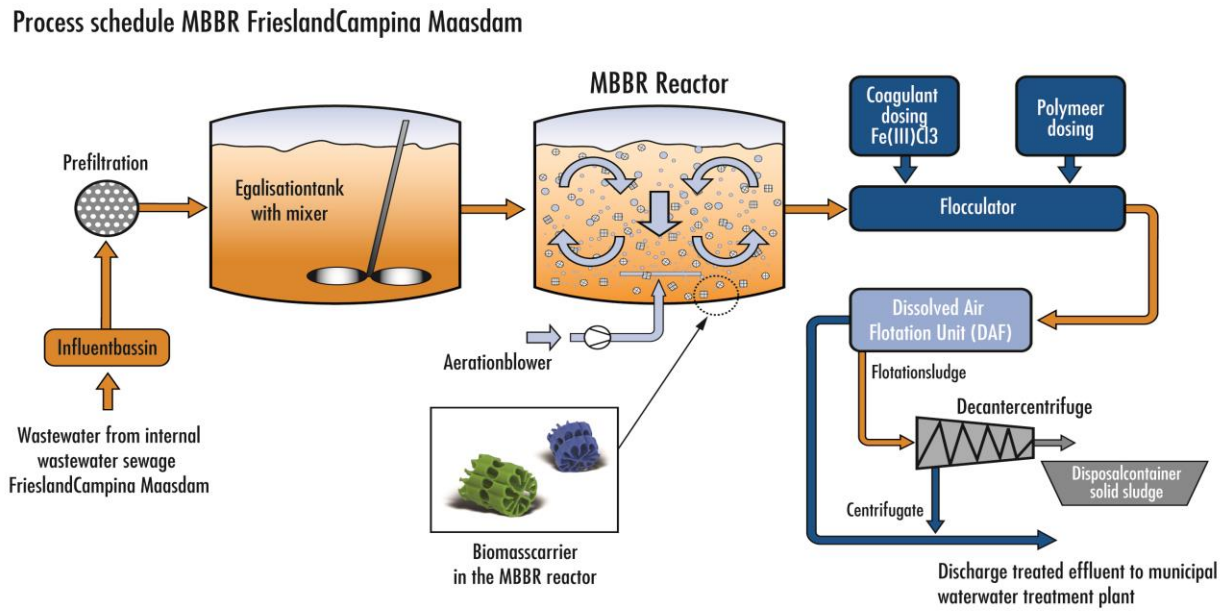
Case Study

Cost reducing and compact concept for dairy industry

Client: Friesland Campina Maasdam

FrieslandCampina Maasdam produces fruityoghurt, yoghurtdrinks and custard, under brandnames Vifit, Optimel, Mona and Campina. The wastewater, an average of 1000m3 a day, was formerly discharged down the sewage untreated. It would than be treated at the municipal water treatment plant. Because of the rising purification charges FrieslandCampina Maasdam looked for a way to reduce the wastewater costs. A must for the MBBR-technology was that it had to fit into the existing infrastructure with ease. Friesland Campina already had 2 reservoirs for wastewater at Maasdam, one of which is converted into a bioreactor. Triqua first built a pilot plant in their lab in Wageningen. This pilot plant was tested with wastewater from Maasdam. Last year they started the built and start-up of the bioreactor on location. After fine-tuning of the biology within the reactor, the bioreactor was officially delivered in 2010. It has a capacity of 66 m3 an hour which is more than enough for the 1000 m3 wastewater the dairy company produces on average. Even the future growth of the production can be met.

Schematic drawing FrieslandCampina Maasdam



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