

**BIOTHANE**

**Anoxthane™**

*A flexible and robust solution for COD removal*



by **VEOLIA**  
Water Technologies

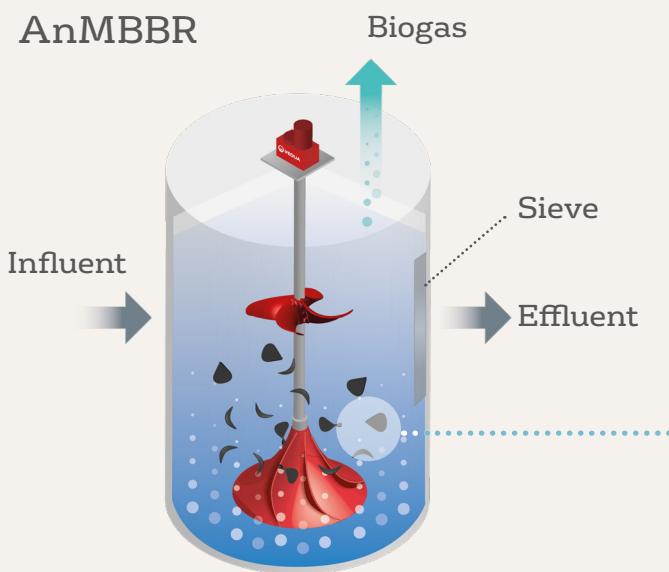
# Anoxthane™ AnMBBR

Anoxthane™ AnMBBR (Anaerobic Moving Bed Biofilm Reactor) is a technology solution that allows for the anaerobic treatment of wastewaters containing different levels of chemical oxygen demand (COD) and solids. It works at different temperatures and offers increased robustness against variations in organic loads and temperature compared to suspended and granular-based anaerobic technologies.

## Removing biodegradable COD

An anaerobic biofilm grows on AnoxK™Z carriers that provide for controlled and protected biofilm development. The carriers are kept completely mixed and in suspension in the reactor volume by AnoxK™ mixer(s).

### AnMBBR



The AnoxK™ mixer is specially designed for MBBRs using AnoxK™Z carriers, and they are optimized to work seamlessly together. The anaerobic biofilm growing on the carriers removes biodegradable soluble COD transforming it into biogas.



## Carefully selected components

Anoxthane™ AnMBBR comes as a complete solution for your specific needs. Although each of the components in the process is carefully designed for its specific function - the AnoxK™ components are all optimized to work seamlessly together as a single unit.

Anoxthane™ technology consists of:

- > One-stage AnMBBR with AnoxKaldnes™ outlet sieves
- > AnoxK™Z carriers for controlled anaerobic-biofilm growth and robustness against scaling problems
- > Top-mounted mechanical AnoxK™ Mixer
- > Optional post-aerobic polishing MBBR

## Characteristics of wastewaters that are most beneficially treated

- › Low-strength wastewaters with a large fraction of soluble easily degradable COD
- › Cold or warmer temperature effluents (20-38°C) without the need for heating
- › Wastewaters with higher levels of solids and fats/oils where anaerobic granular technologies are not very efficient



## A great match for the Food & beverage industry...

The characteristics of the wastewaters that benefits the most from the treatment of Anoxthane™ is commonly found in a number of industrial markets such as in food & beverage and oil & gas.

Anoxthane™ has therefore proven itself to be especially successfull in:

- › Food production/Vegetable-fruit processing
- › Dairy
- › Winery/vinasses
- › Brewery/distilleries
- › Drinks/juice production



## ... and in the Oil & Gas and Chemical industry

In many Oil and Gas/Chemicals projects elevated salinity- and toxicity levels could be a challenge for traditional anaerobic technologies. With the Anoxthane™ solution, biomass attached as biofilm to media is more resilient to such disturbances, which decreases the risk of biomass washout. AnoxK™Z carriers will clean themselves under normal mixing conditions in the AnMBBR - clogging due to fat, grease and oils is therefore avoided.



### Advantages

- › Improved salinity tolerance
- › Improved toxicity tolerance
- › AnoxK™Z Carriers protects against clogging

## Anoxthane™ Benefits

Anoxthane™ brings all the advantages of AnoxKaldnes MBBR technology to an anaerobic environment. The well-known benefits of MBBR include small footprint, ease of operation, robustness and flexibility. Anoxthane™ processes are unique with several advantages as detailed below.

### Robust

- > Lower risk of biomass losses due to the formation of an attached biofilm on carriers
- > Resilient to variations in loads and temperature due to a stable fixed biofilm
- > Tolerance against high levels of incoming solids and fats
- > Reduced impacts of scaling in the MBBR operation and no risk of clogging due to excessive biomass growth, or accumulation of foreign particles as AnoxK™Z Carriers are used

### Flexible

- > Operational at various temperatures (mesophilic, thermophilic or colder temperatures)
- > Ease of implementation and operation
- > Simple and flexible reactor design at different scales
- > Potential to control COD removal capacity based on media filling degree
- > Potential to retrofit tanks or malfunctioning anaerobic reactors
- > No digestion of solids in the wastewater reactor. Possibility to integrate with solids separation, and more efficient separate solids digestion

## Can Anoxthane™ solve your challenges?

As industrial effluents vary, we can optimise the design specification of the AnMBBR to the wastewater characteristics to ensure process performance.

To identify treatability with Anoxthane™ we offer bench-scale testing in our accredited laboratories at AnoxKaldnes office in Lund, Sweden and at Biothane's office in Delft, The Netherlands.



## Partner for more than 40 years...

Biothane is the inventor of the first UASB applied in industry. We have a company track of more than 40 years. Being part of Veolia we secure long term partnership with our end users through after sales service contracts.

Services are provided at local level. Each of our processes are able to be connected to Veolia's digital services platform Hubgrade. Experts following process plants performances and local support providing technical services

At Biothane we continuously strive to optimize - innovate our technologies and widen the field of anaerobic treatment applications.

Our dedicated R&D team run our state of the art research facilities; That comprise analytical - and application laboratories including bench scale, pilot scale and demonstration scale plants.



## Hubgrade

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Pilot testing in Poland

**“** As part of the Veolia family we provide the most appropriate industrial effluent and Biogas treatment solutions: tailored and optimized to the needs of our clients **”**

## Biothane Worldwide References

