BIOTHANE

Biobed® Advanced EGSB & Biothane Advanced UASB

Wastewater as a Resource

by VEOLIA
Water Technologies

Design Study, Process Validation & Testing Capabilities

Biothane is able to provide a variety of tests and consultancy to service:

- Complete wastewater characterization;
- Trouble shooting and debottlenecking of existing treatment plants (toxicity -and activity testing);
- Feasibility studies as to identify biological effluent treatment (anaerobic & aerobic biodegradability and activity testing).
- Design studies for industrial effluent treatment which roadmap different full scale conceptual outlines and quantify the CAPEX / OPEX figures. The conceptual outlines involve required processes as to achieve sewer, river discharge and or water re-use conditions.
- Pilot and Demonstration plants. Biothane has a fleet of Pilots to validate the process design and concepts developed.

Biothane Products & Biomass trade

- Bacteria are in need for macro - and micro nutrients. Following the nature of the wastewater, these components are to be added to the process. Biothane has developed a range of nutrients solutions which tailor these needs.
- Granular Biomass is required for a smooth -and quick start up of new granular biomass plants. Biothane has a wide network of sources and is able to provide quality biomass (shape, settleability and activity) at a local level on a worldwide scale.

Industries served

Over the past 40 years, Biothane technologies have been installed in more than 550 facilities worldwide. While these technologies are applicable across many industries requiring biological treatment, our key customers historically have been in the following sectors.

Food & Beverage

- Breweries
- Corn and starch processing
- Dairies
- Distilleries & Wineries
- Soft Drink & Fruit juice beverages
- Potato & Vegetable processing
- Sugar production
- Fermentation & Yeast processes

Pulp & Paper

- TMP, CTMP, NSSC, Kraft Condensates
- Recycle Paper

Chemical / Pharmaceutical

- 2nd and 3rd Generation Biofuels production
- Soy and Biodiesels production
- PET, PTA, PIA, DMT and other chemical type of processes

Why Biothane?

Process expertise based on decades of experience, combined with a program of continuous research and development, make Biothane technologies the clear choice for sound management of wastewater resources from a variety of industries.

Stable and Reliable

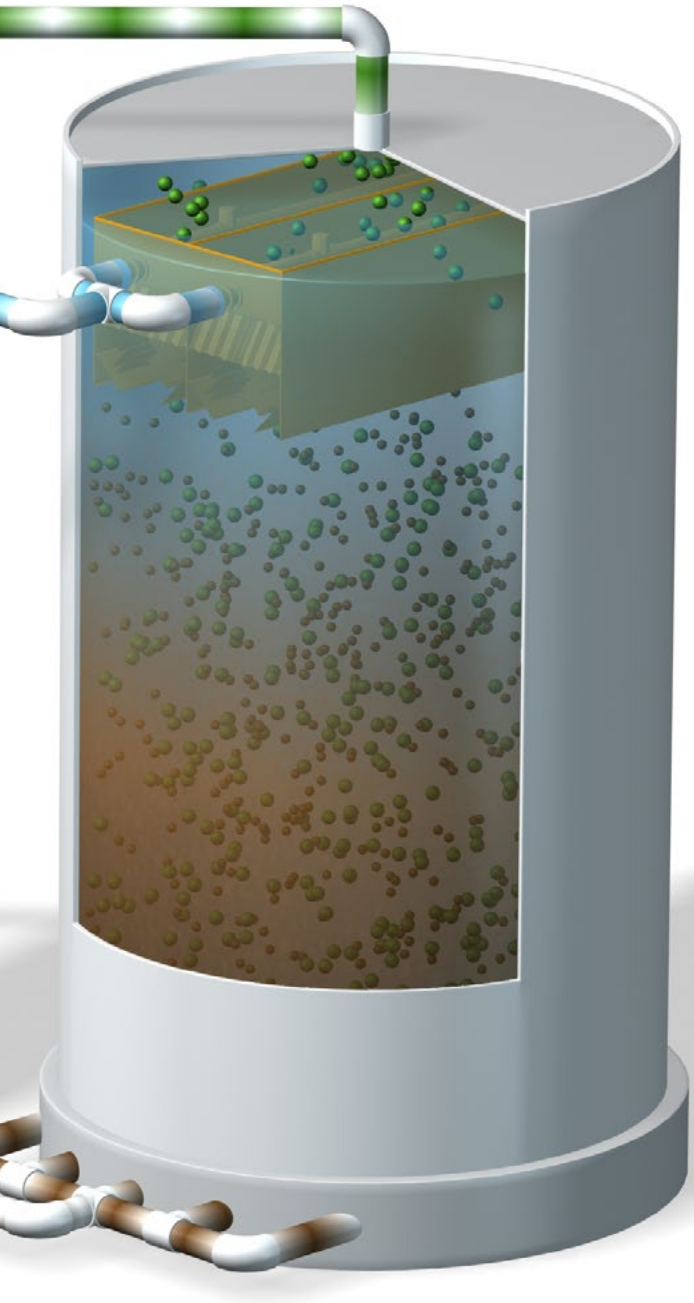
Biothane high-rate reactors are the leading technology for anaerobic granular wastewater treatment processes which realises the potential in wastewater for energy (biogas), nutrient recovery and water reuse. Based on more than 40 years of experience, having more than 550 references, the next generation of high rate anaerobic technologies have been established. Both the Biothane Advanced UASB and Biobed Advanced EGSB proven to have a most reliable, stable and high performance against a high cost-effectiveness.

Biobed® Advanced EGSB

The Biobed Advanced Expended Granular Sludge Bed (EGSB) reactor is a tall, slender reactor for anaerobic wastewater treatment that efficiently converts organic pollutants (COD) into biogas in an oxygen-free atmosphere. In the anaerobic process, bacteria form granules that settle to create a high concentration of biomass in the reactor.

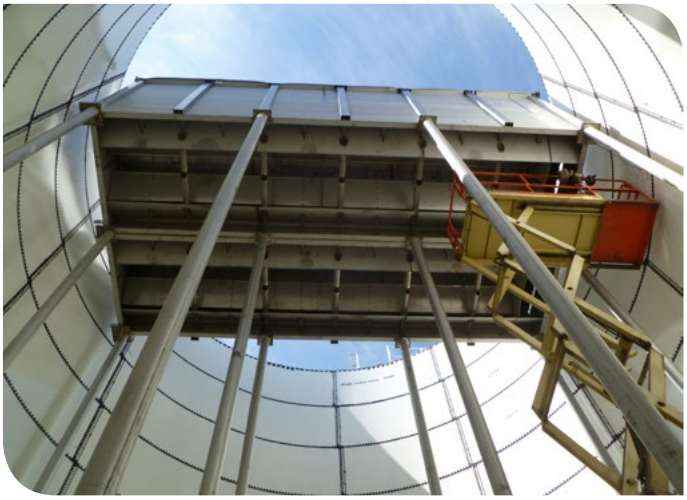
This patented design handles high volumetric loading rates while maintaining high treatment efficiency, and is ideal for applications with space constraints.

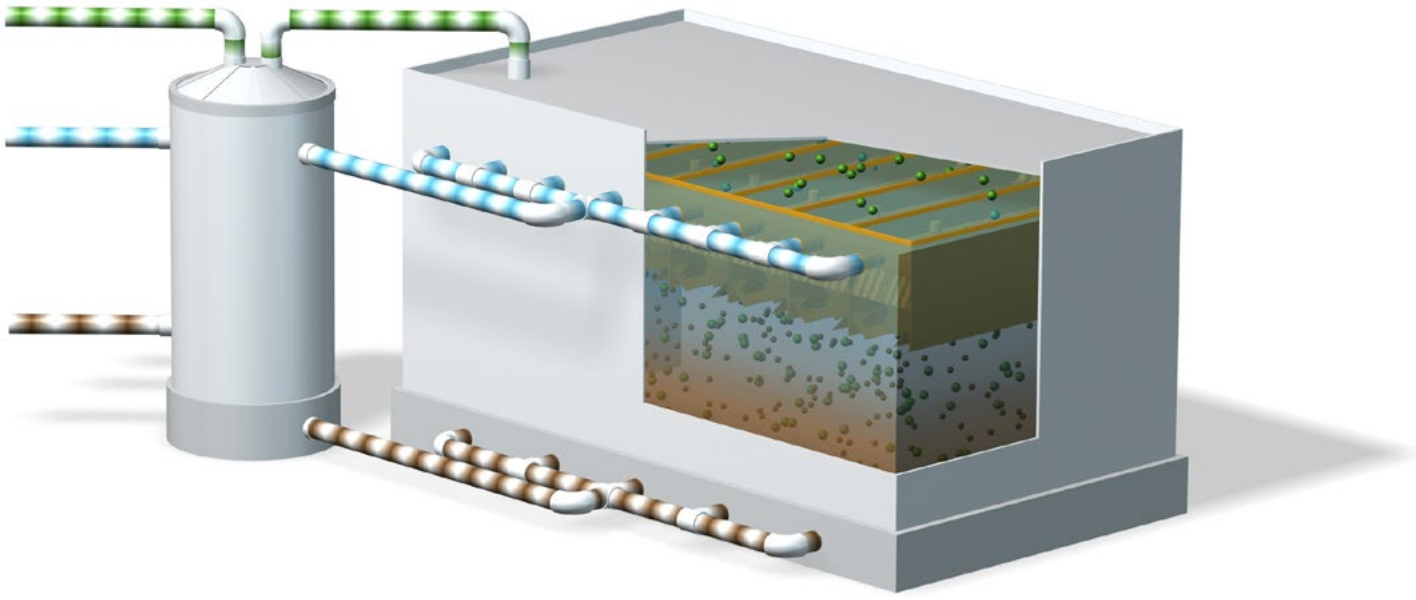
The numerous full scale plants constructed to date, have confirmed superior performance and have shown reductions in overall operating costs, including reduced chemical and post-treatment costs.



Biobed® Advanced Characteristics

- Compact designs with small footprint
- Efficiently handles high COD load with low retention time
- High purity methane production (65-80%) suitable for reuse
- Low energy requirement for operation
- Excellent biomass inventory
- Completely closed reactor to minimize emissions
- Superior gas and liquid separation of novel settlers
- Compact standardized settler fits in sea container to reduce costs
- Patented technology
- Improved performance of Advanced technology results in lower operating and post treatment costs





Biothane Advanced UASB

Biothane Advanced Upflow Anaerobic Sludge Bed (UASB) technology is still the best choice for certain applications. The Biothane Advanced UASB is ideal for sites with height limitations, or when it is preferred to built in a rectangular concrete configuration due to local conditions.

Advanced Settler - from Demonstration plant to Full scale application

The patented Advanced settler is a key component of both the Biobed Advanced EGSB and Biothane Advanced UASB reactors. This settler design efficiently separates the biogas and biomass from the wastewater, thanks to the tilted tube plates that create an increased settling area for optimum biomass retention and the effective effluent collection system of submerged pipes. The hydrodynamics and the applicable maximum gas- and liquid-velocities of the Advanced settler were studied in various scale-models and in pilot plants. The innovative design fits both in round and square tanks with heights up to 20 m.

Resourcing the world

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