



WHAT IS ANAEROBIC TREATMENT?

It is a biological process wherein organic wastes are broken down by anaerobic microorganisms in the absence of dissolved oxygen. As BOD is removed, biogas, containing energy-rich methane, is produced, as is a small amount of agriculturally beneficial sludge.

Anaerobic technology is well suited for pretreating warm, high-strength wastewater.

Advantages of anaerobic treatment

- Very low sludge production saves on disposal and dewatering costs.
- Energy consumption is very low.
- Fuel costs can be reduced by using biogas as a renewable energy source.
- Reduces greenhouse gas emissions.

Applications:

- Bottling/soft drink
- Chemical
- Dairy processing
- Distillery/alcohol
- Ethanol
- Food processing
- Confectionery
- Meat and fish
- Pharmaceutical
- Pulp and paper
- Winery/brewery
- Yeast
- Corn, potato
- Sugar/starch

ADI EXPERTISE

ADI has well over a hundred anaerobic installations worldwide designed and constructed for a variety of industrial wastewaters. The ADI-BVF and the ADI-Hybrid reactor were developed to meet the various wastewater treatment needs of customers.

ADI-BVF® DIGESTERS

Robust, low-rate reactor

The patented* ADI-BVF digester, a low-rate system that combines features of the upflow sludge blanket and anaerobic contact system, treats most warm water streams of moderate to very high organic strength.

High BOD and TSS removal

Removal rates for BOD and TSS exceed 90 percent for confectionery waste and up to 99 percent for apple processing wastewater.

Simple and stable operations

The system is simple to operate due to built-in equalization and sludge storage. It is a robust system capable of handling shock loading and typically requires little or no nutrient addition.

Reduces sludge production

The ADI-BVF digester is an excellent place for disposal of waste aerobic sludge. In turn, digestion of this sludge increases the amount of biogas produced and saves on sludge handling and disposal costs.

Avoid primary treatment

The cost of equalization and primary treatment is avoided as the ADI-BVF reactor is able to treat variable wastewater with high COD, BOD, TSS, and FOG concentrations.



OUR MISSION:

Success through
satisfied customers

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* US Patent Nos. 4,672,691; 5,505,848; 5,587,080; Canada Patent Nos. 1253266; 2,096,852; Mexico Patent No. 190898; Australia Patent No. 667,184



ADI-HYBRID REACTOR

Space-saving, high-rate reactor

The patented ADI-Hybrid reactor is a high-rate system that combines two anaerobic processes—the UASB (upflow anaerobic sludge blanket) on bottom and UFF (upflow fixed-film) on top—and retains process advantages of each. It also requires less space than other treatment methods.

Dense sludge bed is not necessary

The reactor circumvents one major short-fall of the UASB, namely, the need to generate and maintain dense, granular sludge (essential for process stability). Overlying media intercepts solids, promotes flocculation, and returns solids to the sludge bed below.

Stable and resilient to shocks

The advantages of combining UASB and UFF processes are high loading rates (5-10 kg COD/m³.d), plus excellent hydraulic characteristics and substrate-bios contact. The additional biosolids inventory increases the reactor's removals, process stability, and ability to handle toxic shocks.

Consistently high-quality effluent

BOD removals reach 90-95 percent at 30-35°C, and effluent TSS levels are usually low because of the overlying media. This reactor produces a consistently high-quality effluent due to its ability to maintain a high biological solids inventory.

ANAEROBIC BIO-MECHANATORS (ABM)

The ABM is a small footprint system that is designed to treat high-strength wastewaters and discharge to a municipal treatment plant, direct discharge or re-use within the plant.

Highly efficient system

The ABM reduces high BOD/COD by 90 percent or more. It has low energy and maintenance requirements, plus minimal operator involvement. Zero discharge systems are attainable, where all water is re-used within the plant.

Modular design for quick supply, installation and expandability

The compact, modular design allows for quick installation and a fully operational system within two weeks. The system can increase the capacity of an existing aerobic system and decrease overall operating costs.

Recovery of Biogas

Biogas produced by the system is scrubbed and used as a supplemental energy source, reducing energy costs.

RESEARCHING YOUR BEST WASTEWATER TREATMENT OPTION

ADI has research facilities supported by a dedicated team of engineers and scientists. Research studies in anaerobic and aerobic wastewater treatment can be conducted at ADI's laboratory (bench-scale treatability studies) or at the client's job site (pilot-scale studies).



ADI SYSTEMS INC.

ADI Systems is a technology and design-build company that offers a wide range of wastewater treatment systems to customers around the world. We offer both bench and pilot testing, plus custom-designed solutions to provide the best treatment package. In addition to generic technologies, ADI Systems offers proprietary and patented technologies for both anaerobic and aerobic biological waste treatment applications. ADI Systems Inc. provides large treatment systems as well as modular systems for small plant applications.