



THE ADI-BVF® ANAEROBIC REACTOR

The ADI-BVF® reactor is a patented* low-rate anaerobic process. The reactor can be a concrete-earthen basin or a more space-efficient above-ground concrete or steel tank.

The ADI-BVF system treats waste streams of moderate to very high organic strength and has been used in close to a hundred full-scale applications worldwide.

Advantages of the ADI-BVF® Reactor

- Easier to operate and maintain than most high-rate anaerobic systems.
- Low operating and maintenance costs.
- Eliminates primary treatment because raw solids can be digested in the reactor.
- Digests fat, oil, and grease (FOG).
- Generates less sludge than aerobic systems—1/5-1/10 as much.
- Stable against shock loadings.
- Equalization is built in.
- Digests waste activated sludge.

The geomembrane cover

A floating insulated geomembrane cover collects biogas and minimizes heat loss. It also provides odor control, easy field repair without a shutdown, and superior corrosion resistance versus concrete or steel.

Customers receive:

- A robust system that is simple to operate.
- Savings on electrical energy.
- Savings on surcharges and pollution taxes.
- Savings on sludge handling/disposal costs.
- A valuable source of renewable energy.
- Aftercare service and advice from experienced anaerobic specialists.
- A potential payback on investment in as little as 3-5 years in many cases.
- Credit for reducing greenhouse gases.

Some of our ADI-BVF digester customers include:

- Kraft (Australia)
- Casco/CPC International (Canada)
- Cavendish Farms (Canada)
- ConAgra (Canada)
- Sucromiles/Bayer (Colombia)
- McCain Foods (England/France)
- Burns Philp/Mauri Maya (Turkey)
- Staley/Tate & Lyle (USA)
- Abbott Laboratories (USA)
- Coors Brewing Company (USA)
- Hershey (USA/Canada)
- J.R. Simplot (USA/Canada)
- Morningstar Foods/Dean Foods (USA)
- H.P. Hood (USA)
- ADM (USA)

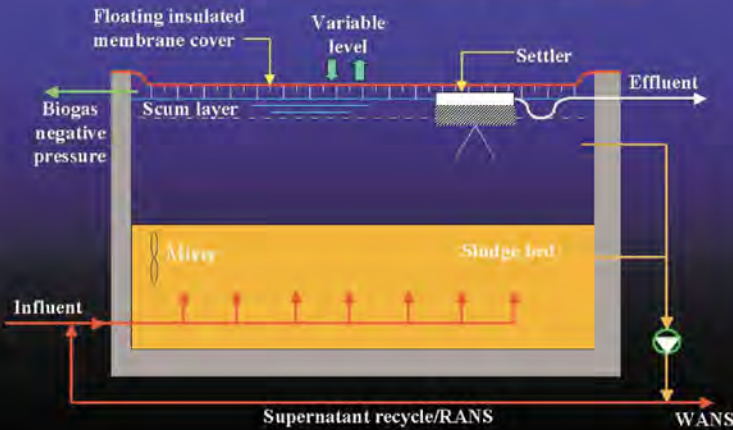
OUR MISSION:

Success through
satisfied customers

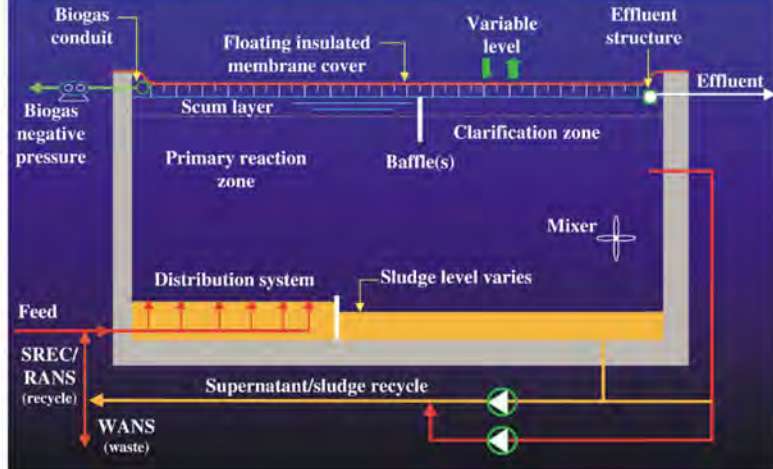
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* US Patent Nos. 4,672,691; 5,505,848; 5,587,080; Canada Patent Nos. 1253266; 2,096,852; Mexico Patent No. 190898; Australia Patent No. 667,184

TYPE S ADI-BVF® DIGESTER PROCESS SCHEMATIC



TYPE L ADI-BVF® DIGESTER PROCESS SCHEMATIC



THE BVF PROCESS

The entrance to the reactor

Wastewater enters the reactor via a header-lateral pipe network beneath the sludge bed. Recycled sludge mixes with the feed according to an adjustable pumping schedule. As the wastewater passes upward through the sludge blanket, microorganisms attack the feed, destroying BOD, COD, and TSS while generating biogas. The spatial loading rate is low, e.g., 0.3-3 kg COD/m³.d; therefore, it may be considered a low-rate upflow sludge blanket process.

The primary zone (Type L)

Most of the removals occur in the primary reaction zone (PRZ). The extent or size of the PRZ is customized according to reactor geometry and wastewater characteristics. Baffles may be used to discourage short-circuiting.

The secondary reaction zone (Type L)

Upon leaving the PRZ, the wastewater passes through the secondary reaction zone and then the clarification zone en route to the exit. As there is less BOD remaining, less biogas is produced, thus allowing biological solids to settle into the sludge zone.

The exit can be a simple structure such as a fitting, or more extensive such as a manifold, gas-liquids-solids separators, or settlers.

The sludge recycle/wasting system

A sludge recycle system comprised of internal header-laterals and external piping and pumps returns sludge from the effluent end of the digester to the influent end. The same system is used to waste sludge once the sludge bed occupies 50-70 percent of the tank volume. Sludge wasting is done on a very flexible schedule ranging from daily to annually.

Mixers are provided for use during start-up, spill events, and sludge-wasting events.

The collection of biogas

Biogas rises through the liquid, emerging at the gas-liquid interface just beneath the geomembrane cover. The biogas flows to the tank perimeter. A small negative pressure is applied, by means of external blowers, to facilitate extraction of biogas and to prevent escape of odoriferous biogas into the environment.



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 bench and pilot testing and custom-designed solutions to provide the best treatment package to suit customers' needs. In addition to generic technologies, ADI Systems offers proprietary and patented technologies in both anaerobic and aerobic biological waste treatment applications. ADI Systems provides large treatment systems as well as modular anaerobic packages for small plant applications.