



BASWOOD ADVANTAGES

Baswood delivers innovative, technology-based wastewater and biosolids management solutions. Proven, patented technologies provide effective treatment of industrial and municipal wastewater streams. Baswood systems are compact, customizable, and require less energy and limited manpower to operate. Wastewater services include: pilot testing, system design, equipment supply, installation, system startup and commissioning, operations training, long-term support, and full-service plant operations.

Technology

Baswood's patented AIMS (Aerobic/Anaerobic Integrated Media System) maximizes biological treatment by utilizing our patented DCAD (Dry Cycle Aerobic/Anaerobic Digestion) technology to maintain maximum treatment efficiency.

Wastewater is fed sequentially through a series of mixed biological fixed-film reactors. Within each reactor are treatment zones that are managed as trickling and submerged, allowing the technology to maximize sequential biological treatment within a single tank. The process involves transferring the wastewater through a series of reactors containing biologically diverse biomass.

The large population of attached and diverse biomass is more resistant to upsets that plague suspended growth systems. Treating wastewater in series, across multiple treatment zones reduces hydraulic retention time (HRT) within the system. The attached growth biomass enclosed in vertical reactors allows the Baswood system to require a smaller footprint.

Attachment of the biomass and solids to the fixed media in the vessels exponentially increases solids retention time (SRT), improving the digestion rate within the system. Increased SRT is a significant contributor to Baswood's low sludge yield, with the patented DCAD technology further reducing secondary solids.

During the DCAD process, one of the reactors is taken off-line to prune the biomass. Removing the food source encourages endogenous decay of the biomass. Weight and volume measurements taken before and after the DCAD process show significant biomass reduction. In addition, enabling AIMS increased digestion capacity, the DCAD process maintains optimal hydraulic flow characteristics throughout the biomass-laden media. The system is designed so that the reactor vessels are cycled through the DCAD process without taking the system off-line. The units are internally self-buffering, which translates to avoided chemical costs.

Benefits

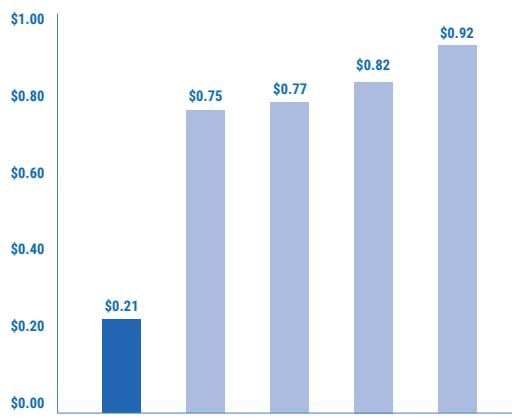
The Baswood system has many advantages for treating wastewater over current methods and traditional systems, including:

- 1. Lower Operating Costs:** Energy and solids disposal are the two most significant costs associated with biological wastewater treatment. Due to its efficient aeration process, the Baswood system requires less energy than traditional aerobic systems and generates significantly less TSS per pound of BOD removed. The system is also highly automated and can be monitored or controlled remotely, eliminating the need to hire a dedicated operator.

Annual Operating Expenses

(\$ in millions/year)

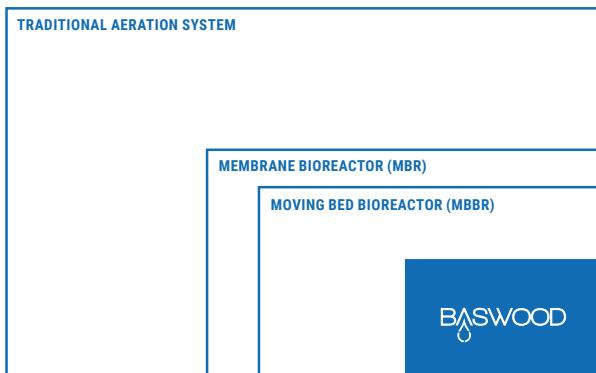
Baswood saves \$600,000/year over competitors



OPEX Competitive Analysis – 150K gpd Beverage

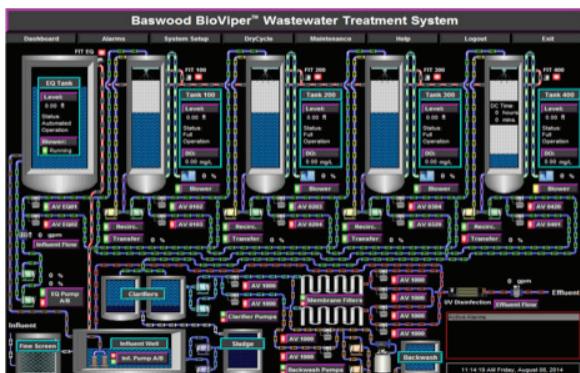
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- 2. Energy Efficiency:** Baswood's patented AIMS technology requires less power – 60% less electricity than other conventional technologies. Over the lifespan of a wastewater treatment system, only 10% of the cost is upfront capital; the remainder is operating costs.
- 3. Minimal Footprint Required:** The small space required for our system, generally 75% smaller in size than an MBR treating the same wastewater, is a considerable advantage to production plants.



- 4. Expandability:** Baswood's system is expandable and adaptable to accommodate future needs. Reactors can be added as average daily flows increase, and existing reactors can be throttled to handle fluctuating flow rates. Baswood's ability to grow with a plant differentiates it from other available technologies.
- 5. Remote Monitoring:** The Baswood SCADA system integrates the entire plant and provides the plant operator with a streamlined yet comprehensive interface for both monitoring and controlling the plant. The operator can see the real-time status of all automated equipment (pumps, blowers, valves, etc.).

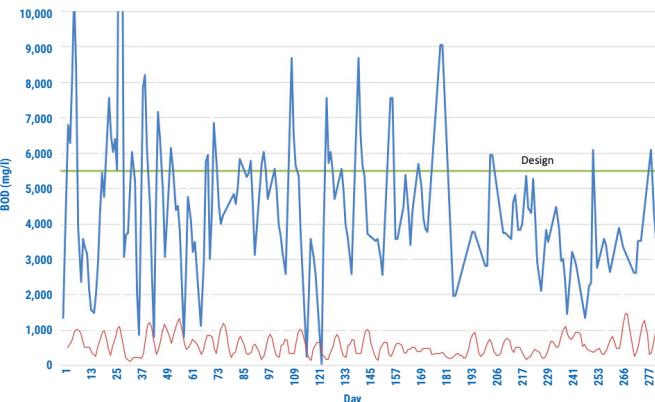
The extensive automation of the plant means that on a day-to-day basis the plant requires only operator supervision and minimal operator intervention. Should a situation arise which requires more operator intervention than usual (e.g., maintenance activities), the SCADA system provides the operator with complete control of all equipment that is both intuitive and easy to use.



View of Baswood's SCADA control panel

- 6. Resilience to Shock Loading:** Baswood's fixed-film systems have a superior capability in handling fluctuating flows. The sequential treatment in the system creates an environment that is very tolerant to variable loading both hydraulically and in strength that would render other systems ineffective. Baswood has a demonstrated history of treating fluctuating flows that are typical at manufacturing facilities.

Influent – 4,433 mg/l • Effluent – 577 mg/l • Destruction – 87%



- 7. Reduced Solids Yield:** Baswood's system retains the solids in the system for a much longer period than many other technologies. The long solids retention time (SRT) encourages the endogenous decay of the biomass to the extent that conventional technologies can't achieve, significantly reducing the number of solids produced during treatment.
- 8. FOG Management:** Baswood's unique arrangement of the biological environment provides a system that manages greater than typical levels of Fats, Oils, and Grease (FOG) and is not compromised by these materials as is a simple aeration basin, which means, that any FOG that may slip by the primary treatment will not unduly affect the efficiency of the biological digestion system.
- 9. Odor Control:** The Baswood system is designed to eliminate odor concerns. If needed, the system can be connected to a passive odor control system to avoid nuisance issues.
- 10. Reduced Maintenance:** There are no moving parts or complicated media retention systems in a Baswood reactor. All equipment requiring service or maintenance are easily accessible.
- 11. No Proprietary Parts:** Service parts (seals, valves, lubricants) are available from any standard supply sources.
- 12. Water Re-Use Capability:** Water re-use is easily added to resolve future issues with restrictions or capacity.