



BIOSTYR® Biological Aerated Filter (BAF)

WATER TECHNOLOGIES

BIOSTYR® Combines Biological Treatment and Upflow Filtration for High Quality Effluent

The BIOSTYR® process combines biological treatment, clarification, and filtration into one compact system. With installations throughout the world, BIOSTYR is proven to be an exceptional technology for meeting today's stringent effluent limits. BIOSTYR is an ideal process for plants where footprint is limited, close proximity to neighborhoods is a concern, or expansion is desired.

The BIOSTYR® Process

The BIOSTYR process is a biological aerated filter (BAF) with a submerged media bed. Wastewater flows upward through the media bed. Air is injected through an air grid located below the bed at the bottom of the cell and rises upward concurrently with the wastewater.

The BIOSTYR media, BIOSTYRENE™, are buoyant polystyrene beads that provide the surface area for biomass attachment. The BIOSTYRENE media is retained in the BIOSTYR cell by a pre-cast concrete nozzle deck located above the media. The nozzle deck contains nozzle-type strainers that allow water and air to pass through the cell.

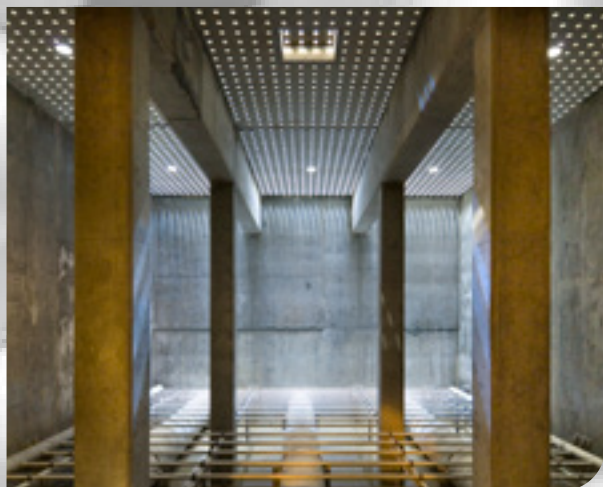
The BIOSTYR backwash is a counter-current flow. The backwash water (system effluent) is stored above the media, so no separate clearwell is necessary. Backwashing is accomplished by a series of valve operations that are controlled by the PLC. Gravity assists in removing stored solids as the media bed expands during backwash; thus, not requiring dedicated pumps, piping, valves, blowers or controls for backwashing.



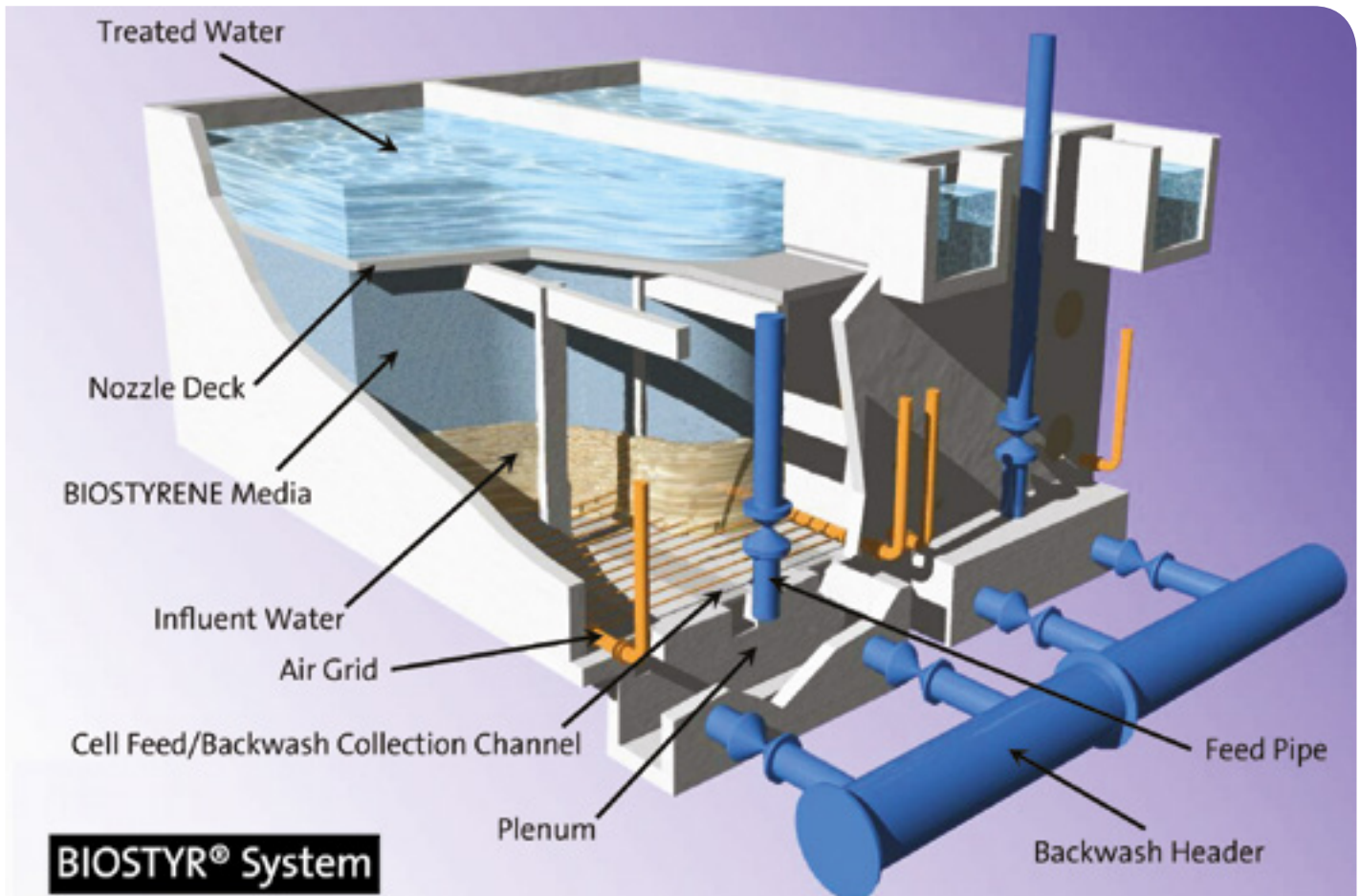
Top view of cells



Influent channel



Empty cell



High Quality Components Offering Superior Benefits

- Multiple, parallel filter cells, allowing for flexible operational strategies and simple expansion
- Low weight BIOSTYRENE media (~3 lbs/ft³) significantly reduces foundation and other construction costs
- Nozzle-type strainers in the pre-cast concrete nozzle slabs only contact clean, treated effluent; not susceptible to fouling
- Robust stainless steel aeration grid resists clogging, requiring no routine maintenance
- Pre-cast nozzle slabs provided by Veolia, ensuring high quality control
- Fully automated PLC based control system and centralized SCADA system, easing operation



Empty cell



Empty cell

Applications

Secondary Treatment

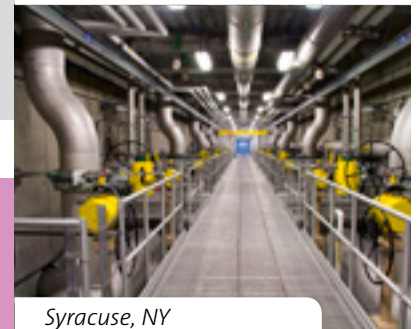
Following primary clarification, the BIOSTYR can provide secondary treatment. Removal of carbon, suspended solids and ammonia are accomplished in a single step, providing a small footprint.



Tahoe-Truckee, CA

Nitrification

BIOSTYR can be used to expand an existing secondary treatment process to provide tertiary removal of ammonia while further polishing of suspended solids and carbon.



Syracuse, NY

Denitrification

BIOSTYR denitrification applications may be arranged in two configurations. A denitrification BIOSTYR can be added to an existing BIOSTYR process utilized for secondary or tertiary ammonia removal. Also, a denitrification BIOSTYR may be placed after an existing secondary treatment process, enabling the plant to meet low total nitrogen limits.



Cheshire, CT

Package Systems: Pre-engineered Solutions

For smaller flow rates, the BIOSTYR process may be provided as a steel package plant. The steel package BIOSTYR will shorten the construction schedule and reduce civil design and construction costs.



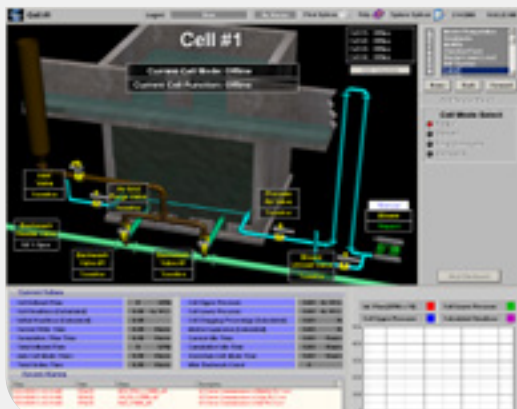
Steel tank package plant

BIOSTYR®: Compact, Neighborhood Friendly Process

- Compact footprint; ideal for constrained sites
- Downstream clarifiers not necessary, decreasing operation and maintenance requirements
- Treated water of exceptional quality, even in very cold climates
- Footprint allows for process to be easily enclosed, neighborhood friendly
- No periodic replenishment or replacement of media required
- Filter influent screened at 10 mm bar or mesh; achieved by plant's headworks



Process Control Features



SCADA screen shot

- SCADA system customized for each particular application
- Open architecture software
- Process diagnostic tools and data trending
- Point-and-click navigation and control
- 24-hour alarm monitoring and notification
- KrugerLink™ remote process monitoring and control
- Systems certified integrators

Resourcing the world

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