

## Bio-Microbics FAST<sup>®</sup> Wastewater Treatment

Environmentally friendly Bio-Microbics FAST<sup>®</sup> wastewater treatment systems offer advantages over alternatives including high treatment levels, low cost, easy installation, landscape suitability and easy maintenance - an above ground blower is the only moving part and only maintenance item!

The highly treated effluent allows use of a wider variety of final dispersal techniques and the reduction or elimination of a mound system, reduction in field size, a reduction in separation distance to the limiting factor and it is often used to reclaim a dispersal field clogged with a bio-mat.

**RetroFAST<sup>®</sup>:** Residential wastewater flows rated for 250 and 375 GPD. A RetroFAST<sup>→</sup> is ideal for reclaiming and extending the life of a dispersal field clogged with a bio-mat. The units install in an existing septic tank through a 24" man-way.

**MicroFAST<sup>®</sup>:** Residential wastewater flows from 500 GPD for a single family home to multiple 9000 GPD units for virtually any size community or development. The MicroFAST<sup>→</sup> unit is typically preceded by a trash/settling tank sized for 16-24 hours waste flow.

**HighStrengthFAST<sup>®</sup>:** High strength wastewater above 220 BOD<sub>5</sub> for food service and other commercial establishments. The HighStrengthFAST<sup>→</sup> is sized based on waste strength based on pounds of BOD<sub>5</sub> and TSS/FOG testing. HighStrengthFAST<sup>→</sup> units are available to remove from 1 lb/day of BOD<sub>5</sub> to multiple units of 18 lbs/day. Each HighStrengthFAST<sup>→</sup> is typically preceded by a grease interceptor sized for one to two days flow.

**LagoonFAST<sup>®</sup>:** The above residential and high strength units may be installed in a lagoon on pontoons to increase the capacity of the lagoon

**NitriFAST<sup>®</sup>:** Used as secondary treatment when waste flows have higher than normal nitrogen levels. The system promotes growth of nitrifying bacteria, which converts ammonia (NH<sub>3</sub>) to nitrate (NO<sub>3</sub>).

**ABC-C, ABC-N or ABC-P:** These three devices are used as secondary treatment for clarification, very high levels of nitrogen reduction, and high levels of phosphorus reduction.

**Disinfection:** UV disinfection is available for fecal and pathogen reduction to almost nil.

## Bio-Microbics Sizing and System Design Considerations

**High strength wastewater:** Pounds of BOD<sub>5</sub> must be calculated or determined to allow sizing of any treatment system with waste strength greater than domestic/residential levels. The formula: BOD<sub>5</sub> mg/L x GPD x 8.34 / 1,000,000. The best way to determine the GPD is from a water meter dedicated to only the high strength waste generator (kitchen). The BOD<sub>5</sub> can be determined by taking samples of the waste flow from the grease interceptor and taking them to a lab or municipality for testing. It is best to have the high strength waste flow (kitchen) separate from the domestic flow. When there is not actual information available, the flow and loading may be estimated. The state and Petersen can help you estimate based on considerations such as number of bar seats, dining seats, number of meals, etc.

**High daily flow variations:** When the daily flow rate varies considerably over a week such as with a church with only weekend events, a dose tank may be installed after the trash tank and before the FAST<sup>→</sup>unit to average the flow over several days. This may reduce the size of the FAST<sup>→</sup>unit and the dispersal field.

**High seasonal flow variations:** When the seasonal flow rate varies considerable as with a resort, multiple FAST<sup>→</sup>units may be installed in parallel with some units disconnected from the system and turned off as the load is reduced. FAST<sup>→</sup>units are available with a timer to allow blowers to operate part time to further manage the treatment levels.

**Tanks:** Most tank manufacturers have a tank sized and approved for the Bio-Microbics FAST<sup>→</sup>units. Combination tanks are often used with the trash tank as the first compartment and the FAST<sup>→</sup>unit in the second. Alternatively, a separate trash tank is sometimes installed with the FAST<sup>→</sup>installed in the first compartment of a combination tank and the second compartment used for pumps.

**Management:** Maintenance and management is minimal but very important. The dispersal field is often downsized when pretreatment is used and the system is also used to protect wells and other environmental concerns. The system should be inspected at least every six months the first two years and once per year thereafter to protect the dispersal field, wells and environment. Critical is air supply from the blower to the FAST<sup>→</sup>and eliminating any vent pipe restriction. Petersen provides the service provider with sample POWTS Inspection and Service Agreements or Petersen will provide this service if desired.

**Petersen support:** Petersen Supply and Bio-Microbics provide support for design, installation and operation, on-site and with our 24/7- telephone support line (888-455-6864).