

Our unique concept of combining velocity-managed and oxygen enriched wastewater to a log-phase-growth fixed bioaugmented biofilm can increase operational efficiencies up to 73%.



About us

PRISMSS® was formed to provide a unique, patented process solution to industrial, municipal, and agricultural wastewater treatment compliance requirements. PRISMSS®'s patented process employs an extremely efficient aerobic fixed biofilm bioremediation treatment strategy that is application-specific, cost-efficient, and tailored to a wide variety of effluent waste stream types.

PRISMSS® equipment has proven successful in a variety of industrial applications in both equalization and activated sludge basins. Unique aeration process efficiencies, combined with the bio-breeding chamber, reduce the expense of continuous microbial insertions required in many biological systems. The combination process also reduces the need for a large footprint, additional aeration equipment, and infrastructure additions. Optional instrumentation can monitor (log or transmit) a variety of treatment parameters, including: dissolved oxygen, pH, total dissolved solids, temperature & conductivity.

PRISMSS®'s patented process has generated measurable results and cost-efficiencies:

- Odor control (within 30 days of startup)
- Increased oxygen transfer; reduces COD/BOD
- Biological degradation of process by-products
- Reduction in treatment time
- Reductions in sludge volume (30-50%)
- Lower operating costs (electricity and chemical use).
- Upgrade treatment facilities to abate discharge violations
- Increase facility capacity through process efficiencies
- Decrease capital-cost outlays for infrastructure improvements



Products

Floating Systems



Floating system is an innovative approach used in the water treatment industry. A combined bio-mechanical approach treats mal-odors from lagoon inversions in addition to increasing overall efficiency. Cost for PRISMSS-BioReactor performance is between \$0.25-\$0.50, depending on existing infrastructure.

Land-Based Systems

A land-based unit may be right for you where floating units won't work. Pre-treatment may be necessary if solids content is too high for a floating unit. If sludge removal is difficult in your lagoon, post-treatment may be necessary.

Two models of units are available to meet your needs in land-based configurations: Epoxy-coated steel which works for higher flows and high density polyethylene for average flows or ongoing system maintenance.

Jet™ Aerator System



BioJet 15 HP Aerator Low Cost of Operation
More DO & Recirculation High Velocity and Horizontal Plume 120' Optimal efficiency BioJet and BioReactor© increasing recirculation
The BioJet unit adds process capacity to existing treatment in lagoons, ponds tanks, outperforming less efficient equipment currently in place. It's features include; lower operating cost, efficient mixing, fine bubble diffusion, efficient energy, and increased circulation.

Performance- Advantages of Bio-Reactor System

- Operational Cost Savings
- Reduced electrical costs (up to 40% over traditional approaches)
- Reductions in sludge removal and disposal (up to 50%)
- Reduction in chemical usage
- Lower personnel and related overhead costs
- Quickly mitigates fines due to non-compliance
- Improved Performance
- Quickly eliminates odor problems
- Provides for more stable biological environment
- Handles increase in wastewater loading (faster cycle times)
- Controls fluctuating temperatures and pH discharges
- Better control of manufacturing process
- Capital Cost Savings
- Permits retrofit approach without costly infrastructure additions
- Minimizes overall costs when incorporated into new project designs

Process Applications:

- Improve efficiency and capacity of municipal wastewater (conventional activated sludge - CAS) treatment systems
- Controlling nitrification
- Conversion of ammonia to nitrates.
- Phosphorous removal utilizing PAOs
- Increasing dissolved oxygen to reduce biological oxygen demand (BOD).
- Controlling of fats, oils, and grease (FOG).
- Increased oxygen transfer increasing microbial processing efficiency.
- Aerobic digestion.
- Anaerobic digestion.
- VOC / Oil Sands process remediation.
- Chloride reduction (brine conditions > 5% salt content)
- Phenolics and chlorinated hydrocarbons
- Increasing biodiversity (through bioaugmentation) of mixed liquid suspended solids (MLSS) - Groundwater treatment.
- Acid rock drainage (ARD) from mining operations. Its versatile design (aerobic / anaerobic configuration) allows the PRISMSS Bio-Reactor to efficiently treat ammonia, nitrites, nitrates, and phosphates by both aerobic and anaerobic microbiological pathways

Comparison Between Biological Process and Chemical Techniques of Wastewater Treatment

Biological Process	Conventional Techniques
<p><i>Biological treatments very effective in wastewater treatment and significantly remove toxic and other harmful substances.</i></p>	<p><i>Conventional techniques such as chemical precipitation, carbon adsorption, ion exchange, evaporations and membrane processes are found to be effective but this processes will not eliminate the toxic and very harmful substances</i></p>
<p><i>Our new green technical methods which are proving them to be superior over the conventional methods and low cost waste water treatment using microbial process potential one.</i></p>	<p><i>The various conventional methods for waste water treatment are present since ancient times but they are very costly and not economical.</i></p>
<p><i>Biological process by using various organisms are very efficient in reducing the toxic, heavy metals, nitrogen, phosphorous, PH etc.</i></p>	<p><i>The conventional techniques are not efficient in reducing the toxic, heavy metals, nitrogen, phosphorous, PH etc.</i></p>
<p><i>The use of biological materials, including living and non-living micro-organisms, to remove and recover toxic or precious metals from industrial waste waters has gained popularity over the years due to increased performance, availability and low cost of raw materials, microorganisms including bacteria and other organisms. This process is economical and can be easily adopted.</i></p>	<p><i>Conventional techniques for removing dissolved heavy metals include chemical precipitation, carbon adsorption, ion exchange, evaporations and membrane processes. The selection of a particular treatment technique primarily depends on a variety of factors, e.g. waste type and concentration, effluent heterogeneity, required level of cleanup, as well as economic factors. Most of the time many processes to employ to treat the wastewater which is not viable for most of the companies.</i></p>

Testimonial

"Energy savings relative to conventional "splasher" and aeration processes are tremendous, ranging from 15% to 40%...pay back periods are typically less than three years...empirical predictors have been established that indicate that the performance of the PRISMSS system is equal or greater than those of competing units on the market..."

Darrin J. Costantini
P.E. Senior Engineer, Haley & Aldrich, Inc.



"PRISMSS approach intrigued me for several reasons...the possibility of reducing BOD (Biological Oxygen Demand) and odor difficulties, while...eliminating or reducing large capital intensive upgrades and associated engineering and consulting fees...we observed significant BOD reduction, no odor build-up, which has been an annual problem in spring and early summer of each year...Our wastewater is extremely variable...and there is no flow equalization mechanism... The PRISMSS System operated effectively...requiring minimum maintenance... In summary, we enjoyed working with PRISMSS team. It is my view that the PRISMSS Systems process will prove to be of significant benefit to the wastewater treatment Industry in terms of performance, cost-effectiveness & reliability."

Brian Bailey
VP Operations, YANCY'S FANCY



"Historically, we have had each sludge pond in service for 12 to 15 months prior to using bacteria...with bacteria and 19 months of service...no visible indication the pond needed to be taken out of service...after 12 to 15 months the west pond would have 3,800 to 4,200 yards of sludge removed...after 19 months the survey showed 2,900 yards of sludge...delaying the cleaning...for eight additional months... this indicates an increase of 1.25 years...we would be required to clean the ponds every 3.75 years rather than every 2.5 years...a 50 % increase in time between cleaning...or a 33% reduction in frequency of cleaning ponds...reduction of cleaning ponds...reduction of reclaiming oil shipments...reduction of flocculent...could more than justify the purchase of the PRISMSS Reactor..."

Darrin J. Costantini
P.E. Area Manager, Schaeffer Road WWTP, Severstal NA



Case History

Provided upon request.



Contact us

Ph: 703-344-3153

Email: info@prismss.com

Website: www.prismss.com

