BiOWiSH™ TECHNOLOGIES

User Guide

BiOWiSH™ Aqua

Bioaugmentation for Sequencing Batch Reactor Units

Biological treatment systems utilizing activated sludge have been used to remove carbonaceous (organic) waste for many decades. BiOWiSH™ bioaugmentation technology works within existing treatment systems, and requires no significant capital or equipment expense to address and solve real problems.

What is BiOWiSH™ Aqua?

BiOWiSH™ is a proprietary composite biocatalyst that enhances a broad range of hydrolytic, oxidative and reductive biochemical reactions. BiOWiSH™ contains a novel consortia of metabolically cooperative micro-organisms, with endogenous and exogenous enzymes and small-molecule metabolic co-factors. BiOWiSH™ products are composed of all natural materials and are non-genetically modified.

Benefits

- Improve treatment outcomes in overloaded plants
- Meet increased regulatory demands & stricter discharge limits
- Improve biological rates to allow for reduced reaction (aeration) cycles, lowering energy requirements per cycle
- Avoid capital expenditure

How safe is BiOWiSH™?

BiOWiSH™ products have no detrimental effects on the environment, humans, plants or animals. The core technology behind these products is also used in human ingestible supplements, animal feed additives and crop-enhancement products also produced by BiOWiSH Technologies. Environmental toxicology studies have shown no adverse effects from the use of BiOWiSH™ products. Aquatic toxicity testing has shown that BiOWiSH™ is non-toxic at recommended dosage levels.

Does BiOWiSH™ build up in the environment or discharge locations?

No. Unlike some other water quality conditioning agents BiOWiSH™ will not build up over time. BiOWiSH™ is 100% biodegradable which prevents any long-term build up.

Dosing Recommendations

Dose	BiOWiSH™	Target Concentration	Notes
Dose per batch	1 to 5 kg per 10,000 m^3/day of treated effluent	0.1 – 0.5 ppm	Solid product can be added directly into the reactor or up to 14 days of product can be prepared and the active solution added into each batch.

Dosing Point

Dose into the reactor filling cycle for each batch.

General Application Instructions

Add the required amount of solid product into the reactor during the filling cycle of each batch. An aqueous solution can be prepared using clean water (at a minimum rate of 10 L/kg) and the required volume dosed into each batch using a metering pump. Active solution will remain viable for up to 14 days.

Unit operation and trial monitoring:

Depending on the objective behind the bioaugmentation program, different monitoring strategies may be put in place. However it is suggested you monitor the following parameters for inflow and effluent:

Treated flow, COD, BOD, TSS, TKN, NH_3-N, Nitrites, Nitrates, TN, TP, FOG, pH, temperature

The following operational data will also be key:

Reactor MLSS, Reactor DO, SVI, RAS/WAS, Aerators consumption (energy), Total dry sludge per day, and Operational cycle times used

Focusing on effluent loading:

A material balance will allow monitoring of COD and BOD % degradation as well as equivalent mass of carbon degraded per day (kg of COD/day and kg of BOD/day). If operational cycle times are kept constant, the reactor should show increased degradation rates within 15 cycles.

Focusing on operational cost:

Unit operation should remain unaltered for the first two weeks of dosing. Commencing on week three, reaction/aeration cycle time should be reduced by 10% every two weeks while monitoring effluent quality.

Using a material balance, keep track of the following:

kW/h spent per kg of BOD/day degraded.

Dry tons of sludge per kg of BOD/day degraded.

Plot the above usage on a per-cycle basis.

For additional support and data analysis:

Contacts

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