BiOWiSH® TECHNOLOGIES

Case Study

BiOWiSH® Aqua

Industrial Wastewater Treatment at Avon Organics, Solapur District, India

Background

Avon Organics is one of the largest pharmaceutical ingredients manufacturers in India's Solapur district. Using molasses as one of its raw materials, the company produces a very concentrated form of wastewater with high levels of chemical oxygen demand (COD) and biological oxygen demand (BOD).

Objectives

Avon Organics approached BW-Indah to improve its wastewater discharge by reducing BOD, COD, and mixed liquor suspended solids (MLSS).

Solution

BiOWiSH® Aqua was chosen as the product best suited for the project. BiOWiSH® Aqua is a novel composite biocatalyst consisting of microorganisms, enzymes, and co-factors. This product has proven to reduce COD and BOD. Additionally, BiOWiSH® Aqua is safe for the environment.

Implementation Program

BiOWiSH® Aqua was mixed and allowed to activate for 24 hours. The activated solution was then applied directly into the inflow into the conventional aeration tank (CAT). The flow was monitored to be in the range of 1.5-2.0 m^3/hour. Two 200 L tanks were used for dosing. While one tank dosed the solution, the other activated the solution for dosing the next day. BiOWiSH® Aqua was dosed at a rate of 2 ppm (or 500 grams per day). Sampling was done at the outlet of the clarifier every 48 hours.

BiOWiSH® Aqua

- Rapid nitrification and denitrification in aerobic and anaerobic conditions
- Reduces sludge production
- Increases plant treatment capacity
- Reduces odors
- Reduces aeration requirements
- Reduces need for chemical additives
- Improves plant stability
- Pre-treats influent in collection systems
- Natural and non-toxic

Available Sizes

- 100g/3.5oz
- 1kg/2.2lbs
- 5kg/11lbs
- 10kg/22lbs

Results

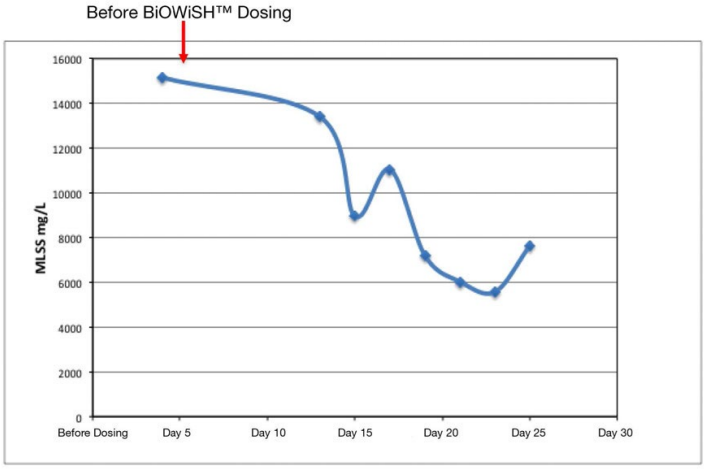
In just 12 days, BiOWiSH® Aqua reduced COD by 50% and BOD by 56%. MLSS was also reduced by 50% in the same time frame.

	Before	After	% Reduction
COD (mg/L)	17,124	8,630	50%
BOD (mg/L)	8,100	3,542	56%
MLSS (mg/L)	15,168	7,645	50%

MLSS is the concentration of suspended solids which occurs during the treatment of wastewater. Typically, if the MLSS is too low, it means that the treatment process is inefficient and wastes energy. However, as COD and BOD were effectively reduced during the same period, the decrease in MLSS can be attributed to the effective enzymatic action of the BiOWiSH® which converts complex organic material into simpler and inert end products.

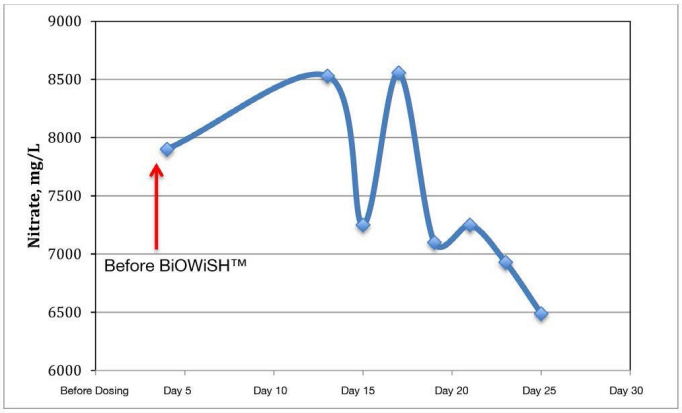
Treatment was continued for 18 more days. Further reductions in COD, BOD, and MLSS were recorded during this time.

Results: MLSS

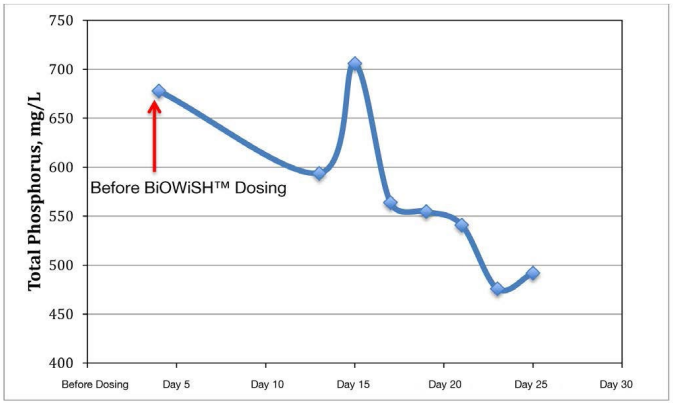


During the 30 day trial, significant reductions in Total Phosphorus and Nitrate were also noted.

Results: Nitrate



Results: Total Phosphorous



Conclusion

It can be concluded that BiOWiSH® microorganisms and enzymes have the ability to degrade complex organic material into simpler and inert substances, effectively reducing COD, BOD, and nutrients in wastewater in a short amount of time. In less than two weeks, COD was lowered by 50% and BOD was 56% lower than at the start of the trial. Both parameters continued decreasing for the rest of the trial, as well as TP and Nitrate. As a result, it can also be concluded that BiOWiSH® Aqua can help reduce the negative impact of wastewater discharge on the environment.

Executives at Avon Organics were pleased with the results and continue using BiOWiSH® Aqua to this day.

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