BiOWiSH™ TECHNOLOGIES

Case Study

Industrial Wastewater

Bhima SSK Ltd, India

Background

Bhima SSK Ltd is one of the biggest sugar mills in India's Solapur district. Using sugar cane as raw material, the mill produces large volumes of wastewater with high concentrations of chemical oxygen demand (COD) and biological oxygen demand (BOD). The high volume flow, COD, and BOD have been problematic for operators of its effluent treatment plant (ETP), which is equipped with a bar screen chamber, oil separator, equalization tank, aeration tank, clarifier, and sludge drier bed. Up to 0.3ML of wastewater flows into the aeration tank per day.

Objectives

In partnership BW-Indah, Bhima agreed to conduct a 12-day validation program to demonstrate the effectiveness of BiOWiSH™ Aqua FOG in reducing BOD and COD load, as well as improving ETP stability.

Solution

Due to high oil content in the wastewater, Bhima and BW-Indah selected BiOWiSH™ Aqua FOG as the product best suited for the program. Leading industrial wastewater treatment plants around the world have proven BiOWiSH™ Aqua FOG to reduce odor, BOD, and COD. BiOWiSH™ Aqua FOG is also environment-friendly, safe, and easy to use.

BiOWiSH™ Aqua FOG

- Rapid enzyme chemistry breaks down fats, oils, and grease
- Reduces sludge production and handling costs
- Increases plant capacity; capital avoidance
- Reduces odors
- Reduces aeration requirements; energy savings
- Reduces need for chemical additives
- Improves plant stability
- Reduces hydrogen sulfide, ammonia, and nitrates
- Natural and non-toxic

Available Sizes

- 3.5oz/100g
- 2.2lb/1kg
- 11lb/5kg

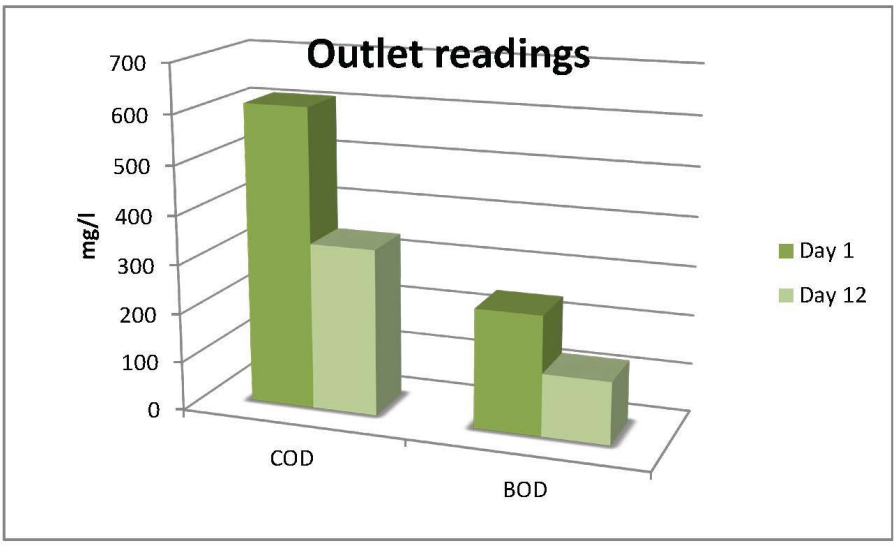
Implementation Program

The Unilever site generates generates 15,000 liters of wastewater per day from the kitchens and toilets. Please refer to Table 1 for wastewater characteristics prior to the validation Before dosing, test samples were taken from the ETP's inlet point, aeration tank, and outlet point. The implementation team mixed 300 g of BiOWiSH™ Aqua FOG in 50 liters of clean water, leaving the mixture to activate for 24 hours using an air bubbler. The activated solution was dosed into the aeration tank at 1ppm over a period of 24 hours.

After testing, the team discovered that nitrogen and phosphorous concentration in the effluent was low, so they decided to add NPK fertilizer into the aeration tank to achieve the optimal concentration. They also recycled activated sludge (cow manure) in the aeration tank for seven days to maintain mixed liquor suspended solids (MLSS). The team continued to dose BiOWiSH™ Aqua FOG into the aeration tank on a daily basis for the next 11 days. At the end of the validation, effluent test samples were taken and analyzed.

Results

After 12 days, the team observed a significant improvement in the quality of the effluent due to BiOWiSH™ Aqua FOG, with reductions of 44% for COD and 48% for BOD. Based on ETP inlet sampling on day 1, this improvement contributes to an overall system reduction of 85% and 88% for COD and BOD, respectively. In addition, the effluent's pH was maintained between 6 to 8. The team also noted better stability in the ETP after the validation.



Conclusion

The results of the validation demonstrate the effectiveness of BiOWiSH™ Aqua FOG in improving the quality of effluent with high concentrations of COD and BOD, adding to the growing body of evidence that supports the efficacy of BiOWiSH™ Aqua FOG in complex industrial wastewater treatment applications.

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