

BIO ENERGIZER® Reduces Sludge at Sugar Refinery Wastewater Treatment Lagoons

CASE STUDY

Location: Louisiana

Problem

A large sugar refinery struggled with elevated BOD and COD values in its wastewater treatment lagoons due to the sugar refinery process. The lagoon wastewater system capacity was 25 million gallons with an influent of 1.25 million gallons per day. The wastewater system also suffered from accumulating sludge as well as significant odor issues. The sugar refinery had a history of periodically being unable to meet its National Pollutant Discharge Elimination System (NPDES) permitting requirements.

Solution

A 9-month test was developed in which BIO ENERGIZER® was administered to make nutrients more available to wastewater microorganisms, thereby stimulating natural bio-oxidation processes and enhancing sludge reduction. The test initially involved treating the lagoon system at a dosage of 2 ppm for two weeks. After the initial treatment period, the system operator determined that the dosing could be reduced from 2 ppm to 1 ppm and still maintain treatment. Samples were frequently collected at the influent as well as the effluent to test for BOD, COD, and total suspended solids (TSS). Sludge judging occurred within a month of starting BIO ENERGIZER®, as well as at the end of the 9-month treatment period. Odor reduction was also measured on a predetermined subjective scale of Bad (0), Fair (3), and Good (5) before and after the 9 months of treatment.

Results

At the end of the 9-month period, the daily BOD and COD reduction improved (see Table 1). TSS remained higher than desired, although it also experienced reduction.

Table 1. Measure Results Before and After BIO ENERGIZER®

Measure	Before BIO ENERGIZER®	After BIO ENERGIZER®
BOD Reduction	-3%	25%
COD Reduction	-18%	55%
TSS Level	40 ppm	33 ppm
Lagoon 2 Sludge	4.28 ft	2.31 ft
Lagoon 3 Sludge	1.17 ft	0.61 ft
Odor Level	2.24 (<Fair)	3.11 (>Fair)

Upon further investigation, it was found that the source water from the local river contributed significantly to the TSS, but the ranges of the overall average were reduced. The average sludge depths of the ponds were found to have considerably reduced, with Lagoon 2 reduced by 47% and Lagoon 3 reduced by 48%. By reducing the accumulated solids in its lagoons, the sugar refinery regained lost capacity to better handle the incoming flow and meet its permit requirements without dredging. Odor issues were also mitigated, as shown by the subjective scale.

Conclusions

Probiotic Solutions® BIO ENERGIZER® applied to a sugar refinery wastewater lagoon system over 9 months resulted in reduced accumulated sludge, TSS, and odors, with improved BOD and COD reduction.

Product Information

Probiotic Solutions® BIO ENERGIZER® is a formulation of nutrients, organic acids, natural biological stimulants, and energy systems that balance the natural microbial ecosystem to increase bio-oxidation capacity in lagoon systems. BIO ENERGIZER® is a broad-spectrum bio-activator containing over 30 essential microbial growth-promoting ingredients.

By design, BIO ENERGIZER® is a balanced formulation of vitamins, trace nutrients, enzymes, organic acids, and biostimulants that stimulate the existing microbial community to greater metabolic capacity and efficiency. BIO ENERGIZER® is neither a bacterium nor an inoculum. Wastewater facility operators have been using BIO ENERGIZER® for many years to cut their sludge-hauling costs. For more information, go to www.probiotic.com.

Probiotic Solutions® Product Information

For many years, wastewater operators have continued to use BIO ENERGIZER® to cut sludge hauling costs. BIO ENERGIZER® is a broad-spectrum bio-activator containing over 30 essential microbial growth-promoting ingredients. By design, BIO ENERGIZER® is a balanced formulation of vitamins, trace nutrients, enzymes, organic acids, and biostimulants that stimulate the existing microbial community to greater metabolic capacity and efficiency. BIO ENERGIZER® is not a bacterium nor an inoculum.

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Operators Using BIO ENERGIZER® Report:

- 1) Increases in BOD removal efficiency.** BIO ENERGIZER® improves treatment plant BOD removal efficiency to increase plant treatment capacity and more easily meet effluent requirements.
- 2) The elimination of expensive dredging costs.** BIO ENERGIZER® converts sludge into gases and water, reducing sludge accumulations. No draining, drying, excavating, or inconvenient down time.
- 3) The reduction of odors and aeration costs.** BIO ENERGIZER® enhances aerobic and facultative biological ecosystems to reduce the production of objectionable and offensive odors and enhances dissolved oxygen levels, which decreases the need for aeration.

BIO ENERGIZER® enhances endogenous respiration for faster and more complete oxidation of sludge into carbon dioxide and water.



Our Probiotic Solutions® Products

Are Highly Efficient and Effective Due to Our Unique Delivery System

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