BIO-ORGANIC CATALYST
THE POWER IN NATURE®

WASTEWATER TREATMENT & COLLECTION SYSTEMS

Advanced Bio-Catalytic Solutions






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The bio-organic catalyst compositions (BOCs) of Bio-Organic Catalyst, Inc. provide numerous benefits to operational optimization throughout collection systems and the biological processes (aerobic and anaerobic) used to convert waste loadings into high quality discharges. BOCs require no CAPEX to install and finance, producing immediate operating benefits and cost savings.

Technology

BOCs are a patented composition of bio-catalysts and surface modifying agents that form, in water, extremely small micro-bubbles that facilitate extraordinary gas transfer characteristics and initiate rapid bio-kinetic reactions, thereby creating optimum conditions for accelerated metabolic and biological conversion rates.

The three aspects of the mechanisms of action in BOCs work synergistically together: Oxygenation, Solubilization, and Catalysis. Benefits include:

- Improved gas transfer rates and raising reservoirs of dissolved oxygen.
- Rapid solubilization of greases and slime layers within pipes and facilities.
- Increased biological processing rates through accelerating the microbiology of the treatment system, or the indigenous microbiology of ecosystems in nature.
- Eliminate H_2S gases and their formation through shifting underlying biological conditions.

Integrated & Total System Utility

BOCs will offer superior technical performance in all aspects of the operational requirements that impact a wastewater treatment facility and collection systems; organic loading, quality of discharges, bio-gas yields, odor and corrosion control.

Well Documented Performance & Safety

BOCs have been extensively and independently tested in studies for both safety and efficacy in nearly all types of wastewater systems and have shown consistent performance benefits over competing product offerings in every area of application.

Aeration Energy Reduction & Optimization

BOCs increase the bio-processing capacity of wastewater treatment facilities, including lagoon systems, where aeration devices are unable to achieve desired dissolved oxygen levels for optimum biological reduction and odor mitigation.

BOCs have documented aeration energy savings of 25 to 50% against baselines. At higher dosages, dissolved oxygen levels can be increased to desired saturation levels. In many systems, higher initial dosages may be used during a period of dissolved oxygen rejuvenation and then lowered once the system is brought into desired performance parameters.

BOCs offer the unique ability to increase dissolved oxygen levels, non-mechanically, on a dose response basis, in overly loaded aeration channels. This capability is particularly useful in aeration systems experiencing an inability to meet optimum dissolved oxygen levels for complete reduction of organic loading, including nitrification of ammonia and TKN discharge objectives.

Anaerobic Digestion Optimization

BOCs offer substantial improvements in anaerobic digestion systems; providing higher yields of biomethane, improved sludge quality, reduction of total solids, and significant reduction of noxious odors in biosolids.

BOCs have shown in municipal and industrial anaerobic digestion systems, that they improve solubility of TVS and TS components, providing higher biological reduction rates over baseline values.

BOCs can potentially double biomethane yields, reducing total solids by up to 30%. The quality of biosolids is enhanced due to more complete digestion, resulting in greatly reduced biosolids' odors, including dewatering operations.

Collection Systems - Odor & Corrosion Control

BOCs provide a rapid degrading of slime layers and grease build- up (FOGs) within pump stations and collection system pipelines. The cleaning of collection system pipe lines, as well as increasing the levels of dissolved oxygen in the sewage, will eliminate the formation of H_2S gases. Conversion of the sewers' biological conditions brings benefits throughout the sewer lines and can reduce ammonia nitrogen loadings. Massive new expenditures in new infrastructure can be avoided through this revolutionary approach to shifting biological conditions and eliminating the corrosive impact of destructive gases. Costs can be one-half of nitrate based, or oxidation, chemistries, with none of the negative features.

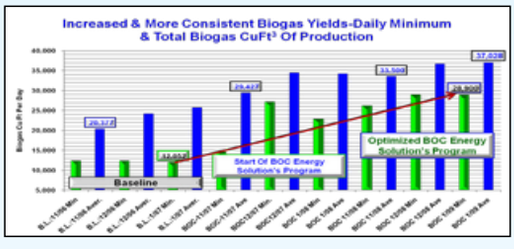
Economic Analysis

BOCs offer wastewater operators a viable and rapid solution that transforms the entire biological processing parameters of both the collection system and wastewater treatment facility, optimizing the entire system-wide operations. Eliminating odors, reducing energy consumption, and increasing renewable energy yields are all benefits that are brought to operators by the BOC advanced bio-catalytic products.

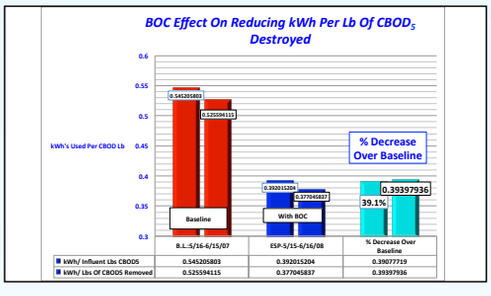
Every wastewater system's economic model will be based upon their specific costs of odor and corrosion prevention, energy usage and biosolids disposal. Off-setting capital improvements and plant expansions can save municipalities and companies substantial investment monies. Improving discharges benefits our environment and regulatory compliance. BOCs can be an integral part of facilities' upgrades and maintenance programs. Cooperative relationships with engineering design and build installations can provide improvements to the payback analysis.

BOC Methane Yield Improvements

Increased Minimum & Daily Average Biomethane Production (Cu Ft^3)

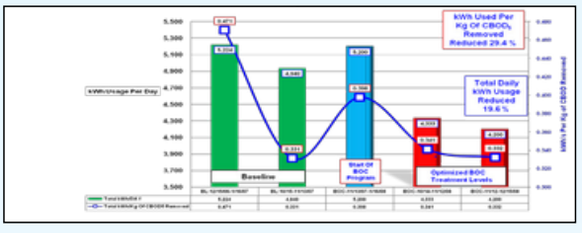


Increased Minimum & Daily Average BOC's Effect On Increasing Cu Ft Of Bio-gas Per Gallon Of Primary Feed Sludge

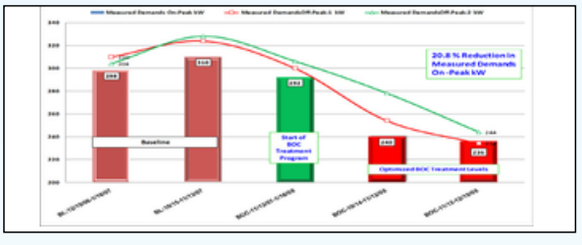


BOC Reduction of Electrical Costs

Reduced KWH's Usage Per Day, Per KG



Reducing Measured Peak & Off Peak KWH Usage



BOC bio-catalytic compositions provide numerous benefits to all of the biological processes (aerobic and anaerobic) used to convert waste loadings into high quality discharges. The array of benefits made possible with BOCs can be applied system-wide to bring critical solutions to the fundamental challenges of operators. Odors, improving dissolved oxygen levels, reduction of organic loadings and biosolids, and improvements in discharges, are all operating parameters that can be improved with use of BOC.

BOC has phenomenal H_2S gas (odor) reduction performance compared to other chemical or biological agent in the marketplace. Importantly, it also offers an ability to biologically reduce sewage upstream of wastewater treatment facilities. BOC is able to treat miles of sewer lines downstream of injection, cleaning the biological growth (slime layers) within the pipes which are the underlying biological sites for anaerobic conditions leading to Hydrogen Sulfide (H_2S) formation, and creating higher bulk sewage dissolved oxygen levels.

Benefits Include:



- Elimination of odors
- Increased dissolved oxygen (DO)
- Reduces sludge volumes
- Eliminates floating grease build-up
- Reduces energy usage
- Enhances biological processing (BNR)
- Cleans collection system (Odors, Slime & FOGs)
- Breaks down organic binders & mineralization (Struvite)
- Reduces oxidation chemicals
- Cleans concentrated animal feedlot operations (CAFO) lagoons
- Reduce chemical costs
- Much safer than harsh and toxic chemicals
- Reduces volatile organic compounds (Hydrogen Sulfide, Ammonia, Amines, Ketones and Mercaptans
- Reduces BOD (Biological Oxygen Demand), TDS (Total Dissolved Solids), COD (Chemical Oxygen Demand), and TSS(Total Suspended Solids)

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